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2025 NATURE FINANCE MARKET OUTLOOK

Foreword

Markets move cyclically. Nature finance experienced a challenging, though not unexpected 2024: following the classical pattern of a nascent industry, it came off sharply with an overbuild, and is now entering into a hopefully stronger low-growth phase in 2025 and accelerating beyond. Last year, we witnessed Nature-based Solutions (NbS) carbon on a continuous path of stabilization and recovery, an active nature debt market and legislative progress under Article 6.4 of the Paris Agreement. This opens new opportunities and trading partnerships for private sector and governments with major scope for economic growth in a green economy. Signs are emerging that the dried-up private markets, which ahead of the US election stalemated investor action in the second half of last year, are breathing investment again.

Where are we in the cycle now? Looking past the near-term withdrawal of the U.S. from the international climate arena and related budgetary cuts being implemented by the country, some G7 states and corporates, the core fundamentals of nature finance markets provide firm grounds for optimism. We see no bottom-up information indicating fundamental weaknesses in nature finance: financial dry powder has increased year-on-year 2024 versus 2023, with more funds having closed raises – albeit mostly below their own expectations. Demand for high quality and high integrity nature assets has not vanished; the supply side has been slowly turning the corner with improved crediting methodologies and labels available to sector participants. Further NbS project supply is being built in developed and emerging markets. With key fundamental drivers pointing in the right direction, we expect a regression to the mean to be predictable when it comes to general nature finance market sentiment.

The market warning, however, is that investors and developers ignore these positive signals and exit in a kneejerk response to the short-termist headline policies of a small portion of actors. Whilst markets are cyclical, the material climate and biodiversity externalities being faced globally are negatively linear. Put simply, floods, droughts, wildfires, habitat loss and species decline are not going away. This should provide confidence if not fear that continued investment is fundamental to mid-to-long term economic and societal prosperity. We are confident the majority of investors, businesses and countries that remain resolute in their climate ambitions and transition pathways will outperform the minority who choose to ignore the scientific evidence in favour of blind-sighted popularism.

In that context, a search for excessive environmental, social or financial return certainty will be the enemy for even stronger short-to-mid term growth. Profiteering at the cost of communities, public services and project stability will ruin the market. Nature remains complex, and, as investors, we need to be acknowledging these uncertainties in our investment decisions without risk pricing opportunities out of reach.

In our view, uncertainties can be overcome by putting a laser focus on active scenario planning, with an exploratory thought style adapted to the environmental and social realities on the ground. And progress then needs to be constantly measured through the collection of material primary data to test one's own approaches. Evidence proves that when this approach is applied correctly, financial and impact alpha at reasonable and profitable levels are achievable.

In uncertain times like these, it is crucial that sound risk management in an investment context is not confused with risk avoidance, which ultimately always results in return – and impact – avoidance. As an industry, we will need to better point out how additional capital will increase the amount of opportunity – and how it makes nature assets more resilient is a critical path for success. Explaining and providing evidence of this imperative will be more important than ever as public funding for nature is being cut and, as a result, extractive opportunists seeking to exploit natural areas will be circling to fill the void.

There is a major difference between what capital can do in the nature space and what needs to be done to have the sector grow sustainably over the next cycle. While the U.S. Government has suspended its funding for major nature-focused initiatives such as the Green Climate Fund or the LEAF Coalition and domestic catalysts such as USAID, nature abhors a vacuum, as Aristotle wisely put it. Other responsible states, cities, companies and individuals will step in to create new paths and win the opportunities. These players may come from new markets and geographies. And, whilst traditionalists may rue the new paradigm, it is urgently needed to close the funding gap for nature and climate.

When you have conviction, you should bet big on nature in 2025.

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Markets

Financial markets are classifying assets in asset classes. An asset class is a group of assets with similar exposure to the fundamental drivers of the economy.[i] "Nature" is, at least today, not an asset class. In our view, it rather constitutes a physical composite of the various asset classes in which one can invest through a nature lens.

From a traditional investment perspective, the achievement of consistent financial returns during a full investment cycle through asset diversification is our main portfolio concern.

At a global macro level, markets currently grapple with the implications of the United States retreating from one of the most pressing challenges – and opportunities – of our time: climate and nature-related financing. But this happens in a broader context, which includes: a growing climate and nature-finance market; international obligations; the continuously active role of U.S. states and pioneering U.S. corporates doubling down on their efforts; and stepped-up global philanthropic efforts catalyzing investments on both sides of the pond.

"Retreating from international climate and nature finance cooperation might work politically in the short term. However, we believe that such isolation will be economically untenable in the medium-to-long term."

In this chapter, we will explore the fundamental economic drivers we foresee in 2025, and how they might influence nature impact across key asset classes.

