



Integrating Nature Data Into Investment Decisions

Insights from assessing the nature and biodiversity
performance of the 100 largest Nordic companies

October 2025

Foreword

Every investment is a hypothesis about the future. And every future, in the end, depends on nature.

The forests that hold our water, the soils that grow our food, the oceans that stabilize our climate – these are the foundations of all economic value.

As these natural systems come under increasing strain, understanding their condition has become both an environmental duty and a financial imperative.

Building on our long-standing commitment to sustainability, **Storebrand Asset Management** set out to understand what a data-driven approach to nature can reveal about our markets, and how that knowledge can guide better investment decisions.

To do this, we partnered with **GIST Impact**, whose globally recognized expertise and science-based datasets are setting a new standard for how investors assess biodiversity and natural capital.

Drawing on GIST Impact's scientifically-validated datasets and modelling frameworks, this analysis provides a detailed view of how the 100 largest Nordic companies interact with the natural world: their impacts, dependencies, and exposures to sensitive ecosystems.

The results reveal both strengths and challenges: Nordic companies perform better than global peers on biodiversity and natural capital, yet their impact increases year on year, and they remain exposed to concentrated sectoral and location-specific risks.

For Storebrand, these insights go beyond the academic: they inform how we engage with companies, allocate capital, and manage long-term risk in line with frameworks such as the TNFD and the Kunming–Montreal Global Biodiversity Framework.

For GIST Impact, this collaboration shows how robust data and science can make nature visible in the language of finance, enabling investors to act with precision and purpose.

The quality of nature data will continue to improve as corporate disclosure matures, but investors need not wait: the insights available today give investors a clear map of where value is created, where it is lost, and where it is most at risk.

The task now is to act, and to turn insight into stewardship, risk management, and resilience.



in collaboration with



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Introduction

The purpose of this report is to demonstrate the importance and value of performing nature-related portfolio analysis for financial institutions, and to show what is possible using the data available today.

The report provides data-driven insights into nature and biodiversity dependencies, impacts, risks and opportunities, in line with the recommendations of the Taskforce for Nature-related Financial Disclosures (TNFD).

The **sample portfolio** chosen for analysis is hereon referred to as the **Nordics 100**, representing the top 100 companies headquartered in either Norway, Sweden, Denmark, Finland or Iceland. Further information about the selection criteria is provided in the report.

The **portfolio benchmark** is a portfolio of **Nature Action 100 (NA 100)** companies, which comprises 100 companies selected based on high market capitalization and significant exposure to high-impact sectors.¹

Key Findings

The Nordics 100 portfolio demonstrates superior environmental performance across biodiversity and natural capital metrics compared to the benchmark (NA 100). Despite the superior environmental performance of the Nordics 100, there is a moderate increase in the biodiversity footprint year on year. The analysis reveals concentrated risks in specific sectors and companies, alongside significant optimization opportunities through targeted interventions.

Key performance insights:

- The Nordics 100 portfolio generates a biodiversity footprint 42% lower compared to that of the benchmark, at 7,315 m² of land equivalent vs 12,616 m² of land equivalent (per USD million invested).
- The Nordics 100 portfolio demonstrates a moderate increase in its biodiversity footprint, with a 1% compound annual growth rate (CAGR) between 2017 and 2024.
- The Nordics 100 portfolio generates 17.5% lower natural capital impact, with externalities of USD 23,349 (per USD million invested) versus the benchmark's USD 28,314.
- The Nordics 100 portfolio companies with the highest impacts on biodiversity and nature-related dependencies also tend to exhibit higher exposure to areas of ecological importance.
- The Nordics 100 portfolio generates 70.2% of its biodiversity footprint via the manufacturing sector (which has an allocation of only 57%).
- The manufacturing sector also has the most substantial exposure to drought-prone (ca. 53% of assets) and water-stressed (ca. 52% of assets) areas in the Nordics 100 portfolio.
- Specific business activities – such as railway construction, petroleum manufacturing, freight air transport and water transportation services – drive exposure to strictly protected areas and Indigenous lands in the Nordics 100 portfolio.

Setting The Context: Nature-Related Financial Risks

Quantifying The Challenge

Nature-related risks are disruptions to economic activity caused by environmental change, arising from a company's impacts on nature, such as pollution or deforestation, or from its reliance on ecosystem services like freshwater, erosion control and pollination. The risks associated with biodiversity loss, and their significant macroeconomic and financial implications, have been set out in the 2021 Dasgupta Review.²

The Review classified the financial risks associated with biodiversity loss into:

- **Physical risks**, such as changes in ecosystem services due to degradation of natural assets;
- **Litigation risks**, such as legislation and fines from damage to natural assets;
- **Transition risks**, such as policy changes and shifts in social norms as the economy adjusts to sustainable approaches; and
- **Systemic risk**, where nature loss triggers widespread and cascading failures across ecological and economic systems.

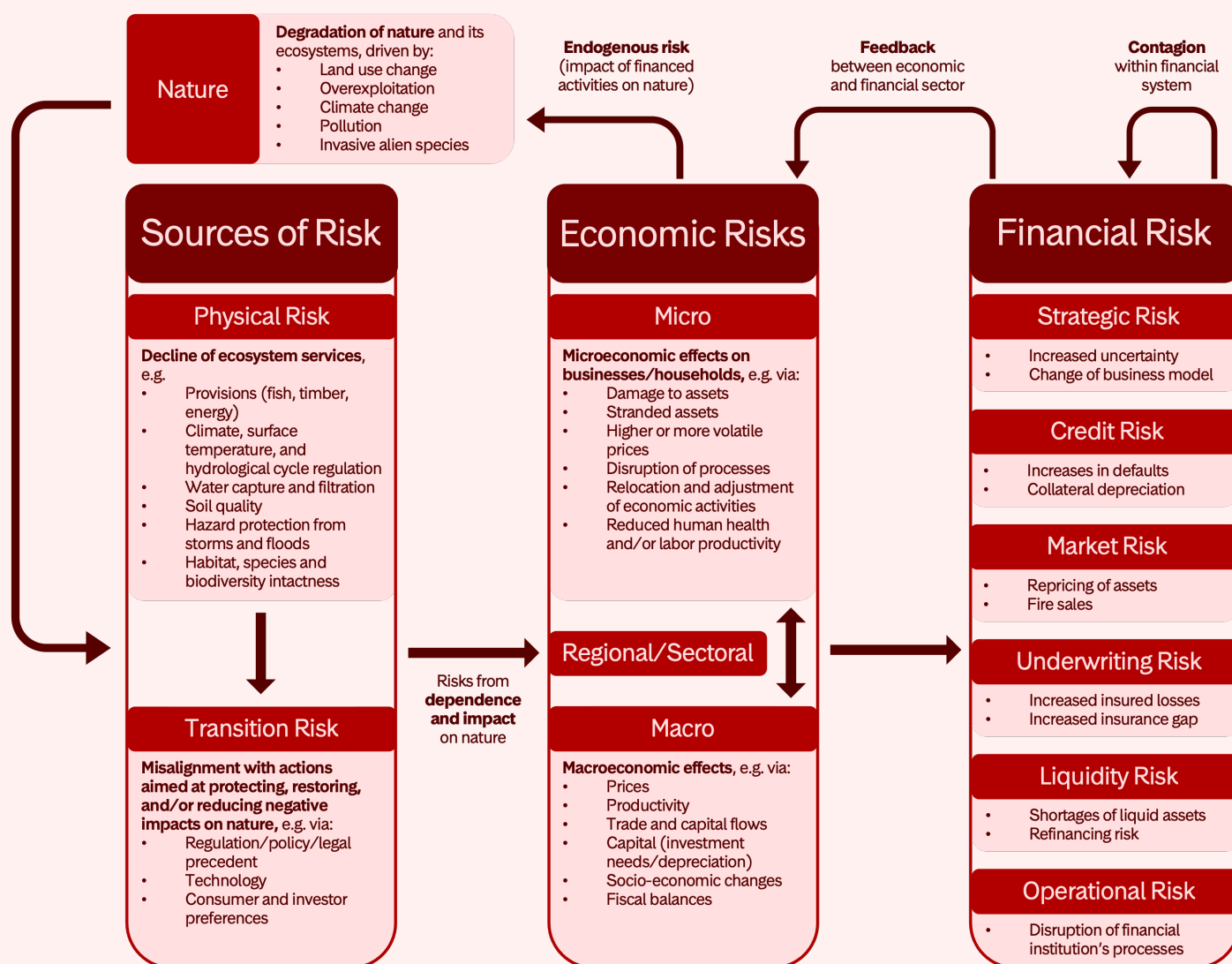


Figure 1

The Network for Greening the Financial System (NGFS) also recognizes that the degradation of nature, and actions aimed at preserving and restoring it, will affect our economies and financial systems. **Figure 1**, which is adapted from a recent NGFS report,³ illustrates how nature-related risks (such as physical risks and transition risks) cascade into financial risks.

