

## We Don't Value Nature

Early economic thinkers, including Adam Smith, saw nature only for what she (nature was always female in their writing) could provide—land for housing and food for eating. In their opinion, human endeavor added value to nature; it had no intrinsic value. Although these luminaries recognized that nature could perform “activities without human intervention,”<sup>1</sup> since they could not measure the value of these activities, they did not focus on them. Instead, Smith and his fellow economists thought only of investing in the land to boost productivity and drive economic progress. This early thinking has informed both our understanding of how the economy works and, importantly, our relationship with nature.

The climate crisis has forced us to pay attention to nature. While our understanding may lag, as an investment theme, nature is only five years behind climate. Just as the Task Force on Climate-related Financial Disclosures (TCFD) and others helped to put climate front of mind, we believe nature will benefit from similar tailwinds, eventually becoming a core ESG consideration and a destination for institutional capital.

<sup>1</sup> We would have called these activities carbon sequestration, water and air purification, and recreation, to name a few.

Although the nature crisis is inextricable from the climate crisis, it is separate. So, whether an investor can address nature-related issues in their existing climate program depends entirely on the scope of that climate program. Some LPs may opt to carve out a separate nature allocation altogether, while others may redefine their climate allocation to include nature. That investors can find nature opportunities in every asset class evinces the breadth and complexity of the issue.

Having helped general and limited partners alike better account for climate factors in their processes and portfolios, we know firsthand how hard the journey can be. We expect nature to be no different.

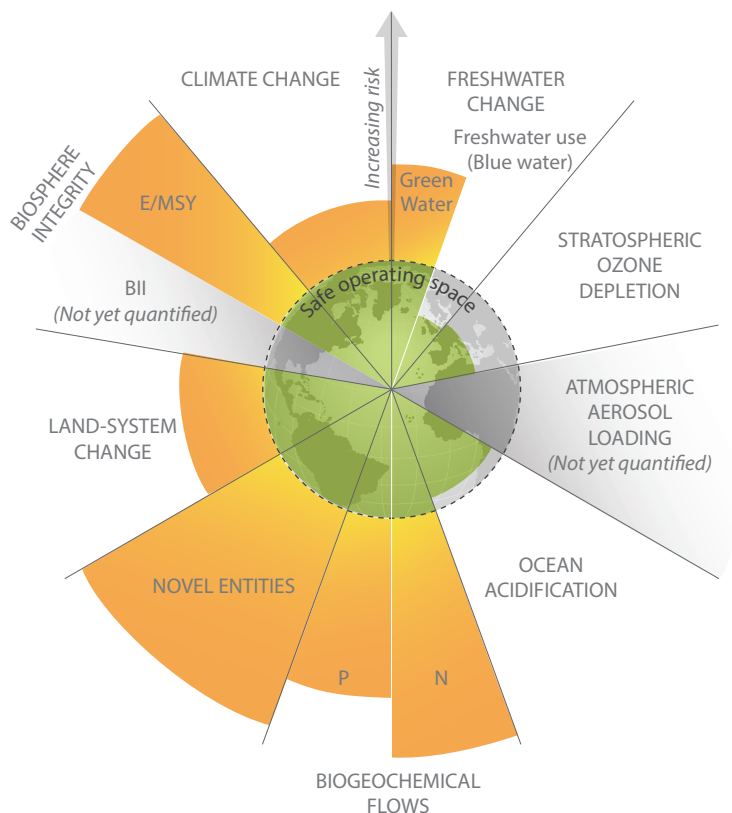
## Climate and Ecosystems

Unfettered, nature can absorb approximately 100 billion tons of carbon per year via natural sinks. However, human activities have been steadily reducing the capacity and effectiveness of our soil, forests and seas in sequestering carbon. We know for sure that we are emitting more CO<sub>2</sub> than these sinks can handle, and to slow climate change we must emit less and capture and store more.<sup>2</sup> But climate and the carbon cycle are but one dimension in the complex system that is nature.

To help society conceptualize nature holistically, the Stockholm Resilience Centre identified the nine natural systems or boundaries that keep Earth balanced and resilient (**Figure 1**). As long as we stay within the “green zone,” society can thrive, and nature can recover. Cross over, and we risk calamity. Because these systems are interdependent, if one falls, others may follow. According to SRC’s latest estimates, more than half of these boundaries risk failure. Most recently green water, which refers to the water that nourishes plants, has passed into the risk zone. In other words, our food security is in peril.

The cumulative environmental impact of human activities is thus much greater than the planet can naturally manage. A study in *Nature* estimates that only 23% of Earth’s terrestrial wilderness remains, while wetlands, which are among Earth’s most sensitive and biodiverse ecosystems, have been diminished by 35% since 1970.<sup>3</sup> Biodiversity hot spots make

**FIGURE 1 | PLANETARY BOUNDARIES**



Source: Stockholm Resilience Centre, 2022. The image illustrates planetary boundaries as identified by scientists and updated in 2022, with orange indicating that we are at a critically high level of negative impact on the identified area.

up less than 3% of Earth’s land surface yet contain 44% of the world’s plants and 35% of land vertebrates. In its latest report, the UN’s Intergovernmental Panel on Climate Change<sup>4</sup> warns that if the planet warms by 1.5°C the risk of extinction will rise tenfold for as many as one in seven plants and animals on land.

