



Biodiversity: Time to Act

Opportunities and Risks for Swiss
Businesses





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Preface

Biodiversity loss endangers the very foundations of our economies

The biodiversity crisis is a complex ecological challenge that demands our attention: we need to fight it with the same vigor and determination as we do the climate crisis. The loss of functioning ecosystems poses a significant and immediate risk to more than half of the global GDP. Yet while decarbonization has rightfully gained widespread attention, biodiversity has not – although both the climate and the biodiversity crisis can only be resolved by addressing them together.

Although Switzerland is a small country, Swiss companies have a huge impact on biodiversity through both their in-house operations and their global value chains. More and more of these companies are becoming aware of their impact and starting to take action – which is one insight from a series of interviews that Bain & Company and WWF conducted with senior and C-level executives at leading Swiss companies (combined revenue: CHF ~350 billion; ~700k employees in total). We want to take this opportunity to thank all interviewees for their time and valuable input. Together with our primary and secondary research, it has enabled Bain and WWF to gain unique insights into the state of the biodiversity crisis, Swiss companies' awareness of it, and potential solutions.

One point these conversations have made very clear is that we are only at the beginning of a major journey. To solve the biodiversity crisis, incremental changes will not suffice – we will need a transformation. It will require farsighted strategies and relentless implementation; existing business models will have to be reassessed and realigned. There is no doubt today that at some point, all businesses will have to respond to the biodiversity crisis. Either they will do so proactively, or governments, consumers and investors will force them to act, as is currently happening in response to the climate crisis.

This report sheds some light on the matter: it outlines necessary actions, describes the roadblocks on the way, and presents a five-step approach to help companies tackle the challenge. To embark on this journey, companies can get valuable assistance: The WWF Biodiversity Stewardship Framework helps businesses, regardless of the industry, to assess their value chain, embed leading-edge

sustainability practices in their strategies, and implement solutions across and beyond their value chain. It also helps them become advocates for systemic transformational change and economy-wide impact. For companies, an initial step is always to understand impacts and dependencies, as well as risks and opportunities related to biodiversity which can be done using the WWF Biodiversity Risk Filter.

Purpose of this report:

- 1.** Provide an overview of the status of biodiversity relevant in the Swiss business context
- 2.** Summarize opportunities and risks related to biodiversity
- 3.** Outline potential next steps for Swiss businesses across key industry sectors

Early movers in this transition will enjoy major benefits including superior risk mitigation, enhanced attractiveness for investors and employees, and, in the longer term, access to new business opportunities. This may not happen overnight, but some the success stories entailed in this report impressively show what is possible even today.

Our actions today determine our tomorrow. By considering the value of nature in business decisions, developing sustainable practices, and driving collaboration with others, we can shape a future in which both nature and humans can thrive. Together, we have the power to build a legacy of responsible stewardship for generations to come, ensuring a resilient and vibrant planet for all.



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Executive summary

Businesses must act now to address the biodiversity crisis and capture opportunities

The very foundations of life are at risk, posing severe threats for both humanity and businesses

- ▶ Globally, populations of species monitored in the WWF Living Planet Report have declined by an average 69 percent since 1970. In Switzerland, 35% of known and assessed species, and almost half of habitats are considered threatened.
- ▶ The increasing pressure on biodiversity is caused by human activities. Main drivers are changes in land, freshwater, and sea use, direct resource exploitation, pollution, the spread of alien species and diseases across new regions, and climate change.
- ▶ If these trends continue, more than half of the global GDP will be put at immediate risk, as large part of it depend on natural resources. According to the World Economic Forum, the biodiversity crisis is presently considered one of the top 10 risks for the global economy.

Swiss companies impact biodiversity at home and abroad, and are ready to act

- ▶ Switzerland is a hub for multinationals and leading players in financial services and commodity trading. As such, the country – despite its small size – has a disproportionate impact on global biodiversity. Beyond their own in-house operations, Swiss companies' impact extends to the upstream and downstream activities in their respective value chains.
- ▶ Our analysis sheds light on this for major Swiss industries: it underlines the importance of tackling supply chains to ease the impact on biodiversity, especially in the secondary and tertiary sector, while the primary sector has more room for improvement in its own operations.

- ▶ Interviews with 21 senior executives from leading companies have shown that the large majority is well aware of both their impact on biodiversity and their dependence on nature. Most have started taking action of some kind, and are planning to step up their efforts.

Reasons to act: Mitigating risks, addressing new business opportunities – and preserving nature

- ▶ At present, Swiss companies' biodiversity efforts are still largely driven by intrinsic motivation; however, risk mitigation is starting to play an important role as well.
- ▶ In the long run, biodiversity-positive businesses should be able to gain a competitive edge resulting from access to growing markets, demand for sustainable products, lower costs, favourable financing conditions, and reputational advantages.

While several roadblocks are making it difficult to get started, early movers among the Swiss businesses show what is possible even today. A framework paves the way for followers

- ▶ The lack of standardized metrics and evaluation approaches, competition with other topics for attention and resources, and the difficulty to push for the necessary action in supply chains are considered key obstacles for Swiss companies on their way to fostering biodiversity.
- ▶ Despite these roadblocks, players from various industries are moving ahead. Having developed their own tools to measure impact, embedding biodiversity themes into their strategies, and implementing first actions, they will soon be advocates for biodiversity-positive businesses.
- ▶ The WWF Biodiversity Stewardship Framework helps businesses get started on this journey. New initiatives from global bodies such as the Science-Based Targets Network (SBTN) ease the process to change business models and implement nature-friendly strategies.

Study participants

The study draws on insights into 21 Swiss participant companies. To ensure a comprehensive and well-rounded analysis, we interviewed a range of both C-Level executives and sustainability specialists. We would like to take this opportunity to express our thanks to these companies and individuals for investing their time, and our appreciation for their valuable contributions. The following companies have actively contributed to this study:

Construction and
real estate



SWISS PRIME SITE

allreal

Financial services and
commodity trading



Julius Bär

Manufacturing and
packaging of food and
beverage products



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Givaudan

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Smelting and refining



MKS PAMP



Transportation and logistics



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Chapter 1

A serious threat to the foundations of life

Biodiversity is essential to human societies: it enables food production and access to clean water, the absorption of emissions, and the mitigation of the risk of natural disasters. Over the past decades, human activities have severely affected the natural variety of life on our planet – to the extent that the loss of biodiversity is presently considered a top risk to the global economy, as more than 50 percent of the global GDP depends on nature’s goods and services.

Key takeaways

- ▶ Over the past decades, biodiversity has been under unprecedented pressure, as evident from increased degradation and a loss of habitats and species around the globe. Globally, populations of species monitored in the WWF Living Planet Report have declined by an average 69 percent since 1970. In addition, a million species around the world are at risk of extinction.
- ▶ In Switzerland, 35% of known and assessed species (incl. bryophytes and lichens), and almost half of the existing habitats are considered to be at risk
- ▶ The increasing pressure on biodiversity is caused by human activities and constitutes a threat not just to businesses but to humankind itself. Key drivers are changes in the land, freshwater, and sea use, resource exploitation, pollution, a spread of invasive species and diseases into other regions, and climate change
- ▶ Businesses, the economy at large, and society as a whole rely on nature’s goods and services for their existence to function. Human-induced pressure on nature and the institutional failure to reverse the loss of biodiversity are putting \$44 trillion in economic, nature-dependent value – more than half the global GDP.
- ▶ Biodiversity is closely linked to other environmental and social sustainability topics, especially climate change. To solve the biodiversity crisis, it is imperative that businesses, civil society, and individuals address these sustainability challenges across the board.

Biodiversity is one of the foundations of human life on earth

Ecosystems, species, and genetic variants: Biodiversity encompasses the variety of life on earth at all levels; its importance to human society cannot be overstated

Biodiversity encompasses the natural variety of life on our planet and represents an inherent value of its own. In addition, it supports humans, societies, and businesses with critical natural goods that we depend on (Exhibit 1). These benefits provided by the environment and by healthy ecosystems are generally referred to as ecosystem services.

Exhibit 1: Biodiversity underpins all aspects of life – spanning across ecosystems, species, and genes, it provides humans with critical natural goods and services

BIODIVERSITY COMPONENTS

BENEFITS TO HUMANS (EXAMPLES)



Source: IPBES (2019a)

We typically distinguish between (1) provisioning services (or ecosystem goods) such as food, raw materials, and energy; (2) regulating services such as carbon sequestration, pollination, and pest and disease control; (3) cultural services such as recreational experiences; (4) and supporting

services in the form of underlying natural processes, such as photosynthesis or the water cycle.¹ While ecosystem goods are often assigned monetary value, this rarely happens with the two latter services – cultural and supporting –, although these are no less critical.

Biodiversity is at serious risk, both globally and in Switzerland

The hazards for biodiversity have rapidly increased in recent decades. Industrialization and overconsumption of natural resources have driven an unprecedented loss of species and habitats – both globally and in Switzerland

Over the past 50 years, our planet has suffered an unprecedented and well-documented loss of biodiversity. Globally, populations of species monitored in the WWF Living Planet Report have declined by an average 69 percent since 1970;² a million species around the globe are at risk of extinction.³ Largely as a result of human activities, species are going extinct at an extreme pace: current extinction rates are 100-1,000 times the average rate over the past tens of millions of years.⁴ What is more, 75% of the world’s ice-free land surface has been significantly altered because of human activity⁵, e.g., driven by urbanization and changes in agricultural land use. This biodiversity loss is not only happening in “far away” regions: despite various conservation efforts, biodiversity has significantly dropped in Switzerland, too, over the past century. Key drivers have been habitat destruction and fragmentation due to urbanization, intensive land use, soil sealing, and pollution with nitrogen and pesticides⁶.

According to the Swiss Federal Office for the Environment (FOEN), 35% of known species are at risk of extinction or already extinct, a percentage in excess of the OECD average⁷. Equally alarming, 48% of habitats as well as most aquatic ecosystems, mires and bogs, and agricultural systems are threatened.⁸ At the same time, only 13% of the land surface in Switzerland is designated as protected zones at either the national or a cantonal level⁹ – far from the 30% target set for 2030 by the Kunming-Montreal Global Biodiversity Framework.¹⁰






Biodiversity loss is directly attributable to five key global drivers, all linked to human activity: (a) extensive changes in land, freshwater, and sea use, (b) resource exploitation, (c) pollution, (d) spread of invasive species and diseases, and (e) climate change (see Exhibit 2).¹¹ The degradation of biodiversity has a severe impact not only on ecosystems and species, but also on modern societies – including businesses –, as they all depend on functioning and stable ecosystems. Businesses and society are currently exploiting more goods and services from nature than ever before; this overconsumption of natural resources is harming nature’s diversity and resilience. The Earth Overshoot Day marks the date when humanity’s demand for ecological resources and services in a given year

¹The National Wildlife Federation (no date)
²WWF (2022 a)
³IPBES (2019 a)
⁴Dasgupta (2021)
⁵IPBES (2019 a)
⁶FOEN (2022 a)

⁷Foen (2023)
⁸Foen (2023)
⁹Foen (2023)
¹⁰CBD (2022)
¹¹IPBES (2019b)

exceeds what earth can regenerate in that year. In Switzerland, this year’s date was May 13 (vs. August 2 for the globe), meaning that for the remainder of the year, Switzerland is effectively depleting Earth’s resources and accumulating ecological debt.¹² Latest science shows that these consumption patterns have contributed to the transgression of six of nine planetary boundaries. This means, that planet Earth has left the safe operating space for humanity.

Exhibit 2: Biodiversity loss is directly attributable to five key global drivers, all linked to human activity

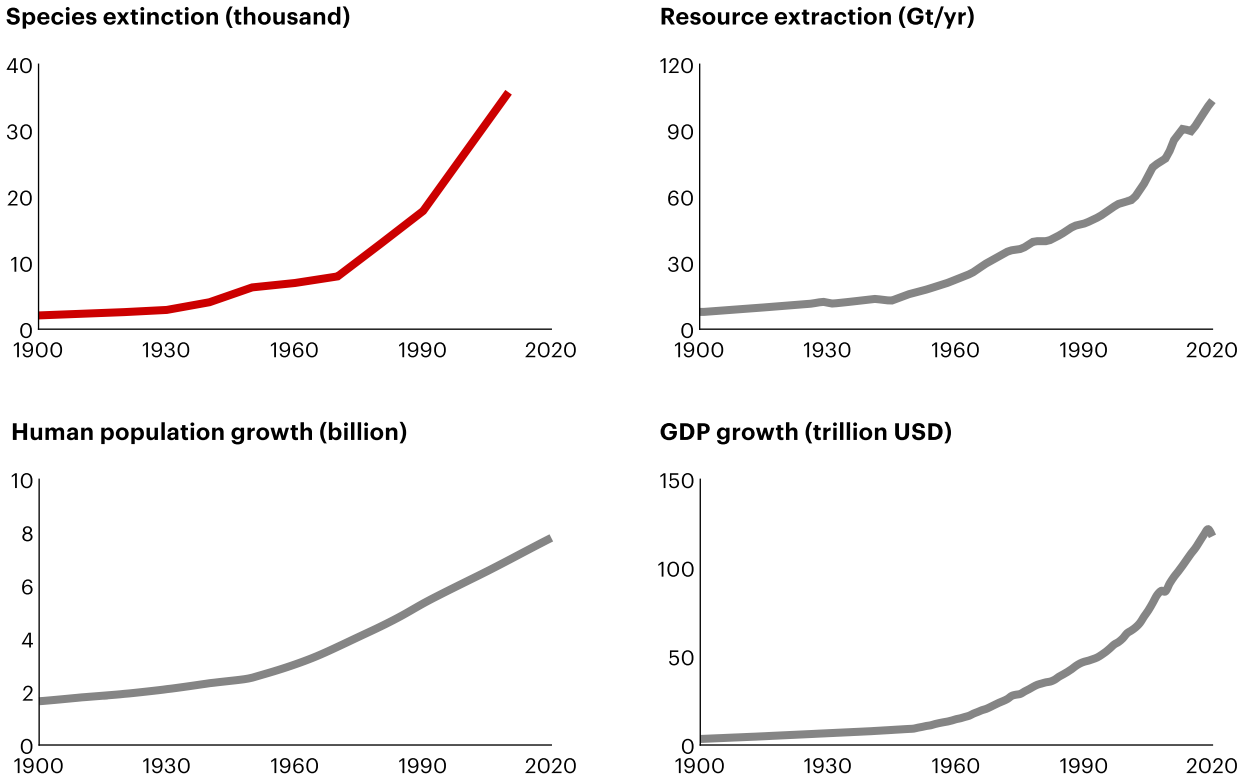
<p>A</p> <p>Changes in land, freshwater, and sea use</p>		<p>Modification of nature by complete removal, fragmentation, or reduction in quality of ecosystems, caused by activities such as unsustainable agriculture and forest management, infrastructure, construction, and extraction of metals and minerals.</p>
<p>B</p> <p>Direct resource exploitation</p>		<p>Direct exploitation through unsustainable hunting, fishing, and harvesting practices as well as water, soil, and organic resource extraction, and indirect exploitation when resources are unintentionally removed (e.g., bycatch in fisheries).</p>
<p>C</p> <p>Pollution</p>		<p>Direct impact on ecosystems and species by, e.g., oil spills, incineration, and chemical substances used in production sites, microplastics, pesticides, and excess nutrient loads.</p>
<p>D</p> <p>Spread of invasive alien species and diseases</p>		<p>Non-native species competing with native species for space, food, and other resources, preying on native species or spreading non-native diseases. Such species/diseases can spread involuntarily via ballast water or via imported living material, e.g., exotic garden plants.</p>
<p>E</p> <p>Climate change</p>		<p>GHG emissions causing increased temperatures, which result in extreme weather events that require species to adapt (if possible) and lead to seasonal events such as migration and reproduction occurring at the wrong time.</p>

Source: Adapted, based on IPBES (2019a)

¹² Earth Overshoot Day (2023)

In addition to the five direct drivers of biodiversity loss, a number of factors contribute indirectly to the development. As described in WWF’s Living Planet Report, these secondary drivers include human population growth, technological development, unsustainable business models, and overconsumption¹³ – the latter three being closely linked to business activity (see Exhibit 3). Indirect drivers are socio-economic factors that affect biodiversity mainly by increasing the impact of direct drivers: human population growth, for instance, accelerates the effects of all direct drivers on biodiversity loss. While it would exceed the scope of this report to describe each indirect driver for all DACH sectors in detail, it should be evident by now that system-level changes and resolving issues such as overconsumption will be crucial if we aim to reverse the loss in natural biodiversity.

