The Landscape of Biodiversity and Natural Capital Funds

An Expanding Universe of Strategies

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Key Takeaways

Three types of biodiversity funds

- We identified three distinct types of biodiversity investment strategies. These strategies seek to invest in companies that try to reduce their impact on biodiversity (risk-oriented) or companies that provide solutions to biodiversity loss (solutions-focused), while some invest in both types of companies (mixed).
- These three distinct strategy types play a different role in an investment portfolio, from reducing portfolio risks to investing in alpha-generating opportunities.

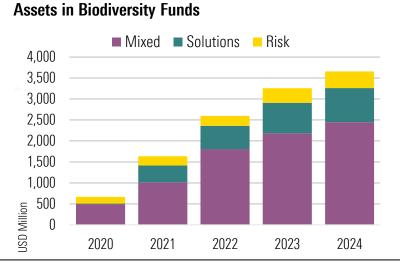
Assets in biodiversity funds climb to USD3.7 billion

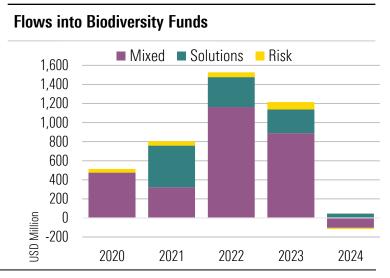
- Global assets held in biodiversity open-end funds and ETFs more than doubled over the past three years to USD3.7 billion, boosted by product development.
- All 34 biodiversity funds we identified are domiciled in Europe. Over USD800 million are invested in solutionsoriented funds.
- Despite the rapid growth, the biodiversity fund universe is dwarfed by the USD530 billion climate fund market*. Biodiversity has a long way to go as an investment theme.

Experiencing outflows in 2024 after four years of inflows

- After four years of inflows, biodiversity funds experienced negative flows in the first nine months of 2024, against a backdrop of reduced appetite for ESG funds.
- Solutions-focused funds are the only biodiversity-related strategies still attracting net new money this year (USD50 million year to date).

Three Types of Biodiversity Funds Mitigating Biodiversity Risks Investing in Biodiversity Solutions Risk-oriented Mixed Solutions-focused





Key Takeaways (cont'd)

Industrials, Technology, and Materials are key sectors, and funds have no exposure to emerging markets

- Biodiversity funds have a bias towards the Industrials, Technology, and Materials sectors, on average.
- US and European firms dominate biodiversity fund holdings, with virtually no exposure to emerging markets. Firms in developed markets typically have lower ESG risks and more policies to address biodiversity loss. They also have more resources to innovate and develop biodiversity-related solutions.

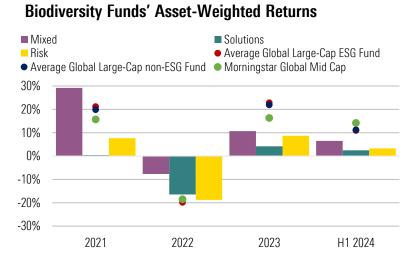
Biodiversity funds have underperformed, on average, but showed resilience in the 2022 market downturn

- Biodiversity funds have lagged ESG and non-ESG peers, on average, since 2021, partly due to their higher fees.
- Some funds stand out, though. Mixed strategies have exhibited better returns than risk-oriented and solutionsfocused strategies.
- 2022 was the only year of outperformance. Biodiversity funds proved more resilient in the market downturn.

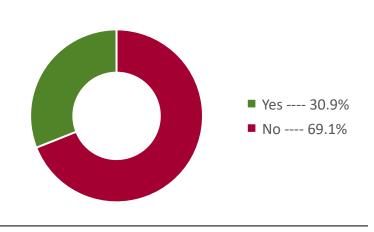
70% of companies in relevant subindustries* lack a biodiversity protection policy

- Just over 30% of companies in relevant subindustries* have a biodiversity protection policy.
- Multi-Utilities leads, with 59% of companies having such a policy, followed by Precious Metals Mining at 56%, and Gold at 50%.
- The laggards are Oil & Gas Storage and Transportation (6.5%) and Facilities Maintenance (6.3%).

Geographic Exposure Now Solutions Mixed Risk Morningstar Global TME Solutions Mixed Risk Morningstar Global TME Solutions Mixed Risk Morningstar Global TME United States Developed Europe Emerging Markets



Companies with Biodiversity Protection Policy



^{*} The sample includes 1,423 companies from the following subindustries: Agriculture, Aluminum, Diversified Metals Mining, Electric Utilities, Facilities Maintenance, Forestry, Gas Utilities, Gold, Highways and Railroads, Marine Ports, Multi-Utilities, Oil & Gas Storage and Transportation, Paper and Pulp, Precious Metals Mining, Renewable Power Production, Steel, Trading and Distribution, Travel, Lodging and Amusement, Water Utilities.

Introduction

There is growing acknowledgement of the severe economic risks posed by biodiversity loss. The World Economic Forum's latest Global Risks Report identifies biodiversity loss and ecosystem collapse as the third most severe risk over the next 10 years. More than 50% of global GDP is moderately or highly dependent on natural ecosystems. Businesses have been major contributors to the decline of biodiversity; for example, through land use changes due to agricultural expansion, climate change due to greenhouse gas emissions, overexploitation of natural resources, as well as pollution. As a result, businesses also play a central role in halting and reversing biodiversity loss.

In December 2022, COP15's Biodiversity Plan called on the private sector to assess and disclose their risks, dependencies and impacts on biodiversity. Since then, various new regulations, frameworks and coalitions have emerged to facilitate this shift. Examples include:

- Taskforce on Nature-related Financial Disclosures (TNFD). The TNFD has developed a
 framework for reporting and managing nature-related risks, similar to the climate-focused
 Taskforce on Climate-related Financial Disclosures (TCFD). Over 400 companies have
 signalled an intent to adopt the TNFD recommendations.
- **Biodiversity Disclosure Requirements**: The Corporate Sustainability Reporting Directive (CSRD) and the EU Taxonomy mandates biodiversity disclosure for in-scope companies.
- Science-Based Targets Network (SBTN): SBTN has published guidance for companies to assess their most significant impacts on nature and set science-based targets. A few proactive companies have already participated in SBTN pilot programs.

Despite these initiatives and others, such as the <u>Finance for Biodiversity Pledge</u> and <u>Nature Action 100</u>, progress in considering biodiversity in investment decisions remains slow. Equally, it remains rare to find investment strategies that specifically focus on biodiversity. At the time of writing, we identified only 34 open-end funds and ETFs in the Morningstar Direct database that specifically target biodiversity and natural capital as an investment theme.

This report explores the global landscape of biodiversity funds, which currently account for USD3.7 billion of assets. This pales in comparison to the USD530 billion of assets in open-end funds and ETFs that target climate. Strategies to execute on biodiversity objectives have proved difficult to carry out, partly due to a lack of reported corporate data and standard metrics and because biodiversity is at the intersection of other more easily investible and better-known themes such as climate change, water, circular economy, and the environment more broadly. For these reasons, a few funds in our list have a dual thematic mandate.

In this report, we examine the range of biodiversity funds on offer. We subdivide them into three categories: risk-oriented, mixed, and solutions-focused. We look at the growth in assets, flows, and products in each grouping, as well as their performance relative to ESG and non-ESG peers. We also analyze the funds and their most common holdings through the lens of a number of financial and ESG metrics. Finally, we discuss how each type of biodiversity strategy, given their unique risk/reward characteristics, can fit into an investor's portfolio.