This is a challenge deeply interconnected with climate change, because of the role these ecosystems play in regulating natural cycles, including carbon sequestration and weather cycles. While climate change has impacts on a global scale, ecological destruction leads to both global and localized impacts directly observable by society. While greenhouse gas (GHG) emissions and their accumulation in the atmosphere are

<sup>2</sup> To learn more about sinks, refer to our 2021 white paper “Nature-based Approaches to Decarbonization.”

<sup>3</sup> James E.M. Watson et al. 2018. “Protect the last of the wild.” *Nature*, October 31.

<sup>4</sup> Intergovernmental Panel on Climate Change. 2022. “Sixth Assessment Report.”

TABLE 1 | PLANETARY BOUNDARIES: MEANING AND EXAMPLES

PLANETARY BOUNDARY	WHAT IS IT?	EXAMPLE(S) OF RISK
Biosphere Integrity	Rate of biodiversity loss as measured by extinctions per millions species per year or a biodiversity intactness index, which measures an area's average abundance of wild species relative to pre-modern times.	Extinction of critical species and undermining of dependent ecosystems.
Climate Change	Amount of carbon in the atmosphere + ocean.	Global warming.
Freshwater Change	Blue water (rivers, lakes, reservoirs and renewable groundwater stores) + green water (water available to plants through terrestrial precipitation, evaporation and soil moisture).	Less water for food production, and greater variability of food production.
Stratospheric Ozone Depletion	Depletion of the ozone layer.	Higher exposure to ultraviolet radiation.
Ocean Acidification	Increase in acidity of oceans due to more absorption of atmospheric carbon.	Coral reef bleaching.
Biogeochemical Flows	Fertilizers containing phosphorus and nitrogen.	Waterway eutrophication due to nutrient runoff; flow on impacts on Freshwater Change.
Novel Entities	Environmental pollutants and plastics.	Health impacts such as asthma.
Land System Change	Amount of forest cover.	Reduction in natural carbon sink capacity; flow on impacts on ability to regulate climate, and thereby mitigate climate change risk.

Source: Stockholm Resilience Centre, 2022.

a key component of nature, for the purposes of this paper we have sought to focus on the other less publicized and perhaps less understood parts of nature.

## Financial Risks Posed by Loss and Degradation of Natural Capital

While early economic thinkers may not have recognized that all human activities are linked to Earth’s natural systems and cycles, we are just starting to recognize the importance of natural capital and the services it provides. Whether purifying our air and water or providing food, building materials, medicine or renewable power, there are multiple services that stand to be diminished or lost if we continue to take them for granted. Degrading our stock of natural capital will pose risks to

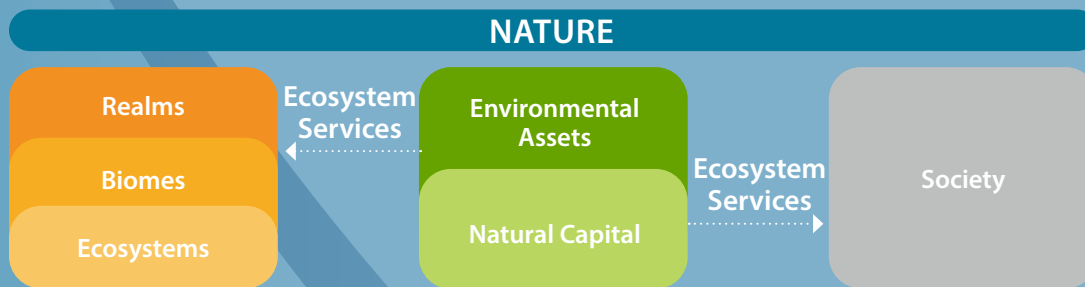
the physical world. That much is clear. And, unless we intervene, those risks will pervade the entire economy including the financial sector, affecting everything: raw materials, logistics, transportation, labor and consumer demand.

The ecosystems and biodiversity we have lost over the past century are proof that our approach to managing natural capital and valuing the concomitant ecosystem services is flawed. It lacks an explicit pricing or valuation mechanism. In effect, the losses we’ve experienced are an externality. Like most externalities, the “breakdown” for lack of pricing becomes apparent only over time. The commons did not fail on day one; the tragedy evolved over time. We have watched GHG emissions rise and forests shrink. Now our generation and that of our children will have to start paying the price.

# Understanding Nature: TNFD Jargon

As the Taskforce on Nature-related Financial Disclosures (TNFD) is introduced, we expect the framework and terminology it adopts to become the standard for nature-related discussions and reporting. That said, we will all have to become familiar with a new lexicon.

