Ecosystem Restoration Marketing Communication for Professional Investors –
March 2024

IS YOUR CLIENT ASKING YOU ABOUT BIODIVERSITY?

ENVIRONMENTAL STRATEGIES GROUP

BNP PARIBAS
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INTRODUCTION

Executive Summary

- Biodiversity is greatly threatened by human activities and multiple billions of dollars need to be mobilized to reverse biodiversity loss.
- But investors should be mindful of the challenges of investing in this space
- The Environmental Strategies Group's Ecosystem Restoration strategy approaches biodiversity indirectly, through three themes, and has multiple initiatives in place to demonstrate our contribution to, and ongoing work in, biodiversity.
- Biodiversity, water, land, and decarbonisation issues are all closely interrelated.

Additional Resources

- For more information on the link between climate change and biodiversity as well as the need to tackle both crises simultaneously, see this link: Climate change and biodiversity loss should be tackled together | Research and Innovation (europa.eu)

WHAT IS BIODIVERSITY?

Biodiversity refers to the variety of living species on Earth; it is all the different kinds of life you'll find in one area. This includes a variety of plants, fungi, animals and even microorganisms like bacteria. Current estimations suggest a global total exceeding 8.7 million species, with only 1.2 million presently identified (most of which are insects)[1]. As such, a significant portion of global biodiversity remains undiscovered.

WHY DOES IT MATTER?

Each of these species and organisms work together in ecosystems, like an intricate web, to maintain balance and support life. Many species provide important benefits to humans, including food, clothing, and medicine. Biodiversity is a fundamental backbone of human existence, supporting everything in nature that we need to survive: food, clean water, breathable air, medicine, and shelter. Because we sometimes treat these resources as free (and limitless), we can forget their worth. In addition to intrinsic value (apart from usefulness to humans), the World Economic Forum estimates that more than half of global GDP, around $44 trillion, relies, to some extent, on nature[2]. Critically, biodiversity is also linked to climate change as the loss of key habitats undermines nature's ability to regulate greenhouse gases and protect against extreme weather. As one example, microbes, bacteria, and fungi are by far the most important factors in determining how much carbon is stored in the soil, according to a new study in Nature[3].

WHAT ARE THE CONSEQUENCES OF BIODIVERSITY LOSS?

Unfortunately, according to the WWF Living Planet Report, we have lost about 69% of species since 1970[4]. Some scientists estimate that half of all current species on Earth will become extinct within the next century. To illustrate, today humans and their livestock comprise about 96% of global mammal biomass; wild mammals are just 4%[5]. Given the close link between biodiversity and nature, this is not surprising. We have lost one third of our forests, about one third of our topsoil[6], half the world's assessed fish stocks are overfished[7], carbon emissions continue to make records, and clean water supply has halved since 1970[8]. Human driven pollution, climate change, and population growth are all proven drivers of biodiversity loss. Focusing on water, demand is up 40% over the past 40 years[8], outpacing population growth which will likely not peak until 2050. New industries, like data centres, require even more water. This opens the door for running out of freshwater in many places by 2040 according to Aarhus University[8]. Some will suffer sooner: land-locked Bangalore with 13mn residents relies on groundwater and about half of its borewells have run dry, even at a depth of 1500 feet[9]. People are leaving the city as a result and it shows how nature-driven forced migration will be an increasing challenge in the future. Put another way, clean water is not a nice-to-have; it is critical for both nature and ourselves, whether it is to drink, or for agriculture or industry.

WHAT IS BEING DONE ABOUT IT?

While much more needs to be done, governments and other agencies are starting to respond. Sustainable Finance Disclosure Regulation in the EU will require more biodiversity led disclosures and the Task Force on Nature Related Financial Disclosures has developed a framework for corporates and financial institutions asses and report on their impacts on nature. Importantly, the Kunming-Montreal Global Biodiversity Framework, adopted at COP15 in 2022, aims to slow biodiversity loss by 2030 by protecting 30% of the planet's land and water. At COP26 in Glasgow, one hundred world leaders, representing countries that control 85% of the world's forests, agreed to try to halt deforestation by 2030, pledging $19bn. In the UK, the Environment Act of 2021 includes biodiversity net gain measures that mandates a 10% net gain in biodiversity for all new developments. The US Inflation Reduction Act (IRA) provides funds for forest protection, water treatment, and land rehabilitation. Single-use plastic taxes are being introduced by more countries as are water restrictions.