Exhibit 3: Overexploitation of natural resources accelerates species extinction¹⁴



Source: Scott (2008), Krausmann, et al. (2018), Maddison Project Database/ World Bank (2017), United Nations Population Division (2019)

¹³ WWF (2022 b)
¹⁴ Human population growth, economic growth, and consumption have fueled a 3x increase in global resource extraction by humans across supply chains between 1970 and 2020. In that same time

interval, the global population of mammals, birds, amphibians, reptiles, and fish has declined at a similar alarming rate. GDP data for 1900-1950 is extrapolated based on available data for 1900, 1913, 1940 and 1950.

Despite the severity and inherent risks associated with the biodiversity crisis, the subject has so far received less attention compared to other global threats, in particular climate change. This is currently changing and the topic is getting more attention, due in particular to the targets set in the Kunming-Montreal Global Biodiversity Framework, or to emerging reporting standards and frameworks such as SBTN and TNFD. As reported by the World Economic Forum, over 1,000 global experts and leaders expect global biodiversity loss and related environmental risks to become one of the most critical threats to the global economy within the coming decade (Exhibit 4).¹⁵ In addition, studies indicate that a failure to reverse the degradation of nature before 2030 could result in our passing irreversible tipping points, where essential ecosystem services would start collapsing and more than half of the global GDP would be at a severe risk.¹⁶ Hence the urgency of businesses needing to improve their understanding of the impact of this crisis, their role in reversing the current trend of biodiversity loss, and what to do.

Why tipping points matter so much: The Amazon rainforest at risk

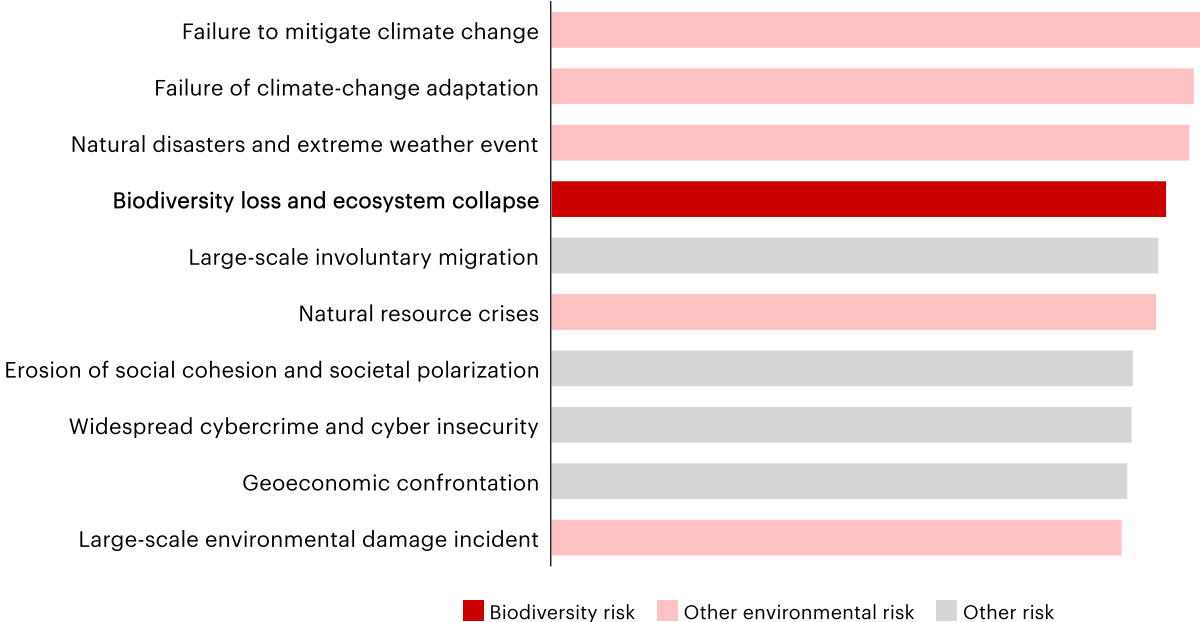
A tipping point is a “critical threshold beyond which a system reorganizes, often abruptly and/or irreversibly.”¹⁷ One biodiversity-related tipping point, for example, is the Amazon rainforest dieback, a threshold at which the Amazon rain forest’s self-sustaining ecosystem would collapse. Currently, the Amazon creates its own weather patterns by recycling the rain forest’s moisture, which generates a considerable amount of its total precipitation. However, forest losses that are mainly due to deforestation (for example, between 2005 and 2017, EU imports led to the deforestation of 3.5 million hectares, causing 1,807 million tons in CO₂¹⁸ emissions), combined with climate change, disrupt this virtuous hydrological cycle. Scientists such as Carlos Nobre, an Earth System scientist from Brazil, fear that if deforestation reaches 20 to 25 percent of the original surface area (note that we are at ~20%¹⁹ already), this hydrological cycle will collapse, and in a matter of decades, the rainforest will turn into a scrubby savanna-like habitat. Apart from significant biodiversity loss, this would substantially impact the local and global climate, further accelerating the vicious cycle of forest loss not only in the Amazon, but also in other major rain forest zones.²⁰

¹⁵ WEF (2023)
¹⁶ WEF (2020 a)
¹⁷ IPCC (2023)

¹⁸ WWF (2021a)
¹⁹ Amazonia (2022)
²⁰ Lovejoy et al. (2018)

Exhibit 4: Biodiversity loss is a top risk to the global economy

Top 10 global risks ranked by severity over the long term (10 years)



Source: WEF (2022)

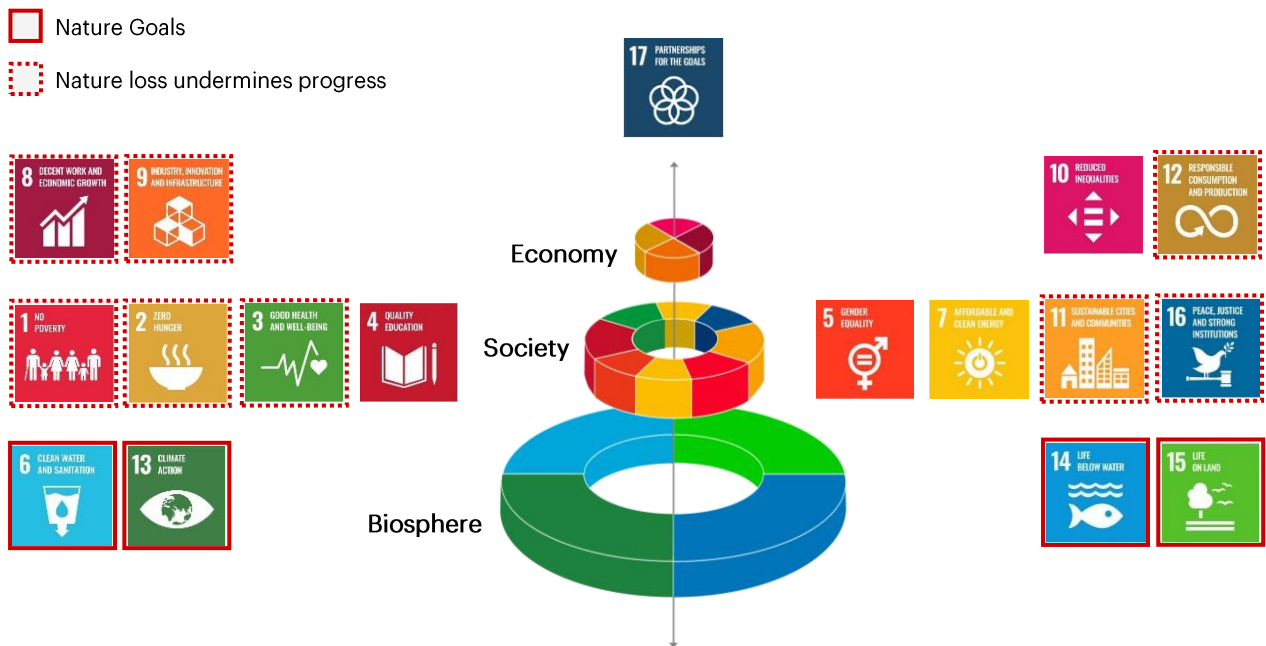
Biodiversity is closely linked to other sustainability topics

The biodiversity crisis is closely interlinked with other ecological crises, such as climate change – which is why these sustainability topics should be addressed together. Besides accelerating sustainable development, an integrated approach will also reduce the cost of risk mitigation.

With its 17 Sustainable Development Goals (SDGs), the UN has provided a key framework for identifying and prioritizing sustainability efforts – both for businesses and for society at large. The SDGs outline what we need to achieve to create “a better and more sustainable future for all” across a range of themes relating to the biosphere, society, and economy.²¹ The biosphere – the total of all parts areas on earth where life exists – is the most pivotal part, with key themes such as access to clean water, halting climate change, and maintaining biodiversity addressed in SDG 14, “Life below water,” and SDG 15, “Life on land.”

²¹United Nations (no date)

Exhibit 5: Biodiversity is the foundation for sustainable development in society and the economy



Source: Adapted from Stockholm Resilience Center (2016)

An intact biosphere is crucial for maintaining an intact society and economy (Exhibit 5). If biodiversity loss continues and we fail to achieve the goals related to the biosphere, all other SDGs related to society and economy will become unreachable. According to the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), current negative trends in biodiversity will undermine progress towards 80 percent of the SDG targets set for poverty, hunger, health, freshwater, cities, climate, oceans, and land. As an example, biodiversity loss is hampering the progress toward SDG 2, “Zero hunger,” as it weakens agricultural systems’ capacity to adapt to changing conditions and shocks, such as climate change or pest outbreaks.²²

So, maintaining biodiversity is crucial for achieving several of the UN's SDGs. In addition, biodiversity loss is closely intertwined with climate change, together forming a double crisis. Climate change is one of the key drivers of biodiversity loss, which in turn accelerates climate change (for instance, through deforestation).²³ Compared to pre-industrial times, global temperature has increased by 1.2°C to date; extreme temperature conditions are occurring more frequently. When looking at the concrete effects of temperature increases, the impacts on biodiversity are clear²⁴. Unless we prevent global warming from exceeding 1.5°C, according to expert

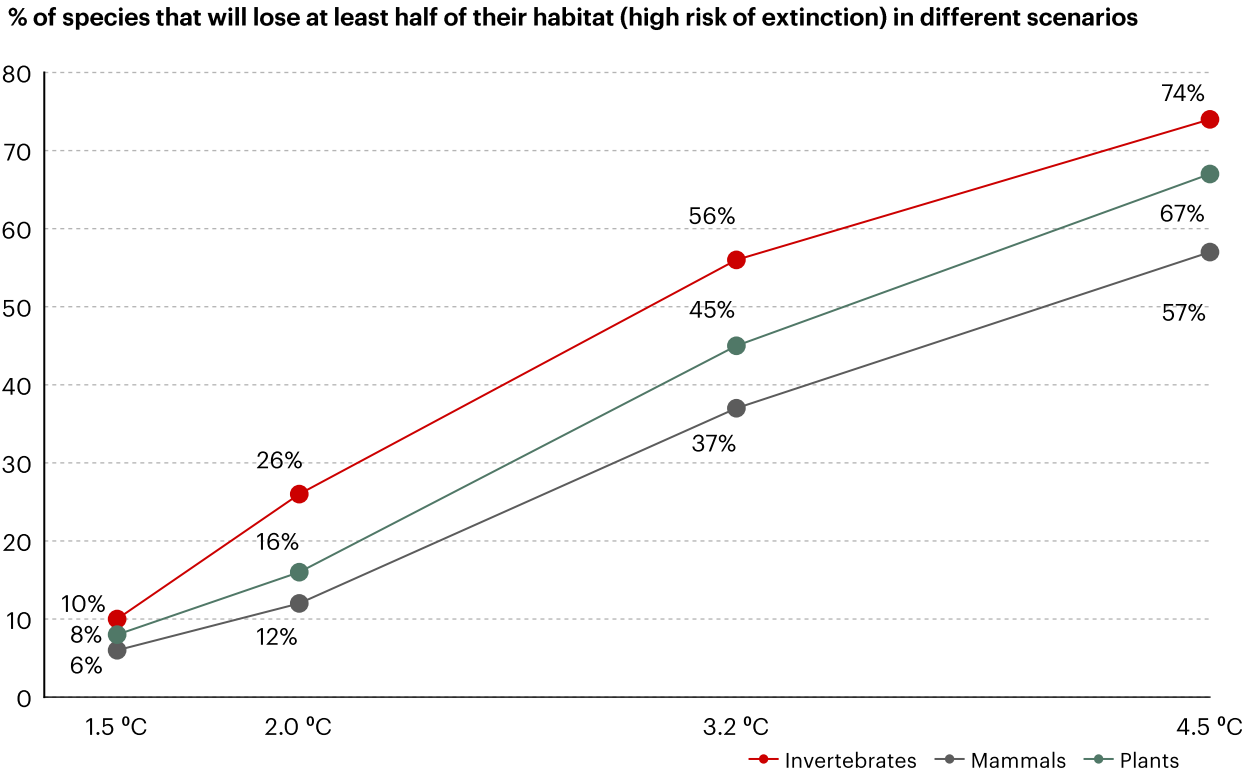
²² Welthungerhilfe (2021)

²³ WEF (2023)

²⁴ World Meteorological Organization (2022)

forecasts the temperature increase will dramatically accelerate the extinction of species. The higher temperatures rise, the worse their effects on life on earth. Unless we limit global warming to a maximum of 1.5°C, climate change is likely to become a dominant cause of biodiversity loss.²⁵ For example, if the Earth’s temperature increases by 2°C as opposed to 1.5°C, the risk of extinction will accelerate at least two-fold in the Earth's biodiversity hotspots²⁶ – one reason being that higher temperatures deprive disproportionately more species of at least 50% of their habitats (Exhibit 6).

Exhibit 6: Higher temperature increases are accelerating biodiversity loss which in turn leads to lower resilience to climate change and lower carbon sequestration potential



Source: Warren, et al. (2018)

²⁵ WWF (2022a)

²⁶ IPCC (2021)

The impact of climate on biodiversity is widely recognized. In addition, the most recent IPCC report emphasizes the fundamental importance of protecting biodiversity, due to its key role in enabling climate-resilient development and in reducing climate change-related pressures. For example, marine and terrestrial ecosystems absorb nearly 50 percent of human-created CO₂ from the atmosphere.²⁷

However, there are also key differences in how we can address these crises. Between the two, the biodiversity challenge is much more difficult to solve, as its cause-and-effect dynamics are non-linear and highly complex – whereas global warming is largely driven by emissions (combined with land-use changes, such as deforestation, or the melting of ice caps). Biodiversity also requires a range of metrics and sophisticated measurement systems, compared to just one global metric (CO₂ equivalents) used for climate-related measures. Further adding to the challenge, most biodiversity measures to conserve or replenish the natural variety of species must be locally focused, as they require the restoration of local habitats or creation of very similar ones. By contrast, CO₂ emissions can be offset through a variety of techniques (such as direct air capture), irrelevant of their location.²⁸ Last but not least, as biodiversity action is at a less advanced stage, there are fewer established standards, definitions and regulations.

Businesses depend heavily on healthy ecosystems

More than 50 percent of global GDP is estimated to be highly or moderately dependent on nature and the services it provides. At the same time, businesses affect nature both through their in-house operations and along their value chains.

Given businesses' dependence on nature, the dramatic biodiversity loss we are seeing clearly poses a major threat to the economy and to companies' economics. The dimensions of this threat are dramatic: failing to reverse the current trend before 2030 will push the biodiversity loss beyond irreversible tipping points and place over 50% of global economic value (\$44 trillion) at risk.²⁹

"80% of the ingredients we use for our products are provided by nature. For us, protecting the environment is about the sustainability of our business."

Gilles Andrier, CEO, Givaudan

²⁷ IPCC (2022)

²⁸ IPBES-IPCC (2021)

²⁹ WEF (2020 b)

At the same time, there is a high level of interdependency: On the one hand, businesses depend on nature – on the other hand, they have tremendous impact on biodiversity through their own and their suppliers’ operations. In fact, the current degeneration of biodiversity is largely driven by the activities of companies in the agricultural, forestry, and industrial sectors. The resulting pressures on nature are among the key factors driving biodiversity loss, both in Switzerland and globally. To limit related risks for the economy and society and enable businesses to act, businesses need a comprehensive view of these pressures they put on nature. The interplay between companies' dependency on biodiversity and their – or their supply chain's – (negative) impact on biodiversity is called “double materiality”. The following chapter will shed some light on Swiss businesses’ impact on biodiversity.