Defining the Universe of Biodiversity Funds

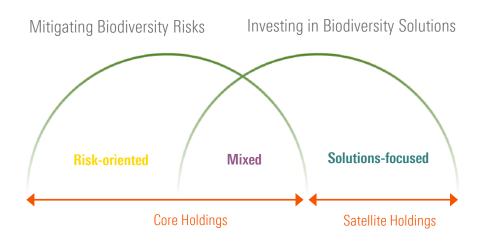
The global universe of biodiversity funds consists of open-end funds and exchange traded funds in Morningstar Direct's database that have investment strategies related to biodiversity and natural capital themes.

Morningstar's universe of biodiversity and natural capital funds (referred to as "biodiversity funds" in this report) is based on intentionality, rather than on holdings. To identify intentionality and understand the strategies, we relied entirely on fund names, which we consider as the strongest indicator of intentionality. The funds in our list are marketed as biodiversity-themed funds using a range of key terms in their names, such as biodiversity, natural capital, restoration, and regeneration. A few funds in our list have a dual thematic mandate, combining biodiversity and climate, for example.

We did not include the growing number of funds that integrate biodiversity into their overall environment, social and governance assessment of companies. For most of these funds, biodiversity considerations represent a very small part, rather than the focus of the strategy and investment process.

Despite using similar key words in their names, the 34 biodiversity funds we identified take different approaches to the theme. Some take a risk-oriented approach by focusing on companies that manage their biodiversity risks better than their peers, while others target companies that help to protect and restore biodiversity through their products or services. A third group of strategies aims to do both.

To simplify, we subdivide them into three groups, based on investment objective and policy, diversification, and sector exposure: risk-oriented, mixed, and solutions-oriented. These three distinct strategy types play a different role in an investment portfolio, ranging from reducing risks in a portfolio to investing in alpha-generating opportunities.



Risk-oriented

Biodiversity risk-oriented funds target companies that take into account the risks related to biodiversity across their operations and supply chain and aim to reduce their negative impact on biodiversity.

Mixed

Biodiversity mixed funds invest in companies that contribute positively to biodiversity, either by having a relatively low biodiversity impact within their specific activity or by providing products and services that enhance and protect biodiversity.

Solutions-focused

Biodiversity solutions-focused funds invest in companies that offer products and services that contribute positively to the protection, conservation, management and enhancement of natural capital.

Overview of the Biodiversity Funds Universe

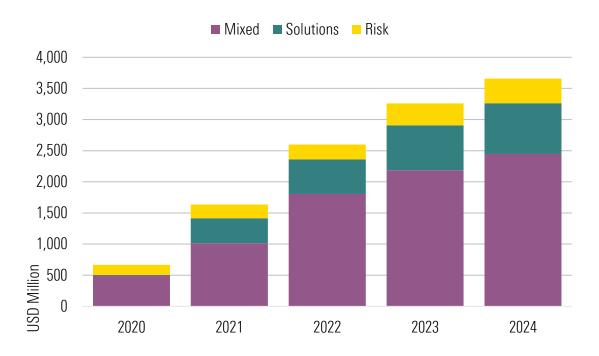
Assets, flows, product development, and sector and regional biases

Assets in Biodiversity Funds are Growing, but Remain Relatively Low

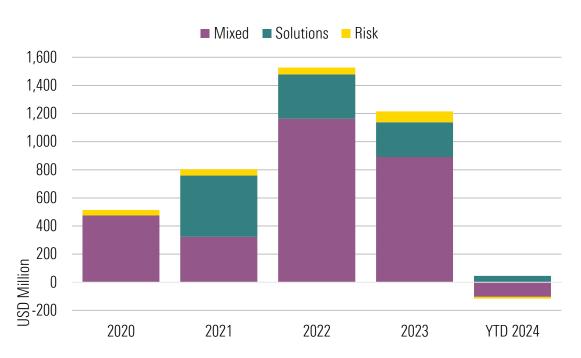
- Assets in biodiversity funds have more than doubled over the past three years, reaching USD3.7 billion at the end of September 2024.
- Two-thirds of the assets are in biodiversity mixed funds, while solutions-focused funds account for less than one-quarter of the market (22%) with about USD800 million of assets.
- Biodiversity funds are dwarfed by the <u>USD530 billion held in 1,600+ climate open-end funds</u> and <u>ETFs globally</u>. Biodiversity has a long way to go as an investment theme.

- ➤ Biodiversity funds have experienced negative flows so far this year, against a backdrop of reduced appetite for ESG funds.
- After USD1 billion of combined inflows in the previous three years, solutions-focused funds have continued to attract net new money so far this year, albeit only USD50 million.

Assets in Biodiversity Funds Split by Category

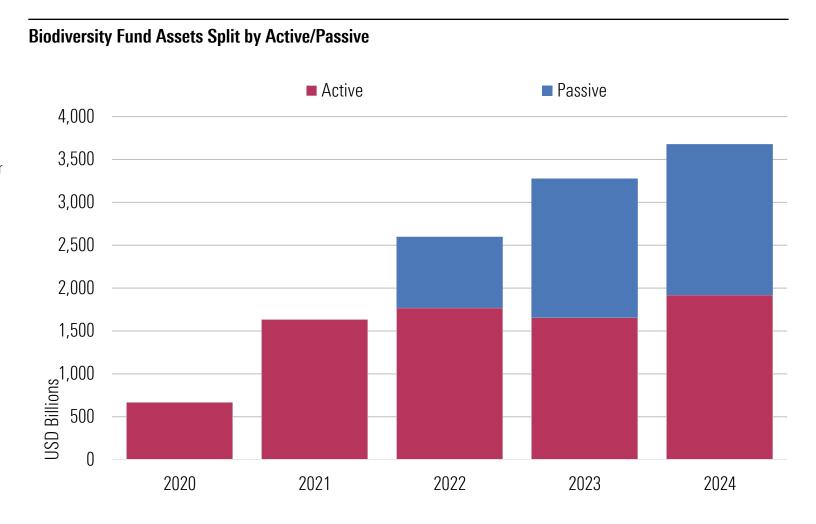


Flows Into Biodiversity Funds Split by Category



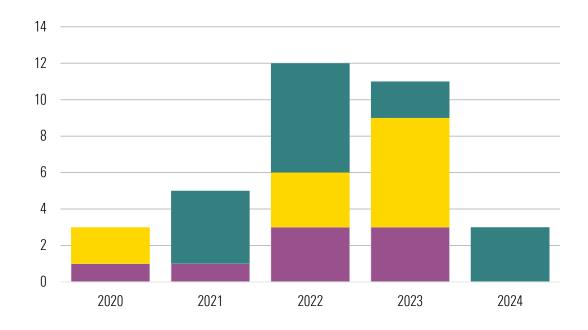
Passive Funds Dominate the Biodiversity Funds Landscape by Assets – Active Strategies Focus on Solutions

- ➤ Of the 34 biodiversity funds we identified, the majority (24) are actively managed. They have USD1.8 billion of assets under management, representing 48% of biodiversity fund assets. Fourteen active strategies focus on solutions, while six are risk-oriented and four are mixed.
- ➤ The 10 passive strategies, which account for a slightly larger part (52%) of the overall biodiversity fund universe in terms of assets, are dominated by one fund: Northern Trust World Natural Capital PAB Index Fund II. With USD1.5 billion in assets, this offering represents 40% of the overall biodiversity fund universe.
- Classed as a biodiversity mixed strategy, **Northern Trust**World Natural Capital PAB Index Fund II tracks a Parisaligned benchmark that increases exposure to companies that are associated with positive contribution to the environment through their products or services, or through their management of natural capital related risk.



