

The future of biodiversity

No time to stop and smell the roses



Introduction

A global biodiversity crisis is upon us and, like the climate crisis, we have been heading here for some time now.

The global diversity of species and nature's ecosystems is in decline faster than anytime in human history¹. Over a quarter of all flora or fauna species face the threat of extinction by 2100², which we believe is a real risk to the global ecosystem, global economy and all areas of society.

The call to act is finally being answered as seen in the release of the Taskforce for Nature related Financial Disclosures (TNFD) final report in September 2023. Policy makers, public and private entities worldwide are stepping up but there is still a long way to go to avoid catastrophe. Public sources of funding form a significant part of what is needed but private sector investment and engagement as stewards of capital is key to match the scale of the biodiversity emergency.

Private investors can improve biodiversity characteristics in their portfolios by:

- Engaging with the asset managers with whom they invest,
- Seeking targeted nature positive opportunities,
- Asking the right questions to see how nature is considered with existing investments,
- Pushing for continued improvement to see what further can be done.

Similar to addressing the climate crisis, with growth in quantity and quality of data, standardised regulations and improved reporting methods, investors can demand more from asset managers to align their portfolios with nature. Asset owners will have to be highly discerning with the growing number of targeted nature solutions available, but with the first mover opportunities available in some instances, we believe now can be an exciting time to act.

In 2022 we published 'Missing the Wood for the Trees'³ to highlight how nature and asset owners' requirements can align and we maintain the narrative of this being an achievable goal.

In this overview we will discuss the following topics:



The crisis at hand



Responses to the crisis across geographies



Some of ways of financing a solution and the opportunities to asset owners surrounding regenerating and the natural environment

¹ Diaz et al 2019, Summary for policymakers of the global assessment report on biodiversity and ecosystem services, <https://zenodo.org/record/3553579> p12

² Isbel et al 2022, p95, Expert perspectives on global biodiversity loss and its drivers and impacts on people <https://esajournals.onlinelibrary.wiley.com/doi/10.1002/fee.2536>

³ <https://www.wtco.com/en-gb/insights/2022/01/missing-the-wood-for-the-trees>

Key definitions

(From World Economic Forum January 2010 report)

Biodiversity: the variability among living organisms within species, between species, and between ecosystems. Biodiversity underpins the proper functioning of ecosystems and ensures the delivery of ecosystem services.

Ecosystem: a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. Ecosystems can be relatively undisturbed by people, such as virgin rain forests, or can be modified by human activity, such as farms.

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The growth in global human and financial capital has been achieved by extracting, and not replenishing, the world's natural capital. As a result, over the past five decades, biodiversity has declined by a massive 60% across large parts of the planet. Yet we now know that 55% of global GDP relies entirely on what nature provides - nature underpins the global economy. Continuation of this extractive model will lead to catastrophic failure to business and economies; biodiversity loss is an existential threat to us equivalent to that of climate change. It is therefore business critical that nature is restored at scale. By making nature economically visible we have a chance of reversing this loss, rebuilding whole ecosystems and giving ourselves a future.

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David is Chairman and owner/founder of The Environment Bank Ltd (EBL)

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1. Why is biodiversity loss worthy of a ‘Crisis’ label?

The speed of nature loss on the earth is so serious governments from around the world met in Montreal in December 2022 for COP15 to just discuss this topic of biodiversity. This is a deviation from the format of previous COPs which concerned more on general climate topics.

Almost half of all economic production, (~\$44 trillion USD) can be classified as ‘moderately or heavily dependent’ on the natural environment⁴ and, if current trends continue, \$2.7 trillion USD will be wiped from global GDP by 2030 according to the World Bank⁵. Around \$160 billion USD is spent annually on protecting the natural environment but to halt global biodiversity loss this needs to hit \$1 trillion USD⁶. Public flows currently make up over 75% of all funding, typically as domestic government expenditure and international aid, but there needs to be an influx of capital from alternative sources⁷.

Private asset owners will be essential in shrinking the deficit and policy makers worldwide are introducing legislation to engage the sector. The legislation and growing number of financially incentivising biodiversity-related opportunities are supported by quantitative metrics and tools (such as DEFRA’s Biodiversity Metric 4.0 and GloBio’s Mean Species Abundance Index), giving the ecology process higher degrees of conviction. However, there remains a knowledge gap within the private sector which needs addressing.