On a physical level, nature is made up of four **realms**: land, ocean, freshwater and the atmosphere. Realms are composed of **biomes**, biological communities of vegetation and animal life occupying a major habitat, such as tropical or temperate forests, rivers, open ocean, coastal shorelines and more. Realms and their biomes are affected by a range of environmental factors in a given landscape. Together this interconnected system of realms, biomes, environmental factors and landscapes is known as an **ecosystem**. How well an ecosystem functions depends on the diversity of species within it, i.e., its **biodiversity**.



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## Understanding Nature: TNFD Jargon (continued)

Nature can also be viewed as a collection of resources—land, water and biological, to name a few. Just like a house provides shelter, these **environmental assets** provide a range of **ecosystem services** that are essential to nature and society. The assets that sustain society specifically are known as **natural capital**. There are three types of ecosystem services:

- » **Provisioning or extraction services** refer to harvesting timber from a forest, pumping of water from an aquifer or river, or mining lithium from a mineral deposit.
- » **Regulating or maintenance services** often refer to Earth's natural cleansing and other processes—forests filtering air and water, insects pollinating plants, and landscapes sequestering carbon.
- » **Cultural services** are the things society benefits from that do not require us to take anything. Think: hiking, whale watching or recreational fishing.

Bureaucratizing nature may seem dry, but it is effective in showing the role nature plays in society's formation and success. Perhaps more importantly, it underscores which functions we stand to lose if we deplete our stock of natural capital. Imagine the calamity if we lost, say, the Social Security Administration in the US or the Therapeutic Goods Administration in Australia.

Because proponents including regulators have argued that disclosure will drive price discovery, policy makers have initially focused on understanding and recognizing climate-based risks and opportunities. Hence the TCFD and its extensive disclosure framework.

While climate change is inextricable from natural capital, groups like the TCFD have come to recognize that nature requires a distinct framework. Enter the TNFD, a corollary to the TCFD.

By requiring its signatories to disclose how their operations affect the natural world, the TNFD hopes to bring greater awareness to how our actions can help or hinder natural capital. With luck, these efforts will culminate in a “nature price” that would allow us to internalize the externality and slow the depletion and degradation of nature. Because everything we do touches nature in some way, everything stands to change.

## TNFD

If the number of institutions that have declared support for the TCFD or taken the net-zero pledge are any indication, we expect nature-related disclosure to take off just as quickly.

At the moment, nature-related reporting stands where climate reporting was about five years ago. In 2017, the TCFD developed a now widely accepted framework to help companies disclose climate-related risks and opportunities through their existing reporting processes. The TCFD has also successfully introduced a range of climate-related terminology and processes into the mainstream investment and operational lexicon. In just four years, more than 1,000 financial institutions representing nearly \$200 trillion in assets would join the TCFD. According to CDP, a climate disclosure platform, more than 13,000 companies worth approximately two-thirds of global market capitalization disclosed data on climate change, water security and deforestation in 2021, an increase of 37% from 2020. Such rapid growth underscores the need for standardization.

**FIGURE 2 | THE LEAP FRAMEWORK**



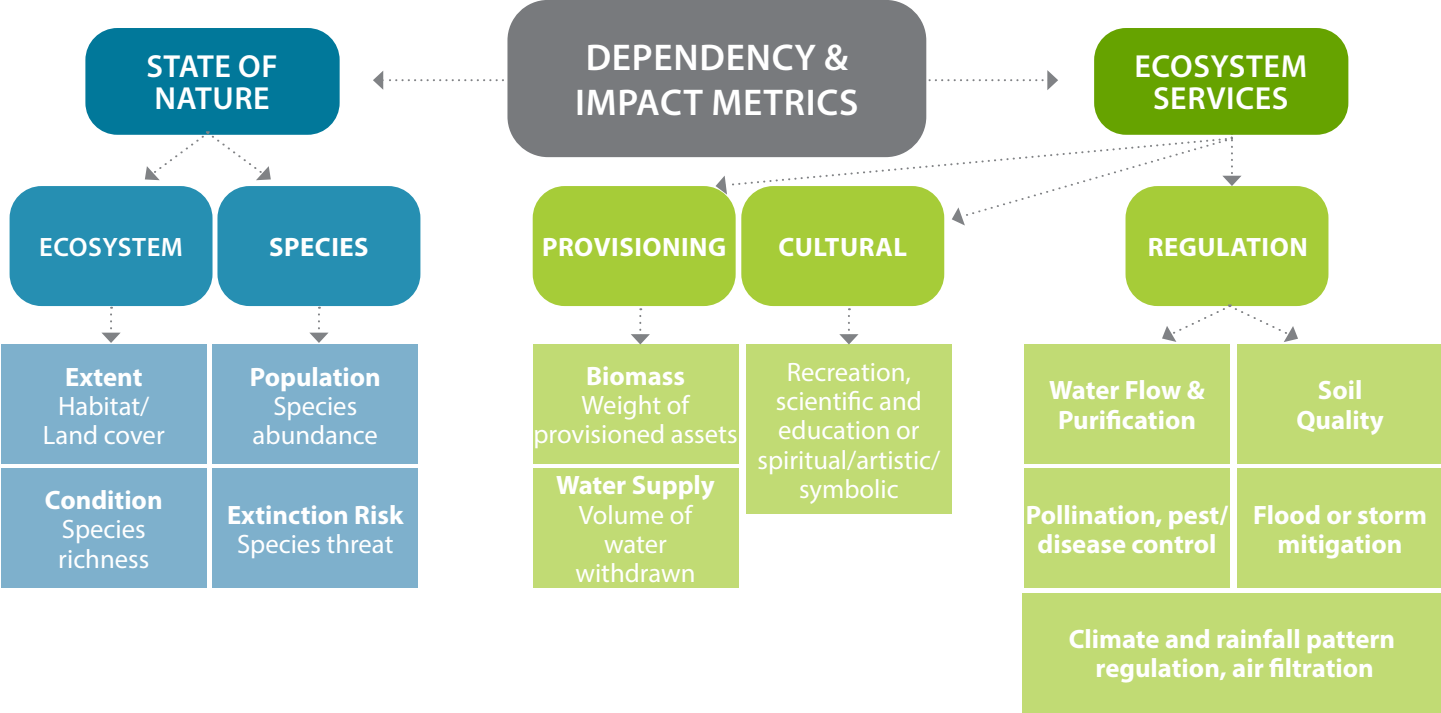
Source: TNFD, 2022.