Product Development Activity Slows Down this Year

Number of Biodiversity Fund Launches



- ➤ The vast majority of biodiversity funds were either launched or repurposed in the past three years. Twelve were launched during 2022, including several in France in the wake of the introduction of biodiversity reporting legislation Article 29. Eleven were incepted in 2023.
- > Only three funds have been launched so far this year. The slowdown in product development mirrors the trend we are seeing in the broader ESG fund market after years of intense activity.

- Examples of recent launches include Prestige Luxembourg Uzès Biodiversité, which is focused on biodiversity conservation, sustainable land management, and ecosystem restoration, particularly in agriculture and forestry. Mirova Biodiversity Solutions Equity Fund invests in companies offering biodiversity solutions. Principal Global Sustainable Food and Biodiversity Fund targets companies advancing sustainable food systems and biodiversity conservation.
- ➤ Examples of repurposed funds include **Karner Blue Biodiversity Impact Fund**, which was previously called Karner Blue Animal Fund, and M&G (Lux) Climate Solutions Fund, which at the end of October will be rebranded as **M&G (lux) Nature and Biodiversity Solutions Fund**. Conversely, the **Lombard Odier Funds Natural Capital** changed its mandate in April 2023 to a circular economy strategy called Lombard Odier Funds Circular Economy.
- Strategies to execute on biodiversity objectives have proved to be difficult to carry out for several reasons. First, there is the data challenge. Natural capital and biodiversity-specific data remain parse and complex to collect, interpret, and translate into financial terms. Also, unlike for climate change, there isn't a standard set of biodiversity metrics. Another explanation for the low number of strategies is the fact that biodiversity is at the intersection of other and arguably more easily investible themes, including climate change, water, and to some extent circular economy. It is for this reason that we're seeing a few funds in our list that have a dual mandate. For example, Northern Trust World Natural Capital PAB Index Fund and Echiquier Climate & Biodiversity Impact Europe focus on both biodiversity and climate, while Swiss Life Equity Environment & Biodiversity Impact has a broader environmental mandate.

Top 20 Biodiversity Funds

Largest Biodiversity Funds

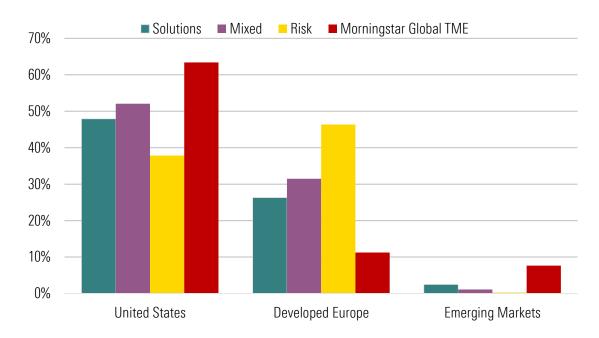
Name	Biodiversity Fund Type		Global Category	Active/ Passive	SFDR Fund Type
NT World Natural Capital PAB Index Fund	Mixed	1,487	Global Equity Large Cap	Passive	Art. 8
AXA IM ACT Biodiversity Equity ETF	Mixed	382	Global Equity Large Cap	Active	Art. 8
AXA World Funds - ACT Biodiversity	Solutions	204	Global Equity Large Cap	Active	Art. 9
Swiss Life Equity Environ. & Biodiversity Impact	Solutions	190	Global Equity Large Cap	Active	Art. 9
Tocqueville Biodiversity ISR	Mixed	160	Global Equity Large Cap	Active	Art. 9
NT World Natural Capital PAB Index Fund	Mixed	122	Global Equity Large Cap	Passive	Art. 8
Echiquier Climate & Biodiversity Impact Europe	Risk	110	Europe Equity Large Cap	Active	Art. 9
BNP Paribas Funds Ecosystem Restoration	Solutions	92	Global Equity M/S Cap*	Active	Art. 9
BNP Paribas Easy ESG Euro. Biodiversity Leaders PAB	Risk	79	Europe Equity Large Cap	Passive	Art. 8
Federated Hermes Biodiversity Equity Fund	Solutions	57	Global Equity Large Cap	Active	Art. 9
Global Fund - Ofi Invest Biodiversity Global Equity	Risk	54	Global Equity Large Cap	Active	Art. 8
UBAM - Biodiversity Restoration	Solutions	54	Global Equity M/S Cap*	Active	Art. 9
Willerfunds - Lombard Odier Natural Capital	Solutions	40	Global Equity M/S Cap*	Active	Art. 9
Aviva Natural Capital Transition Global Equity Fund	Mixed	34	Global Equity Large Cap	Active	Art. 9
ASN Biodiversiteitsfonds	Solutions	34	Equity Miscellaneous	Active	Art. 9
Ossiam Food for Biodiversity UCITS ETF	Risk	33	Consu. Goods & Services	Active	Art. 9
BNP Paribas Oasis Biodiversity Leaders	Risk	23	Capital Protected	Active	Art. 8
Pictet-Regeneration	Solutions	21	Global Equity Large Cap	Active	Art. 9
NT World Natural Capital Paris-Aligned Index Fund	Hybrid	19	Global Equity Large Cap	Passive	Art. 8
Federal Focus - Biodiversity	Risk	18	Global Equity Large Cap	Active	Art. 8

- ➤ Mixed strategies dominate the top five biodiversity funds, including **NT World Natural Capital PAB Index Fund**, which has a dual mandate by also focusing on climate.
- ➢ Risk-oriented funds typically invest only in companies that aim to reduce their negative impact on biodiversity, which can be done in several ways. For example, Echiquier Climate & Biodiversity Impact Europe, another fund with a dual mandate, has developed a score that determines the level of maturity of companies in taking into account the climate and biodiversity issues they face and will face in the future.
- ➤ Portfolio managers typically start building their investment universe by excluding companies that score poorly on broad ESG metrics and/or biodiversity. For example, **Ossiam Food for Biodiversity ETF** first excludes the 20% of food firms with the worst ESG ratings and those in violation of the UN Global Compact principles before using an optimiser that aims to reduce the portfolio's biodiversity impact by at least 50%.
- On the solutions side, the construction of the universe is often driven by positive inclusion, rather than exclusions. For example, AXA WF ACT Biodiversity Fund first identifies sectors that contribute the most to biodiversity loss and then selects solution providers that can generate positive measurable impact. AXA also engages with companies to improve outcomes.
- ➤ All but one fund solely invests in listed equities. **ASN Biodiversiteitsfonds** invests in projects and private and listed equity. The fund focuses on four sectors: sustainable forestry, sustainable agroforestry, sustainable oceans and fisheries and ecotourism.
- ➤ All 34 funds are domiciled in Europe and are offered by European managers, except for Federated Hermes. The only US biodiversity fund that was on the market in recent years was **Karner Blue Biodiversity Impact fund**, but it closed in February this year.

US and European Companies Dominate Biodiversity Portfolios

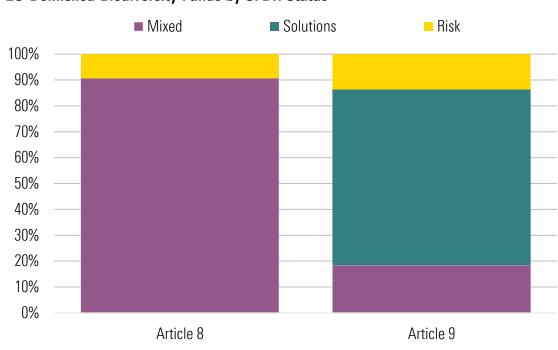
- ➤ US and European firms dominate biodiversity fund holdings, with virtually no exposure to emerging markets. This is partly because the former have lower ESG risks compared to the latter, and they have more policies to address biodiversity loss. Moreover, the former have more resources to innovate and develop biodiversity-related solutions that will help the rest of the economy, including emerging markets, reduce their biodiversity footprint.
- ➤ On average, US companies are underweight, while developed European companies are overweight. Risk-oriented strategies exhibit the strongest bias.