Chapter 2

Swiss companies' biodiversity impact at home and abroad

Swiss businesses' activities clearly have an impact on biodiversity, both directly through their domestic operations and globally through their supply chains. Our analysis shows the up-, mid- and downstream impact of major sectors and industries. Many companies have started to act towards biodiversity conservation, but only a minority have taken the crucial step of working with suppliers and buyers in this field.

Key takeaways

- ▶ Although small in size and population, Switzerland has a strong impact on global biodiversity, as the country is a hub for multinationals and a leading financial services and commodity trading cluster. This report identifies nine key areas, related to the global direct drivers, where Swiss businesses negatively impact biodiversity, of which the most important ones are cultivation of crops and livestock and forest management.
- ▶ The impact on biodiversity is not limited to the company's own operations but covers all upstream and downstream activities among their respective value chains.
- ▶ Industries affect biodiversity differently, with those in primary sectors usually having great direct impact, while secondary and tertiary-sector companies mostly have indirect impact through their supply chains.
- ▶ In general, environmental impacts in supply chains are significantly greater than the direct impact industries have. That said, only a minority of Swiss companies currently include the full value chain in their biodiversity impact assessment.
- ▶ The vast majority of Swiss businesses interviewed stated they were well aware of both their impact on biodiversity and their dependency on nature. Most have also started taking actions of some kind to mitigate the biodiversity crisis, and are planning to step up their efforts.

Swiss businesses' activities lead to substantial pressures on biodiversity

While Switzerland is a small country by several standards, its impact on nature is substantial. With its unique structure and composition of industry clusters, the country has powerful levers to influence and improve biodiversity both in Switzerland and abroad.

With a total area of 41,000 km² and 8.7M habitants (~0.1% of global population)³⁰, Switzerland might at first seem insignificant in terms of impact on biodiversity. That perception is deceptive: not only do Swiss consumers have one of the highest purchasing powers worldwide³¹ and an appetite for goods produced abroad – Switzerland is also a hub for multinational corporations and home to a large financial services and commodity trading industry.

Consumers with high purchasing power: With its large services sector (2022: 77% of people employed³²) and less pronounced extraction and manufacturing sectors, Switzerland heavily relies on imports of physical goods. A 2020 WWF study found that the overseas land required for Switzerland's annual imports of forest and agricultural commodities was approximately 2 million hectares – that's half the area of Switzerland.³³ Due to their high purchasing power (Switzerland ranks #4 in GDP per capita 2023³⁴), Swiss consumers, through their purchasing decisions, have considerable influence on businesses and therefore biodiversity in other countries.

Hub for multinationals: Switzerland boasts one of the world's highest concentrations of multinational corporations' headquarters (measured by number of companies per million inhabitants).³⁵ The country's skilled labor force, economic stability, generous tax system, and flexible regulations are still highly valued by foreign investors and companies looking to establish a presence in Europe. Through their global business operations, Swiss-based multinationals have significant impact on biodiversity not only at home but also outside Switzerland.

Prominent financial services center: With its economic hubs Zurich and Geneva, Switzerland is one of the world's leading financial centers, home to global leaders in wealth management, and a key international hub for insurance and reinsurance. By incorporating biodiversity considerations into their investment strategy and decision-making processes, financial institutions can provide powerful support for biodiversity conservation and restoration efforts.

Major commodity trading cluster: Switzerland is a leading global commodity trading hub, with revenues from commodity trading accounting for about 4% of Swiss GDP (2017).³⁶ The country's global market share in trading is estimated at ~35% for oil, ~60% for metals, and up to 50% for some agricultural goods (such as coffee, cocoa, or palm oil). This provides Swiss trading institutions with

³⁰ World Bank (2023)

³¹ IMF (2023)

³² Swiss Federal Statistical office (2023)

³³ WWF (2020)

³⁴ IMF (2023)

³⁵ Swissinfo (2020)

³⁶ Federal Council (2018)

a unique opportunity to influence biodiversity along their value chains (e.g., by promoting responsible sourcing, engaging in reforestation and conservation initiatives).³⁷

Why the value chain is so important for evaluating a biodiversity footprint

When it comes to biodiversity, only a minority of Swiss companies factor in the impact from all relevant upstream and downstream activities in their value chains. That, however, is where major levers exist, as an exemplary analysis of a food and beverage retailer shows.

The Natural Capital Protocol, a recognized biodiversity framework, outlines three levels of biodiversity impact:

1. **Upstream ("cradle to gate"):** Refers to any impact from the sourcing of raw materials and the production of components or ingredients that subsequently go into an entity's core operations
2. **Direct operations ("gate to gate"):** Covers impact generated in the area controlled by the entity and its subsidiaries (e.g., deforestation and change of land use through agriculture, or pollution through extraction or mining operations)
3. **Downstream ("gate to grave"):** Including impact from activities linked to the distribution purchase, recovery, recycling, and final disposal of the entity's product

In general, businesses have both direct and indirect impact on biodiversity. Direct impacts relate to their own operations; indirect impacts relate to activities in the upstream and downstream part of the value chain (see Exhibit 9 for an example). Note that while the direct impact of each industry may vary widely, all industries have some degree of indirect impact, due to their use of built environment and the transportation of goods, among other things.

For small, open economies strongly involved in global trade, such as Switzerland, the upstream part of the value chain is particularly significant, as confirmed by a fairly recent analysis: The Environmental Atlas Switzerland looked into eight Swiss industries and found the environmental impacts from their supply chains to be significantly greater than the direct environmental impacts from their own operations. What is more, a substantial share of the gross domestic product (GDP) generated within supply chains occurs in other countries: for the chemical industry, the machinery industry, and the food retail industry these percentages are ~44%, ~36%, and ~37%, respectively.³⁸

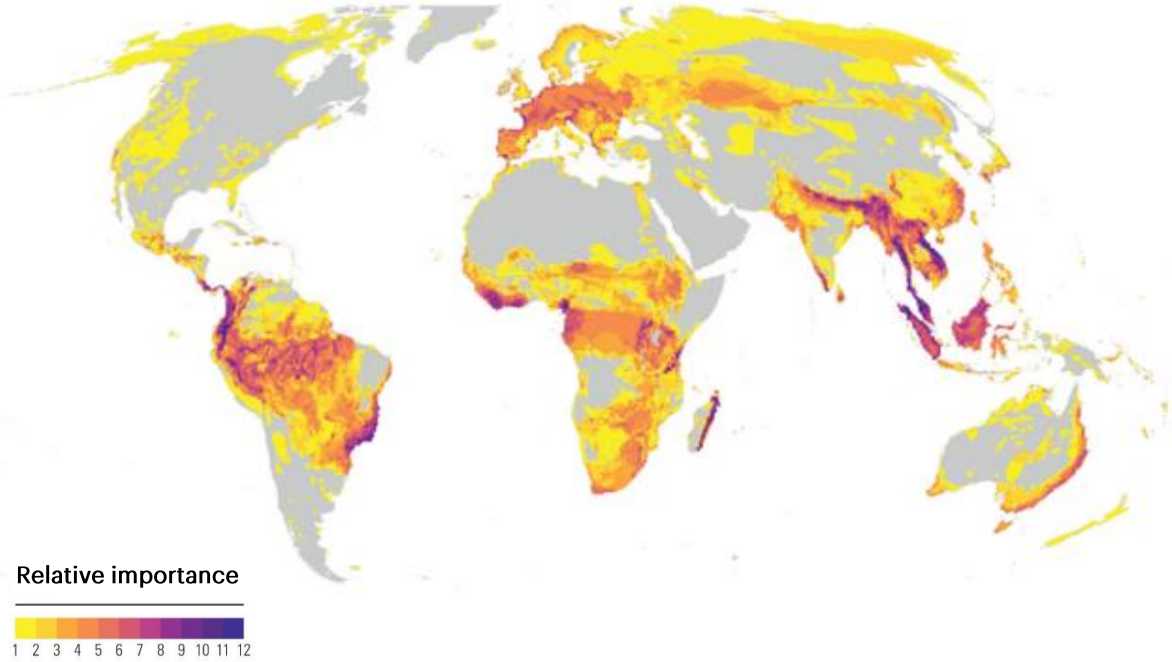
It is therefore imperative that any measures to mitigate Swiss industries' impact on biodiversity include their supply chains as well, both in Switzerland and abroad. That said, a 2021 study commissioned by the Federal Office for the Environment (FOEN) revealed that only 8% of companies analyzed had set themselves biodiversity-related targets for their value chain (vs. 27%

³⁷ Jungbluth et al. (2018)

³⁸ Alig et al. (2019)

for greenhouse gases)³⁹. In other words, companies mainly concentrate on the biodiversity impact of their own operations, in both their reporting and their goal setting, thus failing to leverage the opportunities for greater improvement in natural resource extraction or with direct suppliers. Where targets exist, they often focus on direct suppliers, rather than addressing the full upstream value chain including raw-material extraction. This is all the more unfortunate as most of the regions with the greatest numbers of species at risk – designated as “high-priority hotspots of risk” by the WWF – are located outside Switzerland and even Europe (see Exhibit 7).⁴⁰ As a consequence, the only chance for Swiss businesses to reduce their negative impact in those high-priority areas is to do so indirectly, through their supply chains.

Exhibit 7: High-priority areas for risk mitigation⁴¹



Note: The importance of each pixel across species and threats as measured by the number of times a pixel falls into a hotspot region for any taxon or threat. Hotspot regions are defined as locations containing the highest 10% of numbers of species at risk from each major threat and taxonomic group. Source: Harfoot et al. (2021); WWF (2022a)

³⁹ FOEN (2022a)

⁴⁰ WWF (2022a)

⁴¹ The Himalayas, Southeast Asia, the east coast of Australia, the dry forest of Madagascar, the Albertine Rift and Eastern Arc Mountains in eastern Africa, the Guinean forests of West Africa,

the Atlantic Forest, the Amazon basin and the Northern Andes into Panama and Costa Rica in South and Central America were all deemed ‘high-priority areas for risk mitigation’ for all taxonomic groups across all threat categories

Exhibit 8: How a food and beverage retailer impacts biodiversity (exemplary and simplified)⁴²

	Raw material extraction	Upstream suppliers	Direct suppliers	Distribution and retailing	Consumption and disposal
ACTIVITIES	Production of agricultural goods (cultivation of wheat, oil seeds, vegetables, forestry, livestock farming, etc.), fishing, etc. Extraction or production of energy sources and mineral raw materials (e.g. crude oil, metal ores, etc.)	Production of intermediate products (such as oils, concentrates, various auxiliary materials such as preservatives, etc.) and various packaging materials (such as paper or plastics), but also the production of electricity as well as fuels and combustibles.	Meat and dairy processing, production of convenience products, beverage production, etc. Further direct suppliers to retailers (such as real estate lessors, power suppliers, manufacturers of investment goods or service providers).	Wholesale and retail trade of food, beverages, and tobacco products in non-specialized stores (such as supermarkets), in specialty stores, and in markets for private consumption.	Transportation of the goods to the homes of consumers Organic food waste but also solid waste from packaging (plastics, etc.)
Impact on: Land, freshwater and sea use change	High impact	Medium impact	Medium impact	Low impact	Low impact
Impact on: Direct resource exploitation	High impact	Medium impact	Medium impact	Low impact	Low impact
Impact on: Pollution	High impact	Medium impact	Medium impact	Medium impact	High impact
Impact on: Invasive alien species and diseases	Medium impact	Medium impact	Medium impact	Medium impact	Low impact
Impact on: Climate change	High impact	Medium impact	Medium impact	Low impact	Medium impact

Lower impact ●●●● Higher impact
 (Relative within each sector, not comparable across sectors)

⁴² Adapted from Alig et al. (2019)

In view of these observations, it is crucial for companies to identify the most important stages and processes of environmental impact, so they can effectively reduce that impact across their entire value chains. Given that there are often multiple value chain stages between raw material extraction and final disposal, this is anything but trivial.⁴³ The impact of the retail food and beverage business on biodiversity as depicted in exhibit 9 points to several steps and interdependencies, each with different effects on the five global drivers of biodiversity loss, as explained in Chapter 1.

Most of the negative biodiversity impacts of the food & beverage value chain occur upstream, i.e. in the agricultural industry. Agriculture is a major driver of land, freshwater, and sea use, with roughly half of the habitable land allocated to this sector.⁴⁴ Of this agricultural land, 40% is dedicated to food production, while the remaining 10% is used for non-food purposes such as bioenergy. Note that within food production, 82% goes to animal food (through grazing or cultivation of feed crops for livestock), while a mere 16% goes to the cultivation of crops for human consumption, such fruits and vegetables.⁴⁵ It is also important to note that the expansion of agriculture remains the primary driver of deforestation, accounting for over 70% of tropical deforestation as a consequence of large-scale cattle farming, animal feed production, and other purposes.⁴⁶ Intensive agriculture also exploits and degrades soils and gradually erodes the very foundation it relies upon for sustenance. Presently, around one-third of soils are degraded, and approximately 80% of farmland is subject to moderate to severe erosion.⁴⁷ Moreover, agriculture accounts for up to 92% of the global water footprint.⁴⁸ Furthermore, the sector is considered a main polluter of rivers, aquifers, lakes, and coastal waters, due to the extensive use of agrochemicals such as pesticides and fertilizers, organic matter runoff, drug residues, and sediment.⁴⁹ Agriculture is also a driver of the intentional and unintended spread of invasive species and diseases. Research shows that agricultural land use and urban spread are a catalyst for invasive alien species while expansive monocultures are promoting the spread of insect pests.⁵⁰ Last but not least, the food sector consistently comes out a significant contributor to climate change, with estimates linking it to between 25% (IPBES) and 30% (IPCC) of global greenhouse gas emissions. Besides crop production, livestock emissions, and fertilization, another key driver is the degradation of vital carbon sinks, such as soils and forests.^{51,52}

⁴³ Bain (2022b)
⁴⁴ Poore et al. (2018)
⁴⁵ Poore et al. (2018)
⁴⁶ FAO (2020)
⁴⁷ Dasgupta (2021)

⁴⁸ Hoekstra et al. (2012)
⁴⁹ FAO (2017)
⁵⁰ Pellegrini et al. (2021)
⁵¹ IPBES (2019)
⁵² IPCC (2019)

Exhibit 9: Selection of relevant Swiss industries and their (in)direct impact on biodiversity^{53,54,55,56,57,58,59}



Note: Bubble size: Small to large, relative to other industries; direct impact based on secondary literature and WWF expertise, indirect based on WWF expertise. Impact estimation is not specific for Switzerland but is rather universally valid; Industry composition based on NOGA.

⁵³ Alig et al. (2019)

⁵⁴ WWF Biodiversity Risk Filter (no date)

⁵⁵ ENCORE (no date)

⁵⁶ Swiss Federal Statistical Office (2022)

⁵⁷ Swiss Federal Statistical Office (no date a)

⁵⁸ Swiss Federal Statistical Office (no date b)

⁵⁹ Commodity trading including both pure traders as well as vertically integrated trading firms. Gross value added estimated given the lack of recently published numbers on the industry size.

How major Swiss industries impact biodiversity, directly and indirectly

The agriculture, construction, and electricity industries have the highest direct impact on Swiss biodiversity. Export-oriented industries need to have an even closer look at their value chains.

Some sectors and industries are more relevant than others in terms of their overall footprint and potential to drive change. Focus industries for this study were therefore selected based on two key criteria: first, the industry's relative importance for the Swiss economy, based on GDP and Full-Time Equivalents (FTE); second, the industry's direct or indirect impact on biodiversity loss – directly through its operations, indirectly through its supply chain or downstream consumption.

As a rule of thumb, industries in the primary sectors (where gross value added is usually rather small) tend to have a high and largely direct impact on nature, while the effect from industries in the secondary and tertiary sectors is mostly indirect through their respective supply chains.

Exhibit 9 illustrates the twelve Swiss industries most relevant to biodiversity. Most of them belong to the primary and secondary sector, given that industries from the tertiary sector⁶⁰ usually have a rather limited biodiversity impact. The extent of direct biodiversity impact was determined based on secondary research (e.g., ENCORE, WWF Biodiversity Risk Filter), while indirect biodiversity impacts were assessed based on our interviews.

Swiss peculiarity: The commodity trading cluster and its impact on biodiversity

Switzerland is the world's biggest commodities trading hub. As such, it has a unique lever to influence biodiversity in a positive way. Commodity trading accounts for a significant part of the Swiss economy. In 2017, the Federal Council estimated that the commodities sector contributed 3.8% of the country's gross domestic product; however, as the transit trade volume has almost doubled between 2017 and 2022⁶¹, commodity trading is likely to have gained much higher significance. The associated service industries (e.g., shipping companies, financial institutions, certification providers, etc.) further add to the size of the sector.