We are fast approaching critical ecological tipping points: humanity is eroding the planet's natural capital faster than nature can regenerate it, effectively running down the biosphere's productive capacity – a trajectory the Dasgupta Review warns is as economically unsustainable as it is ecologically irreversible.

As nature's resilience declines, the case for action grows ever more urgent and important, both to halt and reverse nature loss and to address the growing physical, transition and systemic risks to business and finance across economies and sectors.

In response, the Kunming–Montreal Global Biodiversity Framework (GBF), adopted in 2022, mandates that all public and private financial flows be aligned with its targets and goals by 2030.

The financial system will have to play a critical role in this transition. It must manage and mitigate nature-related financial risks while directing capital flows into nature-positive assets, including natural capital.⁴ Yet nature-negative financial flows were estimated at USD 7 trillion annually (ca. 7% of global GDP),⁵ which is likely a conservative estimate, and the biodiversity financing gap remains close to USD 900 billion per year.⁶



Nature Coming Into Focus

Momentum, however, is building. In 2020, the Finance for Biodiversity Pledge was launched by 26 financial institutions managing USD 3 trillion in assets, calling on global leaders to protect and restore biodiversity. By 2025, that number has grown to **200 signatories in 28 countries**, collectively managing **USD 23 trillion** – reflecting the financial sector’s rising commitment to integrating nature and biodiversity into decision-making.⁷

From a regulatory and voluntary disclosure perspective, the importance of nature and biodiversity is also reflected in the requirements stated in the **International Sustainability Standards Board (ISSB)**, the **Global Reporting Initiative (GRI)** and the **European Sustainability Reporting Standards (ESRS)**.

At the same time, the **Taskforce for Nature-related Financial Disclosures** complements these requirements by providing a structured approach for organizations to identify, assess, manage and disclose nature-related **dependencies, impacts, risks and opportunities** – thereby translating broad reporting requirements into actionable processes for integration of nature into governance, strategy, risk management and metrics.

In response to the expectations emerging from investors, standard setters, regulators and policymakers (including those set by Target 15 of the GBF), as well as from the TNFD recommendations, corporates and financial institutions are increasingly assessing their nature-related dependencies, impacts, risks and opportunities. In response, the landscape of data platforms and sources is evolving rapidly – with data disclosure, collection, augmentation and validation processes speeding up to keep pace with market needs, alongside relevant methodological enhancements and more robust, science-backed models.



The Evolving Solution: Nature-Related Data

Assessing nature-related financial risks is still a relatively limited practice among the majority of financial actors. While financial institutions increasingly recognize the importance of nature and biodiversity, most still say that they lack the data, practical tools and guidance necessary to integrate nature-related considerations into their investment and lending decisions.⁸

The main challenge in assessing and disclosing nature-related risks and opportunities is not the availability of data, but how it is interpreted and applied. Factors such as quality, format, relevance, scale, traceability to source and methodological transparency affect its usefulness. Unlike climate change, which can be summarized with indicators like CO₂e (GHG emissions) or temperature rise, nature loss requires multiple specific metrics, making comparison and aggregation across financial portfolios more challenging.

Data and analytics to assess an organization's dependencies and impacts vary by sector, scale, and geography, and are evolving rapidly.

Generally, nature-related data can be classified as follows:

- **Data about nature:** ecosystem type; extent and condition; species and habitats; areas of high biodiversity value and protected areas; how environmental pressures affect nature; etc.
- **Data about how companies interface with nature:** type of operations and locations; type of pressures (proximate or distant; acute or chronic); generation of environmental pressures (such as emissions, land use, or water withdrawal); dependencies on ecosystem services; and relationships across the value chain.

Meanwhile, categories of nature-related data can include: spatial or temporal, sector-based, observed, disclosed, modeled, simulated and forecasted.



Taking Action: Storebrand Asset Management

Storebrand Asset Management (SAM) is a leading private asset manager in the Nordic region, managing NOK 1500 billion of assets for Nordic and international clients. As stated in our [Storebrand Nature Policy](#) (2022), we want to leverage our investment activities to contribute to the protection of nature and biodiversity through increasing our positive impacts and reducing our negative impacts on nature. We are doing this by strengthening and enhancing nature-related risk assessments in financial decision-making. Data and analytics will play a fundamental role in achieving that objective.

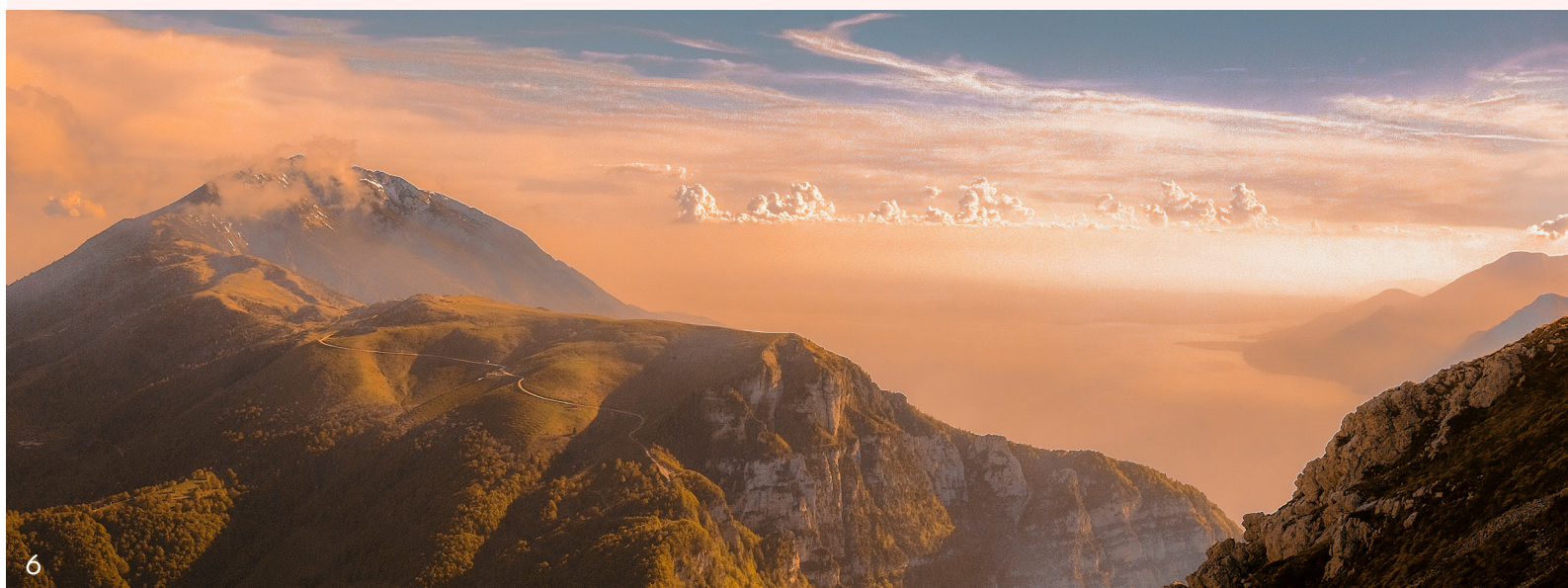
Nature is embedded in our overall risk management framework and reporting to the board. SAM manages nature-related financial risks through various strategies which are outlined in SAM's Nature Policy.

The three overall strategies include:

1. Exclusion of companies with significant contribution to environmental damage
2. Engagement to influence corporate behavior
3. Allocation of capital

SAM has already taken a range of steps to identify, assess and disclose nature-related impacts and dependencies. SAM's latest integrated [TCFD-TNFD Report](#) (2024) demonstrates how data and analytics were used in the LEAP assessment process, in line with the recommendations from TNFD. The LEAP process provides a staged approach to **Locate** interactions with nature, **Evaluate** impacts and dependencies, and **Assess** risks and opportunities, before **Preparing** to manage and report on material findings. While SAM has made some progress, we have also identified shortcomings and gaps – including access to relevant and high-quality nature-related data.

Below we describe how GIST Impact data can further enhance SAM's implementation of the three strategies and fill some of the critical gaps and shortcomings that we have identified through our integrated TCFD-TNFD report. This includes providing insights across a broadly diversified portfolio, and prioritizing future risk management, investment decision-making and ownership efforts. Please note that the analysis does not include details on the data methodology and quality processes – with further such information available on request from GIST Impact.