Geographic Exposure



- ➤ Article 9 funds account for more than half of the European biodiversity fund universe (18 strategies with USD1.2 billion of assets) compared with 15 Article 8 funds, which hold USD2.5 billion in assets.
- ➤ Most (70%) Article 9 strategies focus on solutions. Biodiversity risk-oriented strategies is the largest grouping in the Article 8 category in terms of number of funds (eight) but not in terms of assets. Mixed funds represent 90% of the assets.

EU-Domiciled Biodiversity Funds by SFDR Status

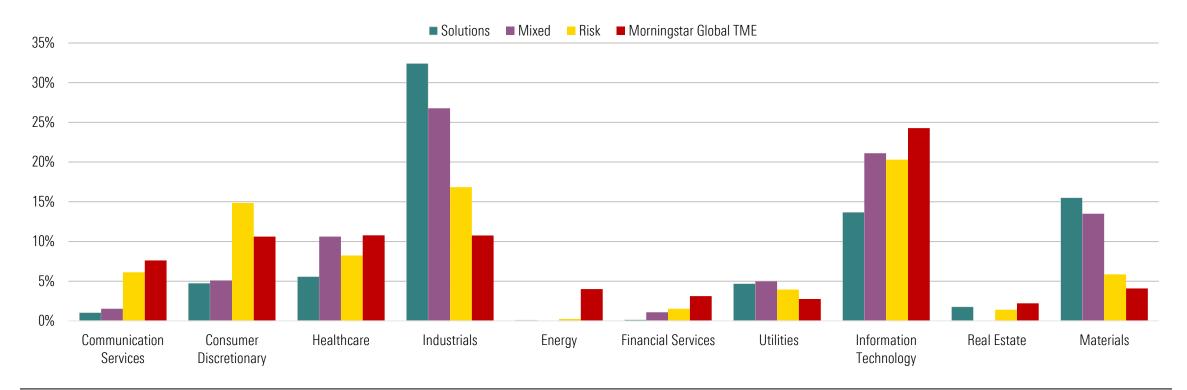


Biodiversity Funds Overweight Industrials and Materials

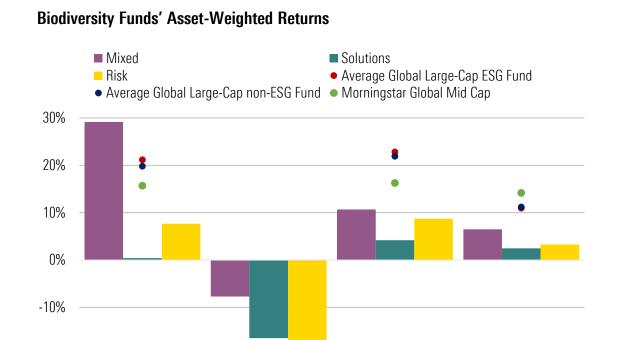
- ➤ All three types of biodiversity funds overweight companies in the Industrials, Materials, and Utilities sectors, on average.
- ➤ The average solutions-focused fund is three times more exposed to Industrials than the global market benchmark, making them much more sensitive to economic cycles.

- ➤ Biodiversity funds underweight Information Technology, but that sector represents the second largest sector exposure.
- ➤ Biodiversity funds have virtually no exposure to the Energy sector.

Average Sector Exposure of Biodiversity Funds By Strategy Type



Biodiversity Funds Have Underperformed, on Average, but Have Showed Resilience in the 2022 Market Downturn



- ➤ The chart shows the asset-weighted returns of the three subcategories of biodiversity funds (risk-oriented, mixed, and solutions-focused) compared with the returns of the average ESG and non-ESG funds in the Global Large Cap Fund category and the return of the Morningstar Global Mid Cap Index.
- ➤ Biodiversity funds have lagged global large-cap funds, on average, since 2021, partly due to their higher fees. They have also underperformed the Morningstar Global Midcap index. Mixed strategies have exhibited better returns than the other two groupings.
- > Some funds have stood out every year, though. In 2021, mixed fund **Lombard Odier Natural Capital** significantly outperformed, with an impressive return of 30%.
- ➤ 2022 was the only year of outperformance. Despite the negative returns, the average biodiversity fund across the three strategy types beats the average ESG and non-ESG fund in the Global Large Cap Fund category as well as the Morningstar Global Mid Cap Index. Biodiversity funds proved more resilient in the market downturn.
- ➤ In 2023, **HSBC World ESG Biodiversity Screened Equity ETF** delivered the strongest performance (26.8%).
- ➤ In the first half of 2024, risk-oriented **Xtrackers USA Biodiversity Focus SRI ETF** outperformed with a 15.3% return.

2022

2023

H1 2024

-20%

-30%

2021

What is Inside Biodiversity Funds?

Analysis of the most commonly held companies

Xylem, AECOM, American Water Works, and Tetra Tech Feature Among the Most Popular Biodiversity Solutions Firms

- ➤ Biodiversity solutions-focused funds, on average, appear the least diversified of the three groupings, with a large overweight in Industrials companies. These dominate the table of the 15 most popular stocks in this fund category.
- ➤ Mid-caps account for two-thirds of these stocks, while 11 are domiciled in the US.
- ➤ The most popular stock, **Xylem**, is held by 11 solutionsfocused funds. It is a global water technology company that develops solutions for water and wastewater management.
- ➤ Another common holding, **AECOM**, is a construction company specializing in large-scale projects across sectors such as Transportation, Water, Energy, and Environmental Management.
- ➤ American Water Works, owned by eight funds, is a public utility company that offers fire protection and sanitation services. Through its subsidiaries, it also offers water and wastewater services.
- ➤ Also featuring among the most popular holdings is **Deere & Co**., a leading manufacturer of agricultural, construction, and forestry machinery.

Most Commonly Held Companies in Biodiversity Solutions-Focused Funds

Company Name	# funds that own the stock	Domicile		Sector	Industry	Equity Style Box	2023 Return (%)	YTD Return (%)
Xylem Inc	11	United States	₿	Industrials	Machinery	Mid Growth	4.6	21.2
AECOM	8	United States	₽	Industrials	Construction & Engineering	Mid Blend	9.7	9.1
American Water Works	8	United States		Utilities	Utilities	Mid Blend	-11.6	10.1
Tetra Tech Inc	8	United States	‡	Industrials	Construction & Engineering	Mid Growth	15.7	42.9
Novonesis AS Class B	7	Denmark	fi	Basic Materials		Large Growth	11.9	27.4
Veolia Environnement SA	7	France	‡	Industrials	Utilities	Large Blend	28.0	9.4
Advanced Drainage Systems	6	United States	₽	Industrials	Building Products	Mid Blend	72.2	11.8
Arcadis NV	6	Netherlands	‡	Industrials	Construction & Engineering	Mid Growth	39.8	37.8
Clean Harbors Inc	6	United States	₽	Industrials	Commercial Services	Mid Growth	52.9	40.9
Deere & Co	6	United States	₽	Industrials	Machinery	■ Large Value	-5.5	-2.8
Kurita Water Industries Ltd	6	Japan	₽	Industrials	Machinery	Mid Growth	-4.0	
Thermo Fisher Scientific Inc	6	United States	•	Healthcare	Pharmaceuticals	Large Blend	-3.4	16.0
Trimble Inc	6	United States		Technology	Technology Hardware	Mid Blend	5.2	6.6
Weyerhaeuser Co	6	United States	命	Real Estate	Paper & Forestry	₩ Mid Value	17.5	-10.2
Zoetis Inc Class A	6	United States	•	Healthcare	Pharmaceuticals	Large Blend	35.7	-6.4
AGCO Corp	5	United States	₽	Industrials	Machinery	■ Small Value	-8.1	-22.2
Darling Ingredients Inc	5	United States	Ħ	Consumer Defensive	Food Products	■ Small Value	-20.4	-16.3
Republic Services Inc	5	United States	₽	Industrials	Commercial Services	Harge Blend	29.4	26.9
Symrise AG	5	Germany	A	Basic Materials	Chemicals	Large Growth	2.5	20.8
Agilent Technologies Inc	4	United States	•	Healthcare	Pharmaceuticals	Mid Blend	-6.49	3.14