At the global level, Swiss companies have a considerable share in commodities trading: for 2018, it was estimated at 60-70% for ores and metals, 35-40% for energy resources, and roughly 30-50% for agricultural goods.⁶² While most of this relates to transit trades (i.e., goods moved without being subject to import/ export procedures or tariffs), some commodities are

⁶⁰ Sector definition: Primary: extraction of raw materials;
Secondary: Manufacturing; Tertiary: Services

⁶¹ SNB (2023)

⁶² Jungbluth et al. (2018)

traded physically. For example, with four of the world's seven large global gold refineries located in Switzerland, about 70% of the gold globally mined is refined in Switzerland.⁶³

The commodities sector's impact on biodiversity is typically driven by the production and trade of raw materials such as energy products, minerals, renewable resources, and agricultural commodities. Many of its actors have complex value chains with varying supply chain lengths. To simplify supply chains, there is a trend towards vertical integration, particularly among multinationals, with companies expanding their activities to integrate intermediaries. As a result, commodity firms engage not only in trading; they also own production facilities and control value chains, including assets such as land, processing facilities, ships, port facilities, and warehouses.⁶⁴ So, depending on the level of their vertical integration, commodity traders have touchpoints with one or several of the sectors mentioned in Exhibit 9. Using a commodity trader in the agricultural sector as an example, direct and indirect impacts on biodiversity are as follows:

- ▶ **Direct impact (midstream):** While not all businesses in the agricultural goods trade actually own agricultural land, vertically integrated companies often own a range of assets, including manufacturing facilities, ships, and warehouses. Cargill, for example, operates a fleet of 650+ vessels⁶⁵ while ADM owns and operates 520 crop procurement facilities⁶⁶ around the globe. Due to their ownership of substantial parts of the value chain, businesses like these can have a significant impact on biodiversity safeguarding through more sustainable operations and practices across their asset portfolios.
- ▶ **Indirect impact (mainly upstream):** Due to their significance as major global buyers of agricultural goods, Swiss agricultural commodity traders could have considerable influence on the biodiversity efforts of raw material extractors and producers in the primary sector – the most significant stage in the commodity's life cycle. Furthermore, by working to enhance process transparency and traceability of commodities, commodity traders can facilitate the assessment of local production conditions and their environmental impacts, which, in turn, would help identify areas of major deforestation and other detrimental impacts on biodiversity.⁶⁷

⁶³ WWF (2021b)

⁶⁴ Federal Council (2018)

⁶⁵ Cargill (2017)

⁶⁶ ADM (2023)

⁶⁷ Jungbluth et al. (2018)

Swiss businesses are increasingly acting on biodiversity

Many of the Swiss businesses we interviewed seem aware of both their impact on biodiversity and their dependency on nature. Many have also started to act but have to admit that the extent of their efforts is only low to medium at present.

Of the 21 companies interviewed, approximately half are somewhat or highly aware of their biodiversity impact and their dependency on nature. In addition, the vast majority of them seem to view their impact on nature realistically, acknowledging that while their direct impact might be moderate, their indirect impact is usually quite significant – even though they might not always understand in detail how that impact manifests itself. While most have taken some form of action to address biodiversity, only around half of the companies interviewed have committed to one or more biodiversity target that is both measurable and linked to a precise timeframe. There are, however, variations between industries. For instance, companies in food and beverage – especially those closest to the consumers and general public – tend to be more active. Also, industries such as the electricity sector have historically had regulatory guidance with regard to their biodiversity impact, giving them a better understanding of the measures needed to avoid and reduce their impact.

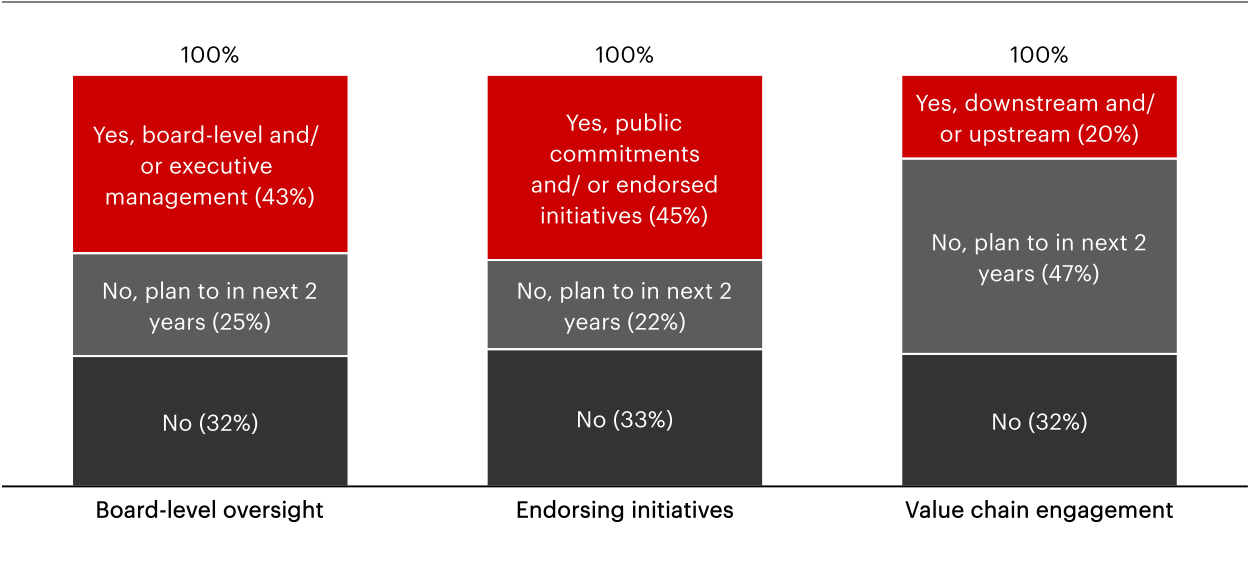
That said, most of our interviewees across industries acknowledged that the extent of their efforts to reduce their biodiversity impact is only low to medium so far, and that much greater efforts and investments were required to combat the biodiversity crisis. This finding is confirmed by a 2021 analysis published by the Carbon Disclosure Project (CDP), which revealed that companies were still in the process of ramping up their biodiversity efforts. According to these data, about two thirds of Swiss companies had publicized commitments and/or endorsed initiatives around the conservation of biodiversity, or were planning to do so in the short term. Two thirds had also started engaging their up- and/or downstream value chains, or were planning to do so over the next two years (see Exhibit 10). See also chapter 4 for more details on roadblocks.

"Switzerland has all the resources and capabilities to be best-in-class. We should really strive to be a leader and inspire others."

Florence Schmidt, Sustainability & Cross-functional Innovation Manager, Romande Energie

In conclusion, while biodiversity might not be a top priority yet, it is definitely on many CEOs and CSOs' agendas and will likely gain importance going forward. Companies with a lower level of activities should be careful not to fall behind, especially as biodiversity efforts come with significant opportunities in terms of risk mitigation and new business.

Exhibit 10: The majority of companies has started to act, but only a minority is taking their value chain into account (CDP biodiversity statistics of Swiss companies)



Note: Data collected in 2021, published in 2022; Source: CDP



Chapter 3

Opportunities in biodiversity action

Access to growing markets, demand for sustainable products, enhanced efficiency, good financing conditions, and a better reputation: Biodiversity efforts hold substantial potential for Swiss companies. At the same time, they help them reduce their physical and transition risks.

Key takeaways

- ▶ With only limited regulations or other external pressures, Swiss companies' biodiversity efforts are largely driven by intrinsic motivation. In our interviews for this study, risk mitigation was often mentioned as a key motive, while new business opportunities do not appear to be a main driver at present.
- ▶ In the initial phase, risk avoidance is likely to play an important role in motivating businesses to step up their efforts, as the direct and indirect consequences of biodiversity loss are becoming clearer, including anything from increasing costs of natural raw materials and services to stricter regulations and changing market conditions to reputational consequences and even business disruptions.
- ▶ On the other hand, businesses that actively reduce their impact on nature and engage in transformative change can reap significant and sustainable benefits through, e.g., lower costs (due to reduced material use), brand enhancement, market expansion, product innovations, and favorable financing opportunities.

Business opportunities are not (yet) the main reason to act

When asking interviewees about their reasons for acting on biodiversity, two patterns emerged (see Exhibit 11).

First, companies seem to act mainly out of intrinsic motivation, rather than external pressures. This finding held in subsequent discussions with financial institutions, which revealed that biodiversity is not a major concern at present and that investors' focus is still largely on climate change.

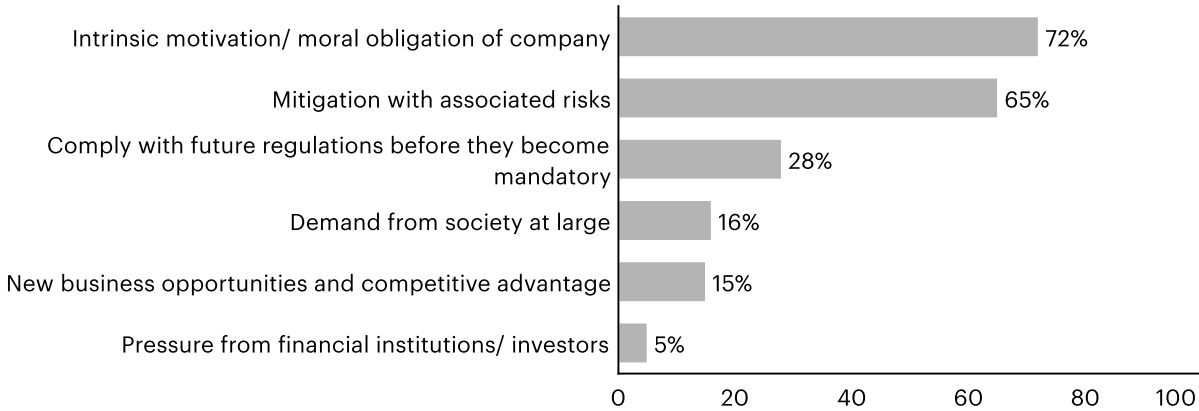
"The external pressure for increased biodiversity measures is still fairly low; investors and regulators are still occupied with climate change, and consumer awareness of the biodiversity crisis remains limited."

André Frei, Chairman of Sustainability, Partners Group

Second, mitigation of associated risks plays a more important role than business opportunities. Many of the companies interviewed depend directly on natural resources; many executives commented to us that mitigating related risks was far more important to them than identifying new business opportunities. In fact, interviewees generally struggled to identify valuable business opportunities, with reasons including a general lack of awareness of the subject, consumers' unwillingness to pay more, and a lack of investable biodiversity projects.

Exhibit 11: Currently, Swiss companies act on biodiversity mainly out of intrinsic motivation

% of interviewees rating a reason as most important to act on biodiversity



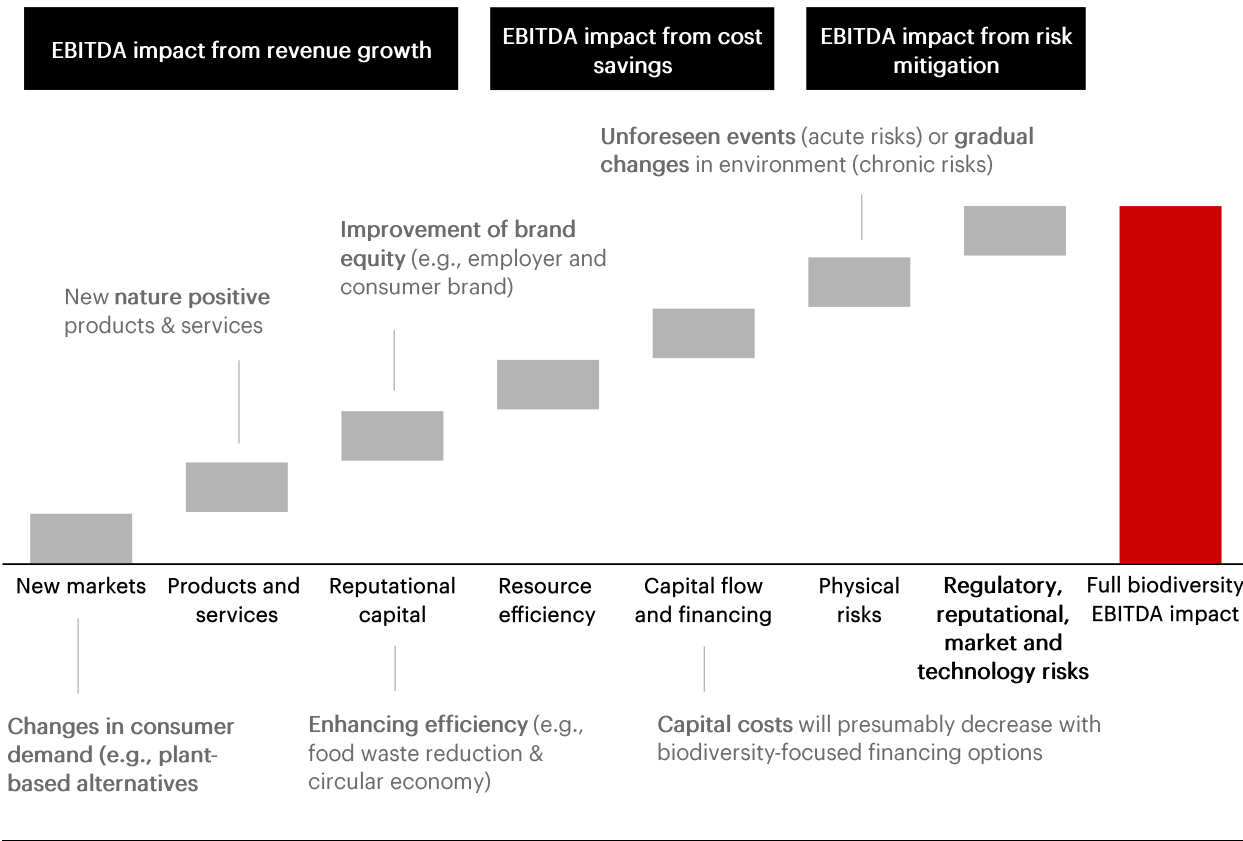
Note: Multiple answers possible; Source: Bain analysis, based on 21 conducted interviews

While companies’ actions may largely be driven by intrinsic motivation in the short term, over time there may be a shift towards business opportunities and towards mitigating transition risks: after all, as with climate change and other ESG topics, a case for business opportunities can be made (see Exhibit 12). In the following chapters, our report will shed some light on how biodiversity action can help reduce risks and, at the same time, have positive effects on both the top and the bottom line.

"We acknowledge the important role we play in our value chain. As a large company being at the customer interface, it is our responsibility to pioneer biodiversity efforts even if biodiversity is not yet at the top of customers' minds."

Matthias Wunderlin, Head of Marketing, Migros

Exhibit 12: Reducing the biodiversity footprint can improve a company’s market position in many ways (illustrative)⁶⁸



Source: Bain analysis, based on TNFD (2023)

⁶⁸ Exemplary illustration, not based on real data

Biodiversity loss will turn into a serious business risk

Scientific research points to the risk of unexpected and accelerating decline in the quality, quantity, and resilience of natural capital⁶⁹. This comes with a variety of physical and transition risks, which pose a serious threat to Swiss businesses in the mid- to long term.

Many domestic and international companies still lack a precise understanding of the specific risks involved for their business: in 2022, only 39% of Europe's largest companies reported on biodiversity risks.⁷⁰ It is therefore essential for businesses to make a serious effort to understand their dependence and impact on biodiversity, and prepare accordingly. Exhibit 13 provides an overview on the most relevant types of biodiversity risk.

Overview of relevant biodiversity regulation and reporting standards

The regulatory landscape for environmental sustainability is rapidly evolving, with a surge in new laws and regulations at both the EU and the Swiss level. Also, for the field of biodiversity, world leaders in 2022 adopted the landmark Kunming-Montreal Global Biodiversity Framework (GBF), which sets goals and targets for protecting and restoring nature. For instance, Target 2 aims to ensure that by 2030, at least 30 percent of the degraded terrestrial, inland water, and marine and coastal ecosystems undergo effective restoration. Target 15 emphasizes the need for legal and policy measures that require large and transnational companies and financial institutions to consistently monitor, assess, and disclose their biodiversity impacts. This includes information to consumers to encourage sustainable consumption, reporting on regulatory compliance, reducing negative biodiversity impacts, increasing positive impacts, mitigating business-related biodiversity risks, and promoting actions that foster sustainable production patterns.⁷¹ Countries are presently developing biodiversity strategies to put this framework into action.