Our Analysis:

The Nordics 100 Sample Portfolio

The Nordics 100 sample portfolio was constructed using the following selection criteria, applied in sequence:

- The company is **headquartered in one of the five Nordic countries**: Norway, Sweden, Denmark, Finland and Iceland.
- Among these, the company is **ranked within the largest companies** by market capitalization, based on the GIST Impact data universe.
- Of the above, the company has **high exposure to TNFD high-priority sectors** (>30% of revenue derived from such sectors).⁹

This approach was chosen to exclude companies that, while large in market capitalization, have minimal direct relevance to nature-related impacts and risks. In so doing, it replicates a Nordic-specific version of the Nature Action 100 (NA 100) list, concentrating on companies with the greatest potential for material nature-related impacts and risks.

The Nature Action (NA 100) initiative was selected as the benchmark for this analysis because:¹⁰

- It represents a globally recognized, investor-led initiative focused on driving corporate action on nature and biodiversity loss.
- It comprises 100 companies selected based on high market capitalization and significant exposure to high-impact sectors, which is consistent with the criteria used to construct the Nordics 100 sample portfolio. While the Nordics 100 sample portfolio applies TNFD's high-priority sector classification, NA 100 focuses on eight key sectors identified as systemically important to halting and reversing nature loss.



Results:

Sizing The Footprint

Key Observation

Nordic companies have a lower, but increasing, biodiversity footprint.

GIST Impact offers company-level and portfolio-level impact assessments, including biodiversity footprints.

The **biodiversity footprint** method offers a practical estimate of portfolio companies' impacts using readily available data, enabling large portfolio assessments with available information, such as life cycle assessments and revenue figures. Footprinting aims to collapse the complex relationships between impact drivers, pressures, and the state of nature into a single metric. There are many potential combinations of tools, methodologies, databases (corporate, private and public), and pressure-impact models that can provide a biodiversity footprint. The most important takeaway is that a biodiversity footprint is a modelled proxy for the likely actual impact on biodiversity, and it is calculated using actual reported (or estimated) values of the operational pressures created by a company.

To represent and measure a biodiversity footprint, GIST Impact uses a metric recommended by the TNFD called the **Potentially Disappeared Fraction** of species (PDF) - itself drawing on the peer-reviewed LC-IMPACT methodology - which reflects the risk posed to global species stocks as a result of different pressures (such as GHG emissions, water consumption, and water and land pollution) across terrestrial, marine and freshwater realms.¹¹

GIST Impact also translates PDF into **Land Conversion Equivalent** (LCE) outputs – demonstrating the equivalent area of land, in square (kilo)meters, that would need to be transformed from a natural baseline to urban use to achieve the same impact on biodiversity.

While PDF offers a species-centric approach to understand nature-related impacts, GIST Impact also offers an anthropocentric perspective – the **impact on natural capital**, 'an economic metaphor for the limited stocks of physical and biological resources found on earth, and of the limited capacity of ecosystems to provide ecosystem services'.¹² Leveraging a science and economics-based approach that quantifies corporate externalities, the impact on natural capital is measured in monetary terms and reflects the economic loss or gain to society, at a location-specific level.

GIST Impact analysis shows that the Nordics 100 sample portfolio demonstrates **superior environmental performance across both biodiversity and natural capital impact metrics in a portfolio-wide assessment.**

As demonstrated in **Figure 2** on the following page, the biodiversity footprint (in Land Conversion Equivalence terms) of the Nordics 100 sample portfolio is **42% lower** than that of the NA 100 benchmark – at 7,315 m² per USD million investment versus 12,616 m² per USD million investment of the benchmark.

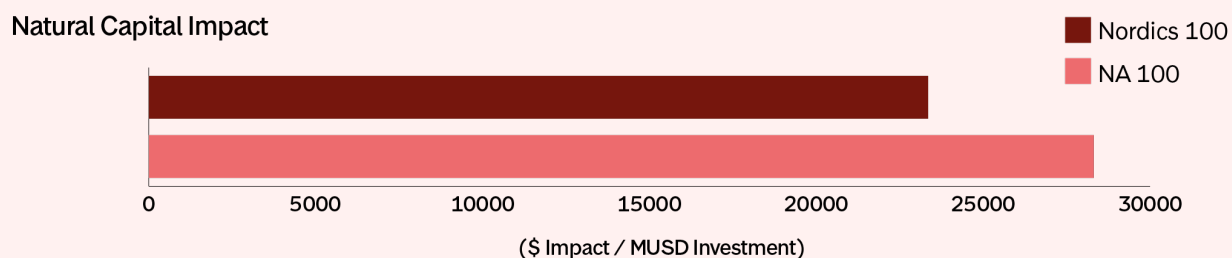
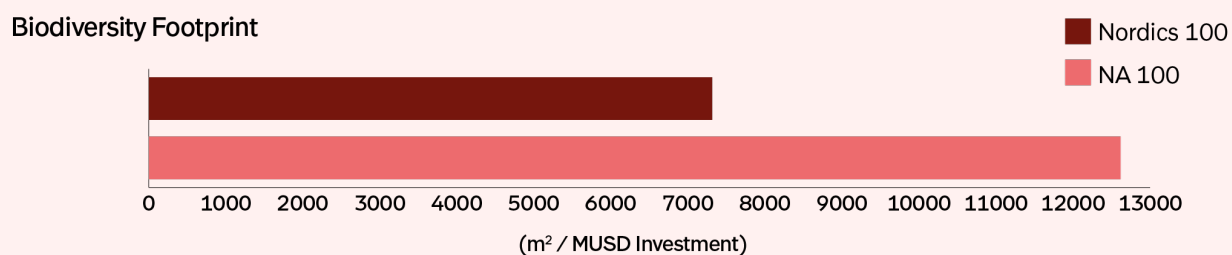


Figure 2

Despite the superior environmental performance of the Nordics 100 sample portfolio, it also demonstrates a **moderate increase** (CAGR of 1%) in the biodiversity footprint **between 2017 and 2024** (Figure 3, below).

Given the recent signing of the Kunming-Montreal Global Biodiversity Framework (GBF), this is a significant finding.

If the goals and the targets of the GBF are to be met, it is critical that all stakeholders, including the private sector, take greater action on nature. **This increasing trend therefore needs to be reversed to support the implementation of the National Biodiversity Strategies and Plans (NBSAPs) in the Nordic region.**