The TNFD has taken up the mantle. The group has already begun working on a standardized lexicon. It also is working on a metric-based framework for managing nature-related risks and opportunities. In the interim, its LEAP framework offers qualitative guidance and a preview of what may be in store once the metric-based guidance is completed in September 2023 (Figure 2).

Identifying one’s touch points with nature (the “L”) will redefine the business community’s view of nature. We suspect the number of touch points will astound. To measure their exposure, companies will become avid users of geolocation and the numerous nature-related databases that abound. You can almost hear software firms pivoting to address what will become an enormous need to LEAP.

The TCFD had the advantage that measuring climate change could be distilled into a single unit: CO<sub>2</sub>e. Nature in its diversity defies a single metric. Capturing the data will be hard enough;

FIGURE 3 | TNFD’S ECOSYSTEM AND NATURE-ALIGNED METRICS



Source: TNFD, 2022.

applying it will be even more challenging. **Figure 3** illustrates the TNFD’s ecosystem and nature-aligned metrics as they stand. If nature-related disclosures, regulations and NGOs take off as quickly as their GHG-focused corollaries, three highly plausible trends within private markets could emerge:

- 1 The TNFD will be the first stop in the private sector’s journey toward considering the risks and opportunities in nature.
- 2 Risk metrics, like exposure to biodiversity hot spots, will play a greater role in investment decision-making.
- 3 As regulators act, the value of ecosystem services will receive greater weight in stock and bond prices.

## Show Me the Money

Because we haven’t correctly valued nature, one could argue we have not correctly valued any asset, natural or otherwise. As we have learned from climate change, disclosures—important as they are—can only go so far. You need a price. So we are excited by the growing number of voluntary pricing schemes that aim to derive a price for biodiversity and ecosystem services. Until such initiatives are fully fledged, market participants need to be cognizant of the risks of mispricing assets. Though the term “stranded assets” has become synonymous with coal-fired power plants, when you consider nature’s breadth, the list of stranded assets could get very long.



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# TNFD Does Not Walk Alone

## EU Taxonomy

The Taxonomy provides a list of sustainable economic activities. To define sustainable, it relies upon six objectives, three of which pertain to nature: Protection and Restoration of Biodiversity and Ecosystems, Climate Change Mitigation, and Climate Change Adaptation.

To be sustainable, each activity must satisfy at least one of these objectives and do no significant harm to the other five. The exact criteria for satisfying each objective are still under development. Currently, the EU is working on the criteria for Protection and Restoration of Biodiversity, which it hopes to have finalized within the next year or two. In this instance, the Taxonomy will inform which assets contribute to greater biodiversity and ecosystem health, both of which are critical to natural capital and the ecosystem services it provides. The TNFD, by comparison, will inform how *all* companies—whether they are well positioned with respect to biodiversity as dictated by the Taxonomy or not—consider and disclose their interactions with nature.

## Secretariat of the UN Convention on Biological Diversity (CBD)

Ratified by 196 nations, the Convention on Biological Diversity (CBD) is another important initiative that is playing a role in how markets consider nature. Established in 1993, the CBD released the Global Biodiversity Framework in 2021. The Framework comprises 21 targets and 10 milestones proposed for 2030, with the aim of “living in harmony with nature” by 2050.

Historically, the CBD’s targets have not been met, hence the debate on whether its latest goals go far enough, are too overarching, or are too vague to be achieved. However, we can expect that in the finance sector, the TNFD will take the helm and provide more granular guidance.



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## TNFD Does Not Walk Alone (continued)

### UN Biodiversity Conference (COP 15)

The CBD is debated at the peak body UN Biodiversity Conference, which convenes governments from around the world. At its next conference, which will take place December 5–17, 2022, in Montreal, COP 15 aims to agree on new global targets that are measurable, underpinned by science, and have explicit outcomes.