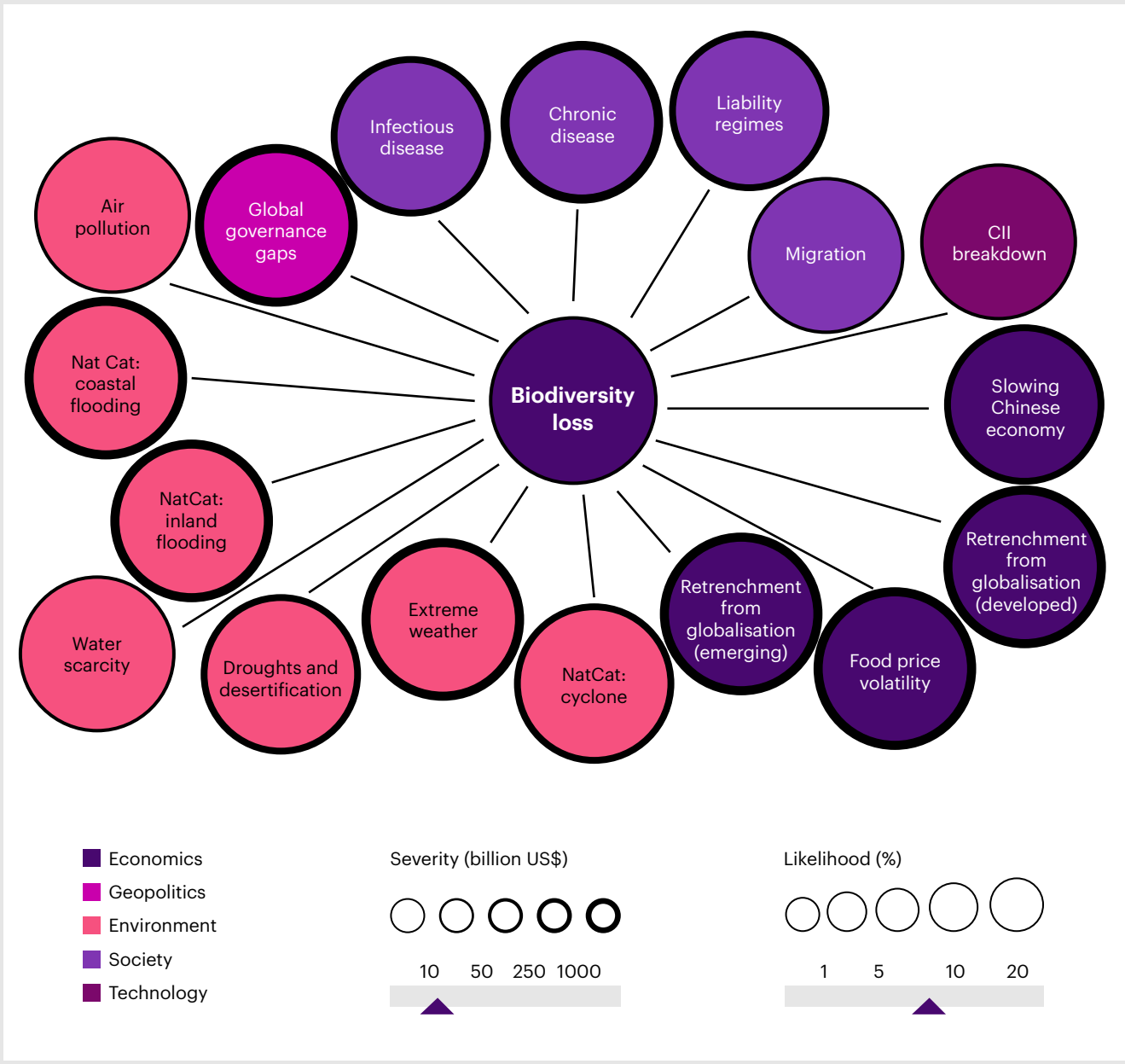
⁴ World Bank, 2020, Mobilising Private Finance for Nature, <https://thedocs.worldbank.org/en/doc/916781601304630850-0120022020/original/FinanceforNature28Sepwebversion.pdf> p7