INVESTING IN BIODIVERSITY

WHY SHOULD INVESTORS CARE?

History has shown that when large structural problems face society, companies that help to solve those problems can do well. Here we have a long-term problem of global scope that is critical to all life. We are at the early stages of implementing solutions, but we see need for companies that will more effectively recycle, provide clean water, preserve forests, ensure food security by farming more sustainably, and more. As an example of the value that can be driven by investments in nature, the World Bank says that every dollar invested in water supply could generate seven dollars in return from related beneficiaries[8]. The key will be identifying companies that are closely related to the solving of these problems, avoiding increasing taxation risks from bad actions, and potentially receiving some of the capital flows going towards solutions.

HOW CAN INVESTORS INCORPORATE BIODIVERSITY IN THEIR PORTFOLIOS?

As the current biodiversity finance gap is valued at c.$700 billion per year[10], it is a critical priority to scale up and effectively allocate biodiversity-positive finance. There are multiple approaches to this, explained through the spectrum of capital:

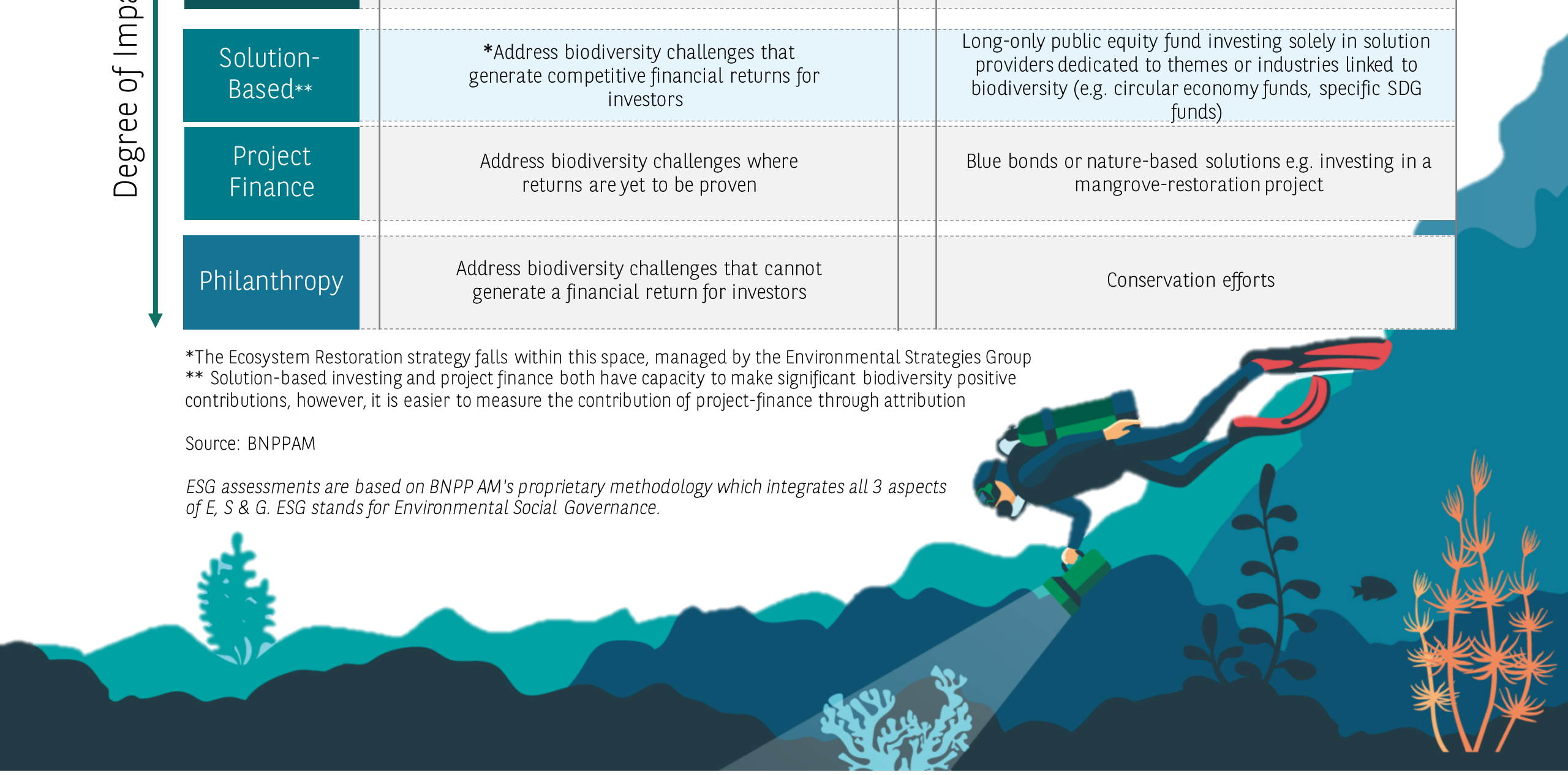
Degree of Impact

Investing Type	Focus	Example (biodiversity-specific)
Exclusion-Based	Mitigate risky biodiversity practices to protect value	This could include screens related to specific practices (ivory trade, shark finning, fur), specific industries (palm oil) specific chemicals, or endangered species restrictions
ESG Integration	Adopt progressive biodiversity practices that may enhance value	Long-only public equity fund integrating biodiversity related risks (e.g. habitat loss or pesticide exposure)
Solution-Based**	*Address biodiversity challenges that generate competitive financial returns for investors	Long-only public equity fund investing solely in solution providers dedicated to themes or industries linked to biodiversity (e.g. circular economy funds, specific SDG funds)
Project Finance	Address biodiversity challenges where returns are yet to be proven	Blue bonds or nature-based solutions e.g. investing in a mangrove-restoration project