### EU Sustainable Finance Disclosure Regulation

The European Union's Sustainable Finance Disclosure Regulation (SFDR) became effective in March 2021. While the SFDR is most associated with climate-related disclosures, it also sets disclosure obligations around biodiversity for asset managers and other financial actors. The first focuses on preservation practices—namely, disclosing the share of investments and portfolio companies that neither assess, monitor nor curb the pressures that directly and indirectly alter biodiversity and the ecosystem. The second aspect concerns threatened species and protected areas.

In short, companies will need to drastically enhance their understanding of biodiversity across both the entity and product levels.

According to consulting group Bain, 2% of the \$632 billion in climate capital deployed globally each year goes toward nature solutions.<sup>5</sup> The main reason for this underinvestment is the noncommercial returns such assets have generated historically. This is not intrinsic to nature; rather, it is the result of *not valuing nature*. But as the TNFDs of the world effect greater price transparency, investors may come to regard nature as an asset class with a permanent place in their portfolios, alongside other alternative investments. The Paulson Institute, an American think tank, reckons the market for green equity and other nature investments could reach \$93 billion by 2030.<sup>6</sup>

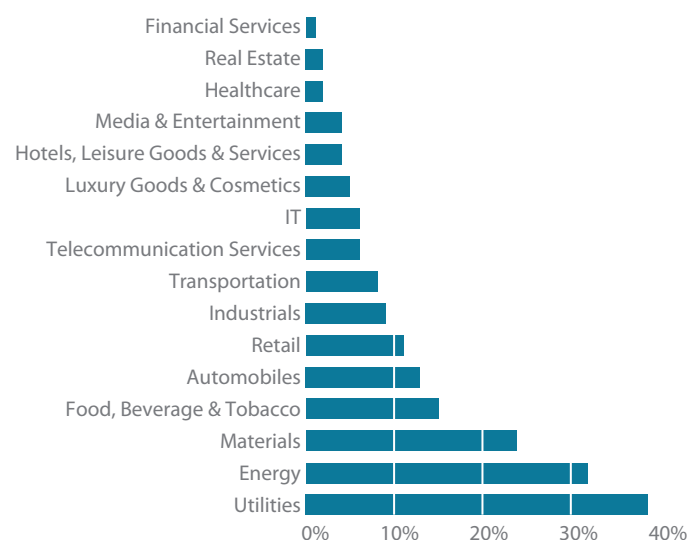
The rerating that will propel this precipitous growth may be underway. Moody's has already developed a two-pronged approach to weighing risks to nature. One examines the effect of depleting (or augmenting) natural capital on a company's revenues; the other looks at how dependent businesses are on ecosystem services to deliver their goods and services. If initial estimates are any indication, the number of touch points a company has with nature may be higher than one might think.

- » The World Economic Forum estimates about half of global GDP depends on natural capital.<sup>7</sup>
- » The Netherlands' central bank in a 2020 report found that more than a third of Dutch financial institutions rely upon at least one ecosystem service.<sup>8</sup>
- » In 2021, the French central bank reached a similar conclusion, estimating that more than 40% of securities issued by its financial institutions derive some value from nature.<sup>9</sup>

Owing to studies like these, financial services and investment management companies are being called upon to do a better job of incorporating nature-related considerations into their calculi.

As more companies disclose the effect they have on nature, the risks and opportunities they face will be easier to identify. Eventually, investors may be able to place a price on both. While the *risk effect* may press businesses to evolve, the companies that are well positioned with respect to nature may have access to less expensive capital as investors seek

**FIGURE 4 | SHARE OF COMPANIES WITH >5% ACTIVITIES THAT ADVERSELY AFFECT BIODIVERSITY-SENSITIVE AREAS**



Source: Moody's, 2022.

to reduce their exposure to the risk effect and increase their exposure to companies that are primed for success (i.e., *the opportunity effect*).

Because it is likely that some businesses will face both effects, investors will have to figure out whether one outweighs the other. We would expect general partners to try to include these effects during due diligence as part of their broader ESG evaluation.

## RISK EFFECT

In a new report, Moody's estimates the share of companies by sector with more than 5% of activities that adversely affect biodiversity (Figure 4). Because of this relatively high operational exposure to nature, one expects the utilities, energy, materials and other sectors will face challenges in the short run.

<sup>5</sup> Bain & Company. 2022. "Nature: The New Asset Class."

<sup>6</sup> The Paulson Institute. 2020. "Financing Nature: Closing the Global Biodiversity Financing Gap."

<sup>7</sup> World Economic Forum. 2020. "Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy."

<sup>8</sup> De Nederlandsche Bank. 2020. "Indebted to nature: Exploring biodiversity risks for the Dutch financial sector."

<sup>9</sup> Banque de France. 2021. "A 'Silent Spring' for the Financial System? Exploring Biodiversity-Related Financial Risks in France."