⁵ World Bank, 2021, Protecting Nature Could Avert Global Economic Losses of USD2.7trillion per year. <https://www.worldbank.org/en/news/press-release/2021/07/01/protecting-nature-could-avert-global-economic-losses-of-usd2-7-trillion-per-year>

⁶ World Economic Forum, 2022, Biodiversity Credits: Unlocking Financial Markets for Nature Positive Outcomes, https://www3.weforum.org/docs/WEF_Biodiversity_Credit_Market_2022.pdf p3

⁷ Bloomberg NEF, 2023, Biodiversity Finance Factbook, https://assets.bbhub.io/professional/sites/24/REPORT_Biodiversity_Finance_Factbook_master_230321.pdf p16

Figure 1: Biodiversity loss at the nexus of many risks



Source: World Economic Forum, Global Risk 2010 report





2. Global and regional responses

a. Organising the response: the TNFD

The Taskforce for Nature related Financial Disclosures (TNFD) is an international initiative backed by G7 and G20 political leaders, comprising of 40 private sector institutions with a market cap of \$2.3 trillion USD and an AUM of \$20.6 trillion USD⁸. Since 2021 the organisation has promoted governance, strategy, risk management and metrics and targets to increase public-private engagement with the nature crisis. The framework acts in a similar vein to the more widely known Taskforce for Climate related Financial Disclosures (TCFD), providing a level of sectoral standardisation and clarity. These are two characteristics that have been lacking so far within the sector due to complex ecological processes and unstandardised reporting, both of which are key for seeing increased investment in nature.

The Taskforce champions objective information to inform how nature can impact immediate financial performance both positively and negatively and the long-term risks of remaining unaligned. The full framework is science-driven to encourage nature-positivity, “enhancing the resilience of our planet and societies to halt and reverse nature loss”⁹. Still in the development phase towards a full framework, compliance with the taskforce has already seen growth among governments, asset managers/owners, financial institutions, and regulators, among others, with the initial framework published in September 2023.

The need to promote standardised policies, methodologies and reporting practices between public and private entities will only increase as we endeavour with the conservation and regeneration processes. Some environmental regulators already require alignment to TNFD for compliance purposes, such as the EU’s Environmental and Sustainability Reporting Standards. It is highly likely this a sign of the times and the direction of travel for nature reporting as a whole.

⁸ TNFD Website, 2023 <https://tnfd.global/about/taskforce-members/>

⁹ World Economic Forum, 2021. “What is ‘nature positive’ and why is it the key to our future”, World Economic Forum, 23 June 2021 <https://www.weforum.org/agenda/2021/06/what-is-nature-positive-and-why-is-it-the-key-to-our-future/>

Prior to the TNFD, other partnerships, such as ENCORE (Exploring Natural Capital Opportunities, Risk & Exposures), ISSB (International Sustainability Standards Board) and the WWF (World Wide Fund for Nature), embarked on an education process to highlight economic risks associated with nature and biodiversity loss to both asset owners and managers with the aim to improving nature funding levels. Now endorsing the TNFD, partnerships such as these are now well poised as entry points for stakeholders to engage with the TNFD framework and to begin to report on exposure and associated risk.

Asset owners have started approaching the stewards of their capital to ask questions on how portfolios are considering biodiversity risks and where opportunities around financing the solution are presenting themselves. With the TNFD stewards of capital will increasingly be able to answer these questions and meet the developing demands of investors. Through standardisation and a common target the funding for nature will rise and the deficit will diminish.

b. Multi-national frameworks: EU based responses

The EU has set ambitious 2030 targets for the protection and regeneration of the natural environment with a large emphasis on preserving biodiversity in the 'European Green Deal'. The framework encourages increased investment in biodiversity and the natural environment, making it easier to unlock new sources of funding from both the private sector and public capital.

Capital dedicated by the EU Commission from the current budget leaves a deficit of €28 billion (or a 58.3% gap) against the required funding target to halt the decline by 2030 and private corporates have been identified as sources of capital to shrink this gap¹⁰.

Answering the call, in June 2023 the French and the UK governments announced a new roadmap for international biodiversity credits. This initiative will scale up the global market for biodiversity nature credits and will allow corporates to purchase nature credits with no geographic restriction, unlike many other nature credit systems. Each credit will be put through rigorous verification and will be linked to a specific habitat project with high levels of transparency on what funding will be used to achieve.