Most Commonly Held Stocks in Biodiversity Solutions-Focused Funds (cont'd)

- Five Healthcare companies and four Technology companies feature among the most common holdings of biodiversity solutions-focused funds. Software companies are seen as essential enablers. By providing software products that measure water, analyze soil, and predict rainfalls, among other things, Tech companies help other firms change the way they operate, and thus reduce their adverse impact on ecosystems and biodiversity.
- Another popular holding is US-based **Ecolab** in the Basic Materials sector. Ecolab is a leader in water, hygiene, and energy technologies. The company's efforts in water conservation, pollution prevention, and sustainable resource management directly impact biodiversity by helping industries reduce their environmental footprint.
- ➤ We note the wide range of returns across the most popular stocks featuring in solutions-focused funds.

Most Commonly Held Companies in Biodiversity Solutions-Focused Funds (cont'd)

Company Name	# funds that own the stock	Domicile		Sector	Industry	Equity Style Box	2023 Return (%)	YTD Return (%)
Autodesk Inc	4	United States		Technology	Software & Services	Mid Growth	30.3	6.1
Badger Meter Inc	4	United States		Technology	Technology Hardware	Small Growth	42.5	34.6
Ball Corp	4	United States	A	Consumer Cyclical	Containers & Packaging	Mid Blend	14.0	11.6
Brambles Ltd	4	Australia	₽	Industrials	Commercial Services	Large Blend	16.7	
Croda International PLC	4	United Kingdom	A	Basic Materials	Chemicals	Mid Blend	-17.2	-14.9
Danaher Corp	4	United States	•	Healthcare	Pharmaceuticals	Large Blend	0.5	16.6
Ecolab Inc	4	United States	A	Basic Materials	Chemicals	Large Blend	37.8	28.2
Energy Recovery Inc	4	United States	₽	Industrials	Machinery	Small Growth	-8.1	-13.8
Eurofins Scientific SE	4	Luxembourg	+	Healthcare	Pharmaceuticals	Mid Blend	-7.4	-11.4
NVIDIA Corp	4	United States		Technology	Semiconductors	Large Growth	239.0	141.1
Renewi PLC	4	United Kingdom	₽	Industrials	Commercial Services	■ Small Value	13.2	7.6
Tomra Systems ASA	4	Norway	₽	Industrials	Machinery	Mid Blend	-26.6	29.0
Waste Connections Inc	4	Canada	₽	Industrials	Commercial Services	Large Growth	13.4	25.5

Most Commonly Held Stocks in Biodiversity Mixed Funds

- ➤ At the top of the most common holdings table for biodiversity mixed funds, we find **Xylem** again, the most popular stock in solutions-focused funds.
- All other common holdings are large caps, with a bias towards Technology and Healthcare companies. Among the big tech, we find popular ESG stocks such as ASML, Microsoft, and Taiwan Semiconductor Manufacturing.
- ➤ Two other firms that stand out are **Linde** and **Republic Services**. **Linde** is a global leader in industrial gases and engineering, which plays a role in carbon capture technologies and sustainable industrial processes. **Republic Services** is a leading waste management company in the US that provides services in waste collection, recycling, and disposal.
- Country-wise, companies in this table are more diversified, but still exhibit a US bias.

Most Commonly Held Companies in Biodiversity Mixed Funds

Company Name	# funds that own the stock	Domicile		Sector	Industry	Equity Style Box	2023 Return (%)	YTD Return (%)
Xylem Inc	3	United States	‡	Industrials	Machinery	Mid Growth	4.6	21.2
ASML Holding NV	2	Netherlands		Technology	Semiconductors	Large Growth	41.3	20.1
Abbott Laboratories	2	United States		Healthcare	Healthcare	Harge Value	2.1	4.4
Accenture PLC Class A	2	Ireland		Technology	Software & Services	Large Blend	33.2	-1.5
Linde PLC	2	Ireland	A	Basic Materials	Chemicals	Large Blend	27.5	17.1
Microsoft Corp	2	United States		Technology	Software & Services	Large Blend	58.0	11.5
NVIDIA Corp	2	United States		Technology	Semiconductors	Large Growth	239.0	141.1
Novartis AG Registered Shares	2	Switzerland	•	Healthcare	Pharmaceuticals	Large Blend	21.5	23.2
Republic Services Inc	2	United States	‡	Industrials	Commercial Services	Large Blend	29.4	26.9
SAP SE	2	Germany		Technology	Software & Services	Large Growth	52.0	43.6
Taiwan Semiconductor Manuf.	2	Taiwan		Technology	Semiconductors	Large Growth	35.0	
Thermo Fisher Scientific Inc	2	United States		Healthcare	Pharmaceuticals	Large Blend	-3.4	16.0

Most Commonly Held Stocks in Biodiversity Risk-Oriented Funds

- ➤ The group of biodiversity risk-oriented funds appear to have a European bias, with 17 of the 18 most popular holdings being domiciled in Europe. Sector-wise, this group looks a bit more diversified, although Industrials dominate here too.
- ➤ Biodiversity risk-oriented funds target companies that take into account the risks related to biodiversity and aim to reduce their negative impact on biodiversity. Many of these companies would also have a biodiversity protection policy.
- ➤ For example, **Compass Group** is a leading global provider of contract food services and support services. Compass Group integrates biodiversity into its sustainability strategy by focusing on responsible sourcing and reducing its environmental footprint.
- > Surprisingly, we are not seeing many food companies in the top holdings. **Chipotle Mexican Grill** incorporates biodiversity into its sustainability efforts primarily through its focus on regenerative agriculture and sustainable sourcing.