Biodiversity Footprint Over Time

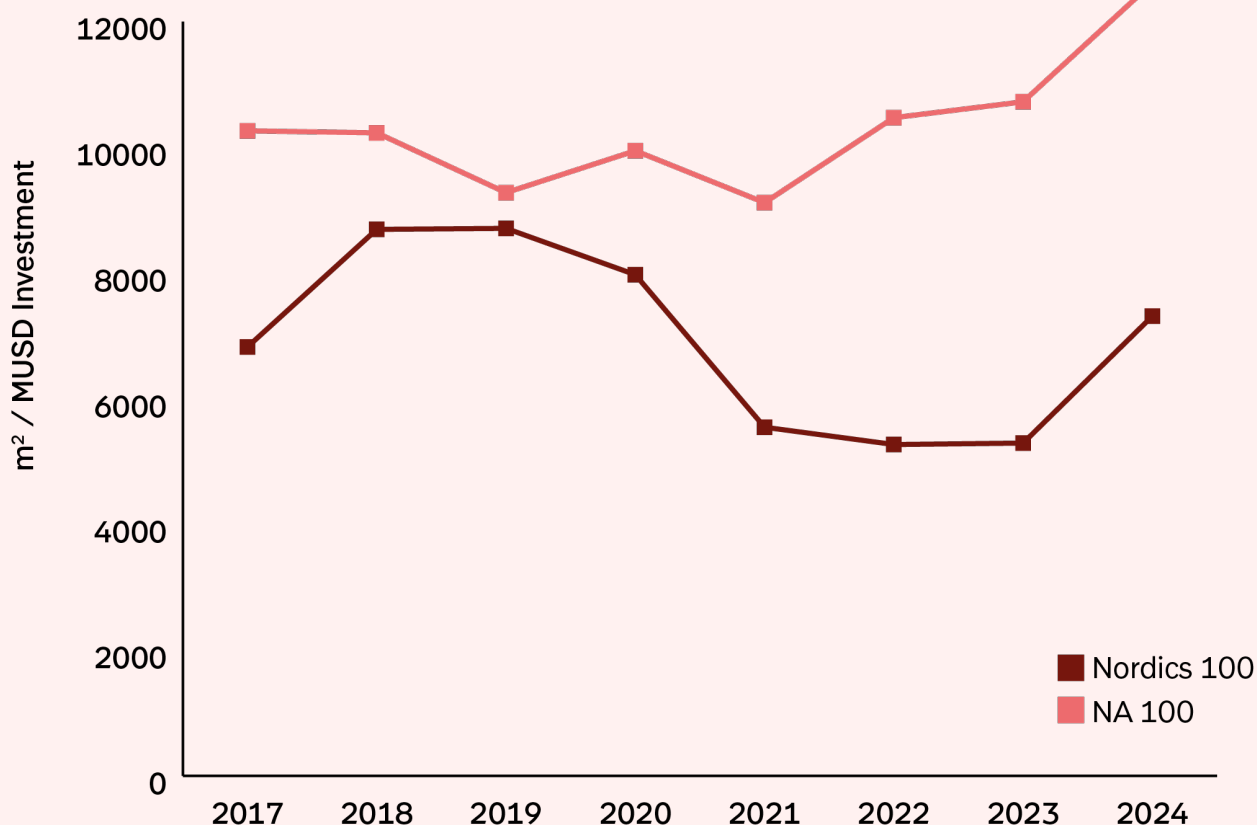


Figure 3

Given the relationship between negative impacts and transition risks, GIST Impact’s analysis also reveals concentrated risks in specific sectors and companies, such as those in the **manufacturing** and **transportation and storage** sectors. Both these sectors have a disproportionately high biodiversity footprint compared to their allocation in the portfolio: ca. 70% of the impact comes from the former (which makes up only 57% of the portfolio) and ca. 22% of the impact comes from the latter (which makes up only 15% of the portfolio).

GIST Impact provides further insights into the drivers of this impact (**Figure 4**, below). In contrast to the benchmark, where land use change is the largest contributor to the biodiversity footprint, Nordic companies show a higher biodiversity footprint through GHG emissions, water and land pollution, and water consumption.

Drilling down further, a relatively small number of high-impact companies account for a significant portion of the estimated biodiversity impact within the Nordic 100 portfolio, and there appear to be significant optimization opportunities through targeted interventions, in particular when it comes to manufacturing companies.

Biodiversity Footprint - Breakdown By Impact Driver

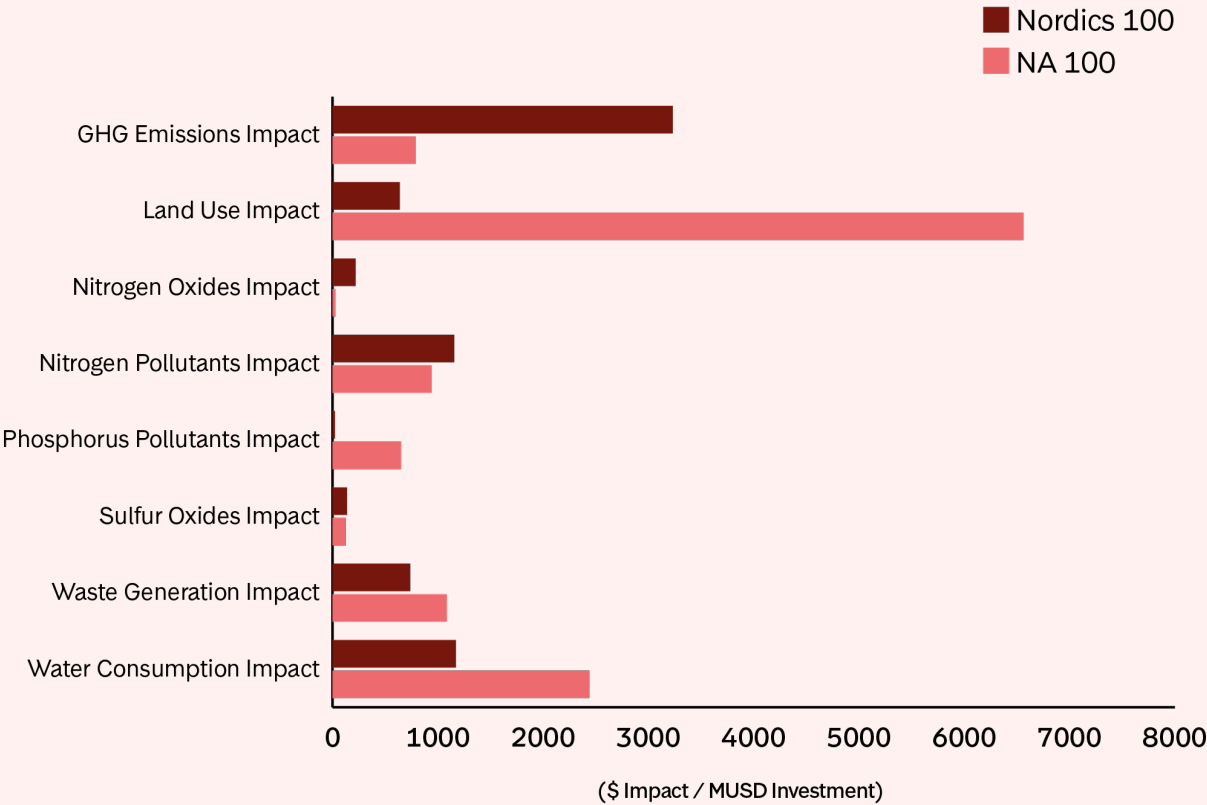


Figure 4

Results:

Translating Dependencies Into Risks

Key Observation

Location is a critical factor in a robust assessment of dependencies and risks.

Nature-related impacts are only a part of the story. **Dependencies** on ecosystem services are another: while high dependencies do not inherently constitute a financial risk, deterioration in these services can lead to nature-related risks impacting financial stability. These dependencies become a concern primarily when they translate into higher risks for companies and investors – such as when demand for an ecosystem services exceeds its supply, or when there are potential negative impacts on production processes or stakeholders dependent on those ecosystem services.

Building further upon the sector-level **ENCORE** (Exploring Natural Capital Opportunities, Risks and Exposure) tool and its accompanying methodology,¹³ GIST Impact measures dependencies through materiality assessments for individual companies and their business activities, evaluating the potential loss of function and consequent financial impact should the ecosystem services these business activities rely upon be disrupted.

The sectoral dependency heatmap (**Figure 5**, below) reveals that most portfolio sectors maintain predominantly low dependency across ecosystem services, suggesting manageable baseline nature-related risks. However, the manufacturing and transportation and storage sectors show elevated dependencies in specific ecosystem services, creating concentrated risk areas that require targeted attention.