The roadmap is still in very early stages and the finer details remain unknown but this announcement signals one of the first truly global solutions to the crisis. The question remains if the project will become an opportunity for return seeking investors and if the market will be able to scale enough to impact the global levels of biodiversity in a timeframe to meet global/EU conservation targets.

c. The response in the US

The US has been at the frontline of the biodiversity crisis and was named by the Royal Society among a group of seven countries where 60% of total biodiversity loss throughout history occurred between only 1996 and 2008¹¹. Sustainability in general has become a controversial topic within the US government, seeing pushback on various initiatives and commitments in recent years.

Despite the polarised attitudes, the US Congress has supported legislation designed to protect the natural environment since the 1970's. As a result the country has a federal government backed biodiversity credit system¹².

The Clean Water Act 1972 and the Endangered Species Act 1973 were published to manage the natural environment in the USA and are used to regulate sectors such as commercial land development, a key driver of biodiversity loss. Since 2015 the regulations have been a basis for a system of offset credits where if development projects unavoidably damage the environment, and impacts have been minimised, a permit can be obtained. Credits are generated through improving the quality of separate land plots and can then be sold to commercial developers for a target of 'no-net loss' to the environment.

The offset is required to be geographically local to the associated project but with no strict requirement of net biodiversity gain for the natural environment. The Organisation for Economic Co-operation and Development (OECD) places the value of the US offset market between \$1.6 and \$6.3 billion USD¹³ and is working towards the target of engaging corporates with the crisis. However, without a requirement of net gain the system won't necessarily improve on the degradation that has already occurred.

¹⁰ EU Commission, 2023, Biodiversity Financing, https://ec.europa.eu/environment/nature/biodiversity/financing_en.html

¹¹ The Royal Society, 2023, <https://royalsociety.org/topics-policy/projects/biodiversity/where-is-most-biodiversity-loss-happening-and-why/>

¹² USA Environmental Protection Agency, Mitigation Banks under CWA Section 404, <https://www.epa.gov/cwa-404/mitigation-banks-under-cwa-section-404>

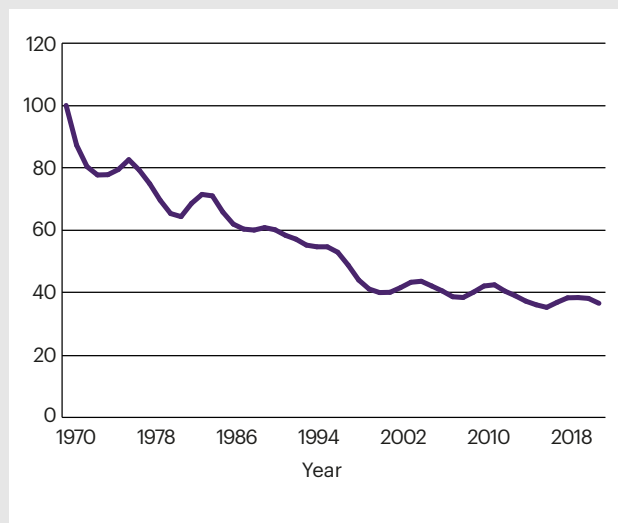
¹³ OECD, 2020, <https://www.oecd.org/environment/resources/biodiversity/report-a-comprehensive-overview-of-global-biodiversity-finance.pdf> p25

d. The response in the UK (biodiversity net gain)

The UK resides in the bottom 10% of biodiversity globally, the only G7 country in this category, according to London's Natural History Museum¹⁴. The UK's Parliament declared a national emergency and ambitions to halt to decline, publishing the Environment Act 2021. The legislation sets out policies designed to stop the long-term trend (see chart below) and provides a legal framework for the conservation process as the UK is no longer regulated by the EU's Green Deal.