Most Commonly Held Companies in Biodiversity Risk-Oriented Funds

Company Name	# funds that own the stock	Domicile		Sector	Industry	Equity Style Box	2023 Return (%)	YTD Return (%)
Compass Group PLC	5	United Kingdom	A	Consumer Cyclical	Consumer Services	Large Growth	20.7	17.4
Legrand SA	5	France	₿	Industrials	Electrical Equipment	Large Blend	32.8	10.0
Cellnex Telecom SA	5	Spain	命	Real Estate	Telecommunication Services	Large Growth	19.6	-1.8
Munich Re AG	5	Germany		Financial Services	Insurance	Large Blend	31.7	34.7
Teleperformance SE	5	France	₽	Industrials	Commercial Services	Mid Value	-36.8	-22.1
Wolters Kluwer NV	5	Netherlands	₿	Industrials	Software & Services	Large Blend	38.3	21.7
BMW AG	5	Germany	A	Consumer Cyclical	Automobiles	Harge Value	35.7	-10.7
Atlas Copco AB Class A	5	Sweden	₽	Industrials	Machinery	Large Growth	47.7	6.3
SAP SE	4	Germany		Technology	Software & Services	Large Growth	52.0	43.6
Novo Nordisk AS Class B	4	Denmark	•	Healthcare	Pharmaceuticals	Large Growth	55.2	36.0
ASML Holding NV	4	Netherlands		Technology	Semiconductors	Large Growth	41.3	20.1
Schneider Electric SE	4	France	₽	Industrials	Electrical Equipment	Large Growth	46.4	28.5
Chipotle Mexican Grill Inc	4	United States	A	Consumer Cyclical	Consumer Services	Large Growth	64.8	22.6
Allianz SE	4	Germany		Financial Services	Insurance	Large Value	30.5	22.1
Ferrari NV	4	Netherlands	A	Consumer Cyclical	Automobiles	Large Growth	58.7	47.6
Whitbread PLC	4	United Kingdom	A	Consumer Cyclical	Consumer Services	Mid Blend	54.2	-16.9
RELX PLC	4	United Kingdom	₽	Industrials	Media	Large Growth	46.6	19.3
Universal Music Group NV	4	Netherlands		Com. Services	Media	Large Growth	21.0	-7.2

What is Inside Biodiversity Funds?

Analysis of the most commonly held companies through the lens of a selection of operational metrics

In this section, we analyze the most commonly held companies through the lens of intensity metrics to better understand their environmental characteristics. We also look at how popular solutions-focused firms map to biodiversity-related SDGs.

Some Popular Stocks in Solutions-Focused Funds Score Poorly on Operational Metrics, such as Carbon and Water Intensity

- ➤ Fifty-eight percent of the most popular companies held in biodiversity solutions-focused funds exhibit lower carbon emissions intensity than their subindustry peers. Among those that stand out are **AECOM**, **American Water Works**, **Arcadis**, **Deere & Co**, **Trimble**, and **AGCO**.
- However, **AECOM** (Construction) and **Trimble** (Tech Hardware) score poorly on water withdrawal intensity, while **American Water Works** (Utilities) scores among the best on this metric (as well as on carbon). The Utilities sector's heavy reliance on water-intensive processes typically results in high water withdrawal intensity and significant biodiversity impacts. **Veolia Environnement**, another Utilities firm, scores below average on water and average on carbon, while its hazardous waste production intensity is the highest of all here. **Darling Ingredients** (Food Products) scores the worst (zero) of all companies listed here on carbon and water intensity.
- ➤ The mixed bag of metrics exhibited by solutions-focused fund holdings reflects fund managers' priority on the solutions that companies offered over the way they operate their business, which becomes a secondary consideration.

Most Commonly Held Companies in Biodiversity Solutions-Focused Funds

Company Name	GHG Emissions Intensity Scope 1 & 2 (tCO2eq/US\$m)	Carbon Intensity Score	Water Withdrawal Intensity (m3/US\$m)	Water Intensity Score	NOx Emissions Intensity (metric t/US\$m)	NOx Intensity Score	SOx Emissions Intensity (metric t/US\$m)	SOx Intensity Score	Hazardous Waste Production Intensity (t/US\$m)
Xylem Inc	18	75	59	-	0	-	0	-	0.29
AECOM	4	100	452	25	0.02	-	0	-	0.03
American Water Works	147	100	430,116	100	0.49	-	0.01	-	0.06
Tetra Tech Inc	7	75	33,096	0	0.06	-	0.01	-	1.90
Novonesis AS	654	-	-	-	-	-	-	-	-
Veolia Environnement SA	685	50	237,373	25	0.49	50	0.3	25	26.42
Advanced Drainage Systems	102	25	962	25	0.01	75	0	100	0.13
Arcadis NV	4	100	621	25	0.02	-	0	-	0.05
Clean Harbors Inc	328	50	38,359	-	0.18	100	0.31	25	3.75
Deere & Co	11	100	461	-	0	-	0	-	0.29
Kurita Water Industries Ltd	15	75	13,381	-	0	-	0	-	2.16
Thermo Fisher Scientific Inc	18	50	441	50	0	-	0	-	0.76
Trimble Inc	4	100	1,587	0	0	-	0	-	0.02
Weyerhaeuser Co	117	25	-	-	0.21	-	0.02	-	0.04
Zoetis Inc Class A	34	50	407	75	0	-	0	-	1.68
AGCO Corp	12	100	57	-	0	-	0	-	0.22
Darling Ingredients Inc	345	0	5,204	0	0.01	-	0	-	0.04
Republic Services Inc	880	0	31,418	-	0.1	100	0.03	75	3.43
Symrise AG	58	75	1,975	50	0	100	0	100	3.82
Agilent Technologies Inc	10	75	66	100	0.27	-	0	-	1.13

Source: Morningstar Sustainalytics. Morningstar Direct. Data as of September 2024.

or industry benchmark. 75 means the company's intensity is below its subindustry or industry benchmark. 100 means the company's intensity is well below its subindustry or industry benchmark.

Biodiversity Mixed Funds – A Mixed Bag: Microsoft Scores Poorly on Carbon and Water Intensity, while NVIDIA Scores Best on These Metrics, Relative to Their Respective Peers

- Only 33% of companies in the top holdings of biodiversity mixed funds have a carbon intensity lower than their subindustry peers. ASML, NVIDIA, and Novartis exhibit the best scores.
- Among those that score the worst relative to their peers we find **Microsoft** (Software) and **Republic Services** (Commercial Services). Microsoft scores the lowest on carbon intensity and below average on water. This poor performance can be explained by the company's Al developments, which require carbon and water-intensive data centers (scope 2).
- NVIDIA (Semiconductor Design and Manufacturing) stand out here with the best carbon, water, and SOx intensity scores relative to its subindustry peers, while its rival, Taiwan Semiconductor Manufacturing, scores low on carbon intensity and average on water intensity. But these numbers should be put into context, as the difference in intensities can be almost entirely explained by the difference in business models. NVIDIA mostly designs chips, whereas TSMC is a pure manufacturer and the largest supplier of chips worldwide.

Most Commonly Held Companies in Biodiversity Mixed Funds

	GHG Emissions		Water		NOx Emission	5	SOx Emissions		Hazardous Waste
Company Name	Intensity Scope 1 & 2 (tCO2eq/US\$m)	Carbon Intensity Score	Withdrawal Intensity (m3/US\$m)	Water Intensity Score	Intensity (metric t/US\$m)	NOx Intensity Score	Intensity (metric t/US\$m)	SOx Intensity Score	Production Intensity (t/US\$m)
Xylem Inc	18	75	59		0	-	0	-	0.29
ASML Holding NV	9	100	51	100	0	-	0.01	-	0.02
Abbott Laboratories	23	25	316		0.01	-	0	-	0.19
Accenture PLC Class A	3	50	18	75	0	-	0	-	0
Linde PLC	1135		31,570		0.35		0.02		0.68
Microsoft Corp	39	0	54	25	0	-	0	-	0
NVIDIA Corp	6	100	30	100	0	-	0	100	0.03
Novartis AG Registered Shares	s 10	100	689	50	0	-	0	-	0.48
Republic Services Inc	880	0	31,418	-	0.1	100	0.03	75	3.43
SAP SE	7	25	26	75	0	-	0	-	0
Taiwan Semiconductor Manuf	. 165	25	1,335	50	0	100	0	100	4.33
Thermo Fisher Scientific Inc	18	50	441	50	0	-	0	-	0.76

Popular Stocks in Biodiversity Risk-Oriented Funds Exhibit the Best Operational Metrics

- Two-thirds of the top common holdings for biodiversity riskoriented funds exhibit below-average carbon intensity relative to their subindustry peers. This should not come as a surprise, as biodiversity risk-oriented funds target companies that take into account the risks related to biodiversity across their operations and supply chain, and aim to reduce their negative impact on biodiversity.
- Compass Group, Cellnex Telecom, Novo Nordisk, ASML, Whitbread, and Universal Music are leading their subindustry peers in terms of carbon intensity, while SAP is a laggard.
- ➤ Whitbread, Cellnex Telecom, Wolters Kluwer, and ASML have great water intensity scores, while Novo Nordisk scores the worst on this metric.

