

Biodiversity and LGT's Position Whitepaper

June 2022



Biodiversity

"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." - United Nations Convention on Biological Diversity (CBD)

Why should we care about biodiversity and ecosystem health?

In July 2021, a World Bank report estimated that the cost of biodiversity loss would equate to a loss of around CHF 2.5 trillion in GDP per year. The Economic Case for Nature, as the report is titled, highlights that the countries in Sub-Saharan Africa and South East Asia are at especially high risk. However, there is still reason for hope, as nature-smart policies and investments have the potential to reduce this risk and increase global GDP by around CHF 46-140 billion compared to a business-as-usual scenario.¹

On 27 February 2022, the Intergovernmental Panel on Climate Change (IPCC) released its sixth report focusing on the impacts, adaptation, and vulnerability of the planet to the effects of climate change. The report substantiates fears relating to the impacts of climate change and makes clear that this is not an impending threat but an existing one that is already impacting humans and the environment. Importantly, the report recognizes the interdependence of climate, ecosystems and biodiversity, and clearly acknowledges the negative effects climate change will have on biodiversity.²

Nature is at a tipping point, and many companies and investors have woken up to the fact that the loss of biodiversity poses systemic risks. As a result of this realization, stakeholders are demanding the large-scale creation and implementation of a nature-positive economy and a reset of traditional capitalism. To this end, investors and banks must start to reward long-term sustainable performance and look beyond short-term financial returns as they tackle climate and biodiversity challenges. By halting biodiversity loss and looking to regenerate and enhance the resilience of the natural world, everyone can help build a nature-positive economy³ In the coming years, companies will need to look beyond measuring and assessing impact and dependencies on nature and start working towards science-based targets for how much they will contribute to restoring forests, soils and freshwater systems. Moving towards circular business models and products will be key to shifting the economy – examples of this include buildings that absorb pollutants or investments in mangroves, which help to prevent floods. The United Nations has called for investments in nature-based solutions to triple by 2030 and increase to around CHF 500 billion by 2050 in order for the world to meet these climate and nature targets.⁴ This funding gap demonstrates the scale of the challenge, but also the tremendous opportunities that this creates.

As a sustainable organization and a long-term steward of our clients' wealth, LGT has acknowledged the necessity and urgency of mitigating and adapting to climate change. Furthermore, LGT recognizes the importance biodiversity plays in underpinning the vital ecosystem services that our economies are based on. Our commitment to net zero by 2030 in our operations and our investments is proof of our dedication to the articles of the Paris Agreement. As we uphold this responsibility to our clients and the world we live in, we will continue to focus on the risks that biodiversity loss poses.

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3 Holdorf, D. et al. (2021), What is "nature positive" and why is it the key to our future?, World Economic Forum, https://www.weforum.org/agenda/2021/06/what-is-nature-positive-and-why-is-it-

the-key-to-our-future/ (Retrieved on 03 May 2022)

4 UNEP, WEF, ELD, Vivid Economics (2021), State of Finance for Nature, UNEP - UN Environment Programme, <a href="https://www.unep.org/resources/state-finance-nature#:~:text=This%20year's%20re-nature#:~:text=This%20year's

Biodiversity and ecosystem services – an introduction

Biodiversity: Nature's treasure

Biodiversity encompasses the richness and variety of the natural world. At present, 1.7 million species of animals, plants and fungi have been recorded, but scientists believe there are likely to be 8 to 9 million or even up to 100 million species globally. However, biodiversity does not only relate to species. It encompasses the variety of all organisms across different ecosystems and habitats.

More formally, biodiversity consists of several levels:

- the diversity of genes within each single species, which includes intraspecies diversity, i.e. corn or butterfly varieties;
- the richness of types of species, i.e. the abundance of different animals, plants and fungi;
- the communities of creatures in their habitats; and
- entire ecosystems, such as wetlands or forests. These landscapes form a heterogeneous mosaic of different habitats with different forms or combinations of organisms living and interacting together.

This myriad of interactions is what has made the Earth habitable for billions of years.⁵

Biodiversity is our life support system

The natural world gives humans vital access to services ranging from the provision of materials and hard commodities used for shelter and building to the regulation of climates so they can grow food and crops. In fact, although the world is increasingly focusing on laboratories and technology, many new medicines continue to be harvested from nature today. Additionally, as the world looks to adapt to the effects of global warming, there is so much to be learned from the wild varieties of domesticated animals and crops, as some have already overcome the challenges of coping with drought or soil salinity.

According to the Convention of Biological Diversity (CBD), 6 at least 40% of the world's economy is based on and 80% of the needs of the Global South are met by biological resources. In addition, the richer the diversity of life, the greater the opportunity for medical discoveries, economic development and adaptive responses to global challenges such as climate change.^{7,8} The richest and most important ecosystems in the world are called biodiversity hotspots. They are home to many vulnerable populations who are directly dependent on nature to survive.9

Species are interconnected through complex networks providing valuable ecosystem services

Our livelihoods, well-being and key economic activities all depend on functioning ecosystem services. Ecosystem services¹⁰ are a concept put forward by the United Nations in 2005 and are a useful model for demonstrating how humankind benefits from ecosystems. There are four types of ecosystem services:

- Provisioning services, which include the availability of food and water that nature provides.
- Regulating services, which include climate regulation such as flood defenses and disease control through mechanisms such as temperature and precipitation, air quality and water filtration.
- Cultural services, which include recreational, educational and spiritual benefits humans derive from natural habitats.
- Supporting services, which include nutrient cycling or productivity such as soil formation and photosynthesis.