Philanthropy	Address biodiversity challenges that cannot generate a financial return for investors	Conservation efforts

*The Ecosystem Restoration strategy falls within this space, managed by the Environmental Strategies Group
** Solution-based investing and project finance both have capacity to make significant biodiversity positive contributions, however, it is easier to measure the contribution of project-finance through attribution

Source: BNPPAM

ESG assessments are based on BNPP AM's proprietary methodology which integrates all 3 aspects of E, S & G. ESG stands for Environmental Social Governance.



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CHALLENGES

WHAT ARE THE CHALLENGES OF INVESTING IN BIODIVERSITY?

Concerns about greenwashing are rising within biodiversity listed equity funds. The challenges of investing in biodiversity in the public space are as follows:

1. The limited universe of listed biodiversity-focused companies

Firstly, listed equity biodiversity funds face a unique challenge. Unlike areas such as renewable energy that have clear links to decarbonisation, listed companies rarely have core business activities that directly conserve or restore biodiversity. Many public companies claiming to be nature positive achieve this through how they run their operations, not their business activities. While some firms integrate biodiversity into their corporate sustainability initiatives or have ancillary projects that loosely address biodiversity goals, these are commendable but are often secondary efforts. The organisations truly driving large scale positive diversity impact are more frequently NGOs, public agencies, and dedicated conservation projects, that tackle biodiversity loss head-on through such things as habitat restoration and species reintroduction. In-between are public companies whose main activities have a meaningful link to biodiversity, such as recycling, treating water, sustainable forestry or promoting sustainable food production. This distinction emphasises the need to carefully evaluate biodiversity funds in the public space.