Dependencies on Ecosystem Services

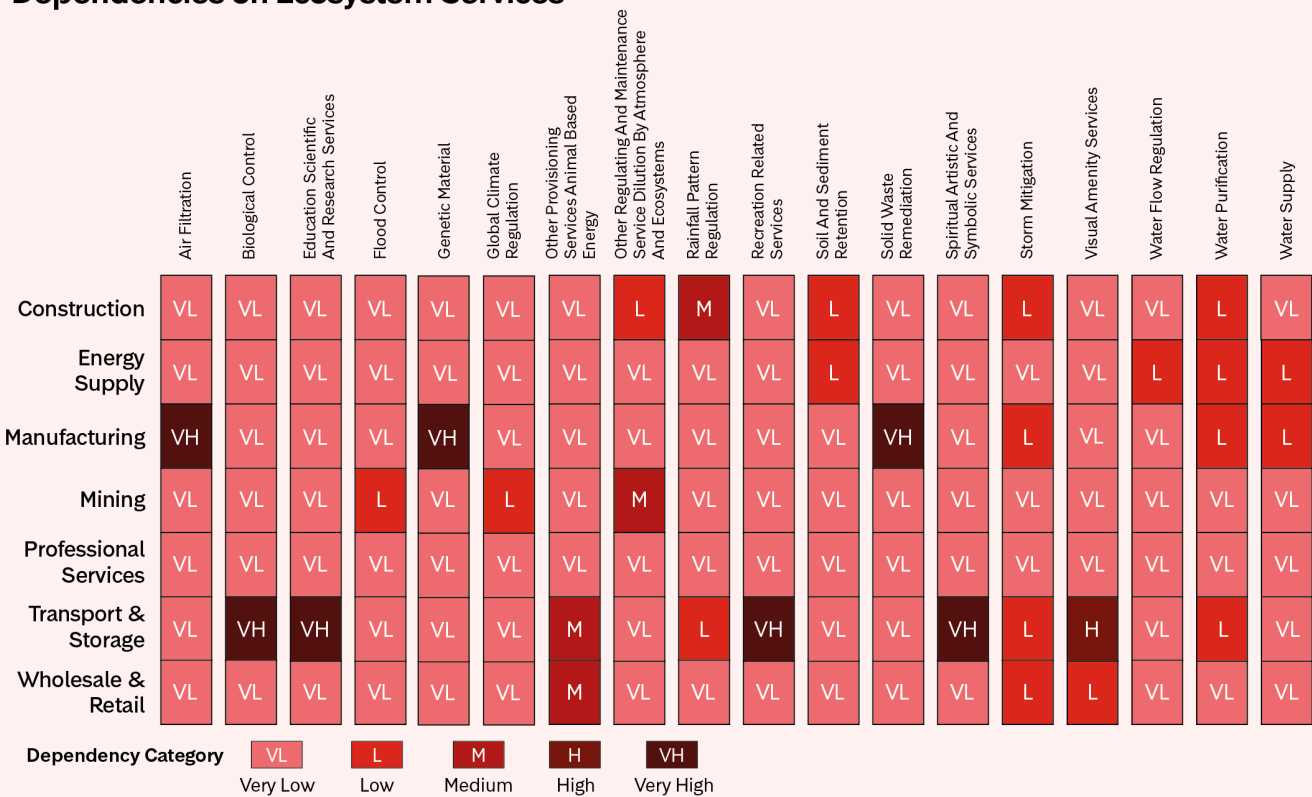


Figure 5

At the same time, the likelihood that dependency-related risks materialize depends on the capacity of ecosystems to continue to provide the necessary ecosystem services. Declines in the state of nature often reduce the resilience of ecosystems and therefore their capacity for providing ecosystem services. Understanding this capacity for a continued flow of ecosystem services requires characterization of the ecosystem types and the condition of the various ecosystems from where key services originate, including in the proximity of company operations.

As a result, GIST Impact’s analysis includes additional data on changes in ecosystem integrity (**Figure 6**, below) that capture information about the integrity and health of natural ecosystems – including their composition, structure, and function – by leveraging the **Biodiversity Intactness Index**, developed by the Natural History Museum, London.¹⁴

For instance, if a company operates where the state of nature is classified as low and is decreasing year-on-year, it might be relevant for SAM to engage with that company to explore the possibility of operational improvements and a more considerate use of local land and resources. Figure 6 shows the asset locations of a manufacturing company, with the level of ecosystem integrity at each location taking into account both its present state and recent trend rate.

The ecosystem integrity data, in combination with the dependency data, thus offers a strong starting point for risk assessments, engagement and prioritization.

Ecosystem Integrity

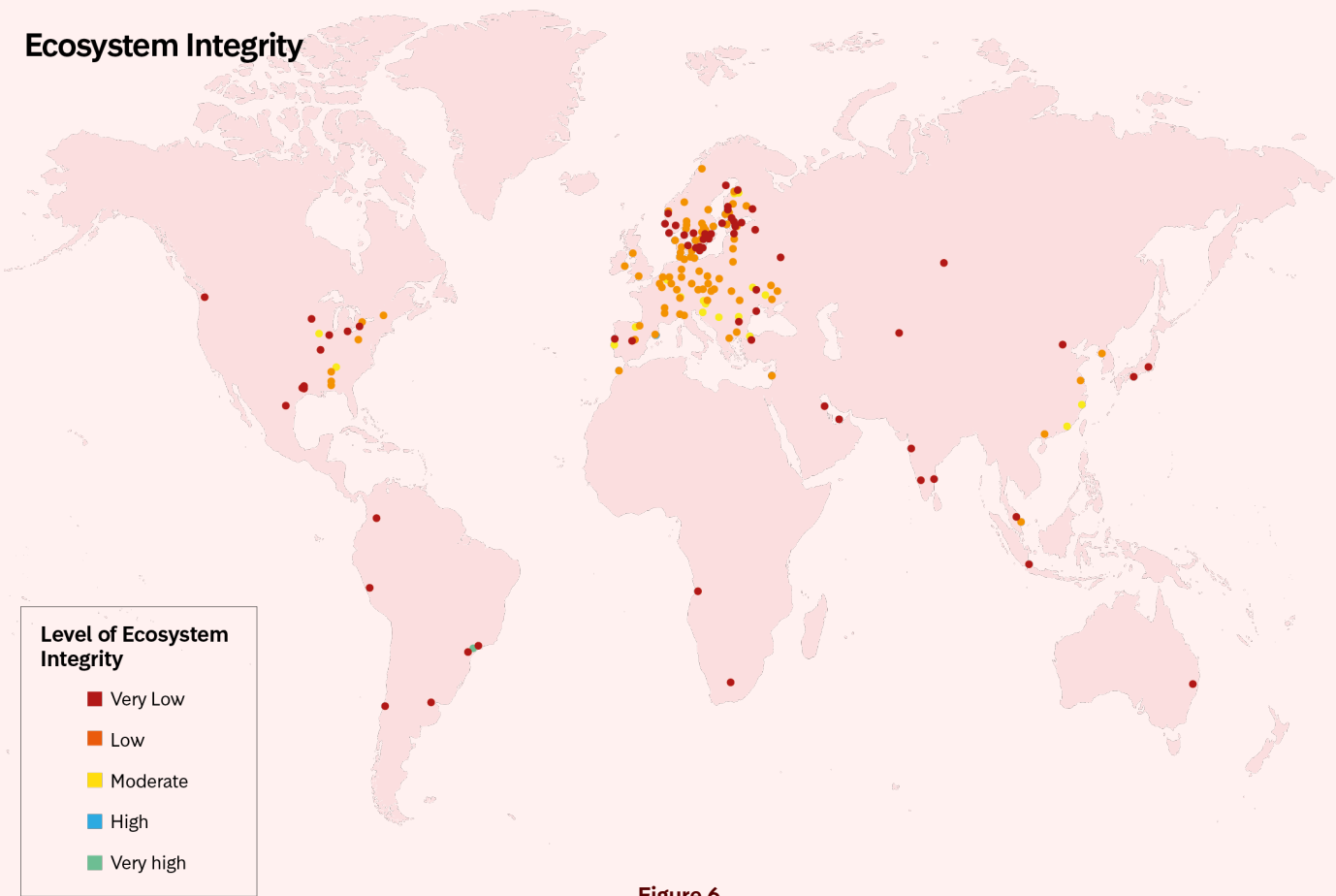


Figure 6

Another approach to contextualising dependencies lies in cross-referencing dependencies, impacts as well as with assessments of proximity to so-called sensitive locations.

This integrated analysis from GIST Impact leverages data from the **Integrated Biodiversity Assessment Tool (IBAT)** and provides insights into the interface between a company’s assets and sensitive locations – including **Key Biodiversity Areas (KBAs)**, **WDPA Protected Areas**, and **IUCN Red List species**.¹⁵

By applying a proprietary scoring mechanism that takes into account the relative importance of each sensitive location (**Figure 7**, below) – with, for instance, proximity to critically endangered species considered more important than proximity to merely vulnerable species – GIST Impact can thus reveal that companies with the highest impact intensities and dependencies also tend to exhibit higher sensitive location scores.

This allows for a spatially explicit understanding of exposure, potential pressures, and priority areas for mitigation, restoration and engagement.