Today, ecosystem services is often replaced with the more holistic term "nature's contribution to people". 12

Example: Pollination as an undervalued ecosystem service

Pollination is an example of nature's contribution to people through provisioning services. It shows the complexity of the interaction needed between species to successfully deliver products we can consume. The majority of plants depend on pollination in order to reproduce. Pollination can occur by wind, self-pollination or animals. Insects are the most important pollinators, first and foremost bees, including the honeybee and hundreds of other bee species called wild bees. Wild bees often have highly specific interactions that are limited to selected plant species, and they pollinate more efficiently than honeybees. Pollination services therefore depend on species' richness and abundance, and to an even greater degree on close interactions between large numbers of bee species and other pollinating insects with plants and crops.

The production of 40% of leading global crops depends on pollination. If pollination were to fail, this production would be massively diminished according to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)¹³ and its 2016 pollination report. ¹⁴ However, disturbances in pollinator communities and declines in insect abundancies would not only reduce crop production, but also affect the quality of fruits and seeds (see chart).

¹³ IPBES secretariat (n.d.), https://ipbes.net/ (Retrieved on 03 May 2022) 2857#.YoYoox1By70 (Retrieved on 13 May 2022)

⁵ Carrington, D. (2021), What is biodiversity and why does it matter to us?, the Guardian, https://www.theguardian.com/news/2018/mar/12/what-is-biodiversity-and-why-does-it-matter-to-us (Retrieved on 03 May 2022)

⁶ Secretariat of the Convention on Biological Diversity (2022), Convention on Biological Diversity, https://www.cbd.int/ (Retrieved on 10 May 2022)

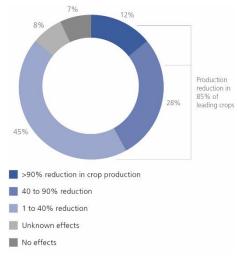
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8 Critical Ecosystem Partnership Fund (n.d.), What is the convention on biological diversity?, CEPF and the CBD, https://www.cepf.net/impact/global-goals/cepf-and-cbd (Retrieved on 13 May 2022)

Conservation International (2022), What Are Biodiversity Hotspots?, https://www.conservation.org/priorities/bio
 Millennium Ecosystem Assessment (n.d.), https://www.millenniumassessment.org (Retrieved on 03 May 2022)

¹¹ Duraiappah, A. K. et al. (2022), Ecosystems and human well-being, Biodiversity Synthesis, https://www.millenniumassessment.org/documents/document.354.aspx.pdf (Retrieved on 03 May 2022) 12 IPBES Secretariat. (2017), Nature's contributions to people, https://ipbes.net/glossary/natures-contributions-people (Retrieved on 13 May 2022)

¹⁴ Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, IPBES (2016), Assessment Report on Pollinators, Pollination and Food Production, Zenodo, https://zenodo.org/rec-



Percentage dependence on animal-mediated pollination of leading global crops that are directly consumed by humans and traded on the global market. Adapted from the source: IPBES (2016)¹⁵

Metric	Description
Living Planet Index ¹⁶	A measure of the state of global biological diversity based on population trends of vertebrate species
	from around the world.
Biodiversity Intactness ¹⁷	An indicator that shows the impact of forest change on biodiversity.
Multidimensional Biodi-	A policy-focused index for biodiversity health with a holistic approach. It serves as a tool for decision
versity Index ¹⁸	makers to monitor if we are living within the regenerative capacity of nature, or whether we are piling
	up ecological debt for future generations and are therefore eroding our own opportunities to achieve
	sustainable development.
Monetarization	According to the World Economic Forum, over half of the world's total GDP is moderately or highly
	dependent on nature and its benefits or services and, as a result, is exposed to risks from nature
	loss ¹⁹ . Biodiversity loss in Europe alone costs the continent around 3% of its GDP a year ²⁰ .

Measuring biodiversity

Unlike in the case of climate change, where emitted greenhouse gases can be measured in CO₂ equivalents, biodiversity loss does not have a uniform, internationally recognized unit of measurement. This lack of reference points makes it challenging to quantify the scope of the problem. However, there is growing consensus around a number of quantitative indicators (e.g. hectares of protected areas or number of species) and qualitative indicators (e.g. quality of protected areas or dissemination of species) that can help to assess the extent of biodiversity damage. In order to monitor long-term processes, different metrics have been developed. Some of the leading metrics that encompass a variety of measurements are shown in the following table.

State of biodiversity, threats and drivers of negative impacts

Biodiversity depends on a fragile balance

In 2009, the scientist Johan Rockström developed the notion of planetary boundaries.²¹ The nine planetary boundaries present a concept within which humanity can continue to develop sustainably for generations to come. It presents a holistic understanding wherein climate change is presented as just one issue, with biodiversity and strong ecosystems underpinning the Earth's resilience. The concept considers freshwater usage, land system change and ozone depletion, rather than exclusively focusing on global warming. Of the nine topics considered, the safe operating space for biodiversity loss and nitrogen pollution are estimated to have significantly been overstepped, while the planetary boundaries in relation to freshwater use and ozone losses for example remain intact.²²

Biodiversity is declining at an unprecedented, alarming rate and on a global scale

Human activities have been proven to affect ecosystems globally, with negative impacts occurring on ecosystem services like