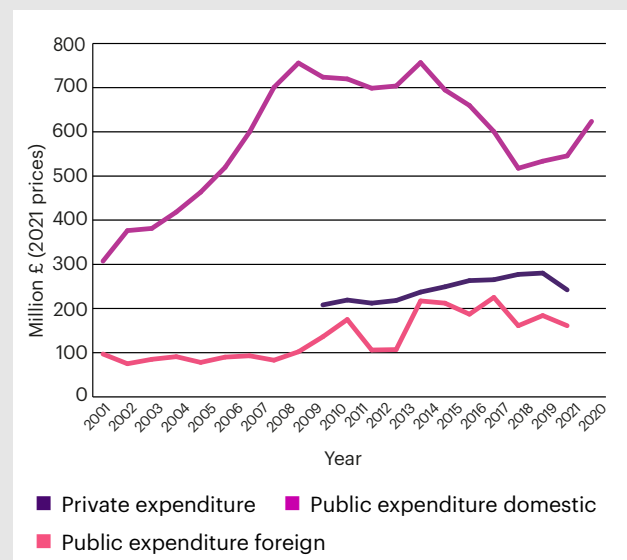
A key part of the Act requires that all commercial land development projects in England achieve a minimum 10% biodiversity net gain (BNG) to qualify for planning permission from their Local Planning Authority (LPA). Some projects will be initially exempt, including very small-scale projects and nationally significant infrastructure projects, but eventually all projects will be subject to this requirement. Developers can choose to meet this requirement on the site of development but this can be costly and may choose the off-site option if on-site is not possible.

Figure 2: **Change in relative abundance of priority species populations - UK (Indexed at 100 in 1970)**



Source: JNCC 2023

Figure 3: **UK public/private expenditure on biodiversity**



Source: JNCC 2023

Funding the conservation and regeneration of biodiversity in the UK has stagnated following consistent net growth to 2008, largely driven by public flows. Recording of private flows of biodiversity funding began in 2011 but has since seen limited growth, only making up 23.6% (£243 million) of total funding as of 2022, despite the peak of public spending occurring all the way back in 2008.

¹⁴ Guardian Newspaper, 2021, <https://www.theguardian.com/environment/2021/oct/10/nearly-half-of-britains-biodiversity-has-gone-since-industrial-revolution>



Case Study: UK BNG Credits: The Roadmap to Net Gain?

The Department for Environment, Food and Rural Affairs (DEFRA) is backing a new system of BNG credits using their proprietary biodiversity metric, allowing developers to meet the BNG requirements offsite. The metric can track biodiversity gain against a base level and underwrite BNG credits which are sold to corporates to meet mandatory BNG requirements. DEFRA estimates the mandatory market at 6,200 units p.a., valued between £135m and £274 million (assuming an average credit price of £25,000 and 50% of BNG is achieved offsite)¹⁵.

Like in the USA, credits are designed to be sold locally but BNG credits can be sold outside of the local area with a spatial multiplier effect where the further they travel, the less effective a credit is, deterring buyers from buying credits generated on cheaper land. The government also acts as a seller of last resort but at a significant price premium.

Large scale credit generation has a multiplier effect on the natural environment as large scale habitats are stronger and more resilient. There are further social externalities, potentially diversifying the income of landowners and farmers following Brexit and the uncertainty around subsidies, who can opt to utilise low quality farmland that is unsuitable for commercial farming as a source of land.

Unlike other credit systems which have been criticised for allowing corporates to continue to act in a ‘nature-negative’ manner (such as carbon offsets), BNG credits not only offset any potential diversity loss but seek to add to the net biodiversity of the UK.

The regulations should become enacted in January 2024 and will further engage corporates through mandatory alignment but expectations are there will be a growing voluntary market for nature credits. Corporates voluntarily purchasing credits will spur the growth and set the UK as a regulatory leader in the space.

| Spatial risk multiplier – value of one BNG unit sold | |
|--|---------------|
| Within LPA | 1 BNG Unit |
| Neighbouring LPA | 0.75 BNG Unit |
| Non-Neighbouring LPA | 0.5 BNG Unit |

Source: DEFRA 2023

¹⁵ DEFRA, 2023, <https://randd.defra.gov.uk/ProjectDetails?ProjectID=20608> piiii

Financing Australian biodiversity

Australia has seen some of the highest absolute losses in biodiversity globally, losing 75% of its rainforests and experiencing the largest amount of mammal extinctions over the last 200 years¹⁶. The Australian Parliament published its National Strategy for the Conservation of Australia's Biological Diversity in 1996 which has since developed to Australia's Strategy for Nature 2019-2030. The policy places a large emphasis on securing public and private investment for the conservation and regeneration policy. This is achieved through tax concessions, conservation covenants and public revolving investment funds, which purchases plots of land or real estate and uses the resulting rental income to purchase additional assets.