While some of these industries may seem obvious for the direct risks they pose, other connections may be harder to draw, particularly for industries with more complicated supply chains. As asset owners and managers have undoubtedly noticed during their net-zero journeys, assessing one's emissions is a challenging affair. If central banks' estimates of financial institutions' dependence on nature are any indication, we would expect similar challenges with measuring the effect one has on natural capital through their supply chains and portfolios.

Though formal accounting guidance has yet to materialize, LPs and GPs alike should begin contemplating this complicated exercise, which will one day play an important role in investment due diligence. Without it, any estimate of the risks is bound to be incomplete, and any estimate of an asset's true value will be inaccurate.

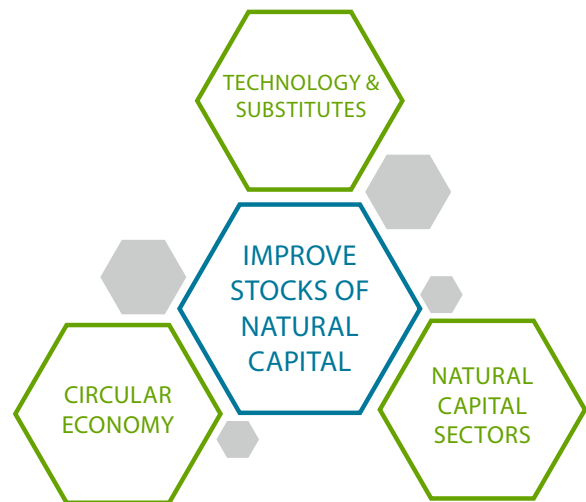
## OPPORTUNITY EFFECT

Although a nature price will effect greater transparency and informational symmetry, until one is calculated, a huge arbitrage opportunity will exist for the investors that are willing to lean in. Owing to their long-term mindset and record of finding arbitrage opportunities in inefficient segments of the market, we believe private markets are uniquely positioned to gain an early-mover advantage in nature. In our estimation, opportunities will emerge first in the following three areas: technology and substitutes, natural capital sectors and the circular economy.

### Technology & Substitutes

In this sense, technology and substitutes refers to investing in new tech to overcome existing challenges or developing markets for alternative products with a smaller nature footprint. Though all-encompassing, investors usually gain exposure to the tech sector via venture capital and growth equity, where new ideas and products are developed to have a positive impact on natural capital. While this may result in substitutes for existing products, alternatives could also come about because of consumers becoming more aware of sustainability factors. There are several examples of both, and we expect many more to emerge.

**FIGURE 5 | OPPORTUNITY EFFECT**



For illustrative purposes only.

- » New technology to process animal waste to create renewable fertilizers.
- » Awareness and acceptance of “mass timber” products as viable and environmentally friendly building materials in large-scale building projects.
- » Novel net cleaning technology in aquaculture to reduce costs and reduce the need for chemical cleansers.
- » Developing new fertilizers and chemicals that are derived from plants.
- » Sensors to monitor water flows and detect toxins.

### Natural Capital Sectors

By owning assets in agriculture, forestry, aquaculture and other natural capital sectors, investors have an opportunity to adopt new practices and effect improved environmental outcomes. They also have the potential to capitalize on the burgeoning market for offsets, some of which are available now (i.e., carbon).

Strategies to improve the environment come in one of two flavors: nature-based strategies (**NbS**), which target a broad range of outcomes, and natural climate solutions (**NCS**), which specifically refer to investments in natural carbon sinks (e.g., mangroves) to reduce atmospheric carbon levels. There are several existing examples, most of which can be accessed in an investor's real assets or infrastructure program.

- » **Regenerative agriculture**—Farmers seek to restore soil health by rotating crops, using less fertilizer and chemicals, or planting cover crops, which also slows erosion, among other things.
- » **Organic agriculture**—Farmers don't use any synthetic fertilizers or chemicals. That consumers are often prepared to pay a premium for these goods has accelerated the transition to organic (also potential for carbon offsets from soil carbon).
- » **Carbon forestry**—Forest managers reduce harvests to increase biomass and the amount of carbon stored in trees. Carbon stored in the forest can be monetized in carbon offset markets.
- » **Reforestation**—Operators replant and regenerate native forests and mangroves by leveraging the revenues available from carbon offset markets.

## Circular Economy

The great marvel of nature is that it does not waste anything, with all systems relying on the inputs and outputs of others to sustain one another. Circular economy investments seek to replicate this perfect system.

Much of what we produce ends up in landfills or, worse yet, our oceans and waterways. Fortunately, societal awareness and the rising cost of raw materials are leading to greater interest and investment in recycling. In 2021, recycling companies raised nearly \$30 billion from private equity and venture capital firms, according to PitchBook. Historically, only metals and glass have been viable; it is much more efficient to recycle some materials (e.g., aluminum) than extract them from the ground. Yet here again, we have seen private market investors disrupting inefficient markets.