¹⁵ IPBES (2016) The assessment report on pollinators, pollination and food production, https://ipbes.net/sites/default/files/spm_deliverable_3a_pollination_20170222.pdf (Retrieved on 13 May 2022)

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19 World Economic Forum: Nature Risk Rising (2020), Why the Crisis Engulfing Nature Matters for Business and the Economy, weforum, https://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf (Retrieved on 06 May 2022)

20 Carrington, D. (2020), What is biodiversity and why does it matter to us?, the Guardian, https://www.theguardian.com/news/2018/mar/12/what-is-biodiversity-and-why-does-it-matter-to-us (Re-

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Stockholm University (2015), Planterary boundaries, https://stockholmuniversity.app.box.com/s/avnyhh4xzshxb19j82hn5mf3hxyuvqj0 (Retrieved on 10 May 2022)

²² Rockström J. et al. (2009), A safe operating space for humanity, Nature, https://www.nature.com/articles/461472a (Retrieved on 03 May 2022)

pollination or food webs. According to various environmental organizations, 23 we are failing to sustainably manage our land, freshwaters and seas. The scale of global biodiversity losses now becoming apparent represents a crisis equaling – or quite possibly surpassing – climate change.²⁴

Over the past few centuries, the species extinction rate has increased at an alarming speed. With extinction rates between 100 and 1000 times higher than ever seen before, we are now facing the sixth mass extinction. Given the extinction of species occurs with a time lag and leads to the extinction of further species, we could witness up to 1 million species being wiped out by the end of the century. According to the International Union for Conservation of Nature's (IUCN) Red List, 25% of mammals, 41% of amphibians and 13% of birds are threatened. The European Red List of Birds²⁵ estimates one in five bird species in Europe is threatened with extinction. Scientists found a pervasive loss of acoustic variety and intensity of bird songs across Europe and Africa over the past of 25 years.

In addition to the threat and loss of species, habitats and valuable ecosystems are also deteriorating. Worldwide, 85% of wetland ecosystems have been lost. Approximately 50% of coral reefs have been destroyed and, in some places such as the Caribbean, this number is as high as 80%.²⁶ At the global level, IUCN will determine the conservation status of the world's terrestrial, freshwater, marine and subterranean ecosystems (IUCN Red List of Ecosystems),²⁷ aiming to achieve complete coverage by 2025. In Switzerland, for example, half of the ecosystem types are already threatened. Globally, the extent of the crisis becomes apparent when considering the loss of biomass (the total weight of living organisms) associated with the extinction of species: scientists measured the biomass of flying insects and calculated a decline of 75% over a period of 30 years.²⁸

Pressure is intensifying; main drivers are changes in land and sea use and overexploitation

The top five threats to biodiversity are:

- Changes in use of land and sea, e.g. deforestation of primary forests, which are among the most biodiverse ecosystems, to expand commercial agriculture. For example, more than 40% of the world's deforestation is driven by the expansion of pastures for beef production.²⁹
- Direct exploitation, including poaching and unsustainable hunting as well as overfishing.³⁰ For example, 60% of global fish stocks today are exploited at maximum sustainable levels, 30% are overfished.
- Climate change with direct and indirect impacts on species interactions leading to rapid changes in ecosystems. Even small increases in average temperatures or changes in hydrological conditions affect ecosystems: species must either adapt or migrate, or they will become extinct. Rising temperatures can also cause shifts in species occurrence throughout the year, leading to mismatches in species interactions. For example, bird species lose access to their major food source – aquatic and terrestrial insects – during nesting time, when they need them most, because the insects' emergence in spring is advancing more rapidly than the birds' breeding time.
- **Pollution** due to fertilizers and pesticides, microplastics³¹ and other industrial pollution such as PCBs, a group of man-made organic chemicals consisting of carbon, hydrogen and chlorine atoms used in electronic equipment³² until the 1980s, has a toxic effect on marine life. Even seemingly untouched and protected areas are affected: scientists recently found residues of 47 currently used pesticides and highly contaminated insect samples in nature conservation areas adjacent to agricultural land in Germany.33 And a global-scale study of active pharmaceutical ingredients' pollution in 258 of the world's rivers found that the presence of these contaminants poses a threat to environmental and/or human health in more than a quarter of the studied surface
- Invasive alien species spread by global trade and often benefit from ecosystem changes.

Climate protection is biodiversity protection

Changes in land use and the direct exploitation of natural capital account for more than 50% of the global biodiversity impact on land, on freshwater and on the sea. Climate change adds a multiplying factor to these threats: it results in more land degradation, reduced agricultural productivity and decreased water quality.³⁵ As extreme weather events become more intense, more frequent

²³ IPES (n.d.), https://ipbes.net/news/Media-Release-Global-Assessment (Retrieved on 03 May 2022)

WWF (2021), A warning sign: where biodiversity loss is happening around the world, https://www.worldwildlife.org/magazine/issues/summer-2021/articles/a-warning-sign-where-biodiversity-loss-ishappening-around-the-world (Retrieved on 03 May 2022)

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²⁴ Carrington, D. (2020), What is biodiversity and why does it matter to us?, the Guardian, https://www.theguardian.com/news/2018/mar/12/what-is-biodiversity-and-why-does-it-matter-to-us (Retrieved on 04 May 2022)

²⁵ BirdLife International (2021), European Red List of Birds, European Commission, https://www.birdlife.org/wp-content/uploads/2021/10/BirdLife-European-Red-List-of-Birds-2021.pdf (Retrieved on 03