Equities

Against the backdrop of an ongoing bull market, equities have generally become expensive and vulnerable to some form of negative catalyst. That said, if rates continue to fall and no other macro political decisions dampen the rally, equity markets might have another year of strength.

How does this impact nature, if at all? Listed equities provide an abundance of potential investment opportunities for investors to generate positive impact on a global scale. Assets in funds with 'biodiversity' in their title reached $1.56 billion by the end of 2024, up by 10% versus 2023.[ii] Most biodiversity-themed funds had a positive performance last year but lagged mainstream indices.[iii] When it comes to the topic of nature, many investment strategies have only scratched the surface, though.

As we see it, quality equities products should focus on creating two ways of impact: i. *asset contribution* (i.e., creating a positive impact through the products and services an investee company provides) and ii. *investor contribution* (i.e. creating a positive impact by using engagement and voting to encourage an investee company to target desired social and environmental/nature outcomes).

"We look out for strategies that have defined a robust, nature-focused impact framework, which sets out clear thresholds for inclusion. From a top-down perspective, a sensible strategy assesses the materiality of corporate impact potential by mapping market sectors to the relevant nature challenges. This is ideally combined by a rigorous and systematic bottom-up assessment of nature impact at a stock level."

Based on the understanding what impact an enterprise can achieve on a specific nature challenge – either through its products and services and/or its operations –, the most impactful levers of engagement can then be defined. Equally, the value of corporate action can be measured and benchmarked. This is where most nature-focused equities products currently available in the market fail: they either don't focus on real materiality when it comes to engagement, or they tend to overfocus on the achievement of absolute change. While the latter is undoubtedly important, relative change of an investee company versus its competitor set in the context of a market reality is as well. But most importantly, we would like to understand as investors where an investee company is on its targets pathway (i.e., what is their absolute target ambition? What is the time period to the target date? And, importantly, what is the time value of the target already completed?). There are only a handful of strategies in the market today meeting these parameters.

In 2025, we will be exploring this quality approach with two proprietary, nature-focused transition strategies targeting the blue economy, and the topic of deforestation. In each case, the focus will lie on selecting corporate leaders driving the transition to natural resources efficiency by applying a rules-based framework using alternative data to identify impact materiality. The underlying investment rationale is that these companies will outperform competition in the long run as they reduce costs and identify new business opportunities quicker.

While we would hope to see more such fundamental, data-driven thematic strategies being launched in 2025, we believe this year will see a continuous growth of less complex, nature equities products with a 'light-touch' screening overlay. But we might be wrong with our timing: Blackrock very recently announced that they were already seeing a trend where asset prices adjusted to better reflect both the risks and opportunities linked to natural capital.[iv] If they back up this news announcement with publicly visible investor action, this might accelerate a paradigm shift of how equities are assessed and ultimately priced by markets more broadly.

Following major sell offs, impact stocks are trading at historical low valuations, with price-to-book ratios being below the 10-year average.[v] What is more, the explosive growth of passive investing has reshaped the stock market, generally favoring market cap-weighted strategies and the prolongation of investment trends overall.

The most impactful nature-focused equities strategies in the market, often including more innovative small caps, clearly do not belong to this category yet. One area where impact-driven nature strategies are challenged against passive strategies is on management fees. The former are typically expensive requiring additional diligence, active management and reporting versus the passive strategies which are comparatively cheaper by several factors.

Fixed Income

2024 was a volatile year for fixed income markets. 2025 will be an even trickier year. While the U.S. election outcome is known, actual policy implementation is still not clear. The US market is expected to witness some growth, driven by real growth and inflation. In Europe, we expect the bond environment to be less rosy. Emerging markets bonds will likely be facing headwinds and increased volatility under a Republican-led U.S. administration.

How do these macro developments impact funding for nature? Sovereign debt – with a volume of over $10 trillion globally in 2024 – is the single biggest asset class available to fund nature protection and restoration. On the capital markets side, one of the largest potential sources of financing to help achieve global climate and nature goals are debt-for-nature swaps.