Private equity, venture capital and private debt firms are investing in the nascent yet promising technologies that will make recycling economical for all waste. Over the long run, as development risk gets displaced by execution risk, and recycling becomes more of an essential infrastructural service than a peripheral environmental one, infrastructure investors may become keener to invest. Meanwhile, real estate firms are taking individual actions to advance their waste-related sustainability practices.

- » New facilities that turn agricultural or food waste into renewable fuels, feed for livestock, or organic fertilizers may reduce the amount of effluent from farms.
- » Robotics-enabled recycling centers that separate e-waste will help to reclaim metals and rare earth minerals, reducing our dependency on mining and protecting workers from toxic substances—mining for the 21st century.
- » Textile recycling helps to avoid waste, reduces the use of chemicals and helps to ensure that shoes and garments live on in the circular economy.

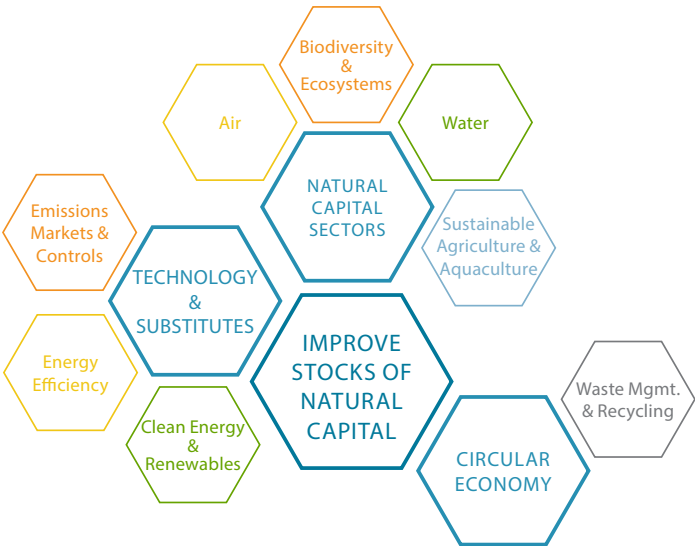
# Guidance for LP Implementation Strategies

Nature is an expansive subject. To help investors tie actionable investment opportunities (large hexagons) to themes (small hexagons) that can deliver results aligned with the UN Sustainable Development Goals (smaller hexagons), we developed a “map” (Figure 6). This map aims to reinforce two main ideas:

- 1 Nature’s investment opportunity is critical to many key investment themes; and
- 2 Since each theme is aligned with the SDG, investing in nature is linked to driving SDG outcomes.

The opportunity set for nature is deep and broad, and we believe it will only get larger and more mature.

FIGURE 6 | STEPSTONE NATURE TAXONOMY



Source: StepStone Group. For illustrative purposes only.

TABLE 2 | STEPSTONE’S IMPACT THEMATIC TAXONOMY

SUB-THEME	DEFINITION
Clean Energy & Renewables	Projects or businesses that directly or indirectly increase energy derived from renewable, zero-emissions sources.
Energy Efficiency	Projects or businesses that enable better energy use and reduce energy consumption and waste.
Energy Storage	Projects or businesses that increase efficiency or reduce the cost, weight or environmental problems associated with devices that store energy for future use.
Clean Transport	Projects or businesses that directly or indirectly use technology to reduce or replace the use of fossil fuels in transport.
Green Building	Projects or businesses that use renewable energy, boost energy efficiency, reduce waste or pollution, promote efficient use of resources, and consider the well-being of ultimate users.
Emissions Markets & Controls	Technologies, projects and processes that reduce, measure or control GHG emissions, including carbon sequestration.
Air	Projects or businesses focused on reducing air pollution.
Water	Projects or businesses focused on increasing availability of clean water, reducing water pollution, conserving water and resolving issues related to oceans and coastal areas.
Land	Projects or businesses focused on conserving land, sustainable land management and forestry.
Waste Management & Recycling	Projects or businesses focused on reducing the amount of waste.
Sustainable Agriculture & Aquaculture	Projects or businesses that develop, enable or implement the most efficient use of inputs, enhance environmental quality, and improve yields and lifestyles of local communities.
Biodiversity & Ecosystems	Projects or businesses focused on maintaining and protecting diverse ecosystems.

Source: StepStone Group.

Some LPs may see nature introduced to their investment programs by GPs that integrate nature into their ESG frameworks and make it part of their investment decision making. Others may carve out a new nature allocation or redefine their climate allocation to include nature. Either way, investors will be able to express their nature programs via single- or multi-asset-class mandates.

## EARLY-MOVER BENEFITS

As climate change has become an investment theme, we have seen how reratings have hurt some assets and helped others. We expect nature to follow a similar path. To capitalize on this arbitrage opportunity, LPs should begin thinking about the effect target assets have on ecosystem services and biodiversity.

## MARKETS

Investors should keep an eye on burgeoning offset markets and trading schemes, which, once operational, will provide them with additional revenue sources. Carbon is the furthest along. While similar developments underway for biodiversity and natural capital are still inchoate, we believe they are equally important for LPs to monitor.