²⁶ WWF (n.d.), Korallen Was unter der Meeresoberfläche passiert, https://www.wwf.ch/sites/default/files/doc-2018-09/2018_Faktenblatt%20Korallen_d.pdf (Retrieved on 04 May 2022)

²⁸ WWW (I.U.), Notinien Was affected with the Construction of th

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²⁹ Ritchie H. (2021), Cutting down forests: what are the drivers of deforestation?, Our World in Data, https://ourworldindata.org/what-are-drivers-deforestation (Retrieved on 03 May 2022) ³⁰ Carrington, D. (2021), Overfishing causing global catches to fall three times faster than estimated, the Guardian, https://www.theguardian.com/environment/2016/jar/19/overfishing-causing-global-catches-to-fall-three-times-faster-than-estimated (Retrieved on 06 May 2022)

³¹ Lim X. (2021), Microplastics are everywhere — but are they harmful?, Nature, https://www.nature.com/articles/d41586-021-01143-3 (Retrieved on 03 May 2022)

32 Carrington, D. (2021), UK's last resident killer whales "doomed to extinction", the Guardian, https://www.theguardian.com/environment/2016/jan/14/uks-last-resident-killer-whales-doomed-to-extinction (Retrieved on 02 May 2022)

33 Master-ecotoxicology (n.d.), Insects in nature reserves are contaminated with a cocktail of pesticides, EcotoxBlog, https://www.master-ecotoxicology.de/ecotox-blog/pesticides-in-nature-conservation-areas/ (Retrieved on 03 May 2022)

34 Mulliving Let al (2021)

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34 Wilkinson, J. et al. (2021), Pharmaceutical pollution of the world's rivers, Pnas, https://www.pnas.org/content/pnas/119/8/e2113947119.full.pdf (Retrieved on 13 May 2022) 35 Hoffman, A. (n.d.), Climate change and biodiversity, Australian Academy of Science, https://www.science.org.au/curious/earth-environment/climate-change-and-biodiversity (Retrieved on 03 May

and more disruptive wildfires, cyclones, drought and flooding will take a heavy toll on ecosystems that are already under stress. Climate change thus further decreases the resilience of ecosystems.³⁶

In order to counteract these changes, strong policy measures are required. Some overarching measures are beneficial in two areas: they help to mitigate and adapt to climate change as well as to conserve and restore biodiversity. This kind of transformative change is outlined in the Dasgupta Review.³⁷ The independent review on the economics of biodiversity, conducted by Professor Sir Partha Dasgupta from the University of Cambridge, was commissioned by the UK Treasury in 2019. The report sets out the ways in which the UK government will go further in response to many of the conclusions drawn in the review. However, there are certain conflicting interests, because some climate actions can undermine biodiversity goals such as sustainable food systems and the expansion of renewable energy systems. But as the crisis of climate change and biodiversity loss are interlinked and mutually reinforcing, they need to be tackled as one.

Scope of action for biodiversity conservation

Action at all levels of biodiversity (genes, species and ecosystems) is imperative from the local to the global level International commitments and initiatives that acknowledge the need for a transformation are crucial. From 1970 to 2000, more than a dozen multilateral agreements were designed to address transboundary environmental issues. Many improvements in biodiversity are due to international agreements that prohibit the hunting and poaching of certain species or protect valuable ecosystems.

In 2019, the United Nations General Assembly proclaimed the UN Decade on Ecosystem Restoration³⁸, which aims to prevent, halt and reverse the degradation of ecosystems on every continent and in every ocean. The UN Decade runs from 2021 through 2030, which is also the deadline for the Sustainable Development Goals³⁹ and the timeline scientists have identified as the last chance to prevent catastrophic climate change.

In 2020, the UN Convention on Biological Diversity (CBD) published the fifth Global Biodiversity Outlook.⁴⁰ The key findings are devastating. The CBD's first global biodiversity target for 2010, which was to achieve a significant reduction of the current rate of biodiversity loss at the global, regional and national level by 2010, was not achieved. Also, none of the 20 "Aichi Targets" agreed in Japan in 2010 and representing a strategic plan for the conservation of biological diversity on Earth, have been fully achieved. This failure comes despite the CBD stating that more than ever before in human history, species are in danger of extinction.

However, there is some positive news – some of the "Aichi Targets" have been partly achieved: almost 100 countries have incorporated biodiversity values into national accounting systems and the rate of deforestation has fallen globally. In addition, the financial resources available to improve biodiversity have doubled. And recent conservation actions have reduced the number of extinctions through a range of measures, including protected areas, hunting restrictions, the control of invasive alien species, ex situ conservation and the re-introduction of species. From 2000 to 2020, protected areas have expanded from 10-15% on land, and from 3-7% in total marine areas.⁴¹ Without such actions, the extinction of birds and mammals in the past decade would likely have been two to four times higher.⁴²

At the UN Summit on Biodiversity in 2020, the heads of over 80 countries signed a Leaders Pledge for Nature, 43 committing to reverse biodiversity loss by 2030 with three temporary objectives: Zero Net Loss of Nature from 2020, Net Positive biodiversification by 2030 and a Full Recovery by 2050.