2. Measuring biodiversity impact

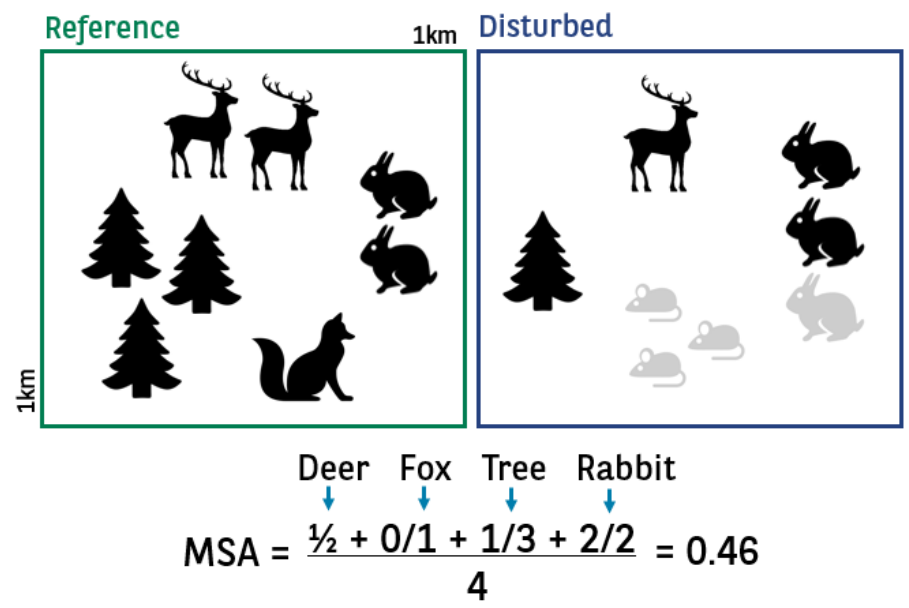
Secondly, measuring a fund's positive contribution to biodiversity is inherently challenging. For example, the most common tool, Mean Species Abundance (MSA), has limitations as outlined below. Most companies do not report on biodiversity concerns meaningfully and, as there is very little consistency across companies, making comparisons difficult. Finally, biodiversity holds intrinsic value, which makes it difficult to realise and quantify a fund's impact through traditional financial metrics.

<u>MSA Deep-dive</u>

MSA is usually expressed as km2MSA. This takes the MSA loss across the total land surface associated with a company's value chain. For example, lets say we were assessing a company which has a campus of labs and offices. We would calculate the MSA loss associated with the construction and use of the campus. If the associated land of the campus was 5km2, and the campus had reduced the species abundance by half, then the company's adverse biodiversity footprint is said to be 2.5km2. Or in other words, it is responsible for 2.5km2 of 'denatured' biodiversity. This formula is time-integrated, meaning the result integrates past and present impact.

However, it is unfortunately not that simple: MSA calculations fail to capture the health of ecosystems, the importance of those ecosystems, the presence of invasive species amongst other factors.

<u>Illustration of an MSA Calculation</u>



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THE ECOSYSTEM RESTORATION STRATEGY

OUR APPROACH

Established in 2019, the Environmental Strategies Group is a dedicated environmental thematic equities team within BNP Paribas AM, with the ambition to drive impact and achieve returns as joined objectives. The strategies seek to restore healthy ecosystems and/or support the energy transition, actioned through solely investing in environmental solution providers that we believe can achieve above market returns over the longer term. The team's product range spans style factors, geographies, technologies, and market capitalizations driving impact and portfolio diversification.

The Ecosystem Restoration strategy is one of five, managed by the team. It was launched the day after the announcement of United Nations' (UN) Decade on Ecosystem Restoration, to bring back ecological functionality in degraded ecosystems. The team believe that pausing and reversing the effects of the biodiversity crisis is a key component of this goal. We translate this belief into action through three key elements:

Focus on solution providers

Firstly, the strategy seeks to reduce societal pressures and their consequential impact on the natural world. We invest solely in companies whose products and/or services enable environmental solutions which can drive impact as well as achieve sustainable, above market returns over the longer term. We analyse these solution-providers through three thematic lenses, due to the complexity of the drivers of ecosystem degradation. Each is closely, albeit indirectly, linked to biodiversity as explained further below*:

1 Ocean Health & Clean Water	2 Smart Agriculture & Food Innovation	3 Circular Economy & Eco Design
Reducing Pollution Investments in companies developing technologies for wastewater treatment, pollution filtration and sustainable fishing practices can directly reduce pollutants harming aquatic ecosystems. Cleaner water fosters healthly fish populations, coral reefs and other marine life.	**Improving Soil Health** Supporting companies providing organic fertilizers, bio fertilizers and soil health monitoring tools can promote sustainable agricultural practices. Healthy soil allows for a wider variety of organisms like worms, microbes and insects to thrive, fostering a richer ecosystems that supports above-ground biodiversity.	**Reducing Resource Extraction** Investments in companies developing recycling technologies and biomaterial can minimize reliance on virgin and raw resources. This reduces habitat destruction associated with mining and resource extraction, allowing ecosystems to flourish and grow.

Targeting reform in industries with high biodiversity impact

Secondly, we target solutions in areas which are driving the largest, negative, biodiversity impact. To elaborate, a new study by the Finance for Biodiversity Foundation on the top 250 companies in the MSCI World Index has highlighted that Consumer Staples, Materials, Energy, Industrials, Consumer Discretionary, Healthcare and Utilities are the sectors sharing the largest biodiversity impact[11]. The Ecosystem Restoration strategy directly targets innovation and disruptive technologies in these areas, with large dedications to industrials, materials, utilities and consumer staples. In total, these sectors add up to approximately 85% of the strategy.

Engagement

Finally, the we have launched a formal engagement strategy for the Ecosystem Restoration strategy. It is based on three pillars: Individual Engagement & Proxy voting, Collaborative Engagement and Public Policy and Advocacy. Through each of these areas, we support and collaborate with our companies to maximize biodiversity positive solutions and operations. The team are also in close contact with the Sustainability Centre and Robert-Alexandre Poujade, BNPPAM's Biodiversity Lead, to drive and guide biodiversity-related engagement.

*there is no guarantee that companies aligning with these themes will drive these benefits, they should be used for example purposes only

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THE ECOSYSTEM RESTORATION STRATEGY

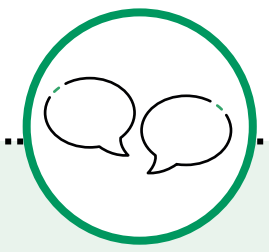
KEY INITIATIVES RELATING TO BIODIVERSITY

Already Launched

Environmental Reporting

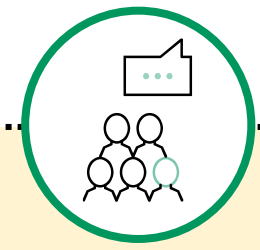
The team produce a bi-annual environmental report which discloses the strategy's extra-financial metrics. It introduces the thematic and discloses our ESG metrics, environmental footprint, our six targeted SDGs, engagement and sustainable regulation. Metrics include MSA, ESG Scores, intensity metrics, EU taxonomy alignment, SBT alignment amongst others. Please see the appendix.

Recent and pending additions: IPBES Stressors and GBF alignment



Engagement Inbox Tool

The team now have a specific inbox which governs our engagement initiatives, communication with companies and progress. We are currently in the process of understanding our holdings' biodiversity-related initiatives for 2024, and progress throughout 2023. We have set specific engagement priorities relating to biodiversity, including engaging on TNFD reporting, land management policies and endangered species for the year ahead.



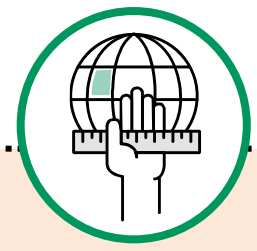
Partnerships

The team has partnered with the Naturalis Biodiversity Centre, a Dutch biodiversity research centre. The purpose of this relationship is for the Environmental Strategies Group to leverage the knowledge, resources and network of Naturalis to form stances on issues related to biodiversity and the broader environment, which then inform investment decisions.
The team is also aiming to collaborate on projects which combine both our focus areas to further environmental progress.