Most Commonly Held Companies in Biodiversity Risk-Oriented Funds

Company Name	GHG Emissions Intensity Scope 1 & 2 (tCO2eq/US\$m)	Carbon Intensity Score	Water Withdrawal Intensity (m3/US\$m)	Water Intensity Score	NOx Emissions Intensity (metric t/US\$m)	s NOx Intensity Score	SOx Emissions Intensity (metric t/US\$m)	SOx Intensity Score	Hazardous Waste Production Intensity (t/US\$m)
Compass Group PLC	5	100	566	-	0.12	-	0.05	-	0
Legrand SA	14	75	494	-	0	-	0	-	0.34
Cellnex Telecom SA	15	100	1	100	0.02	-	0	-	0.12
Munich Re		-	-	-	-	-	-	-	-
Teleperformance SE	15	50	150	-	0.05	-	0.01	-	0.03
Wolters Kluwer NV	2	75	9	100	0	-	0	-	0
BMW AG		-	31	-	0.01	-	0	-	0.27
Atlas Copco AB Class A	14	75	329	-	0	-	0	-	0.07
SAP SE	7	25	26	75	0	-	0	-	0
Novo Nordisk AS Class B	3	100	2,112	0	0	-	0	-	1.33
ASML Holding NV	9	100	51	100	0	-	0.01	-	0.02
Schneider Electric SE	13	75	52	-	0	-	0	-	0.22
Chipotle Mexican Grill Inc		75	586	-	0.38	-	0.15	-	0.01
Allianz SE	1	50	11	-	0	-	0	-	0.03
Ferrari NV	15	75	134	-	0.01	-	0	-	0.26
Whitbread PLC	44	100	2,276	100	3.79	-	1.52	-	0.07
RELX PLC	4	50	14	-	0	-	0	-	0
Universal Music Group NV		100	31	-	0	-	0	-	0

Biodiversity Solutions-Focused Funds — How the Most Popular Holdings Map to Biodiversity Related SDGs

- ➤ The revenue contribution to biodiversity related SDGs varies across the most popular stocks held by biodiversity-focused funds. **Xylem**, **American Water Works** and **Advanced Drainage Systems** clearly stand out as the biggest contributors of SDGs 6, 11 and 12.
- Forestry company **Weyerhaeuser** boasts the highest revenue contribution (95%) to SGDs 12 and 15.
- ➤ Meanwhile, we find some common holdings that do not generate any revenue from products and services that contribute to these key SDGs. Examples include pharmaceutical companies Thermo Fisher Scientific and Zoetis, and Food Products company Darling Ingredients. Also, it can be challenging for technology companies, such as Trimble (Electronics Equipment) to demonstrate a direct alignment with biodiversity-related SDGs.
- ➤ Some of these companies could also contribute to other environmental SDGs linked to biodiversity loss, such as climate action (SDG 13).

Companies' % of Revenue Contributing to Biodiversity Related SDGs

Company Name	SDG 3 Good Health & Well-Being	SDG 6 Clean Water & Sanitation	SDG 9 Industry, Innovation & Infrastructure	SDG 11 Sustainable Cities & Communities	SDG 12 Responsible Consumption & Production	SDG 14 Life Below Water	SDG 15 Life on Land
Xylem Inc	0	86	0	92	92	0	0
AECOM	0	4	0	5	5	0	0
American Water Works Co Inc	0	91	0	91	91	0	0
Tetra Tech Inc	0	3	2	5	5	0	0
Novonesis AS							
Veolia Environnement SA	5	38	1	45	48	12	0
Advanced Drainage Systems Inc	0	78	0	78	78	0	0
Arcadis NV	0	1	0	2	2	0	0
Clean Harbors Inc	22	23	0	23	23	44	0
Deere & Co	0	0	0	0	1	1	1
Kurita Water Industries Ltd	0	67	0	60	67	7	0
Thermo Fisher Scientific Inc	0	0	0	0	0	0	0
Trimble Inc	0	0	0	0	0	0	0
Weyerhaeuser Co	0	0	0	0	95	0	95
Zoetis Inc Class A	0	0	0	0	0	0	0
AGCO Corp	0	0	0	0	1	1	1
Darling Ingredients Inc	0	0	0	0	0	0	0
Republic Services Inc	86	0	11	89	3	75	0
Symrise AG	0	0	0	0	0	0	0
Agilent Technologies Inc	4	0	0	0	0	0	0

Evaluating Biodiversity Protection Policies, Biodiversity Program Quality, and Deforestation Policy Gaps

Companies in relevant subindustries often lack a biodiversity protection policy

- Just over 30% of companies in key subindustries* for biodiversity have a biodiversity protection policy.
- Multi-Utilities leads, with 59% of companies having such a policy, followed by Precious Metals Mining, at 56%, and Gold at 50%. The laggards are Oil & Gas Storage and Transportation (6.5%) and Facilities Maintenance (6.3%).

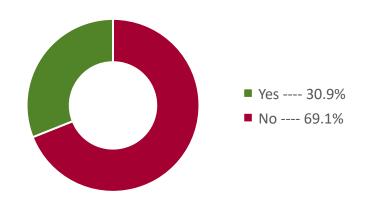
Two-thirds of biodiversity programs in key subindustries are at least Adequate

- ➤ Only 41% (four out of 10) companies with a biodiversity program in relevant subindustries do have one that we consider Strong or Very Strong, and one-quarter that we consider Adequate.
- Metals Mining and Utilities have the highest proportion of firms with a Strong or Very Strong biodiversity program.

Almost two-thirds of companies in relevant subindustries lack a deforestation policy

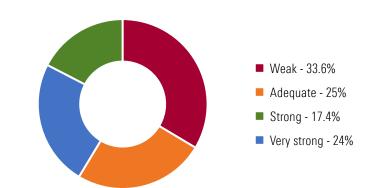
- Only one-third of companies in relevant subindustries lack deforestation policies.
- Among the leaders, we find 61% of companies in the Tobacco subindustry have a deforestation policy, followed by 58% of companies in Household Products and 56% of companies in Personal Products. The laggards are Travel, Lodging and Amusement with only 11.1% having a deforestation policy, and Food Distribution with only 16.1%.

Biodiversity Protection Policy

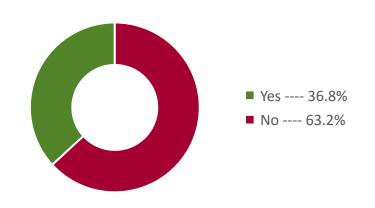


Lodging and Amusement. The datapoint is called "Lack of Deforestation Policy".

Quality of Biodiversity Program



Deforestation Policy



How Do Biodiversity Funds Stack Up?