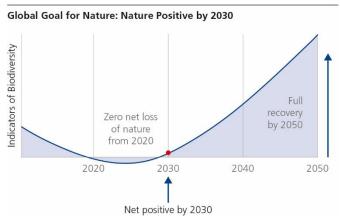
brary wiley, com/doi/10.1111/conl.12762 (Retrieved on 03 May 2022)

43 Leaders Pledge 4 nature (n.d.), United to Reverse Biodiversity Loss by 2030 for Sustainable Development, https://www.leaderspledgefornature.org/ (Retrieved on 10 May 2022)

 ³⁶ Koumbarakis, A. & Hirschi, S. (n.d.), Nature is too big to fail, Pwc, https://www.pwc.ch/en/insights/regulation/nature-is-too-big-to-fail.html (Retrieved on 05 May 2022)
 ³⁷ Treasury, H.M. (2021), Final Report – The Economics of Biodiversity: The Dasgupta Review, Gov.uk, https://www.gov.uk/government/publications/final-report-the-economics-dasgupta-review (Retrieved on 03 May 2022)
 ³⁸ UN Decade on Ecosystem Restoration (n.d.), https://www.decadeonrestoration.org/ (Retrieved on 03 May 2022)
 ³⁹ The United Nations (n.d.), The 17 Goals, https://sdgs.un.org/goals (Retrieved on 03 May 2022)

⁴⁰ UN environment programme (2020), The global Biodiversity Outlook 5, https://www.unep.org/resources/report/global-biodiversity-outlook-5-gbo-5 (Retrieved on 10 May 2022)
41 OECD (2022), Protected areas (indicator), https://data.oecd.org/biodiver/protected-areas.htm (Retrieved on 12 May 2022)

⁴² Bolam, F.C. et al. (2020), How many bird and mammal extinctions has recent conservation action prevented?, Conservation Letter, Society for Conservation Biology, https://conbio.onlineli-



With a Global Goal for Nature – in parallel to the UN Climate Convention's "net zero" emissions goal – governments are asked to commit to being nature-positive by 2030 by taking urgent action to halt nature loss now. Adapted from the source: Secretariat of the Convention on Biological Diversity (n.d.)44

In October 2021, COP15, the 15th meeting of the Convention on Biological Diversity met online for the first part of its periodization and discussions around biodiversity, focusing on the development of the post-2020 global biodiversity framework. A second meeting planned in Kunming, China, in April/May 2022 has been postponed until at least August 2022.

Multinational conventions and initiatives that are crucial for biodiversity:

- The UN Convention on Biological Diversity (CBD, 1992):⁴⁵ The CBD is an international, legally binding treaty to provide a global framework for action on biodiversity. It is one of the three Rio Conventions, alongside the UN Framework Convention on Climate Change (UNFCCC) and the UN Convention to Combat Desertification (UNCCD). It currently has 196 contracting parties.
- The United Nations Convention to Combat Desertification (UNCCD, 1994):⁴⁶ The UNCCD is a convention to combat desertification and mitigate the effects of drought through national action programs that incorporate long-term strategies supported by international cooperation and partnership arrangements.
- The 2030 Agenda for Sustainable Development (2015):⁴⁷ The achievement of the 17 Sustainable Development Goals (SDGs) contributes to the conservation and sustainable use of biodiversity. For example, some Goals address the drivers of biodiversity loss, such as climate change (SDG 13), pollution (SDGs 6, 12 and 14) and overexploitation (SDGs 6, 12, 14 and 15). Others address unsustainable production and consumption, the efficient use of natural resources and reducing food waste (SDG 12).
- The Ramsar Convention on Wetlands (1971):⁴⁸ This is an international treaty for the conservation and sustainable use of wet-
- The Global Wetland Outlook Special Edition 2021:⁴⁹ This outlook identifies trends and actions for wetlands.
- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, 1979):50 The Bern Convention is an international agreement of the Council of Europe designed to protect European wild fauna and flora.

Biodiversity strategies and action plans in selected countries:

- EU: The European Green Deal (2019)⁵¹ is a set of policy initiatives by the European Commission with the overarching aim of making Europe climate-neutral by 2050. The objectives of the Green Deal are to improve the well-being and health of citizens and future generations in eight areas. Two of these directly address biodiversity: "environment and oceans", with the goal to protect biodiversity and ecosystems and reduce water and soil pollution, as well as "agriculture", with the goal to ensure food security in the face of climate change and fight biodiversity loss.
- **UK:** Today, the UK has one of the worst biodiversity profiles in Europe, and environmentalists claim this is worsening with the planned large-scale industrialization and railway projects (such as HS2). However, it was the first country to produce a national Biodiversity Action Plan in 1994. In 2020, the UK Government published another updated biodiversity action plan, that included GBP 7.5 million in spending for the creation of nature improvement areas, as well as a focus on putting people at the heart of environmental improvement policies. In March 2022, the UK announced a new plastics law, according to which over 30% of plastic materials will need to be recyclable for products sold and imported to the UK as a measure to tackle plastic waste that
- Switzerland: The creation, development and maintenance of a country-wide ecological infrastructure is one of the core concerns of the Swiss Biodiversity Strategy.⁵² Measures of the corresponding Action Plan include the maintenance and remediation of existing protected areas, the design of a country-wide ecological infrastructure, the creation and maintenance of forest reserves, ensuring the availability of old growth and deadwood in sufficient quantities and quality, and the specific promotion of national priority species.