In the Pipeline

Impact Calculator & Net Purpose

The Environmental Strategies Group is building an Impact Calculator, with the aim to be launched in the second half of 2024. Not only will this present the impact of the strategy's solutions, but a tangible equivalent so the data is easily digestible for clients. For instance, the strategy saved X acres from deforestation, equivalent to X football fields.
We are working with the Sustainability Centre to partner with Net Purpose, an impact data provider, which will support this tool.



Additional Data Vendors

The team's Environmental Analyst is closely monitoring the release of new biodiversity methodologies and data-sets. For example, Morgan Stanley recently launched Biodiversity IQ, a tool to understand the biodiversity footprint of a strategy's holdings. Additionally, S&P Trucost have launched a nature data-base, which analyses the nature related impact and dependences of each issuer in a portfolio. We are currently working alongside analysts from both companies to understand how these tools can be leveraged.

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THE ECOSYSTEM RESTORATION STRATEGY

Supporting Biodiversity through investing in Environmental Solution Providers

Case Study

The team invest in companies providing innovative, new solutions to biodiversity loss. To illustrate this with an example from our Ocean Health thematic, omega-3 is a form of fatty acid used in fish food (75% of production allocation) and human and pet supplements. Historically, it has been solely sourced from fish; however, wild stocks are rapidly increasing due to the effects of climate change and human activity.

DSM have launched Veramaris, an algae-based oil alternative, that provides the first viable alternative to fish oil for omega-3. Farmed in giant lakes, Veramaris has a high (50%) concentration of the key fatty acids needed to feed farmed salmon and maintain their health. Its significance is best summarized by the fact that just **one metric tonne of Veramaris algal oil is the equivalent of 60 tonnes of wild-caught fish**.

Green Plains are also making strides in this area, having partnered with Optimal Fish Food to incorporate plant-based proteins, algae and other single-cell protein ingredients in their aquafeed.

Case Study

Society needs to feed itself more sustainably. An exciting area of innovation is cellular agriculture, where meat is grown from cell samples instead of relying on industrial animal farming practices that rear and slaughter animals for maximum efficiency – a process that requires land, water, significant feed, antibiotics, and emits large amounts of carbon.

We invested in Agronomics, a listed investment company with holdings in several cellular agriculture and precision fermentation companies. One is ONEGO that produces and sells egg whites, but without the chickens. Another is BlueNalu, which is developing cell-cultured bluefin tuna while leaving the fish in the sea. Both approaches produce clean food without the need for antibiotics and without exposure to contaminants such as heavy metals or micro-plastics.

Supporting Biodiversity through Active Engagement

Case Study

In the latter half of 2023, the Environmental Strategies Group were alerted to the link between collagen production and deforestation/indigenous rights risks. In consequence, we analysed the Ecosystem Restoration portfolio to see where there could be revenue sourced from collagen. We identified Darling, one of our current holdings, which produces collagen from animal by-products sourced from tanneries and abattoirs, reducing the amount of animal waste that goes to landfill. Despite the marginal portion of revenue, there was a possible link between the cattle used for the collagen production and the Amazon/Cerrado in Brazil, which is a highly biodiversity sensitive area.

Since, we have launched a long-term engagement strategy with the company to gain clarity on their actions to ensure supply chain sustainability. Currently, we are encouraging the release of a deforestation policy and a biodiversity risk assessment (as completed on US sites) and are waiting on confirmation of CDP certification (an initiative aiming to improve carbon disclosure) and an update from the Chief Sustainability Officer's trip to the Brazilian sites.

"The above-mentioned companies are for illustrative purpose only, are not intended as solicitation of the purchase of such securities, and/ does not constitute any investment advice or recommendation."