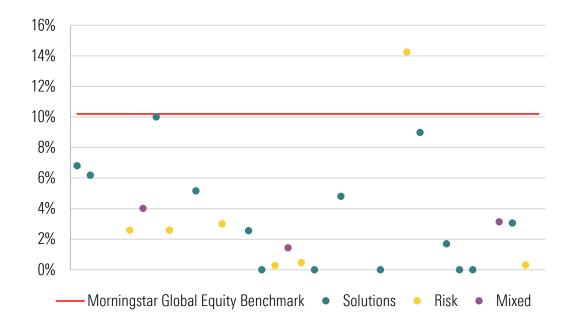
Analysis of biodiversity funds through the lens of carbon and water metrics

In this section, we analyze biodiversity funds through the lens of key carbon and water metrics to better understand their environmental risk-opportunity profile and ascertain how each fund type compare against one another.

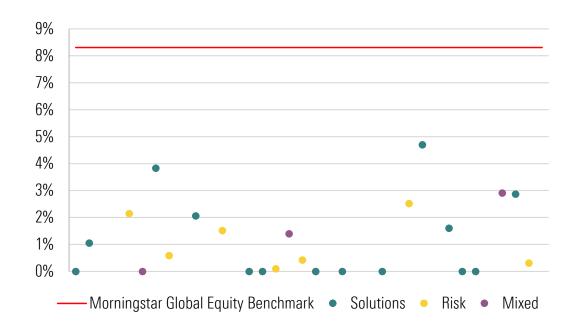
Biodiversity Funds are Much Less Involved in Fossil Fuel Companies, on Average

- ➤ The overwhelming majority of biodiversity funds display lower fossil fuel involvement than the global market equity index average of 10%. As expected, risk-oriented strategies have the lowest involvement level, on average.
- Solutions-focused portfolios may hold utilities companies that run renewable energy operations along with their legacy fossil fuel businesses. Examples include **Schlumberger Ltd**, which is the world's largest oilfield services company, offering technology and services for reservoir characterization, drilling, production, and processing for the energy industry.
- ➤ Meanwhile, some biodiversity funds still hold companies involved in oil and gas production, although their involvment level remain way below the benchmark.
- ➤ An example of oil and gas holding is **Tenaris SA**. The company is one of the largest global producers of oil country tubular goods, which are used primarily in the construction of oil and gas wells.

Fossil Fuel Involvement* Versus Global Benchmark



Oil and Gas Production Involvement** Versus Global Benchmark



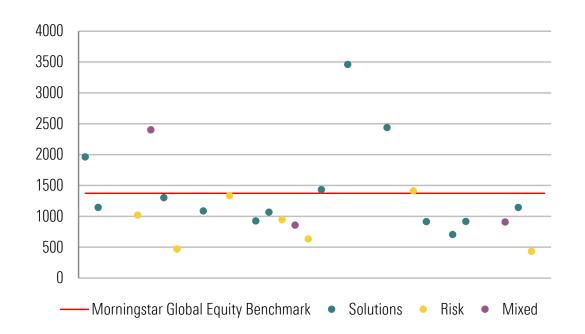
^{*} The Fossil Fuel Percentage of Covered Portfolio Involved metric is defined as the percentage of the covered portfolio that is exposed to companies that make any revenue from fossil fuels. Companies involved in fossil fuels may derive revenue from one or more of the following activities: thermal coal extraction, thermal coal power generation, oil and gas production, oil and gas production, and oil and gas production percentage of Covered Portfolio Involved metric is the percentage of the covered portfolio exposed to corporations that earn revenue from oil and gas production. Involvement in oil and gas production includes exploration and production, refining, transportation, and storage. A lower involvement percentage is optimal.

Biodiversity Funds Have Lower Carbon Intensity but also Lower Exposure to Carbon Solutions, on Average

➤ Of the 23 funds covered by the Carbon Intensity scope 1, 2, and 3 metric*, 17 (74%) offer an improvement over the global equity benchmark. But five, mostly solutions-focused funds, exhibit higher carbon intensity than the benchmark. Companies favored by many solutions-focused portfolios face high carbon intensity in their own operations. They typically manufacture products that enable other companies to decarbonize their activities. This manufacturing process can be carbon intensive.

➤ By contrast, only about one-third of biodiversity funds beat the global market benchmark in terms of carbon solutions involvement. By excluding or reducing exposure to fossil fuel or other carbon-intensive companies, biodiversity funds may be missing out on exposure to climate solutions, as these companies are increasingly developing products and services that address climate change. Risk-oriented funds tend to offer slightly more exposure to green solutions.

Carbon Intensity Scope 1, 2 and 3, Tonnes per USD Millions*



Carbon Solutions Involvement (**) Versus Morningstar Benchmark

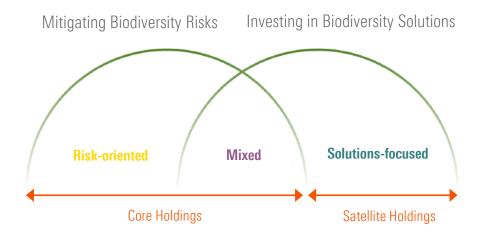


^{*} Carbon intensity is computed for each portfolio holding as follows: Total emissions for scope 1, 2, and 3 (metric tons of CO₂)/revenue (USD million) and aggregated at the fund level.

^{**} Carbon Solutions Percentage of Covered Portfolio Involved is calculated as the percentage of the covered portfolio exposed to corporations that make any revenue from carbon solutions, including renewable energy generation, renewable energy supporting products/services, energy efficiency distribution and management, energy efficiency industrial systems and processes, energy efficiency consumer products, green buildings development, green buildings management, green buildings technologies and materials, green transportation vehicles, green transportation technologies, green transportation services, and green transportation infrastructure involvement. A higher percentage is optimal.

How Biodiversity Funds Fit into an Investor's Portfolio

How Biodiversity Funds Fit into an Investor's Portfolio



The three biodiversity fund groupings we have identified represent a broad range of approaches that aim to meet different investor needs and preferences. The choice of one type over another largely depends on an investor's investment goals, risk appetite, and preferences.

Investors who simply want to protect their portfolios against biodiversity risks can use biodiversity riskoriented strategies. These approaches provide broad and diversified exposure to the market and are therefore suitable as part of a portfolio core allocation. In fact, within an asset allocation, biodiversity riskoriented funds can substitute for a lot of core equity exposure. They would, however, be less suitable for investors who want to benefit from the opportunities offered by the transition to a more sustainable global economy. For that, investors must choose among the remaining types. Risk-conscious investors can also turn toward biodiversity mixed funds, which typically exhibit low-carbon risk, such as biodiversity risk-oriented strategies, with the added benefit of higher exposure to companies that are likely to gain market share as the biodiversity crisis deepens. These are suitable for investors wanting to strike a balance between mitigating risk and looking to invest in biodiversity solutions.

Further along the risk-opportunity spectrum, solutions-focused strategies can appeal to investors with a greater risk appetite and who consider biodiversity as an alpha-generating opportunity. Because of their narrower market exposure, sector concentration, and often mid- and small-cap growth bias, solutions-focused funds represent more volatile investments.

Solutions-focused funds can also come with higher carbon intensity because they invest in companies that manufacture environment-friendly products that enable others to decarbonize their activities. The manufacturing process can itself be carbon intensive. But even these companies have started to take action to decarbonize their processes. Given their less diversified and higher risk profile, solutions-focused funds are more suitable as part of a satellite allocation to complement, rather than replace, existing core holdings.

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