⁴⁴ Secretariat of the Convention on Biological Diversity (n.d.), Convention on Biological Diversity, https://www.cbd.int/ (Retrieved on 06 May 2022)

⁴⁵ Secretariat of the Convention on Biological Diversity (n.d.), Convention on Biological Diversity, https://www.cod.in/v (Retrieved on 06 May 2022)
46 United Nations (n.d.), United Nations Convention to Combat Desertification, https://www.unccd.int/conventionverview (Retrieved on 06 May 2022)

⁴⁸ The Ramsar Convention Secretariat (n.d.), https://www.ramsar.org/ (Retrieved on 03 May 2022)

The Ramsar Convention Secretariat (2021), Global Wetland Outlook, https://www.global-wetland-outlook.ramsar.org/report-1 (Retrieved on 10 May 2022)

50 Council of Europe (n.d.), Bern Convention, https://www.coe.int/en/web/bern-convention (Retrieved on 03 May 2022)

⁵¹ European Commission (n.d.), European Green Deal, Climat Action, https://ec.europa.eu/clima/eu-action/european-green-deal_en (Retrieved on 03 May 2022)

⁵² Schwarz, F. (2017), Federal Office for the Environment FOEN, https://www.bafu.admin.ch/dam/bafu/en/dokumente/biodiversitaet/fachinfo-daten/aktionsplan-strategie-biodiversitaetd.pdf/Aktionsplan_SBS_final_Englisch.pdf (Retrieved on 03 May 2022)

- China: China is home to two of the IUCN's biodiversity hotspots and has exceptional reserves of biodiversity, with roughly 10% of the world's plant species and 14% of animal species.⁵³ The Chinese government's investment in biodiversity has reached over 1% of GDP.54 At COP15 in Kunming, the government also announced the creation of a fund for biological diversity investments.
- Singapore: Singapore's National Biodiversity Strategy and Action Plan⁵⁵ aims to create an urban biodiversity conservation model that champions environmental sustainability in an urban setting with a well-endowed natural heritage. The following principles quide its implementation: the biodiversity resources of Singapore are a natural heritage and should be conserved for future generations, the considerations on biodiversity and ecosystems are factored into the national planning process, and a balanced view is adopted of national priorities and international and regional obligations.

Action from all sectors needed as "clean environment" becomes a human right

On 8 October 2021, the UN Human Rights Council recognized access "to a safe, clean, healthy and sustainable environment" as a fundamental right. The proposal put forward by Switzerland, Costa Rica, The Maldives, Morocco and Slovenia created a new precedent for safeguarding the environment.

"Degradation of nature is not purely an environmental issue. It spans economics, health, social justice and human rights. Neglecting our precious resources can exacerbate geopolitical tensions and conflicts," said António Guterres, Secretary-General of the United Nations, at the United Nations Biodiversity Summit in September 2020. 56 However, pressure on public and private sectors to actively protect biodiversity is not yet high. As awareness of the value of biodiversity and ecosystem services grows, it becomes increasingly apparent that the objectives of the public sector and companies should address the protection of biodiversity. In addition to direct threats of losing precious ecosystem services, companies may face regulatory risks in the future. The financial community has a critical role to play in supporting companies in having a more positive impact on nature.

LGT Private Banking's actions for biodiversity

Our commitment to biodiversity

LGT considers the loss of biodiversity to be among the most pressing challenges of our time. Our vision is therefore to establish a solid base of thought leadership on biodiversity and to act as a role model in the banking sector. With this White Paper, LGT hopes to establish a common understanding of biodiversity within the company, and with our clients and stakeholders. Biodiversity will play a key role in the Sustainability Strategy 2030.

Operations

While biodiversity is actively taken into account at all LGT locations, a flagship project for promoting biodiversity has been launched for the LGT building in Bendern. When the grounds of this LGT Service Center were being designed, particular attention was paid to ensuring a high level of biodiversity. As a result, grassy areas, indigenous wild hedges, wetland and trees now provide valuable habitats for a variety of animal and plant species. In 2019, LGT received an award for its integration of nature into the grounds. LGT plans to enhance biodiversity in the area around its buildings with initiatives such as native planting, insect-friendly lighting and birdfriendly glazing.

Sustainable procurement

With LGT's Sustainable Procurement Framework, LGT integrates environmental aspects into its supply chain considerations. LGT requires its suppliers and sub-contractors to comply with the principles of the LGT Supplier Code of Conduct, which cover areas such as the responsible and efficient use of raw materials and natural resources, and the cautious treatment of potentially damaging waste or wastewater.

Active involvement and raising awareness

LGT is involved in numerous international associations, organizations and networks that promote biodiversity, among other sustainability aspects, such as the UN Global Compact and the UN Principles for Responsible Investment (UN PRI). Moreover, LGT is a signatory to the UNEP FI Principles for Responsible Banking and is joining the PRB Biodiversity Community. LGT anticipates upcoming regulation on biodiversity and takes the recommendations of the Taskforce on Nature-related Financial Disclosures (TCFD)⁵⁷ into account. 58 LGT also plans to further raise awareness of biodiversity among employees by publishing articles on its intranet and in the employee magazine and at so-called Learning Lunches. Furthermore, LGT organizes community days and employee volunteering activities focusing on biodiversity.