The government also supports a system of biodiversity credit where, like in the USA, a goal of no net loss is in place rather than a system of gains for nature. Individual landowners can generate credits through maintaining the biodiversity of the land which they can sell to land developers or to government investment funds who buy credits at scale. One example is the Biodiversity Credits Supply Fund managed by the New South Wales government, who as of Q4 2023 have approved the purchase of A\$120 million worth of credits. This number is expected to grow to \$200 million by the end of 2025¹⁷. End buyers of credits can choose to buy into the fund to meet their biodiversity obligations, paying a premium of 8% for ease of access to the supply of credits (offsetting operating costs of the fund)¹⁸. Other funds are structured to sell credits to buyers at a premium.

Key to the success to the above "Strategy for Nature" is engaging the private sector on a voluntary basis. To achieve this the Australian government is looking to develop a national system of biodiversity certificates. Conservation or regeneration projects would be added to a national register and assigned a base standardised value. Corporates could then buy and sell the certificates with value deriving from the quality of the benefit to nature. However, the proposal has seen criticism with regards to how the integrity of certificate will be upheld, with many citing the low integrity of many of the government back carbon credits in the country. Therefore, it would be imperative to ensure that there is strong enforcement and high level of compliance in order to provide confidence to the buyers of those credits.

¹⁶ NSW Department of Planning and Environment, "About Biodiversity", <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/about-biodiversity#:~:text=Australia's%20Biodiversity%20Conservation%20Strategy%202010%E2%80%932030&text=The%20strategy%20has%20a%20long,essential%20contribution%20to%20our%20existence>

¹⁷ NSW Department of Planning and Environment, "Biodiversity Credits Supply Fund", <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/about-the-biodiversity-offsets-scheme/about-the-biodiversity-credits-supply-fund>

¹⁸ NSW Government, Biodiversity Supply Fund market update, October 2023, <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/biodiversity-credits-supply-fund-market-update-october-2023-230336.pdf>





3. Opportunities in biodiversity and financing the re-wilding

Listed investments

Listed investment opportunities are beginning to appear where asset owners can allocate capital to equity-based investment products where biodiversity is explicitly taken into consideration alongside the aim of delivering long term financial returns. This can be in the form of listed indices or exchange traded funds.

These products can set requirements where constituent firms must meet minimum requirements surrounding conservation and/or the regeneration of the natural environment. For example, by measuring how activities impact nature or through targeting explicit nature regeneration. Many of these listed opportunities are relatively small but are gaining traction as the conservation and regeneration process becomes more sophisticated and more investors are drawn to the sector. However, many investments are still relatively broad and biodiversity may be a by-product of a particular investment theme, such as eco-tourism, rather than the key theme, potentially leading to greenwashing and the associated reputational and regulatory risks.

Fixed income — impact bonds and nature swaps

Biodiversity-related bond issuance saw compound annual growth of 51% between 2015 and 2022 (net ~\$1.3 trillion USD over the seven-year period), equaling ~50% of all green bond issuance for the same time period. Projects which these bonds finance include pollution prevention, development of sustainable agriculture and sustainable water management, all while seeking to secure returns for investors, all of which will indirectly benefit biodiversity.

Bonds explicitly linked to biodiversity conservation accounted for only 29% of the biodiversity-related issuance over the period but it is expected to be the fastest growing type of bond that falls under the impact bond umbrella as regulations and biodiversity metrics, such as those perpetuated by the TNFD, continue to be developed and standardised. 49% of biodiversity-related bonds continue to be issued by governments followed by 34% issued by financial institutions¹⁹.

¹⁹ Bloomberg NEF, 2023, Biodiversity Finance Factbook. https://assets.bbhub.io/professional/sites/24/REPORT_Biodiversity_Finance_Factbook_marter_230321.pdf

A key example of a specific biodiversity bond is the five-year \$150 million AAA-rated 'Rhino Bond' which was issued by the World Bank in 2022 with returns to investors funded by the Global Environment Facility. Returns from the bond will be 'pay-for-success' and are directly linked to the net growth rate of rhino populations within targeted nature reserves across Kenya and South Africa, in lieu of a coupon payment. Payments from the bond will be capped at \$13.76m USD and the bond is scheduled to mature in 2027²⁰.

| Rhino population growth | Expected payment to bondholder |
|-------------------------|--------------------------------|
| 0% – 2% | 3.67% |
| 2% – 4% | 7.34% |
| 4% + | 9.17% |

This payment system is common among bonds explicitly linked to biodiversity and may not be appropriate for all asset owners, with returns being conditional to events with high degrees of uncertainty, such as the growth of rhino populations in select nature reserves.