Assessment of Impacts, Dependencies and Proximity to Sensitive Locations

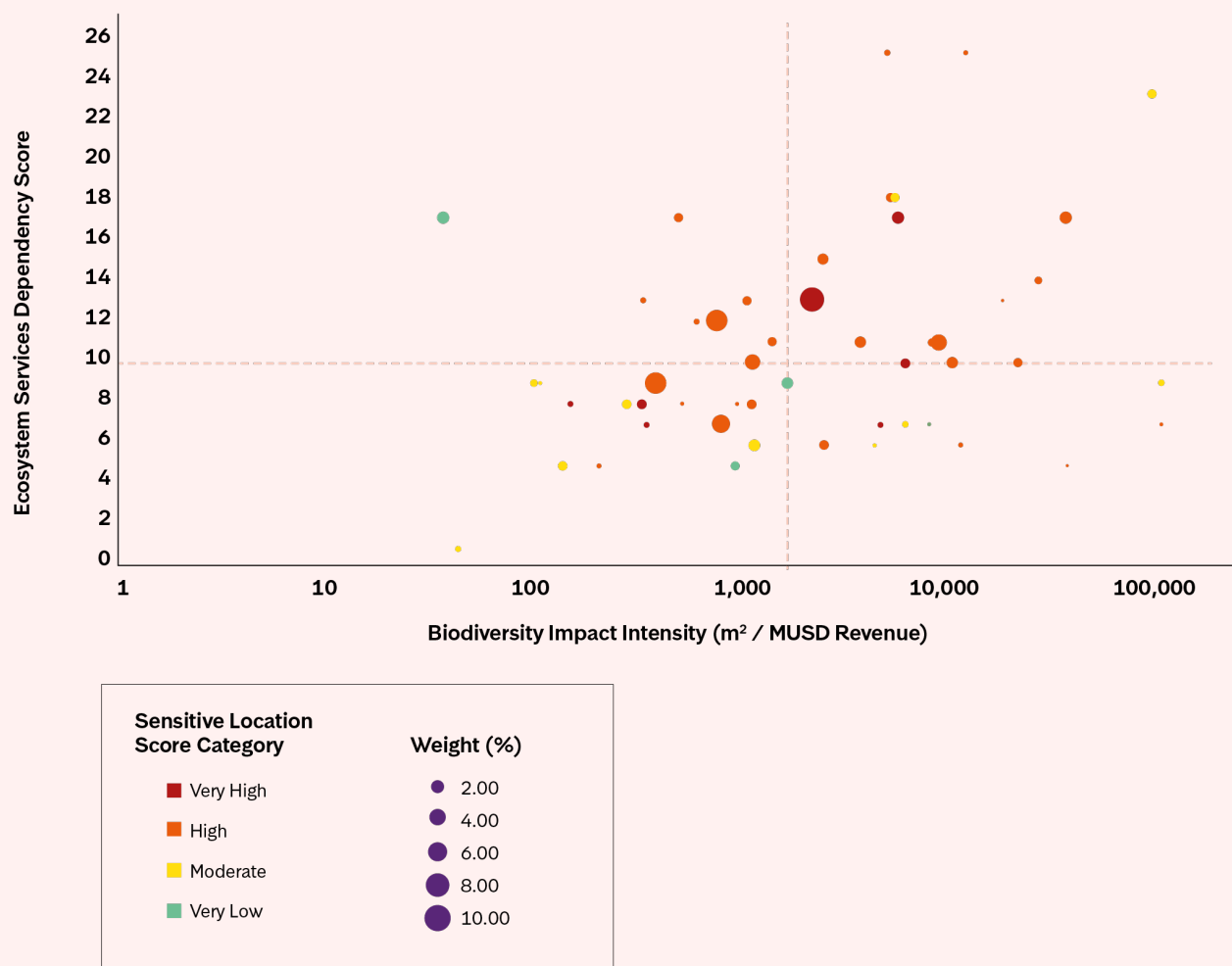


Figure 7

In sum, therefore, analysis undertaken by GIST Impact highlights that SAM's Nordics 100 sample portfolio faces location- and sector-specific nature-related risks. In turn, these insights provide a foundation for effective stewardship by offering a location-specific view of where companies' operations may depend on or impact critical natural systems.

Collecting additional information on how companies manage these dependencies, impacts, and associated risks – such as their strategies for reducing environmental pressures, especially in areas where exposure is high (such as areas of rapidly declining ecosystem integrity, via **BII**), or in a key biodiversity area, via **IBAT**) – enables SAM to engage directly with companies. This engagement can help identify targeted actions to reduce nature-related risks, while encouraging practices that promote positive environmental outcomes.



Results:

Further Insights Into Proximity To Sensitive Locations

Key Observation

Indigenous communities must be recognized and accounted for, too.

The SAM [Sustainable Policy](#) guides our investment decisions. It outlines that SAM should not invest in companies if the environmental breaches are considered serious and the risk of a breach occurring is too high. SAM also introduced five new divestment criteria on nature in 2022, which restrict investments in companies with certain single categories, industries or activities that are considered unsustainable – such as deep-sea mining, forest risk commodities and inadequate riverine tailings management practices. Most of these have been introduced to protect ecologically important and sensitive locations.

While there has thus far been some data to identify controversies and support the implementation of the SAM exclusion strategy, it remains limited to certain activities and areas and does not cover all investments. For instance, where our main ESG data provider has not been able to provide necessary information, SAM has used databases such as **Forest IQ** or collaborated with civil society organizations such as **WWF** and **Earthworks** to create open-source platforms to screen portfolios.¹⁶ Nevertheless, full implementation of the SAM Nature Policy requires locating interactions with multiple types of ecologically sensitive areas.

The Taskforce for Nature-related Financial Disclosures (TNFD) identifies ecologically sensitive areas as locations important for biodiversity, characterized by high or rapidly declining ecosystem integrity, high physical water risks, or significance for ecosystem service provision - including benefits to **Indigenous Peoples and Local Communities** (IPLCs) and other affected stakeholders. Identifying these locations is a key step in TNFD's LEAP assessment approach.

Using GIST Impact data (in collaboration with IBAT), SAM has undertaken to analyze the sector-wide exposure of its Nordics 100 sample portfolio – with a specific focus on intersections with protected areas in **IUCN category Ia (Strict Protection - Strict Nature Reserve)**. These areas are internationally recognized as critical to conserving biodiversity, safeguarding ecosystem services, and protecting Indigenous lands.

Figure 8, on the following page, shows the ten sectors most exposed to strictly protected areas (IUCN category Ia). The column 'Exposed Assets' represents the number of assets located near these protected areas, while 'Unique WDPAs' indicates how many distinct protected areas are affected, thereby showing the overall distribution across locations. An additional dimension is shown via the column 'Assets W/ Indigenous' highlights the overlap between exposed assets and Indigenous lands. Finally, 'Company Count' shows how many companies are responsible for these assets within each sector. As a whole, the table provides an overview of both **environmental and social** risk factors.

NACE SECTOR	EXPOSED ASSETS (1a)	UNIQUE WDPAs	ASSETS W/ INDIGENOUS (1a)	COMPANY COUNT
Construction of Railways and Underground Railways	157	293	47	2
Manufacture of Refined Petroleum Products and Fossil Fuel Products	108	26	6	1
Computing Infrastructure, Data Processing, Hosting and Related Activities	100	10	0	1
Production of Electricity from Renewable Sources	98	28	1	2
Construction of Roads and Motorways	67	56	4	1
Trade of Gas Through Mains	52	32	2	1
Repair and Maintenance of Civilian Ships and Boats	42	5	0	1
Support Activities for Petroleum and Gas Extraction	40	16	3	2
Other Business Support Service Activities NEC	32	11	9	1
Engineering Activities and Related Technical Consultancy	30	30	28	3

Figure 8

The analysis identifies construction of railways as the most exposed sector, with **157 assets** in proximity to **293 protected areas**, followed by petroleum and IT infrastructure.¹⁷ Particularly noteworthy are engineering activities, where 28 out of 30 assets overlap with Indigenous territories, indicating a high level of social risk despite the relatively small asset base.

SAM recognizes that securing Indigenous Peoples' customary rights is one of the most effective ways to protect biodiversity and ensure sustainable use of nature. This topic