⁵³ Lu, J. & Harlan, T. (2021), COP15 in Kunming: A New Role for China in Global Conservation?, https://www.wilsoncenter.org/blog-post/cop15-kunming-new-role-china-global-conservation (Retrieved on 03 May 2022)

Secretariat of the Convention on Biological Diversity (n.d.), China – Main Details Biodiversity Facts, https://www.cbd.int/countries/profile/?country=cn

²⁴ Secretariat of the Convention on biological Diversity (1.0.1), Clinia – Iviani Details biolaries by Faces, Int. B. (1.0.1), Int. a – Iviani Details biolaries by Faces, Int. B. (1.0.1), Int. a – Iviani Details biolaries by Faces, Int. B. (1.0.1), Int. a – Iviani Details biolaries by Faces, Int. B. (1.0.1), Int. a – Iviani Details biolaries by Faces, Int. B. (1.0.1), Int. B.

⁵⁷ TNFD (2022), Taskforce on Nature-related Financial Disclosures, https://tnfd.global/

LGT's investments

Sustainable financial products and services

LGT consistently integrates environmental, social and governance (ESG) criteria into the selection and management of investments, which forms an important pillar of LGT's investment approach. In addition to the traditional financial analysis, every investment vehicle is subject to a thorough sustainability assessment before being included in a portfolio.

• Investment analysis and research: LGT Research analysts have developed a framework to qualitatively assess considerable ESG issues for sectors and industries. For companies with a direct or indirect impact on biodiversity, LGT analyzes whether the company contributes to biodiversity loss and what measures it has implemented to limit its negative impact. Examples of sectors with high relevance are the oil and gas industry, mining, and the packaging or food industry. In addition, we regularly publish investment opportunities for our clients on sustainability topics with a direct and indirect reference to biodiversity. Our investment proposal on the topic of the circular economy focuses on responsible consumption and resource-friendly production. We analyze how circular business models can contribute to addressing global sustainability challenges such as resource scarcity, waste generation and climate change. We examine the specific challenges, and identify and recommend investing in companies that provide effective solutions.

Our tools to measure biodiversity impacts and dependencies

- LGT's sustainability rating
 - **for listed and public markets:** Our ESG Cockpit, which we have used successfully for more than 12 years, analyzes equities and corporate bonds according to sustainability metrics. The tool considers biodiversity-relevant criteria, for example, if a company reports transparently on their impact on biodiversity and if they have measures in place to reduce any negative impacts. Such criteria are particularly relevant for high-impact sectors like the energy, raw materials and food sectors. In addition, the sustainability impact of products and services is assessed by examining the contribution of a company's products and services to the achievement of the 17 United Nations Sustainable Development Goals (UN SDGs).
 - ratings of states (sovereign ratings): This rating assesses a country's social and environmental dimension as well as its institutional framework. It takes into account changes in protected areas such as forest areas per country, as well as the Red List index of endangered species. Other criteria which have an indirect effect on biodiversity are also analyzed, e.g. levels of air pollution, CO2 emissions per capita and the disposal or reuse of waste. Whether or not the country is a signatory to important multilateral environmental agreements such as the Convention to Combat Desertification or the UN Convention on Biological Diversity is also considered.
- **LGT Wealth Management UK's Sustainability Rating:** LGT Wealth Management's in-house sustainability analysis tool "S-Max" considers biodiversity through a company's exposure to risks related to biodiversity and land use. The tool also shows a company's negative impact on biodiversity by measuring the number of species which its operations diminish or destroy. In addition, the tool measures the resulting degradation and pollution of land as well as the extent to which a company's operations are located in regions with sensitive ecosystems and how likely they are to be further affected by the company's operations. A mix of provider data and public sources such as CDP, a non-profit charity that runs global disclosure systems for investors, companies and states, ENCORE, a tool to help better understand the impact of environmental change on the economy, and national statistics on biodiversity are incorporated to allow for a robust assessment.
- Consideration of principal adverse impact in instrument selection and investment management: In its Action Plan for Sustainable Finance, the EU introduced the "principal adverse Impact" (PAI) as a key term. This represents the "material adverse impact" of investment decisions or investment advice that may have a negative effect on sustainability factors. ⁵⁹ LGT Private Banking considers and manages this material adverse impact in its investment decisions by taking into account the comprehensive PAI indicators defined by the EU on greenhouse gas emissions, biodiversity, water, waste and social indicators. To this end, LGT has introduced various methods in its investment approach, e.g. exclusion guidelines that apply to all of LGT Private Banking, such as the exclusion of companies in the coal industry. Furthermore, ESG minimum standards apply, which are based on the LGT Sustainability Rating. The LGT Sustainability Rating ranges from one to five stars, with one star representing the lowest and five stars the highest sustainability quality. LGT consistently excludes investments that achieve only one star in the Sustainability Rating and thus have very poor sustainability quality.

Capital allocation supporting positive biodiversity trends

• Investments with a positive impact (impact investments): Through selected private equity funds (so-called co-investments), LGT offers its private clients various impact investment opportunities with a direct and measurable impact. The partner companies Lightrock and LGT Capital Partners collaborate with each other and are important partners in this area. Lightrock invests globally in companies pursuing scalable and technology-driven business models that are aligned with three key themes essential to shaping a more sustainable future: people – focusing on unlocking human potential; planet – focusing on sustainably improving resource efficiency; and productivity – focusing on responsibly accelerating business innovation. Within these topics, portfolio managers focus on key sectors that offer added value and contribute to solving pressing social and environmental problems. Within the "planet" theme, investments are made in the sectors of renewable energy and the circular economy, sustainable food and agriculture, as well as smart mobility and transport, which can directly and indirectly promote biodiversity.