At the EU level, the EU Biodiversity Strategy for 2030 forms part of the European Green Deal. One key element is the proposed Nature Restoration Law.⁷² Complementary initiatives supporting the EU's attempts for biodiversity conservation include the EU Deforestation-Free Regulation (EUDR), which guarantees that products consumed by EU citizens will not contribute to deforestation or forest degradation worldwide, and the Green Claims Directive, which establishes minimum norms for the substantiating and communicating of companies' environmental claims. Along these lines, Switzerland has put into effect a Swiss biodiversity strategy and action plan to be implemented by 2024. Focusing on direct biodiversity

⁶⁹ TNFD (2023)

⁷⁰ KPMG (no date)

⁷¹ Convention on Biological Diversity (2023)

⁷² European Commission (no date)

conservation, the plan bridges gaps between biodiversity policy and other policy areas, and aims to raise awareness among decision-makers and the public about the fundamental importance of biodiversity for our lives.⁷³

"Taking proactive action before regulations become mandatory is usually a prudent approach. It is often the more cost-effective path compared to being compelled to comply with regulatory mandates."

Beat Deuber, Head of Network Design, Assets & Technology, SBB

On the disclosure and reporting side, various voluntary and mandatory standards are being developed and introduced by governmental authorities and NGOs. At the European level, the EU Commission has tasked the European Financial Reporting Advisory Group (EFRAG) with developing standards for the Corporate Sustainability Reporting Directive (CSRD).⁷⁴ One of the standards in the current draft, ESRS E4, specifically focuses on biodiversity and ecosystems. These requirements aim to help companies understand their impacts on biodiversity and align their business models and operations with biodiversity protection.

At the global level, the International Financial Reporting Standard (IFRS) is making progress with the development of the International Sustainability Standards Board (ISSB), catering to investor demand for high-quality sustainability reporting. Unfortunately, however, the ISSB's draft currently proposes non-mandatory biodiversity disclosures.⁷⁵ On the other hand, the Global Reporting Initiative (GRI), a leading provider of sustainability reporting guidelines, has presented a standard covering biodiversity impact disclosure, which is currently undergoing revision and will be effective from 2024.⁷⁶

In addition, the Task Force on Nature-Related Financial Disclosures (TNFD) is currently building upon the approach taken by the Task Force on Climate-related Financial Disclosures (TCFD), in that they provide guidance to companies on analyzing and presenting biodiversity-related risks, impacts, and interdependencies. As of 2024, major listed Swiss

⁷³ FOEN (no date)

⁷⁴ Bundesministerium für Arbeit und Soziales (no date)

⁷⁵ International Sustainability Standards Board (no date)

⁷⁶ Collaborating Centre on Sustainable Consumption and Production (no date)

companies will be required to publish a climate report based on the TCFD's recommendations.⁷⁷

Furthermore, the Accountability Framework initiative (AFi) is a collective effort of diverse organisations dedicated to protecting forests, natural ecosystems, and human rights.⁷⁸ The AFi has created guidance on how to eliminate deforestation, ecosystem conversion, and human rights abuses from commodity supply chains and works to embed requirements, guidelines, and good practices for ethical supply chains broadly across key commodity sectors. It does so by working to strengthen alignment among different goals, targets, action pathways, and metrics. This includes alignment of corporate reporting and disclosure standards, metrics, implementation guidelines, and monitoring tools.

Going forward, with the general attention on biodiversity increasing, nature-related disclosures are likely to gain prominence and potentially also become mandatory.⁷⁹

"We need comprehensive regulations and collective action – addressing environmental problems with voluntary actions only will not be enough. Particularly for companies with a high biodiversity impact, staying ahead of regulatory requirements will be essential."









André Frei, Chairman of Sustainability, Partners Group

⁷⁷ Der Bundesrat (2022)

⁷⁸ Afi (no date)

⁷⁹ Center for Corporate Reporting (2023)

Exhibit 13: Biodiversity loss poses major business risks for Swiss companies^{80,81}

<p>Physical Risk</p> 		<p>Decline in ecosystem services and increased exposure to natural hazards. Can result in increased cost of inputs, lack of natural goods, loss of productivity, as well as disruption of operations as resilience to climate-related natural hazards is reduced.</p>
<p>Regulatory Risk</p> 		<p>Additional costs and business disruption caused by tighter regulations, for example, through tougher reporting, licensing, industry standards, taxation, and penalties.</p>
<p>Reputational Risk</p> 		<p>Loss of brand value due to biodiversity negligence or misconduct, and access to financing becoming more difficult due to increased investor scrutiny.</p>
<p>Market Risk</p> 		<p>Increased cost or lost revenue due to market dynamics being unfavorable to businesses not adapting fast enough.</p>

⁸⁰ WWF Biodiversity Risk Filter (no date)

⁸¹ TNFD (2023)

Reducing impact on nature can create business opportunities

While risk avoidance is still one of the key motives for Swiss businesses' biodiversity actions, these efforts can also come with clear financial benefits.

The green transition, so far mainly driven by climate change-related net-zero targets, customer demands, and government policies, is already leading to shifts in profit pools. With biodiversity quickly moving up on the green transition agenda, similar opportunities are likely to emerge for companies that step up their related efforts. Nature-based solutions – which the International Union for Conservation (IUCN) defines as “actions to protect, sustainably manage, and restore natural as well as modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature”⁸² have gained broad recognition for their potential to help resolve environmental challenges. That said, such solutions often involve some degree of financial challenge⁸³ – a point also confirmed by our interviews: we found that many companies are struggling to identify relevant business opportunities associated with their biodiversity efforts, often considering them more of a “hygiene factor” and a “license to do business.” So, this chapter outlines five areas that might offer attractive business opportunities when tackling the biodiversity crisis.

"We have to move from philanthropy to generating business impact, to shift our focus from purely charitable endeavors to economically viable solutions."

Marco Dunand, CEO, Mercuria

When it comes to capitalizing on biodiversity, innovation plays a crucial role. Rather than pursuing incremental innovation, and seeking to improve existing business practices, companies may need to adopt a more disruptive approach – in other words, they may need to reinvent their core operations to better serve the fundamental needs of society and the planet. One example: the WWF's Nature Pays program takes a fresh and unconventional approach to conservation efforts, based on the insight that conservation can thrive when communities benefit directly. By establishing Community Conservation Enterprises – small, locally run businesses –, the program generates positive outcomes for both people and nature, in that it provides livelihood opportunities for local people and actively contributes to the preservation of habitats and biodiversity. Empowered in effective ways, these enterprises develop into integral parts of the effort to safeguard

⁸² IUCN (no date)

⁸³ European Investment Bank (2023)

some of the world's most biodiverse landscapes, seascapes, and river basins⁸⁴. This is just an example, and putting nature at the core of their business might not be feasible for large corporations. Still, they might want to adopt more radical ways of thinking when developing new products or ventures. After all, it is quite clear that without profounder changes to most business models, we may not reach a path that allows us to keep within planetary boundaries.

New, emerging markets: Biodiversity-related changes in consumer demands and sentiments can lead to changing dynamics in overall markets, such as access to new markets or locations. For example, the rise of environmental concerns, a growing consideration for animal rights, and human health concerns have increased the general interest in foods, ingredients, and beverages derived from non-animal sources, including what is referred to as alternative proteins. Besides changing customer needs, price remains a crucial growth driver, especially for products with high price elasticity such as foods and beverages – which is why companies at the forefront of the nature-positive transition will be able to tap into newly created markets and segments, and gain a competitive edge by lowering their costs and accelerating growth.

"Initially, biodiversity efforts may entail extra costs. In the long run, however, these costs will be offset by other factors (and mitigated by economies of scale), resulting in a zero-sum game."

Carlos Trubacz, Director Corporate Responsibility, SIG

As an example, plant-based meat products have so far been more expensive than animal meat products. However, as both experience and sales volumes increase, over the next few years they are likely to reach the cost tipping point per unit and become cheaper than animal meat. As a result, the industry price point for meat (i.e., both animal meat and alternatives) will drop below the price of animal meat, which, in turn, will drive a growing use of meat alternatives. Major plant-based meat players such as Impossible Foods and Beyond Meat are pushing to achieve price parity with animal meat – Beyond Meat aiming to underprice animal meat in at least one category by 2024.⁸⁵ These developments are also fueling segment growth, with alternative meats having transitioned from a niche product for a small minority to a product appealing to a growing group interested in health, animal welfare, and environmental issues – with growth rates seven times higher than that of the US meat sector over the past three years.⁸⁶ In view of the considerable price elasticity of plant-based meats, a further reduction of prices to achieve price parity appears feasible, which could result in

⁸⁴ WWF (no date a)

⁸⁵ Good Food Institute (2021)

⁸⁶ Bain analysis based on Nielsen US data (2022)

market shares of up to 20% in some categories. This growth and market share potential bears significant economic opportunities for insurgents and early-adopting incumbents – in addition to bringing great relief for climate and biodiversity. In fact, every 1% of traditional meat being replaced with meat alternatives in 2025 can reduce greenhouse gas emissions by 182 million tons of CO₂, currently the equivalent of 45 million cars on the road, and save 260 million cubic meters of water, equivalent to 104,000 Olympics-sized swimming pools.⁸⁷

Capital flow and financing: For companies taking biodiversity action, access to finance is also likely to improve. Although the total assets committed in biodiversity funds (~\$1bn)⁸⁸ remain far below those committed in climate funds (~\$400bn in 2021)⁸⁹, they have tripled over the past year. Green or blue bonds can be ways to secure funding for biodiversity-friendly projects, while higher environmental ratings may provide access to capital at better rates. For example, 85% of limited partners in the private equity realm apply ESG principles in their investment approach.⁹⁰ In 2019, public top-quartile ESG performers had a significantly higher value-to-EBITDA multiple for the total enterprise, compared to the averages of several sectors, including oil and gas, packaging, paper and transportation.⁹¹ That said, biodiversity is yet to become a top priority for financial institutions, according to our interviews, and finance-related benefits of biodiversity action are still modest.

"We're intensively working with banks. While in the previous years, we didn't get any monetary value for our sustainability efforts, for the first time we are seeing small benefits for doing what's right, such as receiving more attractive lines of credit."

Marco Dunand, CEO, Mercuria

Products & services: Increasing consumer demand for nature-positive products and services suggests increasing value for the creation and delivery of products and services that protect, manage or restore nature. For example, Migros has successfully introduced CoffeeB, a convenient and eco-friendly alternative to coffee capsules. Every Coffee Ball has a Rainforest Alliance, Fairtrade, or organic label. With these sustainability certificates, Migros aims to ensure not only that CoffeeB helps minimize waste, but also guarantee socially and environmentally friendly coffee farming. The coffee balls are aluminum- and plastic-free, and easy to compost. The result is reduced

⁸⁷ Economist (2019)

⁸⁸ Environmental Finance (2023)

⁸⁹ ESG Clarity (2022)

⁹⁰ Bain & Company (2022a)

⁹¹ Bain & Company (2020)

pressure on nature in the up- and downstream value chain (due to lower extraction of bauxite and aluminum, respectively, and lower amounts of waste in landfills).⁹²

A recent Bain & Company study looked into the potential to sell nature-positive products at higher price points: ~75% of consumers in Europe claimed to be willing to pay a premium for sustainable products, although for over half of them that premium would have to be no higher than 10%. (In addition, it would probably be wise to assume a significant attitude-behavior gap here).⁹³ NYU researchers have come to a similar conclusion, suggesting that products marketed as sustainable grow faster than conventional products, even if they are higher-priced.⁹⁴ In some cases, certificates and labels can be used to enhance the product's value proposition and charge a "green premium." In Switzerland, the market for products certified as organic has grown 7.5% per year between 2016 and 2022.⁹⁵ Real estate developers, too, are reporting a growing interest in sustainable products: Demand for green leases is expected to go up, which will probably help drive more sustainable construction approaches while increasing properties' market appeal.⁹⁶

"There is a growing demand for our sustainable products and services, particularly from the public sector, where sustainability and innovation criteria are gaining significance in procurement processes."

André Wyss, CEO, Implenia

Resource efficiency: Efforts to reduce the negative impact on nature in companies' in-house operations or value chains can also help achieve other improvements, such as enhanced operational efficiency or reduced costs. The food industry, for example, has a strongly negative impact on biodiversity through land use and intense farming; also, about one-third of all food and food products worldwide ends up in the trash.⁹⁷ Consequently, making the global food production system more efficient and reducing food loss by 50% (SDG food loss target) would greatly reduce the industry's negative impact on nature and involve a \$600B business opportunity.⁹⁸ Solutions to achieve this food loss reduction target include improved packaging to reduce transport losses, analytics of agricultural data, and circular economy solutions such as adequate redistribution of unwanted products or alternative use of remaining food loss (e.g., as a fertilizer).

⁹² CoffeeB (no date)

⁹³ Bain & Company (2023)

⁹⁴ NYU-Stern (no date)

⁹⁵ Bio Suisse (2023)

⁹⁶ SPS (2022)

⁹⁷ The World Food Programme (2020)

⁹⁸ Bain analysis based on World Bank (2023)

The Swiss railroad company SBB has discovered a way to use biodiversity to reduce its costs. To ensure the stability of railroad lines, SBB has to maintain its embankments. This includes removing neophytes – plants appearing in areas where they did not occur originally. In the past, railroad companies used manual work or chemicals to get rid of those plants – SBB now uses more environmentally friendly methods: after weeds are removed, native plants are sown or planted on the embankment to prevent overgrowth. This saves the company money and helps conserve resources: the railroad terraces provide valuable habitats for animals and plants, thus contributing to Switzerland’s biodiversity.

"We see biodiversity measures also as a way to maintain safe operations and save costs: By effectively managing biodiversity, we minimize the need for manual interventions, which results in cost savings."

Beat Deuber, Head of Network Design, Assets & Technology, SBB

Reputational capital: Biodiversity action can lead to positive changes in a company’s actual or perceived impact on nature, leading to a boost in brand equity in both the employment and the consumer market. Companies with higher ESG scores tend to enjoy greater employee satisfaction and higher attractiveness for job candidates. Bain’s research shows that consumer brands perceived as sustainable grow two to five times faster than others; the 10% that emphasize sustainability as a key value element grow fastest of all.⁹⁹ So, moving fast on biodiversity action can be a real differentiator for a company’s brand and reputation.

Having recognized this, Hero Group, a Swiss food company selling baby foods, jams, and snacks around the globe, is strongly committed to sustainability and, over the past decade, has promoted practices to improve pollination.¹⁰⁰ As a methodology to measure the opportunities of sustainability action, the company applies NYU Stern’s Return on Sustainability Investment. Hero Group has identified four key benefits of promoting pollinator-friendly practices: (1) lower price volatility risk, as improved pollination helps stabilize yields and supply; (2) lower carbon emissions, due to lower use of synthetic fertilizer plus tree planting; (3) higher sales and profits from marketing a sustainably sourced product to new consumer segments; (4) higher level of employee engagement thanks to the promotion of sustainable values. The company has incorporated these opportunities and effects into an integrated business and investment plan that covers sourcing, product

⁹⁹ Bain & Company (2022b)

¹⁰⁰ Hero Group (no date)

development, marketing and sales initiatives.¹⁰¹ This project showcases how biodiversity action can yield a range of economic benefits and support companies in reaching their sustainability goals.

On top of the opportunities listed above, companies can also exploit synergies by simultaneously addressing several environmental goals, such as biodiversity and climate (see Chapter 5). That said, companies that have started initiatives to reduce biodiversity risks and reap related opportunities also face a number of roadblocks. In the next chapter, we will examine these factors that can slow down the transition to biodiversity-positive businesses; in Chapter 5, we will present promising solutions.