Similar to many opportunities around climate bonds, returns on biodiversity bonds with traditional coupon payments currently are not attractive enough to draw in return seeking investors. Some asset owners may be willing to sacrifice returns for nature positive outcomes but the extent to which they would accept a trade off is subjective.

Alongside impact bonds, public (bilateral) and private (commercial) debt-for-nature swaps also allow asset owners to access biodiversity investing. The swaps see public or private debt restructured to reduce the repayment burden. Creditors can agree to forgive a portion of outstanding debt or to purchase debt at a significant discount in exchange for the counterparty's commitment to using the proceeds for nature conservation. Swaps like these have seen popularity in emerging markets where access to traditional debt financing has been more difficult to secure, such as in Barbados and the Seychelles, but should not be seen as a complete solution. Rather these swaps should complement other financing options. Typically they are small, unscalable and can be highly costly instruments to set up and monitor, as negotiations can take years to complete, reducing the net benefits to investors.

Unlisted opportunities: Large scale credit generation or offsets through forestry/habitat banks

Biodiversity credit schemes and offsets continue to develop globally and are becoming a key method for corporates to engage with the nature crisis. Existing operations generally have been small, single sites run by landowners looking to diversify incomes but with the growing market this is changing. Large scale developers are entering the market, securing rights to large plots of land and generating credits at scale. Projects of this size can also create more elaborate and secure ecosystems. However, the industry is a lot smaller and nascent compared to the carbon offset market which has had time to scale.

With the market still relatively nascent there remains questions around the economics of a single credit. In the UK for example, despite estimating an average price of £25,000 per credit, DEFRA places a range of a single credit price being between £15,000 and £50,000 (depending on the type of habitat associated with the credit and the location within the UK). We believe this range is likely to persist as the market for credits develops.

Opportunities for investors to access this space typically exist in closed-ended funds like farming and agriculture strategies, or in a venture-capital investment into a firm that is developing solutions into this space alongside carbon solutions. Strategies can include purchasing or leasing plots of land or forests upon which credits can be developed and sold to commercial developers in a regulatory market (in the case of UK's BNG units) or to corporates in a voluntary market, although this market is still evolving and not yet clear on what the pricing could be. Returns vary based upon the cost of generating credits and the sale price of individual credits, impacted by the geographically varying land prices and the costs associated with seeding a habitat bank. However, we believe with the developing regulatory market, first mover advantages in the space still exist, with returns remaining comparatively attractive to biodiversity bonds. Investors must partner with a credible operator who will ensure there will be a permanent net gain to biodiversity and upholding a high level of integrity and reputation in this fast growing segment of the market.

²⁰ World Bank, March 2022 <https://www.worldbank.org/en/news/press-release/2022/03/23/wildlife-conservation-bond-boosts-south-africa-s-efforts-to-protect-black-rhinos-and-support-local-communities>



Next steps

The biodiversity crisis is here and to meet the deadlines set both by individual countries and multi-national bodies public pools of money will need to be topped up with private flows of capital. Unlike other natural capital strategies biodiversity opportunities place an emphasis on protecting the environment rather than extraction and increasingly investment opportunities are combining this mentality with financial return potential.

Key to developing on prior progress with the nature crisis is education on and engagement with the associated risks and opportunities on both an industry level, through subscribing to large scale initiatives like the TNFD, but also on a more targeted firm-specific level. Corporate governance, such as aligning compensation structures to nature-based targets and making conscious business decisions, will be crucial for effective engagement.

Earlier this year the Thinking Ahead Institute published 'Pay now or pay later?'²¹ highlighting the benefits of addressing climate risks in portfolios before it's too late, a mentality with which the nature crisis should be approached. Asset owners can begin to determine how their portfolios can consider the natural environment and we believe now is an exciting time to act and take advantage of first mover benefits in the growing number of opportunities that are suitable for return seeking investors. It all starts with initial steps — and occasionally stopping to smell the roses.