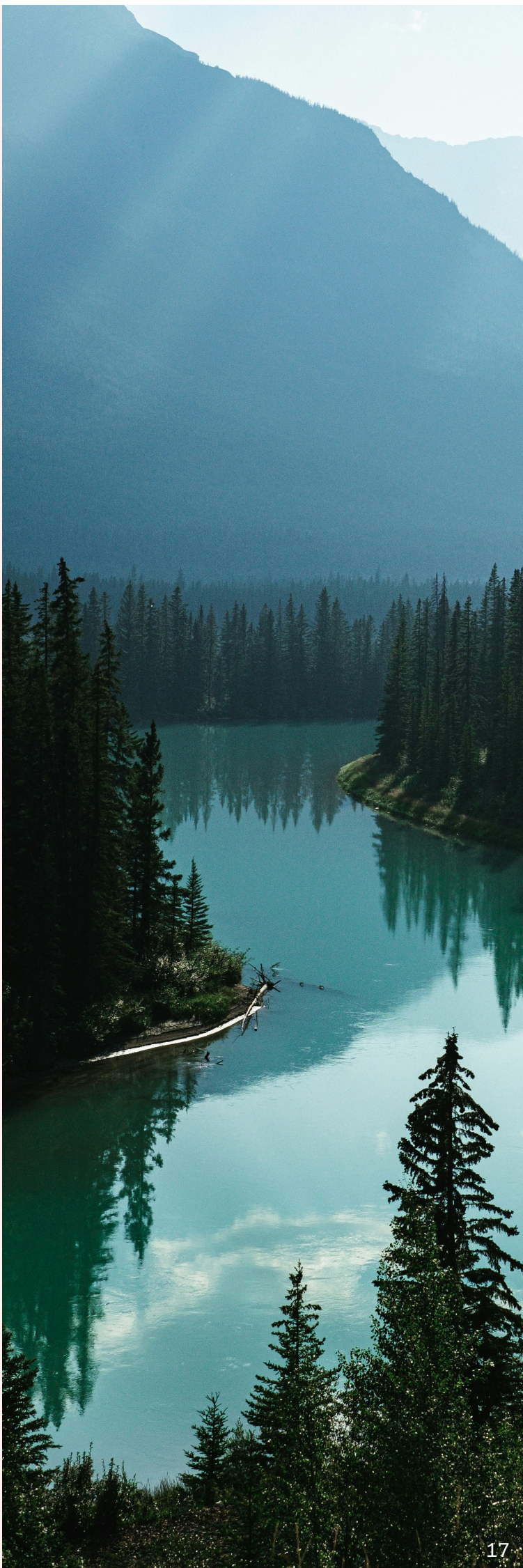
is highly relevant in the Nordics: the Nordic Sami population is estimated at around 80,000 people across Norway, Sweden, and Finland, with the largest portion – approximately 40,000 – residing in Norway. SAM expects companies to respect Indigenous Peoples' human rights, including rights to lands, territories, and resources, and to apply international best practice in seeking their Free, Prior and Informed Consent for business activities that may affect them.

While the previous analysis combined environmental and social exposure, we can also analyze specifically the proximity of the ten most exposed sectors to Indigenous communities (**Figure 9**, on the following page). The column 'Exposed Assets (Indigenous)' represents the number of assets located within or overlapping areas of Indigenous presence. 'Distinct Indigenous Communities' indicates how many unique communities are affected, while 'Avg. Indigenous Count Per Asset' reflects the average number of communities connected to each exposed asset. 'Company Count' shows how many companies are responsible within each sector. The last column provides examples of communities that may be impacted; for brevity, only selected examples are shown.

Most exposed are the **freight air transportation** and **water transportation services** sectors, with 535 and 494 assets exposed respectively and each in proximity to nearly **200 distinct communities**.

Overall, the analysis indicates that exposure to Indigenous lands extends across diverse sectors, representing a significant risk related to Indigenous rights and land use.

Where company operations overlap with, or encroach upon, the strictest protected areas and Indigenous lands, there's a possibility they may cause significant ecological or social harm and carry both regulatory and reputational risks. SAM therefore expects companies to adopt a precautionary approach, treating these areas as highly sensitive and ensuring any potential impacts are either avoided or rigorously mitigated.



NACE SECTOR	EXPOSED ASSETS	DISTINCT INDIGENOUS COMMUNITIES	AVG. INDIGENOUS COUNT PER ASSET	COMPANY COUNT	EXAMPLE INDIGENOUS COMMUNITIES
Freight Air Transport	535	198	3	2	Boe, Arrohateck, Kavalan
Service Activities Incidental to Water Transportation	494	173	2	1	Akan, Cueva, Huarpe
Manufacture of Locks and Hinges	351	175	3	1	Ga, Massapeguas, Yesan (Tutelo)
Financial Leasing	247	105	3	1	!Xam, Amazigh, Larrakia
Engineering Activities and Related Technical Consultancy	148	24	2	4	Charrúa, Puri, Sápmi (Sámi)
Support Activities for Petroleum and Natural Gas Extraction	138	78	3	3	Yokuts, Hñāhñu (Otomi), Kusso, Sewee, Wallmapu (Mapuche)
Preserving of Fish, Crustaceans and Molluscs	126	17	2	3	Kwakwaka'wa
Electric Domestic Appliances	119	71	3	1	Eora, Dharug, Muisca, Wiradjuri
Manufacture of Lifting and Handling Equipment	119	68	3	2	Alutiiq (Sugpiaq), Boon Wurrung, Santee
Manufacture of Paper and Paperboard	115	25	2	3	Sápmi (Sámi), Taino

Figure 9

Results:

From Risk Mitigation To Resilience And Adaptation

Key Observation

Nordic companies face substantial water-related risks.

As noted above, the TNFD also identifies locations with high physical water risks as ecologically sensitive areas. As such, SAM undertook a portfolio-level water risk assessment in 2024. As an entry-point, SAM used **ENCORE** to map companies in sectors with very high water-related impacts and dependencies.

To achieve a more granular analysis, the companies most at-risk identified through ENCORE were then screened at the asset level using the **WWF Water Risk Filter** – a portfolio-level screening tool which assesses three types of risks: physical, regulatory, and reputational.¹⁸ Location-specific data for certain sectors was retrieved from open-source datasets via the **Spatial Finance Initiative (SFI)**.¹⁹ These geospatial datasets enable the identification of individual physical assets and the linkages between financial instruments and the real economy, which can be aggregated at the portfolio level. The number of physical assets available via SFI is, however, limited.

Risk Exposures

NACE Sector	Weight (%)	Water Stress (%)	Water Demand (%)	Water Variability (%)	Drought (%)	Coastal Flood (%)	Riverine Flood (%)	Extreme Heatwave (%)	Temperature Deviation (%)
Agriculture	0.30	0.24	0.67	0.28	0.20	8.91	0.23	0.00	0.23
Construction	2.43	7.06	13.20	0.69	11.50	0.99	28.14	1.45	20.70
Energy Supply	7.32	5.78	4.89	7.17	4.86	5.94	2.79	7.15	3.83
Finance & Insurance	0.62	0.77	1.29	0.23	0.44	0.99	0.23	0.39	0.26
Manufacturing	56.64	52.31	49.18	49.45	53.07	55.45	39.53	45.31	49.87
Mining	15.09	1.08	2.13	0.83	1.59	0.00	0.93	1.16	0.09
Professional Services	0.27	1.52	2.13	0.83	2.31	0.00	3.02	0.77	3.92
Transport & Storage	15.11	27.70	21.07	40.53	20.71	27.72	14.88	43.77	7.43
Wholesale & Retail	2.22	3.52	5.45	0.00	5.33	0.00	10.23	0.00	13.68