¹⁰¹ NYU-Stern (2022)



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Chapter 4

Roadblocks to positive biodiversity impact

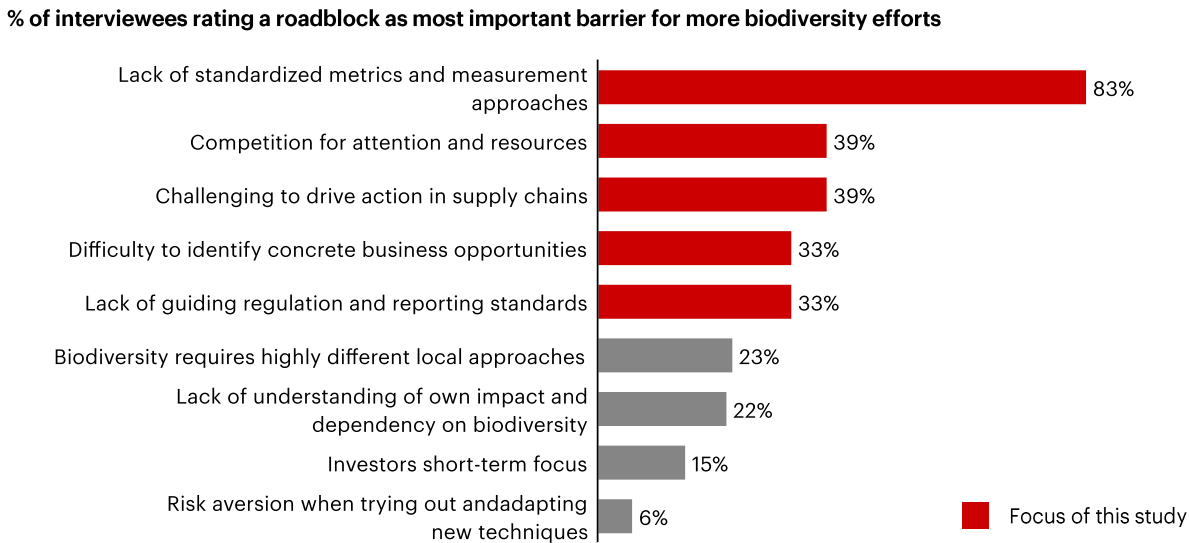
A lack of standardized metrics and measuring methods, the competition for attention and resources against other topics, and the challenges of driving the necessary action in supply chains: these are the key obstacles Swiss companies face on their way to implementing business models that incorporate biodiversity aspects.

Key takeaways

- ▶ Swiss companies have a very clear idea of what key barriers are that keep them from stepping up their biodiversity efforts. The greatest barrier is a lack of standardized metrics and measuring methods, such as CO2 equivalents for climate change.
- ▶ Almost 40 percent of the companies interviewed for this study told us about the difficulty to get the necessary attention and resources for the topic, as it competes with a maze of other business topics. 40 percent also spoke of the difficulty to initiate the required collaboration with partners in their supply chain, as processes are complex and hard to trace.
- ▶ A lack of guiding regulation and reporting requirements is also among the top 5 roadblocks. While this is a clear call to action for regulatory bodies, it is also a difficult balancing act as overregulation must be avoided

We will clearly need transformational change to put a stop to, and reverse, the loss and continued overexploitation of natural resources. At the same time, biodiversity is also an attractive emerging field for some businesses. In our interviews, Swiss companies indicated a substantial degree of awareness of the matter, and willingness to move the topic of biodiversity further up on their strategic agendas. However, a number of roadblocks are currently slowing down their efforts to take specific action. The graph below shows the five roadblocks interviewees perceived as most important (see Exhibit 14).

Exhibit 14: Swiss businesses face a multitude of roadblocks in their biodiversity efforts



Note: Multiple answers possible; Source: Bain analysis, based on 21 conducted interviews

1. Lack of standardized metrics and measurement approaches

“If you cannot measure it, you cannot manage it.” This phrase, frequently quoted in business, is also true for biodiversity. According to more than 80% of our interviewees, the greatest roadblock to taking appropriate action is a lack of standardized metrics and measuring methods – both for measuring biodiversity and for putting a value to it.

Measuring biodiversity is challenging, due to it being very location-specific and extremely complex, including an enormous variety of ecosystems, species, and genes as well as their dynamic interrelationships. This wealth of relevant factors makes it extremely difficult to determine a single unit of measurement that would summarize biodiversity in its entirety. Over the years, this has led to the creation of lots of different and sometimes local measurement methodologies; only few of them were actually scalable and financially efficient. As a result, the matter may feel overwhelming to businesses, making it even more challenging to define and take appropriate action (e.g., when it

comes to setting targets or trying to introduce biodiversity measures with suppliers).¹⁰² In stark contrast to this, climate change can be broken down into a single, meaningful, and global unit of measurement: CO2 equivalents – the measure used to compare the effect of different greenhouse gas emissions/ concentrations on the Earth's surface temperature.

"The probably biggest issue is the lack of scalable and robust measurements. Assessing biodiversity is inherently complex and comes with high costs, technical obstacles, and a slow process that is often difficult to scale."

Juan Valero, Chief Sustainability Officer ADAMA and former Head Sustainable and Responsible Business, Syngenta

Even where physical measurements are accessible, assigning a monetary value to the goods and services provided by nature remains challenging. For most of them, only a very limited financial market value – or none at all – has been determined to date, which is why they are often underrated or completely left out of value assessments. One of the main reasons for this is the absence or inadequacy of market prices that would adequately account for externalities.¹⁰³ As a result, quantifying biodiversity-related risks and opportunities in monetary terms is a tedious task and prone to errors – which, in turn, makes it difficult to identify cost-effective biodiversity projects for investment.

"Setting quantified and time-bound targets or charging a premium for something which is complex to measure is challenging."

Gilles Andrier, CEO, Givaudan

¹⁰² European Commission (2021)

¹⁰³ Royal Society (no date)

2. Competition for attention and resources

Companies face a multitude of (environmental) sustainability issues that require attention in their day-to-day operations. Given their resource limits, businesses are forced to prioritize and concentrate on the most material issues. Over the past several years, climate change has been considered a more pressing issue than biodiversity, driven also by an increase in regulatory requirements, investor demands, and consumer awareness. Interviewees emphasized that biodiversity efforts required additional financial and human resources, often more than were available. These capacity constraints make it appear difficult to address several concerns simultaneously. At the same time, however, it is obviously preferable to address the different environmental topics simultaneously, as the interdependencies between them suggest synergies for related actions. Addressing them separately, by contrast, can require companies to make tradeoffs, adding a further level of complexity. (Consider, e.g., offshore wind parks: while considered beneficial to the climate, some claim they may harm biodiversity.)

"When it comes to tackling a problem, it takes more than just words – it takes time, effort, and people. This is true not only for a global company like Zurich but also many of the small and medium-sized companies we are insuring."

Robert Wyse, Climate and Nature Manager, Zurich Insurance Group

Moreover, interviewees emphasized that sustainability topics not only compete for company's internal resources but also for customer attention. While consumers' awareness and understanding of environmental sustainability is growing, climate change is still considered the bigger issue. As a result, interviewees say they are facing difficulties in educating consumers about biodiversity. The inherent complexity of the subject adds to the problem.

"Our main focus in the last years was on climate, because of its high public attention and standardized measurement for GHG reduction per SBTi."

Christine Crosby, Sustainability Director, Hero Group

3. Challenging to drive action in supply chains

To achieve significant impact and reduce the biodiversity footprint of products and services, Swiss companies often depend on their supply chains to take related actions. This poses a major challenge, as supply chains are often complex and multi-layered, involving numerous stakeholders, a range of geographies, and complicated relationships between companies and their suppliers. To ensure proper consideration of biodiversity aspects at every stage of their supply chains, companies need robust tracing mechanisms, which are often lacking at present: more than one-third of companies said, for instance, that their supply chain monitoring technologies did not provide real-time insights.¹⁰⁴ Insufficient traceability makes it challenging to identify the origin of raw materials, assess the associated impacts on biodiversity and take respective actions.

While procuring commodities directly from the source can increase companies' control over their supply chain, it is not always feasible. ESG considerations are only one of several strategic priorities (e.g., cost, service, resilience) – supplier research, negotiations and relationship management are labor-intensive, especially when dealing with many small-scale suppliers. (Nestlé, for example, directly works with over 700,000 farmers around the world.¹⁰⁵) This is further exacerbated by the fact that biodiversity is highly diverse across geographies and depending on local factors, which means that suppliers located in different regions and/or supplying different commodities might require very different measures. On top of it all, knowledge gaps and suppliers' risk aversion pose problems: even when solutions are available, suppliers may not be aware of them; and even if they are aware and have the financial resources, businesses relying on one or only few commodities often fear the risks involved in changing processes and business models.

"Achieving a more sustainable business model requires behavioral change, both among employees and suppliers. Processes will need to be adjusted, and initially, the effort required may be greater compared to conventional practices. This transformation will take time and targeted effort."

René Zahnd, CEO, Swiss Prime Site

¹⁰⁴ Bain & Company (2021b)

¹⁰⁵ Nestlé (no date)

4. Difficulty to identify concrete business opportunities

While the business value from mitigating biodiversity-related risks may be apparent, the potential for value creation is often more difficult to identify. Interviewees mentioned that further down the value chain, clients were reluctant to pay a premium for biodiversity-friendlier products, especially in the B2B environment. In the best of cases, customers are willing to pay part of the premium while suppliers are stuck with the rest. This may change in the longer run, however, as sustainability and therefore biodiversity are likely to become a “license to operate.”

"Sustainability is changing from being a differentiator towards being a basic requirement of doing business, a pure license to operate."

Gilles Andrier, CEO, Givaudan

On the B2C side, responses were mixed: While most interviewees doubted consumers' willingness to pay for biodiversity-friendly products, some believed that at least a part of them were willing to pay a green premium, especially if the product offered extra (health) benefits. (Some studies support this latter view, at least for a green premium within certain limits, see Chapter 3).

"Economically viable biodiversity solutions would help the topic gain real momentum and company-wide support. So far, we have had active engagement at the corporate level and impact in targeted geographies. There is much potential to scale nature-based solutions."

Christine Crosby, Sustainability Director, Hero Group

Apart from customers' attitude, the business case is rather difficult to make: Given the lack of reliable data on biodiversity, companies often need to rely on assumptions, making the case less robust. Biodiversity measures may also come with high upfront capital costs, which is a barrier in regions with resource constraints or for industries with low margins (even though interviewees mentioned that in the long run, higher costs are offset). Furthermore, value creation levers might have longer payback periods compared to other projects. For example, a Bain study found that it takes farmers over four years to break even when adopting regenerative practices, making financial

incentives and support essential¹⁰⁶. These longer payback periods may be especially difficult when combined with short-term focused and incentivized executives and investors. In general, our interviews suggested that the financial markets were only just starting to value biodiversity action. A study conducted across the European Union confirms this: Looking into more than 1,300 projects for nature-based solutions, the study found that their funding largely comes from public sources. Only around 3% received significant financing from the private sector.¹⁰⁷

"Markets operate on economic principles rather than philanthropic ones. To generate a willingness to pay, you need to offer tangible benefits to customers."

Robin Kolvenbach, CEO, Argor-Heraeus

5. Lack of regulatory guidance and reporting standards

So far, both relevant international agreements and national policies have not been sufficiently effective in protecting nature and driving the required change. The lack of more powerful and binding international legislation – and, based on it, national policies that go beyond the current, rather loosely set environmental regulations – is widely considered a hindrance to full implementation of the measures required to halt and reverse nature loss. Interviewees emphasized that international regulations should seek to level the playing field across geographies, in order to prevent individual issues from simply being shifted to another country with looser regulations. Without a level playing field at the global or at least regional level, players leading the way in terms of biodiversity action may be put at a disadvantage and, as a result, lose their drive to tackle a true transformation. This is a point most interviewees agreed on: regulations being crucial in driving the necessary pace of change.

Adding to this, current biodiversity-related business reporting is rather inadequate with regard to both the quality of biodiversity information and the insights provided into business risks and opportunities.¹⁰⁸ This limitation is attributable, in part, to missing consistent and generally accepted reporting standards (see Chapter 3). Establishing such standards would offer companies better guidance on how to report on biodiversity, including its risks and opportunities, and alleviate their concerns about potential allegations of greenwashing.

The upcoming sections provide a high-level description of actions that can be taken within the identified areas, covering both what they are and what businesses should strive to achieve when

¹⁰⁶ Bain & Company (2021a)

¹⁰⁷ European Investment Bank (2023)

¹⁰⁸ European Commission (2021)

engaging in them. Immediate and concrete action within these areas is crucial and puts businesses on the path to reducing their biodiversity impacts. Any improvements should, however, be seen as the first steps in an iterative process of continuously evaluating and addressing impact with the end goal being transformative change.

"Measure what matters' also counts for the assessment of actions to preserve biodiversity. Meaningful and universally accepted standards for management and reporting can improve effectiveness and protect companies from being accused of greenwashing."

Antje Kanngiesser, CEO, Alpiq

The interviewed companies also stressed that in the area of sustainability, they saw an increasing imbalance between the time and resources going into measuring and reporting activities and the time and resources needed for actual sustainability action. It will be important for policymakers to keep this balance in mind when developing future regulations.



Chapter 5

Getting started

Companies play a crucial part in protecting and restoring natural ecosystems. The WWF Biodiversity Stewardship Framework supports companies in assessing and addressing their biodiversity risks and in making adequate contributions to the recovery of biodiversity. Many Swiss companies have gained first experiences in this field, paving the way for others.

Key takeaways

- ▶ The WWF Biodiversity Stewardship Framework guides companies in planning their transformation. It provides detailed guidance along five key steps: Assess, Embed, Implement, Advocate and Achieve.
- ▶ For each step, specific tools, standards, and guidance materials are available for companies to get started. The standards include science-based targets with a focus on target setting as well as recommendations for reporting and disclosure based on the ideas of the Taskforce of Nature-related Financial Disclosures (TNFD).
- ▶ While not fully carved out yet, solutions to the roadblocks mentioned in Chapter 4 do exist. Companies would be well advised to act quickly, working to address their biodiversity risks, to seize related opportunities, and to lead the transition towards biodiversity-friendly business.

In view of rapidly progressing biodiversity loss and its consequences for nature, people, and the economy, it is high time for businesses to launch deliberate efforts towards limiting their biodiversity impacts. While related efforts are still somewhat unformed in some industries and there is still a lack of perfect solutions to some of the roadblocks described in Chapter 4, our interviews with Swiss companies revealed a strong willingness to tackle the matter. Biodiversity frameworks and standards are being developed by leading international organizations to help businesses measure, manage and report on their impact.

One of these is the WWF Biodiversity Stewardship Framework. Providing a valuable guide for companies in planning their transformation, it incorporates practices from various existing approaches and tools such as SBTN and TNFD. The framework comprises five iterative steps:

1. **ASSESS** the value chain to understand the material connections between nature, people and business.
2. **EMBED** leading sustainability practices into the business's strategic direction and the way the business model works.
3. **IMPLEMENT** solutions across and beyond the value chain to improve outcomes and impacts for nature, people and business.
4. **ADVOCATE** for systemic transformational change by mobilizing and engaging with key stakeholders.
5. **ACHIEVE** outcomes and impact for meaningful contributions to nature's recovery, respect of human rights and enabling economic prosperity.

Within these steps, there is a total of thirteen levers that companies can use to analyze their biodiversity risks and determine adequate action (see Exhibit 15). This chapter provides examples of measures companies can take shortly to address selected levers.

1. Assess: Digital technologies make it easier to get started

Companies will need an understanding of what their impacts and dependencies on nature are, exactly where these impacts are located in their value chain (upstream, in-house operations, downstream), and how critical they are to the respective ecosystem and the company. This will provide the basis for prioritizing issues, setting targets, and implementing effective measures.

There is also a growing number of digital tools and materials available, helping companies to begin assessing both their impact and their dependency on biodiversity. Companies can use these tools to identify and quantify material pressures on biodiversity, identify hotspots and biodiversity risks, or establish traceability of materials in the supply chain. For example, the WWF Biodiversity Risk Filter is a tool that provides access to over 50 datasets describing the global state of nature. It can help companies to understand and address biodiversity dependencies, impacts, and risks (see Box on page 56).

Exhibit 15: WWF Biodiversity Stewardship Framework: An integrated strategy which helps to protect nature



Source: WWF

To draw precise conclusions regarding their biodiversity risks, besides nature-related data companies will also need data on their suppliers' operations and supply chain (and possibly customers), which might be challenging to obtain given the complexities of value chains. Digital technology can be an essential resource here, helping to ensure the necessary level of transparency and traceability within the value chain and generating the data needed. Gold refineries Argor-Heraeus and MKS PAMP provide great examples: MKS PAMP's proprietary traceability solution Provenance™, which builds on block-chain technology, tracks the global precious-metals supply chain end-to-end, thus guaranteeing responsible sourcing.¹⁰⁹ Argor-Heraeus pursues a similar approach through a partnership with the start-up firm aXedras, which uses block-chain technology as a data transmission tool to digitally mirror the supply chain.¹¹⁰ Also, Argor-Heraeus works directly with its partner mines to improve traceability: powered by technology by the Swiss startup Haelixa, the mines apply specific DNA on the material, which, upon arrival at Argor-Heraeus' facilities, is analyzed using a PCR-test allowing to verify materials' authenticity and accurately trace

¹⁰⁹MKS PAMP (no date)

¹¹⁰ Heraeus (no date)

their origin. These measures increase the level of transparency and trust from clients, while at the same time provide refineries with a near-real time understanding of their supplies, enabling them to respond faster and more flexibly.