⁵⁹ Principal adverse impact (PAI) is an important term in the EU Sustainable Finance Disclosure Regulation (SFDR), one of the key regulations of the EU Sustainable Finance Action Plan. "Material adverse impact" on sustainability means that the impact of investment decisions leads to negative effects on sustainability. Investment decisions and advice can cause, contribute to, or be directly related to impacts on sustainability that are negative, material or likely to be material. See also LGT website: https://www.lgt.com/de/nachhaltigkeitsrahmen/#responsiveTab_24.

Planned initiatives

• Stewardship for biodiversity: LGT has always placed value on long-term thinking and actions, be it in relation to its clients' assets or the companies it invests in. LGT firmly believes that it is not enough to just assess risk. Strong stewardship through active ownership, voting and engagement is key to helping our companies become aware of these risks and mitigating their impact.

In 2022, we have decided to launch a comprehensive stewardship program, with biodiversity as one of our action pillars. Actions will include the following:

- Signing the Finance for Biodiversity Pledge: The pledge was launched in September 2020 by 26 financial institutions with the aim to support action and collaboration among financial institutions to reverse nature loss. Since then, the pledge has grown to 84 signatories, yet very few wealth managers or private banks have committed to the actions, and LGT will be one of the first to show such a strong commitment.
- Joining Nature Action 100: Nature Action 100 is a collaborative initiative. Members engage with companies that do not yet take biodiversity into consideration and help them improve their practices. The initiative aims to replicate the success of Climate Action 100+ (another initiative that LGT will join in 2022) and set targets for businesses that currently do not measure and mitigate their impact on the environment.

Philanthropic activities

LGT Venture Philanthropy (LGT VP) is committed to charitable work through numerous philanthropic projects supporting organizations and companies that implement solutions that contribute directly to the achievement of the Sustainable Development Goals (SDGs). LGT VP's Environment Strategy focuses on protecting and regenerating ecosystems by concentrating on scalable terrestrial and marine conservation models with a strong component of nature-based solutions (NbS), i.e. the sustainable management and use of nature to simultaneously achieve environmental, social and economic benefits.

LGT VP's environmental strategy focuses on regenerating ecosystems, climate change and livelihoods and addresses three key areas:

- 1. Marine protection and freshwater security
- 2. Carbon credits with biodiversity and community benefits
- 3. Community conservation

LGT VP aligns with SDGs 13, 14 and 15 – on climate action, life below water and life on land – and engages with organizations that have developed scalable, synergistic solutions that are embedded in their local communities. The foundation's environment portfolio currently consists of seven organizations and works towards the goal of protecting 30% of the planet's land and water by 2030. By the end of 2020, it had reached 800 000 people. Going forward, LGT VP will continue to work towards the global "30x30" goal of protecting 30% of land and oceans by 2030. To make a significant contribution to this goal, LGT VP will:

- 1. Increasingly emphasize solutions that link biodiversity, indigenous people and local communities;
- 2. Expand its biodiversity approach to focus on ecosystems;
- 3. Develop approaches to measure the value of biodiversity and ecosystems; and
- 4. Evaluate the resilience of land and marine biodiversity under a 1.5-degree increase.

The future of biodiversity and the financial sector

Investment portfolio

In addition to the activities that LGT is currently engaging in, there is a range of new approaches for tackling biodiversity loss via an investment portfolio that financial organizations could consider implementing in the future. These include:

- Avoiding negative outcomes: Investors can avoid negative impacts on biodiversity within a portfolio mandate. For example, a revenues-based exclusionary approach can exclude from a portfolio companies that are involved in certain damaging industries, such as Arctic drilling and palm oil production. This approach helps to minimize exposure to threats to biodiversity. However, investors should keep in mind that there are businesses operating in these high-impact sectors that actively manage biodiversity risks. Examples include sustainable palm oil production and pesticides designed to minimize biodiversity loss. Simply excluding entire sectors on a binary basis can have far-reaching and economically damaging impacts. A more sensitive approach to this issue is to invest in businesses that are adopting more sustainable business models. It is also possible to invest in businesses that are, for example, looking to tackle biodiversity loss through fauna and flora restoration and conservation or by adopting circular economy principles within production lines.
- **Minimizing and restoring:** A number of businesses look to tackle biodiversity loss in supply chains. Some companies use reforestation programs and plant trees throughout supply chains, using an agroforestry approach, which contributes to biodiversity, stores carbon and provides water and nutrients to the crops around them. Restoration can also be achieved by taking measures to improve or re-establish degraded or removed ecosystems in cases where impacts could not be avoided or minimized.
- **Eco-restoration and wealth creation:** This approach looks to ensure that land that is used is restored and biodiverse, while the company continues to generate revenues. Examples of such businesses include biorefineries that process organic raw materials

such as cellulose to produce bioplastics, biomedicals and other bio-based materials such as textiles. Other businesses promote more energy-efficient working practices (such as cloud computing) that reduce levels of negative environmental impact. Companies operating within the food economy reduce agrochemical pollution, waste and product spoilage. Finally, companies operating within or promoting circular business models offer a new operating model of economic growth. By re-using, repairing and recycling, resources are utilized more efficiently and effectively. Entire industries will need to be designed and restructured. We are already seeing investments in infrastructure that are kick-starting the transformation to a more circular approach.

Biodiversity loss is a major threat to our planet. All stakeholders must therefore take the necessary measures to protect biodiversity, and the financial industry must support this transformation. LGT is ready to assume the responsibility required to this end and will continuously improve its contribution to protecting nature and evolve its approach to biodiversity.

Authors

Faunatur, Infras, LGT Privat Banking

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