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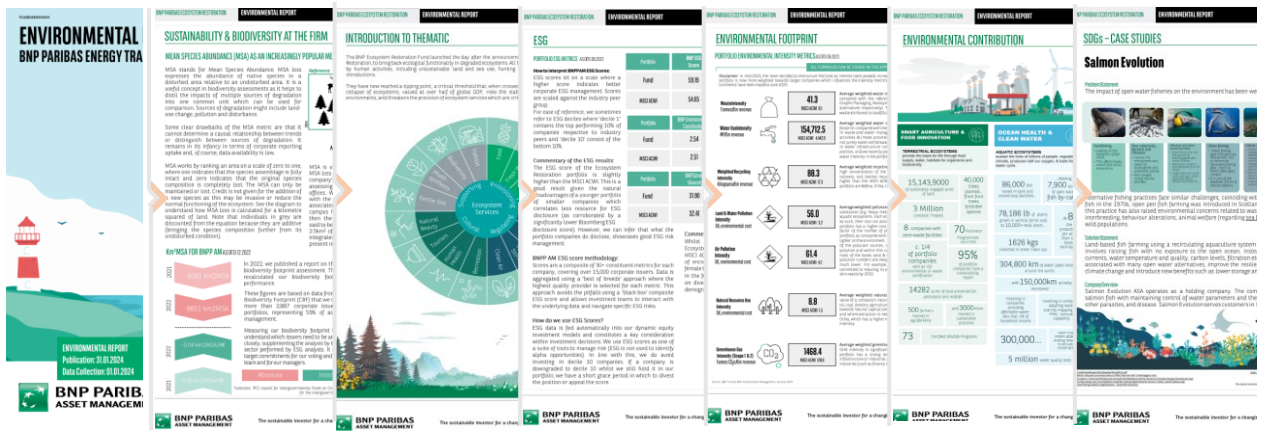
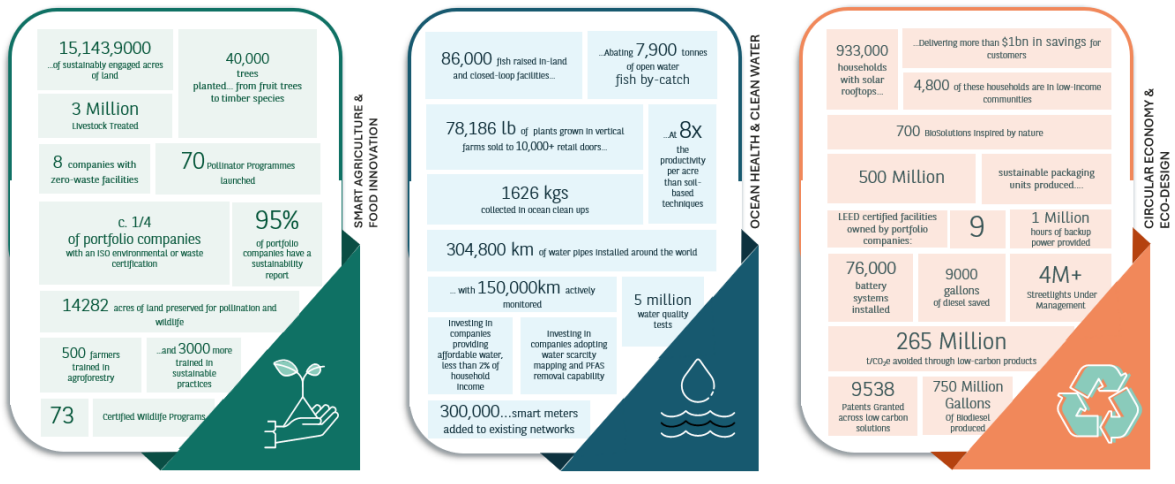
APPENDIX



Extra Financial Performance



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The lack of common or harmonized definitions and labels integrating ESG and sustainability criteria at EU level may result in different approaches by managers when setting ESG objectives. This also means that it may be difficult to compare strategies integrating ESG and sustainability criteria to the extent that the selection and weightings applied to select investments may be based on metrics that may share the same name but have different underlying meanings. In evaluating a security based on the ESG and sustainability criteria, the Investment Manager may also use data sources provided by external ESG research providers. Given the evolving nature of ESG, these data sources may for the time being be incomplete, inaccurate or unavailable. Applying responsible business conduct standards in the investment process may lead to the exclusion of securities of certain issuers. Consequently, the Sub-Fund's performance may at times be better or worse than the performance of relatable funds that do not apply such standards