"Supply chain transparency allows us to assess our impact, gain better oversight of our partners and set goals on how we can generate greater value. By leveraging due diligence, technology, and innovative partnerships, we enhance the traceability of the precious metals we source and measure our products' GHG emissions across the value chain."

Tamara Jomaa-Shakarchi, Head of ESG, MKS PAMP Group

A first glance on biodiversity and water risks with the WWF Risk Filter Suite

The WWF Biodiversity Risk Filter is a free online screening and prioritization tool, designed to serve as a starting point for companies in addressing biodiversity dependencies, impacts, and risks in their operations and value chain. The tool supports businesses on their biodiversity journey in four modules: Inform, Explore, Assess, and Respond. Three of the tool's four modules were launched in January 2023.

The Inform module provides companies with an overview of sector-level impact and dependencies. The Explore module adds the regional perspective, so companies can identify biodiversity-related high-risk areas globally. The Assess module combines sector-level data with relevant biodiversity data to provide a more detailed assessment of risk and opportunity types across a company's value chain sites. This helps investigate underlying causes and prioritize focus areas. The Respond module, which will be launched later, supports businesses in identifying company-level response options to minimize their biodiversity-related risks. The module offers recommendations fitted to specific issues and locations.

Similar to the WWF Biodiversity Risk Filter, the WWF Water Risk Filter is a free online tool that enables companies and investors to Explore, Assess, and Respond to water risks. A prime example of the successful integration of the WWF Water Risk Filter into a sustainability strategy is the Swiss retailer Migros back in 2021. The objective of this collaboration was to identify adequate sustainable agricultural standards for each of Migros' sourcing locations. The process involved three steps: First, a database was established to evaluate sustainable agricultural standards against 27 water-related aspects. Second, commodity risks were

assessed for Migros' sourcing regions, using the Water Risk Filter. Third, based on the assessments of steps one and two, recommendations were developed on which standard to implement for which sourcing location.

2. Embed: Early movers are already integrating biodiversity into their strategies

For the second of the framework's five steps, companies need to embed leading sustainability practices into their strategy setting and business models. Key levers here include developing cultural awareness as well as specific skillsets for dealing with biodiversity-related risks, integrating sustainability into the organization structure, and developing biodiversity-related targets and the strategies to achieve them.

In terms of target setting, relevant approaches vary depending on the needs, material issues, and capacity of a company as well as available methodologies. One example: The Science-Based Targets Network (SBTN) has launched a first set of science-based targets for nature (covering freshwater and land) in 2023, and hopes to validate the first targets (outside the pilot) in early 2024. SBTs for Nature require companies, among others, to avoid the conversion of natural habitats, reduce their land footprint, and engage to protect and restore value chain-adjacent landscapes. Targets like these should be a top priority for an ambitious biodiversity-focused management, as they address the largest driver of biodiversity loss: changes in land use. In addition, setting climate-related SBTs enables companies to make adequate contributions to address the third-largest driver of biodiversity loss. The Science-Based Targets Network plans to gradually expand its methods to include further guidance on additional drivers and enhanced embedding of biodiversity aspects. Where SBTs for Nature are not available at this point, a complementary option for companies is to set contextual targets for the sites concerned, based on local insights (see, for example, WWF's guidance on contextual targets for water).¹¹¹ Strategies for companies to achieve the targets set include supplier engagement and cooperation, more biodiversity-friendly sourcing, and a stronger focus on alternative/ circular business models.

In the broader context of companies' environmental strategies, interviewees noted that biodiversity often competed for attention with other sustainability issues, primarily climate change. Limited resources pose challenges in balancing these priorities. To address this, companies can explore potential synergies and areas of overlap between addressing both climate change and biodiversity in their strategy and targets (see Box on page 58). They can also leverage learnings from their decarbonization journey to accelerate their transition towards a more biodiversity-friendly

¹¹¹ WWF (no date)

business. These learnings can be derived for anything from target setting to reporting and disclosure to engaging the organization.

"The higher the maturity level of a company's existing sustainability efforts, the easier it is for the organization to tackle new sustainability topics."

David Guthörl, Head of Sustainability, Allreal

To some extent, there are synergies between biodiversity action and climate action

As mentioned in Chapter 1, the subjects of climate and biodiversity are interlinked. Research by both the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC) shows that many potential measures are beneficial for both the climate and biodiversity. This is especially true for biodiversity interventions, most of which have positive effects on the climate. For example, the well-designed restoration of ecosystems with a high carbon storage potential will also provide critical habitats for species and foster the diversity of species and genetic variants. Swiss-based energy and commodity group Mercuria's launch of Sylvania, a nature-based investments platform, highlights these synergies between carbon and biodiversity investments. Through targeted investments in reforestation projects and the restoration of degraded peatlands, Sylvania works to mitigate climate change and, at the same time, contributes to the preservation and restoration of vital ecosystems and species.¹¹²

There are cases, however, in which trade-offs must be made between positive effects on biodiversity and negative ones on the climate, or vice versa. This is particularly evident in some of the climate-related interventions in the energy sector, which could involve risks for biodiversity.¹¹³ We have mentioned the wind parks earlier; another notable example is hydropower plants – currently the largest source of green energy in Switzerland, contributing 62% of Swiss domestic electricity production.¹¹⁴ According to some sources, hydro plants may harm aquatic ecosystems, for instance by altering fish migration routes and driving up mortality rates for animals passing the turbines, spillways, or bypasses.¹¹⁵ Around 60% of fish

¹¹² Mercuria (2023)

¹¹³ IPBES-IPCC (2021)

¹¹⁴ EDA (no date)

¹¹⁵ Boes et al. (2021)

species in Switzerland are on the Red List of Threatened Species; hydropower is considered one of the main causes.¹¹⁶

By and large, however, there is a large number of potential actions beneficial to both the climate and biodiversity, and only few with adverse effects. So, when planning companies' climate and biodiversity-related interventions, decision-makers should map key trade-offs to better understand and manage the potential risks of one to the other, and prioritize powerful levers with a positive impact on both. A soon-to-be-released feature in the WWF Risk Filter Suite will help companies understand how to achieve multiple beneficial effects on both the climate and biodiversity through investments in conservation and restoration.

When setting targets and reporting on their progress against these targets, companies will need ways to measure and quantify their biodiversity impact in line with results-focused standards and legal frameworks. As emphasized by our interviewees, there is still a lack of standardized metrics and consistent measuring methods around biodiversity, with metrics ranging from measuring ecosystem conversion and degradation to the quality and quantity of freshwater used, to the richness and density of species in specific habitats. To address the complexity of measuring biodiversity, various technological solutions are currently being developed. One is the combination of environmental DNA (eDNA) and geospatial data, as discussed in the Box on page 60. Another solution is developed by Syngenta: a technology for 24/7 biodiversity monitoring, capable of automatically and autonomously identifying a range of moving species at a low cost. Specifically, the sensors target insects, as they are crucial for agriculture and the well-being of ecosystems; the system uses machine learning algorithms to accurately identify the species found.¹¹⁷ Another approach is pursued by Tesco in collaboration with WWF and a tech start-up named AgriSound: the plan is to apply the firm's insect monitoring device on several English apple orchards. AgriSound's solution is designed to capture and analyze the sound of a range of common pollinating insects. This way, the software enables farmers to measure the change in pollinator numbers over time, and to evaluate the impact of measures to increase pollinator populations.¹¹⁸ Despite these advances in biodiversity measurement, it remains a challenge to translate these achievements into standardized and widely accepted metrics for companies to report on their biodiversity impact. The issue clearly requires further attention and efforts.

¹¹⁶ Aqua Viva (no date)

¹¹⁷ Syngenta Group (no date)

¹¹⁸ Tesco (2023)

Gathering biodiversity data with the help of environmental DNA (eDNA)

The emergence of environmental DNA (eDNA) has opened new avenues for biodiversity measurement methods, offering a broad, efficient, and non-invasive approach applicable to terrestrial, marine, and freshwater ecosystems. By collecting and analyzing genetic material left by organisms in their environment, such as skin cells, saliva, or excrement, eDNA allows for the extraction and study of DNA traces from a single sample of water, soil, or even air, unveiling the species present in a specific area.¹¹⁹ For instance, ETH researchers in collaboration with WWF utilize eDNA analysis to monitor terrestrial biodiversity across various stages of forest restoration in Colombia, spanning from clear-cut areas converted to pasture, through regenerating secondary vegetation, to old-growth forests. The research aims to provide the foundations for decentralizing the application of this technology, enabling quick and cost-effective eDNA measurements in any location – a crucial step to meet global demand.¹²⁰ Another group of ETH researchers works on solutions for collecting samples in remote and inaccessible areas by using drones. The drones retrieve traces of animals and plants from branches using fleece material, and even collect samples from water and air with a pump and air filter.¹²¹

Whatever approach companies choose, a comprehensive knowledge of biodiversity, both at large and very small spatial scales, will be crucial to ensure truly effective biodiversity management and to identify regions of significant conservation value. To achieve this, eDNA measurements can be combined with geospatial data such as satellite imagery.

NatureMetrics, a UK-based start-up company, is an example: the firm combines eDNA surveys with machine learning and data visualization to generate landscape-level maps of biodiversity value. With over 450 clients served, there is clearly substantial demand for more comprehensive nature data.¹²² Although the combination of eDNA and geospatial data is still in its early stages, the Taskforce on Nature-Related Financial Disclosures (TNFD) has acknowledged geospatial technology and eDNA capabilities as important tools for businesses to manage and report on nature-related risks.¹²³

¹¹⁹ UNESCO (no date)

¹²⁰ ETH Zürich (no date)

¹²¹ NZZ (2023)

¹²² NatureMetrics (2022)

¹²³ TNFD (2022)

With an increasing number of measurement solutions under development, companies may want to play a more active role and help define metrics and measurement approaches in their industries. Holcim is doing just that: Since there was no guiding framework for biodiversity management in the cement and aggregates sector, Holcim entered into a collaboration with the International Union for Conservation of Nature (IUCN) in 2011 to develop a measuring methodology for the condition of habitats and species. The outcome of this cooperation, a tool called Biodiversity Indicator Reporting System (BIRS), supports Holcim in assessing their biodiversity level baseline and in measuring improvements in biodiversity over time in their sites and managed land (threats to habitats include soil erosion, dumping of non-mineral solid waste, use of non-quarrying natural resources, and more). This allows the company to better understand the challenges that exist at each site, and the opportunities to enhance biodiversity and improve ecosystem quality.¹²⁴ While this biodiversity assessment has not yet been concluded for all locations, this did not keep Holcim from taking action:

"Taking a proactive approach, in 2021 we established freshwater withdrawal targets despite the lack of a solid science-based framework for nature. This decision proved to be beneficial as our product lines have now started to take action, leading to noticeable improvements. Delaying action would have hindered this progress – we just had to start."

Renata Pollini, Head of Nature, Holcim

Furthermore, Holcim is advocating for the development of a universal framework to measure and monitor the impact of activities on biodiversity and freshwater, in order to facilitate target setting and measuring improvements. The company is working with SBTN to provide nature targets for validation in 2023, as part of a global initiative to set the world's first standards for ambitious and measurable corporate action for nature. SBTN selected Holcim as one of the first group of seventeen global companies to work on this matter, based on its advanced, science-driven approach to ecological matters. In this group of seventeen, it is the only representative from its industry.¹²⁵

Other important matters for companies to address are how to get buy-in and support for their biodiversity efforts across their organizations; also, what values, norms and behaviors could support the implementation of their sustainability strategies. Engaging and educating employees on the importance of the matter and on the role the company could play in future conservation efforts will

¹²⁴ Holcim (2014)

¹²⁵ SBTN (2023)

be key elements of that change process. One way to approach them may be through WWF's "NaturAktiv" corporate volunteering program. Employees spend a day in nature, working with farmers and local communities to improve the local landscape (e.g., taking care of dry meadows or planting riverbanks); in addition, WWF experts provide with interesting information on the importance of biodiversity in the respective area.

"Engaging and educating both employees and clients on biodiversity is key to progress, especially given the complexity of the topic."

Philipp Rickenbacher, CEO, Julius Bär

Last but not least, companies can accelerate the transition to a truly sustainable business by aligning their sustainability targets with their (executive) compensation KPIs.¹²⁶ At Holcim, for example, one third of the long-term incentives for the top 200 senior leaders, including the CEO and Executive Committee, are based on the Group's sustainability performance.¹²⁷ Holcim is not the only one: In 2022, 70% of S&P 500 companies adopted ESG metrics in their executive incentive plans¹²⁸ – and rightly so, as top executives' buy-in is crucial for the success of a company's biodiversity efforts. Our interviews highlighted that in companies where biodiversity efforts are at a quite advanced level, this typically started with the CEO prioritizing biodiversity and getting the board's support, then assigning the task to the CSO.

"As with so many other topics, leadership matters. If the senior management and board of the company are not actively pushing the sustainability agenda, making real progress on the topic will be tough."

Philipp Wyss, CEO, Coop

¹²⁶ Harvard Business Review (2023)

¹²⁷ Holcim (2022)

¹²⁸ Borneman et al. (2022)

3. Implement: Swiss companies have impressive nature protection projects underway

After companies have developed their own specific strategy to avoid and reduce their biodiversity impact, but also to contribute to the restoration of nature and drive transformation of the economy, the challenge now is to implement it effectively, ensuring a maximum of impact. In their in-house operations, companies may need to change processes or procedures (e.g. optimize product design by reducing packaging waste) or even adapt their business models (e.g., introduce circular concepts or switch to leasing/ sharing models).

For both economic and ecological reasons, an increasing number of real estate developers, such as Swiss Prime Site (SPS), are adopting circular-economy principles in their business practices. Besides impacting climate, the Swiss construction sector also has a significant impact on biodiversity: its consumption of raw materials such as sand and gravel is enormous, and it produces by far the largest share of waste in Switzerland (~80%).¹²⁹ At the same time, supply shortages in construction materials and the scarcity and rising costs of landfill space put real estate developers under growing economic pressure.^{130,131} Adding to the challenge, commercial tenants are increasingly looking for sustainability in office buildings. Circularity offers a solution to these challenges. Rather than dumping construction and demolition waste on landfills or incinerating it, circulating and reusing these materials can considerably reduce the negative biodiversity impact associated with the extraction, processing, and disposal of natural resources. At the same time, circular processes create opportunities to reduce costly landfills and charge price premiums to customers. SPS is pursuing this concept: in its new project at the Maag site in Zurich, the company aims to reduce non-renewable primary raw materials to 50% of the total mass. In another Zurich project (Müllerstrasse), rather than demolish the building and erect a new one, SPS opted to renovate and refurbish the property, cataloging and reusing materials wherever possible. The property will be SNBS-certified – a sustainable building standard in Switzerland and a key factor for the building's tenant, Google Switzerland.¹³²

¹²⁹ BAFU (no date)

¹³⁰ Schweizer Radio und Fernsehen (2021)

¹³¹ Radar (no date)

¹³² Swiss Prime Site (2021)

"There is a common belief that sustainability is more expensive compared to conventional methods. This notion is simply untrue. For example, circularity comes with substantial advantages, both in terms of economy and ecology. We are strongly committed to the circular economy."

René Zahnd, CEO, Swiss Prime Site

As secondary and tertiary sector companies' biodiversity impact largely depends on their supply chain, engaging suppliers will play a critical role. Options for companies in this field include adding policies for biodiversity in their supplier Code of Conduct, trying to go for a shorter supply chain (i.e., increasingly procuring directly from the source), and generally encouraging and supporting their suppliers in the transition towards a more biodiversity-friendly business. One example: Hero Group, a Swiss consumer goods company, has actively increased its direct sourcing from farmers. Over the past ten years, the share of direct procurement of fruits for their German Schwartau plant has increased from 61% to 70%; the percentage of fruits grown in Germany has increased from 18% to 31% since 2012. Its direct supplier contact allows the Group to engage with farmers and to support them in promoting biodiversity and maintaining healthy soil. Farmers are provided with a catalog of biodiversity measures, such as wildflower strips, alternating mulching, blooming tractor lanes, and specific on-farm expert consultation; they can choose from these measures and implement them on their lands. In return, they receive a monetary incentive for each transformed hectare. Not only do these biodiversity measures contribute to preserving biodiversity; they also increase productivity, e.g., by improving pollination and soil health. In addition, Hero Group's long-term contracts and financial support enable farmers to modify their agricultural practices and invest in new equipment – such as, for example, mechanical crop dusters, helping them reduce herbicide usage.