Payments for ecosystem services (PES) are one of the best-known examples. These programs provide an incentive to landowners for managing their land in a way that supports ecosystem services. According to one study, there are more than 550 such programs around the world clearing more than \$10 billion each year.<sup>10</sup> As such, PES can take on a number of forms. For example, residents of a town might pay a local farmer to adjust their harvesting schedules so as not to disturb migrating birds.

In the US, “mitigation banks” have been around since the 1980s. Here, developers can bank credits by creating, preserving or restoring an aquatic resource (e.g., a marsh). Banks or the credits can be sold. By some estimates, the global mitigation banking market could exceed \$16 billion by 2030.<sup>11</sup>

Early work being done by the Australian government may offer yet another glimpse of what’s to come. Its Department of Climate Change, Energy, the Environment and Water has

proposed the creation of a national biodiversity market. The market would make it easier for companies and landowners to invest in projects that enhance biodiversity, as well as trade credits. Similar efforts are underway in Sweden.

These markets will be critical to pricing all assets—natural and otherwise. They will also provide new instruments for investors to gain exposure to nature as an investment theme. As with all emerging spaces, there is risk.

## Conclusion

We have not valued nature for a long, long time. Perhaps our indigenous ancestors had a better, intuitive understanding of the complex relationship between us and the natural world. But ever since we moved to master our environs, starting with industrializing our food supply and sheltering in concrete, we have been diminishing our nature bank. Perhaps we always assumed that nature was infinitely renewable, but even she has needs. Having pushed nature out of her comfort zone, we are starting to see just how fragile she is. We still understand very little about our Earth; we know more about space than our seas. But even with our limited knowledge, there is growing recognition about the role of nature on the back of the growing awareness about climate change. For the first time, investors are recognizing that nature is not synonymous with investing in farms or forests. Nature is broad, covering all the realms. Climate change is what is happening to all the realms. Investing in climate change is looking to address this change. It is allied but not equivalent to investing in nature. Both can and should coexist in portfolios. Moreover, it is crucial that there be increased capital flows into nature, because we know now for sure that nature is valuable. For market participants, GPs and LPs alike, that grapple with the subject, history teaches us that early movers should be well rewarded. Capital flows into nature and the related themes discussed are an important contributor to changing the way we eat, shelter and move—and ultimately creating a more sustainable economy. Private markets are perfectly positioned to channel this capital. Time frames are well aligned, and the tool kits of GPs are well suited and will continue to evolve to address this urgent need. It is time to value nature.

<sup>10</sup> J. Salzman et al. 2018. “Payments for ecosystem services: Past, present and future.” *Texas A&M Law Review* 199–227.

<sup>11</sup> Custom Market Insights. 2022. “Global Mitigation Banking Market Share Likely to Expand At a CAGR of 14.7% By 2030.” August 8.

## Glossary

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### B

**Biodiversity**—The variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and among ecosystems.

**Biodiversity Intactness Index**—Metric of an area's average abundance of wild species relative to pre-modern times; a measure of biodiversity loss.

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### C

**Carbon Sinks**—Through sequestration, they absorb carbon from the atmosphere and store it in vegetation, soil and oceans.

Examples: Tropical forests, mangroves and peatlands (like the Amazon and Congo basins), and sustainably managed commercial plantation forests and farmland.

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### E

**Ecosystem**—A dynamic complex of plant, animal and microorganism communities and the non-living environment, interacting as one functional unit.

Example: Coral reefs, tropical rain forests and diversity within species, between species and of ecosystems.

**Ecosystem Services**—Structures and functions of the natural world that make human systems possible, and benefits people derive from ecosystems.

Example: photosynthesis in plants, soil formation, regulation of climate, quality and quantity of water, aesthetic value and recreation.

**E/MSY**—Extinctions per million species per year; a measure of biodiversity loss.

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### N

**Natural Capital**—A subset of environmental assets that delivers ecosystem services to the benefit of society.

Example: plants, animals, air, water, soils, minerals.

**Nature-based Solutions**—Actions to protect, sustainably manage and restore natural or modified ecosystems that retain and amplify biodiversity, help in climate adaptation and provide economic and well-being benefits.

Example: Planting mangroves in coastal areas.

**Natural Capital Solutions**—NCSs increase carbon storage and/or avoid GHG emissions, enhance resilience and assist climate adaptation. They are a subset of nature-based solutions.

Example: deforestation reduction, reforestation, ecosystem restoration, and carbon-storing agriculture and soil management.



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StepStone Group (Nasdaq: STEP) is a global private markets investment firm focused on providing customized investment solutions and advisory and data services to our clients. StepStone's clients include some of the world's largest public and private defined benefit and defined contribution pension funds, sovereign wealth funds and insurance companies, as well as prominent endowments, foundations, family offices and private wealth clients, which include high-net-worth and mass affluent individuals. StepStone partners with its clients to develop and build private markets portfolios designed to meet their specific objectives across the private equity, infrastructure, private debt and real estate asset classes.

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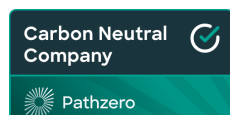
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