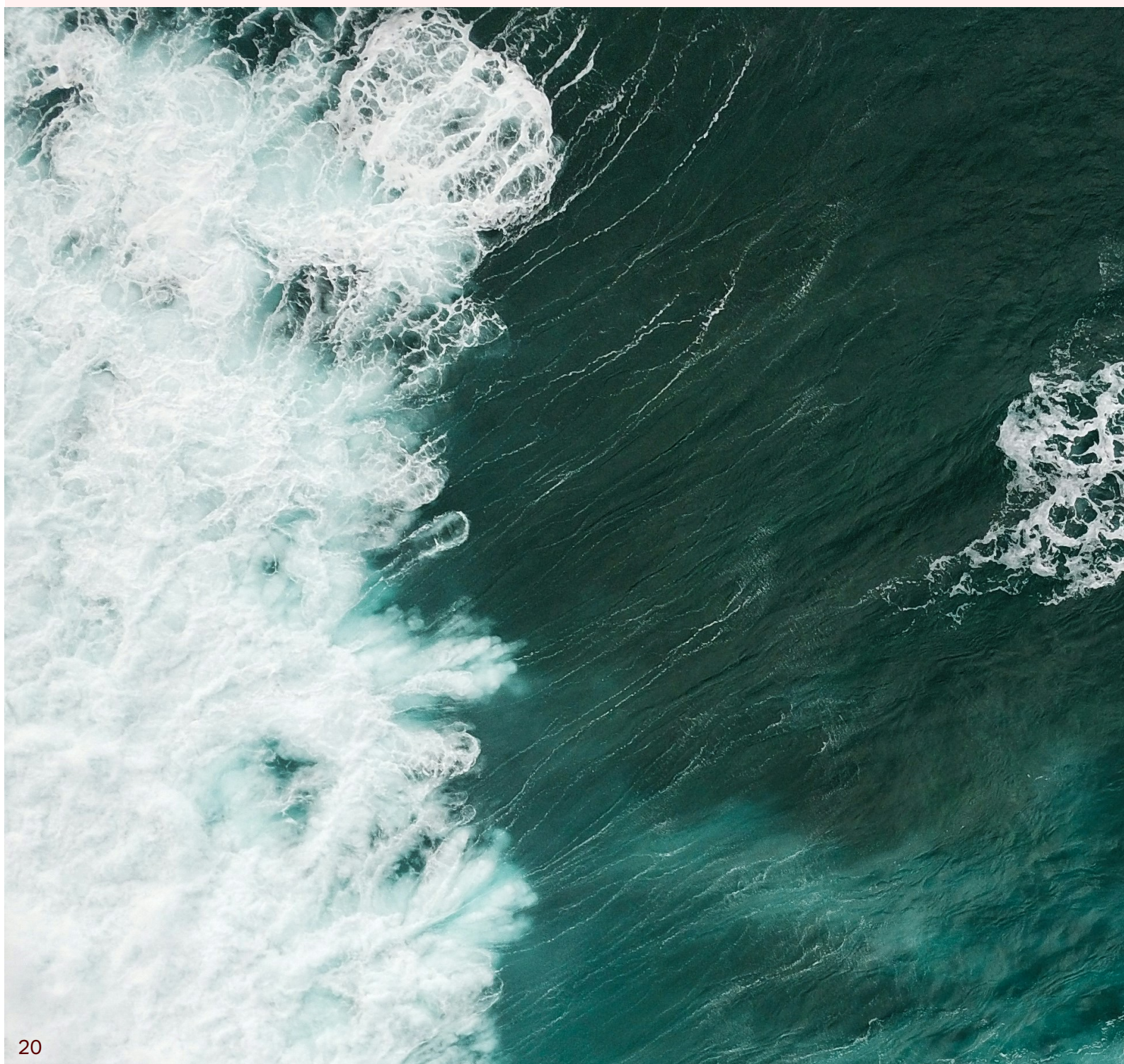
Figure 10

In our analysis of the Nordics 100 sample portfolio, therefore, we have gone further – leveraging a more reliable and broader physical risk assessment offered by GIST Impact to evaluate the probability of exposure to climate- and weather-related trends and phenomena, as well as water-related risks (**Figure 10**, above).

This analysis shows that the manufacturing sector faces the greatest exposure – with ca. **53%** of assets exposed to **drought-prone** areas, and ca. **52%** of assets exposed to **water-stressed** areas.

This is a critical finding. The manufacturing sector uses significant amounts of water as raw material and for processes like cooling equipment, washing products, and transporting goods, with food, textiles, paper and automotive businesses being high-volume users. Water scarcity can impact productivity and lead to facility closures, making water conservation, reuse, and efficient wastewater management crucial for the sector's sustainability and resilience.

This analysis therefore helps us to deepen our understanding of potential implications faced by portfolio companies due to water-related risks - such as increased operational costs, operational disruptions, regulatory challenges or conflicts with local communities over water use. At the same time, it helps us to foster more informed and targeted dialogue on water management and stewardship of this critical resource. This information is therefore essential when engaging with companies on their resilience plans, and when it comes to effective capital allocation.



Conclusion:

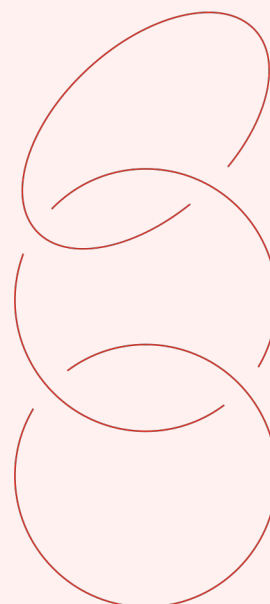
The End Is Just The Beginning

Overall, this nature-related analysis, enabled by GIST Impact, offers not only critical insights, but also a valuable starting point for financial institutions like SAM to tailor investor engagement actions with investee companies and refine portfolio management strategies. This includes identifying priority sectors, companies, pressures and locations for further analysis and data-driven action.

Nevertheless, we recognize certain constraints and caveats. For example, biodiversity footprinting should be complemented with additional measurement approaches and location-based techniques to achieve a more comprehensive assessment of impacts and dependencies. The requisite data is available - the key is understanding the strengths and limitations of each type of insight, and how these can be combined to provide a truly informative perspective across the multifaceted topic of nature.

GIST Impact therefore supports SAM in the following priority areas:

- **Conducting impact materiality assessments to identify the most material impacts across portfolios, sectors and asset types.** This will inform investment and engagement strategies to reduce impacts and mitigate potential physical, transition and litigation risks. This is also highly relevant from a legal and due diligence perspective: SAM is committed to identifying and managing the principal adverse impacts of our investment decisions on sustainability factors, in line with the EU Sustainable Finance Disclosure Regulation (SFDR).
- **Understanding the most critical drivers of biodiversity loss.** This will support the SAM team in developing a robust overall engagement strategy, while enabling more targeted engagement with select companies.
- **Monitoring investee companies' targets and performance over time.** This data will not only enable SAM to conduct baseline assessments, but also to hold companies to account and to ensure alignment with internal and external mandates.
- **Supporting existing and evolving disclosure recommendations and requirements.** This includes specific TNFD disclosures (such as the location of assets and/or activities in the organization's direct operations and, where possible, upstream and downstream value chain(s)), as well as Global Reporting Initiative (GRI) disclosures 101-4 (identification of biodiversity impacts) and 101-5 (locations with biodiversity impacts).



References

1. Further information about Nature Action 100 can be found [here](#). It should be noted that fossil fuel companies are excluded both from the Nature Action 100 initiative; this, however, risks understating the materiality of distant (as opposed to merely proximate) impacts on, and chronic (as opposed to merely acute) risks posed to, nature and biodiversity. The strength of GIST Impact data is its accounting for both distant and proximate impacts, as well as both chronic and acute risks.
2. Dasgupta, P. (2021) 'The Economics of Biodiversity: The Dasgupta Review'. HM Treasury. Accessible [here](#). It should be noted, however, that the Dasgupta Review focuses on the decline in aggregate natural capital stocks and the macroeconomic (rather than microeconomic) consequences thereof.
3. Mauderer, S., Assouan, E. and Reinke, M. (2024) 'Nature-related Financial Risks: a Conceptual Framework to guide Action by Central Banks and Supervisors'. NGFS. Accessible [here](#).
4. Dasgupta, P. *ibid*.
5. Olsen, N., Mulder, I, Hang Q., et al. (2023) 'State of Finance for Nature: The Big Nature Turnaround - Repurposing \$7 Trillion To Combat Nature Loss'. UNEP, Global Canopy, ELD. Accessible [here](#).
6. Barbier, E. (2022) 'The Policy Implications of the Dasgupta Review: Land Use Change and Biodiversity'. *Environmental and Resource Economics* 83.4. pp. 911-35.
7. Further information about the Finance for Biodiversity Pledge can be found [here](#).
8. GFANZ (2024) 'Nature In Net-zero Transition Plans'. Accessible [here](#).
9. Further information about TNFD high-priority sectors can be found [here](#).
10. It should also be noted that the analysis focuses on company operations and owned assets, and does not currently account for impacts and risks across the corporate value chain (except for where it is reflected in ecosystem dependencies). While GIST Impact is able to estimate impacts across the value chain at scale using EEIO modelling and supply chain mapping, value chain pressures and commodities sourcing disclosures by companies remain very rare – a challenge well-known across the market at the time of publication. Furthermore, expanding scope to the value chain level for portfolio analysis requires complex adjustments to avoid double-counting. Focusing on operations therefore ensures consistency in comparison and represents a pragmatic sphere of control on which to engage companies. At the same time, we are aware that the environmental performance of the Nordics 100 will change once analysis is expanded across the whole corporate value chain.
11. For an introduction to the LC-Impact methodology, see Veronesi, F., Hellweg, S., and Assumpció, A. et al., (2020) 'LC-IMPACT: A Regionalized Life Cycle Damage Assessment Method', *Journal of Industrial Ecology* 24.6. pp. 1201-19. Accessible [here](#).
12. TEEB (2010) 'The Economics Of Ecosystems And Biodiversity: Mainstreaming The Economics Of Economics Of Nature: A Synthesis Of The Approach, Conclusions and Recommendations of TEEB.' Accessible [here](#).
13. Further information about ENCORE can be found [here](#).
14. Further information about the Biodiversity Intactness Index can be found [here](#).
15. Further information about the Integrated Biodiversity Assessment Tool can be found [here](#).
16. Further information about Forest IQ can be found [here](#); about Earthworks, [here](#). Please note that
17. Following guidance from IBAT, exposure to a protected area is defined as operating within or proximity to the area boundary, with a proximity threshold determined by the type of business activity. Thus, a single asset can be exposed to more than one protected area.
18. Further information about the WWF Water Risk Filter can be found [here](#).
19. Further information about the Spatial Finance Initiative can be found [here](#).

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October 2025