"Our collaboration with farmers across Europe creates mutually beneficial outcomes. For example, in Germany, we have multi-year projects that promote biodiversity, ensure a more sustainable supply of agricultural produce, and simultaneously enhance productivity for farmers."

Julia Schäfer, Sustainability Manager, Hero Group

Givaudan, another company heavily reliant on biodiversity, sources thousands of unique natural ingredients from various regions worldwide. Quite often, they come from remote communities faced with environmental and economic pressures. To ensure sustainable sourcing, Givaudan actively promotes good agricultural practices. One of the company's many initiatives is located in Egypt. Through its foundation and together with its supplier, Givaudan initiated a program to address challenges related to pest control and pesticide use in jasmine cultivation. By focusing on sustainable plant protection measures and agricultural training practices, the program assisted 240 jasmine producers and farmers with their transition: they are now using 100% organic fertilizers and insect traps, and producing their own compost.¹³³

"We actively assist our suppliers in transitioning towards sustainable agricultural practices. Given the volumes we buy, we can make a substantial positive impact in collaboration with our suppliers."

Gilles Andrier, CEO, Givaudan

In cases where direct input tracing is not feasible, certifications and labels such as FSC (promoting responsible management of forests) or IP-Suisse (environmentally and animal-friendly farming practices, see Box on page 66) can be a solution. One example of a business using labels is SIG, a company specializing in packaging and filling solutions. SIG obtained FSC certification for its operations as early as 2009, and later reached another milestone by ensuring that 100% of the raw cardboard used in its packaging is FSC-certified – both initiatives that significantly mitigated SIG's impact on biodiversity. But SIG will not rest here. Under a strategy called Forest+, the company actively supports the creation, restoration, and improved management of 650,000 hectares of thriving forests – an area of the size required to produce SIG's beverage cartons.¹³⁴ This strategy is perfectly in line with the mitigation hierarchy proposed by SBTN, which calls for avoiding environmental impacts whenever possible, reducing impacts where avoidance is not feasible, and remediating unavoidable impacts to ultimately improve the overall outcome for nature as best possible.¹³⁵

¹³³ Givaudan (2023)

¹³⁴ SIG (2022)

¹³⁵ Science Based Targets Network (no date)

"Certifications serve as a valuable proxy for addressing the challenge of measurability, and SIG has been at the forefront of advancing sustainable forest management. Our forest+ strategy also receives a lot of positive feedback, showcasing how our ambition aligns with the high expectations of society and NGOs regarding sustainable forest management."

Carlos Trubacz, Director Corporate Responsibility, SIG

The advantage of Voluntary Sustainability Standards (VSS) is that they may have consumers' recognition and trust, as to some extent they guarantee environmentally friendly practices, resulting in significant time and resource efficiencies on the buyers' part. But there are shortcomings as well, the greatest one being a lack of standardization due to the differences in modes of communication, assurance models, and scopes.¹³⁶ Also, some labels rely on simplified metrics (which do not fully capture the complex and interlinked dynamics of biodiversity) and involve various verification and enforcement challenges. Therefore, product-specific input tracing is preferable, wherever technically possible and financially feasible.

Encouraging biodiversity-friendly practices through IP-Suisse certification

Agriculture is known to be one of the industries with the greatest impact on biodiversity. Certification by IP-Suisse has made substantial progress in reducing these adverse effects. The organization was established to promote environmentally and animal-friendly practices on family-run farms, and to enhance the marketability of Swiss products by fostering biodiversity. Today, approximately 11,000 of Switzerland's 49,000 farms follow IP-Suisse guidelines in one or more production areas. By using the "Ladybug" quality label, these farms demonstrate their commitment to environmentally and animal-friendly practices. The fact that the IP-Suisse certificate has an 89% logo recognition rate among consumers has not gone unnoticed by partners such as Migros, Coop, and McDonalds, who are well aware of the significance of these practices for consumer demand. IP-Suisse's pioneering efforts in promoting sustainable agriculture and biodiversity have gained recognition both nationally and internationally.

¹³⁶ SECO (2021)

To encourage farmers to adopt biodiversity-friendly practices, IP-Suisse introduced the Biodiversity Points System, based on a scoring system developed by Schweizerische Vogelwarte. This system provides incentives for farmers to take actions that positively impact biodiversity – including, among other things, creating biodiversity promotion areas, preserving natural habitats, implementing agro-ecological practices, and providing suitable conditions for wildlife. IP-Suisse conducts regular audits and on-site inspections to verify the implementation of biodiversity measures, thus ensuring transparency and accountability. Each action is assigned a certain number of points, based on its significance for biodiversity. Farmers must achieve a minimum score to maintain their IP-SUISSE certification. In recent years, farmers have surpassed the minimum score of 17 points, with an average of around 25 points across all IP-Suisse farms. This demonstrates both their commitment and achievement in promoting biodiversity, and the success of the certification itself.¹³⁷

The IP-Suisse label has a demonstrably positive effect on biodiversity: A study investigating 133 IP-Suisse-certified farms found a positive correlation between the biodiversity points and number of species as well as density of individual species. Moreover, the study highlights that by implementing the point system, IP-Suisse has helped farmers gain a deeper understanding of biodiversity on their farms. Over time, this has led to an increase in scores and a corresponding rise in the proportion of high-quality habitats.¹³⁸

In addition to the measures outlined so far, companies also need to look for collaboration partners outside their immediate value chain to address biodiversity matters. Differing uses of lands often come with conflicting demands, particularly when activities such as agriculture, energy production, and mining are in conflict with environmental and biodiversity objectives. There can be cumulative effects as well: for instance, while nutrient pollution by several actors may not be considered harmful in each individual case, their cumulative impact may exceed local thresholds. Therefore, isolated actions will rarely lead to effective biodiversity conservation. Instead, collaborative efforts of numerous stakeholders and integrated thinking are required to manage a range of land uses, promote equitable and sustainable approaches, and develop measures for mitigating biodiversity loss.¹³⁹

The energy sector actively embraces collaborative approaches at the landscape level. Alpiq, for instance, recently commissioned the Nant de Drance pumped storage power plant, boasting a capacity of 900 MW. This facility plays an important part in ensuring the stability of the Swiss and European power grids, and for strengthening Swiss energy security. Unfortunately, it also has severe unwanted impacts on biodiversity, such as habitat alterations, fragmentation, and negative impacts on aquatic ecosystems due to changes in water flow, temperature, and sediment transport.

¹³⁷ IP SUISSE (2022)

¹³⁸ Zellweger-Fischer et al. (2016)

¹³⁹ Reed et al. (2015)

To mitigate these impacts and compensate for unavoidable biodiversity loss, Alpiq launched a close collaboration with local communities as well as NGOs such as WWF and Pro Natura. This partnership yielded 14 environmental compensation measures (including, e.g., restoration of nearby wetlands) with a CHF 22M investment from Alpiq. Another energy supplier, Axpo, also worked closely with authorities, environmental organizations, and local communities to mitigate and compensate for the biodiversity impact of their Limmern pumped-storage plant. The company's goal was to ensure that the landscape and habitats affected by the construction would be fully restored. To achieve this, Axpo conducted experiments on 25 test plots and over 2,000 seedlings, using collected seed and plant materials from the construction site to determine the most effective renaturation methods. In 2021, this approach earned Axpo a renowned ecological award (“Begrünerpreis”) from the Swiss Association for Engineering Biology. By embracing collaboration and fostering dialog, both Alpiq and Axpo successfully assessed potential environmental impacts, implemented strategies to minimize harm to biodiversity, and reduced the risk of project delays caused by public resistance.

"Given the complexity of the topic, it is crucial to also collaborate with institutions beyond the own value chain. Fostering dialogue and cross-sector collaborations (e.g., with involved NGOs and communities) brings significant value to our projects, including more comprehensive biodiversity conservation but also advantages during the approval process for new projects."

Nadia Semadeni, Head of Environment, Axpo

4. Advocate: Pushing for global change

To prevent runaway climate change and irreversible nature loss, the world society needs to initiate a transformation of the systems that shape our world. Businesses hold a pivotal position in driving this transformation, and should actively champion systemic change by mobilizing and engaging key stakeholders.

One way to do this is to lead or participate in industry initiatives. At an international level, Business for Nature stands out as a prominent global coalition of over 80 partner organizations, including NGOs, research institutions, and companies focused on biodiversity. Their primary purpose is to push for credible business action and ambitious policy initiatives, the ultimate goal being to achieve a nature-positive economy for all by 2030. Swiss-specific examples are the Swiss Platform for Sustainable Cocoa or the Soy Network Switzerland. The latter association supports the cultivation, purchase and use of certified and responsibly produced soy. The network's aim is to ensure that a minimum of 90% of the soy sold in the Swiss market will be produced responsibly. Its member base

comprises over 30 companies, including leading retailers such as Migros and Coop but also a range of associations and NGOs. As of 2022, almost 99% of the soy imported by participating procurers was certified, with ISCC PLUS and ProTerra making up the highest share. Furthermore, of the total soybean extraction meals imported, only 7.4% came from Brazil – compared to >95% in 2010.¹⁴⁰

Another way for companies to accelerate systemic transformation is to champion nature-friendly policy at the national, regional, and global levels, either independently or in collaboration with industry associations and coalitions. In June 2023, more than 100 corporations (incl. Holcim and Nestlé) spoke up to save the EU Nature Restoration Law, i.e., to adopt regulations that promote nature protection, restoration, and sustainable use of natural resources and to uphold, strengthen, and enforce existing environmental legislation to address the nature and climate crises at EU level¹⁴¹. The effort was in part driven by Business for Nature. Establishing a policy environment that promotes biodiversity-friendly practices can be an important element of companies' biodiversity efforts – especially as this might help ensure a level playing field across regions, as well as industry-tailored regulations.

"A company cannot address the biodiversity crisis on its own, in fact, the problem is systemic and requires attention from the entire economy."

Antje Kanngiesser, CEO, Alpiq

Getting active to challenge harmful subsidies

At present, we still see a significant imbalance in lobbying efforts, with only a small fraction of companies actively engaging in advocating for new regulations or the adaptation of existing ones. Given that regulatory guidelines are likely to play a significant role in solving environmental issues, there is a need for stronger and more proactive involvement of companies.

One pivotal area where collective action by Swiss businesses would be powerful is the subsidies that contribute to over-extraction and excessive exploitation of the biosphere. Unintentionally, such subsidies exacerbate environmental degradation, the loss of habitats, and the decline of species. In Switzerland, the negative effects of subsidies are evident, e.g., in

¹⁴⁰ Kausch (2023)

¹⁴¹ WWF (2023)

the projects for structural improvements for the agricultural sector (e.g., support for road and path construction). These projects promote intensive land cultivation, resulting in severe negative impacts on biodiversity.¹⁴² Intensive farming depletes farmlands, leading to a loss in soil fertility and increased water erosion, which negatively affects future harvests. Globally, harmful subsidies are estimated at roughly US\$500 billion per year, while subsidies targeted at promoting biodiversity are just a fraction of that: approximately US\$0.89 billion per year.¹⁴³ In the case of Switzerland, subsidies related to the energy transition and agriculture have a particularly negative impact on biodiversity. In effect, these subsidies hinder the conservation and preservation efforts required to protect Switzerland's unique biodiversity.

Yet another way for companies to drive transformational change is through disclosing their material positive and negative impacts on biodiversity, biodiversity-related risks and opportunities, strategies and targets to prevent negative impacts and restore biodiversity, and actions taken. By publishing this information, companies can demonstrate their commitment to biodiversity conservation. For enhanced credibility and transparency, companies can use existing reporting standards, such as GRI, CDP or the Taskforce on Nature-related Financial Disclosures (TNFD). While the final TNFD framework is expected in September 2023, several iterations of the beta framework have already been published. The development of TNFD might follow that of TCFD, which will become mandatory as of 2024 for Swiss-based large public companies, banks, and insurance companies.¹⁴⁴ Companies should start adopting these standards now to avoid potential issues with timely implementation once they come into force, e.g., by finding qualified employees to support the implementation process.

¹⁴² Institut für Schweizer Wirtschaftspolitik (2023)

¹⁴³ OECD (2019)

¹⁴⁴ Federal Council (2022)

"We look forward to the publication of the guidelines about nature-related financial disclosures [TNFD] and hope they will be as widely applied as TCFD. We depend on robust data and standards to make informed decisions around nature-related risks and opportunities."

Philipp Rickenbacher, CEO, Julius Bär

5. Achieve: Effectively tackling implementation issues

The maturity of biodiversity stewardship depends not only on companies' ability to pursue each of the four steps described above, but also on their ability to set and achieve biodiversity-related targets consistent with scientific knowledge, societal goals, and corporate best practices. Only when they manage to achieve both, can businesses make meaningful contributions to global goals such as Nature Positive by 2030 and Full Recovery of Nature by 2050.

Rather than defining additional requirements, the fifth step of the framework – Achieve – marks both an end and a new beginning of the biodiversity management cycle. It marks an end in the sense that companies must continuously evaluate the extent to which their actions have helped them achieve their targets; it marks a new beginning because corporate action along these four steps can never be a one-time process, but rather an iterative one accompanied by continuous learning, trial, and error. Businesses should build on the lessons learned while going through these four steps to determine improvements for the next iteration. This will require continuous adjustments and scaling of measures to be able to achieve meaningful outcomes and impacts at a larger scale.

Many companies have already started their biodiversity journey. They have assessed material pressures their business puts on biodiversity, conducted risks analysis for critical biodiversity, and deployed site-level biodiversity management systems. That said, it is important to note that often, these actions will not lead to immediate substantive corporate outcomes and improvements in biodiversity impact. In most cases, however, emerging issues can be resolved. Some examples:

- ▶ In Step 3, for instance, businesses often begin by implementing a limited set of measures as part of a pilot phase. These measures are often too small in scale to have a noticeable effect on the overall corporate performance. If successful, however, they can provide the basis for a broader set of actions that will generate substantial outcomes.
- ▶ In addition, companies' resource constraints, combined with methodological gaps in addressing material biodiversity issues, often result in companies not being able to address all material

biodiversity issues simultaneously. Also, companies with a significant share of material biodiversity issues in their upstream value chain will often have less control over suppliers' and sub-suppliers' biodiversity management. Downstream companies will need to muster substantial resolve and commitment to pursue a range of different paths, not all of which will lead to their achieving ambitious targets. In these cases, it will be essential to gradually scale proactive engagement and cooperation with suppliers and sub-suppliers.

- ▶ There will also be instances where individual corporate measures or collective actions by multiple stakeholders in landscapes or seascapes are implemented successfully, and yet the state of ecosystems, species, or ecosystem services will not recover within the timeframe expected. When that happens, it will probably be helpful to identify and implement additional measures.
- ▶ Finally, businesses need to make sure their corporate targets and actions keep in line with societal expectations and best practices.

Also, the benchmark of biodiversity stewardship may change over time, based on new scientific knowledge, societal goals, or corporate best practices, requiring additional actions across the biodiversity framework.

In the end, achieving ambitious targets with potentially meaningful outcomes and for nature's recovery requires long-term strategic commitment to biodiversity at the corporate level. Based on an integrated view of the subject, company leaders need to ensure they remain ambitious along all four steps: Assess, Embed, Implement, and Advocate.

Getting started – now!

Swiss companies have started to realize the key importance of an intact nature for the future of their businesses. Although there are still numerous roadblocks and not too many perfect solutions, early movers have made substantial progress on their way towards avoiding/reducing their impacts on biodiversity and contributing to its restoration.

In the long run, as with climate change, incremental changes will not suffice to solve the problem. Companies will need to rethink and transform their entire business models. Those that take the lead and move ahead will be rewarded by risk mitigation, new business opportunities, and increased attractiveness for employees, investors, and other stakeholders.

The WWF Biodiversity Stewardship Framework can help businesses get started on this path, to reap the fruits of a biodiversity-friendly business model – and to get ahead of their global competition.

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About



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WWF is the world's largest and most experienced independent conservation organization, with over six million supporters and a global network active in more than 100 countries. WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature. We will do this by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable and promoting the reduction of pollution and wasteful consumption.



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