²¹ Thinking Ahead Institute 2023 https://www.thinkingaheadinstitute.org/content/uploads/2022/11/Pay_now_or_pay_later_Exec-Summary_HR_FINALv2.pdf

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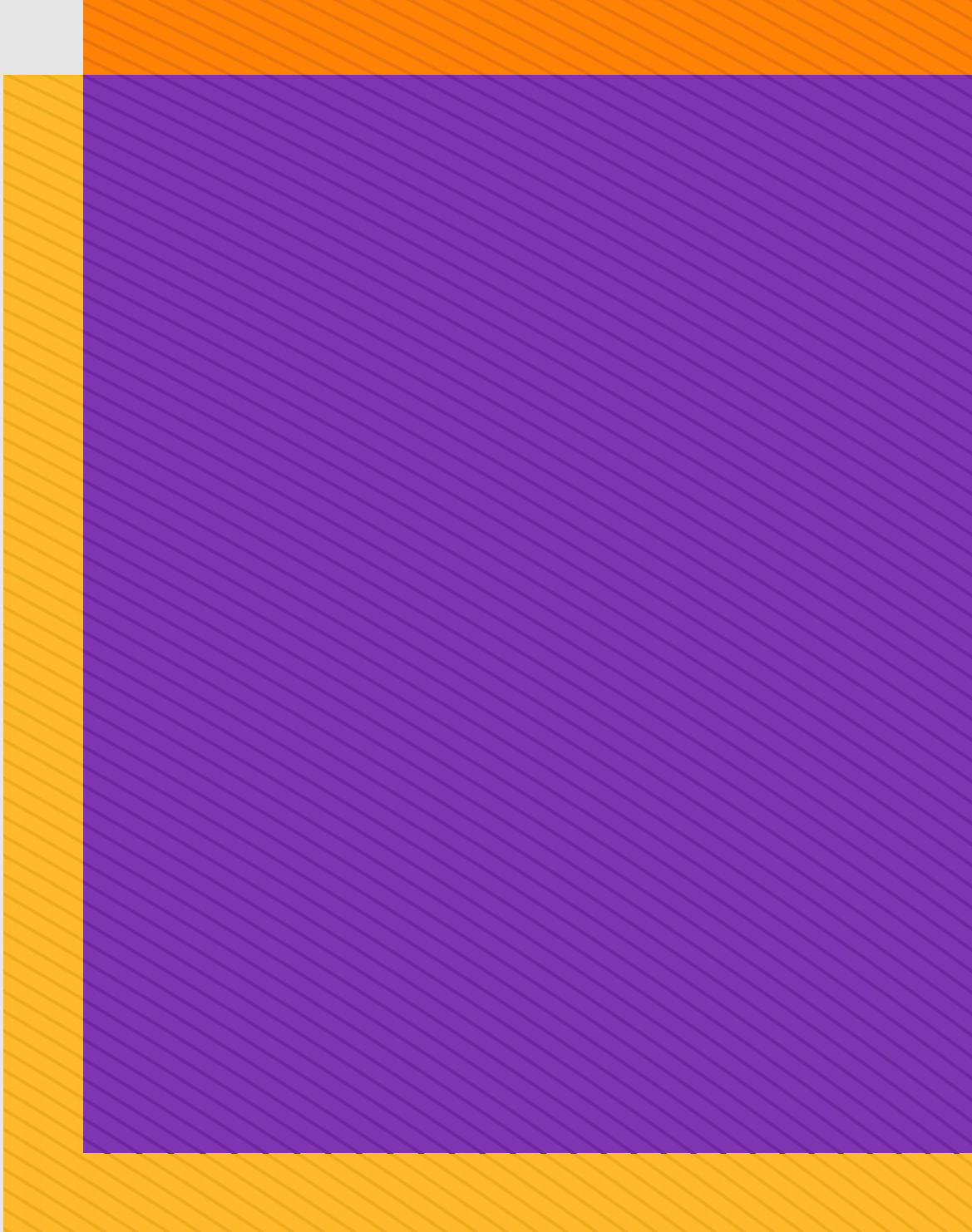
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