In 2024, we have seen a number of institutional-size swap structures coming to market totaling almost $3 billion in transaction volume:

- El Salvador freed up USD 352 million in October 2024 to the conservation of the country's main river and its watershed. The transaction was financed by JP Morgan through a conversion of more than USD 1 billion of its outstanding notes, and backed with $1bn political risk insurance cover by the DFC and a USD 200m standby letter of credit from CAF.[vi]
- In November 2024, the Bahamas signed a $300 million 15-year loan with Standard Chartered as part of a marine conservation-focused debt conversion transaction developed with The Nature Conservancy (TNC) and the Inter-American Development Bank (IDB), which provided a $200m credit guarantee alongside a $70 million co-guarantee from impact investor Builders Vision and $30 million worth of credit insurance from reinsurer Axa XL. USD 120m has been unlocked for conservation.[vii]
- Barbados closed a second debt swap in December 2024, through a Sustainability-Linked Loan backed by $300 million in guarantees provided by the IDB and EIB. The proceeds were used to invest in a wastewater treatment plant and improving the provision of water for the island's agricultural sector. The transaction generated an estimated USD 125 million in fiscal savings for the country, and USD 165m was unlocked for water infrastructure and environmental protection.[viii]
- Also in December, Ecuador – with the support of The Nature Conservancy and Bank of America – announced its first debt conversion to support terrestrial and freshwater conservation. The swap refinanced circa $1.53 billion of international debt and thereby secured approximately $460 million to support the Amazon Biocorridor Program. US DFC provided political risk insurance of $1 billion and the IDB issued a $155m partial credit liquidity guarantee.[ix]

In 2025, we expect new debt swaps from countries such as Kenya and Madagascar. And at least five African countries are known to be working on what would be the world's first joint debt-for-nature swap (which we believe is not a preferable if at all feasible structure) to raise US$2 billion in funding to protect corals in the Indian Ocean.[x] We also await practice standards for sovereign debt conversions for nature and climate to be published in early 2025 by a coalition of leading non-governmental organizations in the space, creating a level playing field for this segment of the market.[xi]

While more than USD 100 billion of developing countries' debt could be freed up to spend on restoring nature and adapting to climate change through these swaps[xii], the structure is not without its own challenges. To start with, these swaps generally require complex negotiations between creditors and debtor nations, typically

involving multiple stakeholders and intricate financial structures. In the case of El Salvador, for example, the deal combined capital markets, banking, derivatives, project finance and international arbitration products tailored to the specific context.[xiii]

Such swaps are often also less attractive to creditors who prefer straightforward repayment or might have reservations about the long-term sustainability and governance of conservation projects. But most importantly, these transactions infringe – one way or another – on the sovereignty of the indebted country in that they create a reliance on external funding for a country's own conservation and restoration efforts.

In reality, the physical and social benefits and/or externalities of nature are most acute locally. Arguably, local actors should therefore pay directly for these goods and services across both developed and developing states.

From an investor perspective, the key question remains whether these often complex and time-consuming transactions bring any comparatively higher benefits to investors and funding recipients, both financially and impact-wise? Some research has found that previous swap deals have not made any improvement to sovereign credit ratings.[xiv] A topic that is also often overlooked is the longer-term impact of such transactions on the characteristics and fragilities of the debtor countries' debt stocks.

And interestingly enough, while the overall transaction volume has increased over time, the related transaction costs have disproportionately increased over the same period.[xv] Which would suggest that it some cases, the project sponsors might be better off directly funding the conservation projects instead of doing it through a complex debt buyback. And repeatedly, we have seen concerns on the quality of the environmental benefits brought about through these swaps, most recently in the case of the El Salvador transaction.[xvi]

While the swap structure is not a panacea, it holds the potential to unlock significant debt funding for priority nature projects if applied in the right context: from a financial perspective in situations where fiscal risks are high and climate adaptation is efficient.[xvii] From an impact perspective in contexts where the targeted conservation or restoration efforts enjoy the support of the local ecosystem; and where the nature funding allocation unlocked by the swap is higher than any other form of funding to that same cause.

Beyond the debt-for-nature swaps, we expect more plain vanilla and less complex KPI-linked structuring coming to market in 2025. Nature is in a strong position to strengthen a sovereign's fiscal position – directly through the mechanics of performance-based instruments and indirectly via the positive macroeconomic effects on key sovereign drivers.[xviii]

We have seen various projects in the pipeline and Posaidon have been involved in the structuring of deals in Brazil, the Eastern Tropical Pacific, Egypt and Senegal. There is active talk on an international policy level to lower the cost of capital for emerging markets to provide immediate debt relief, persuade private and public creditors to engage by using performance-based instruments tied to verifiable results, and achieve SDGs linked to nature.

And with the deal count and individual transaction sizes reaching a critical mass to ensure UCITS-compliant diversification, it will only be a question of time until more nature bond funds hit the market. Goldman Sachs made a start with the launch of a Lux-domiciled biodiversity bond fund investing in labelled and unlabelled bonds.[xix] (note: Fidelity also launched a Lux-based bond fund in October last year, with a narrower focus on blue-labelled bonds.).

Existing macroeconomic (e.g. low interest rates) and fixed income market dynamics (e.g. creditworthiness, debt maturities, liabilities) are ideally suited in the short term to mobilize much needed nature funding.

"Fixed income resolves many nature project challenges arising with high short-term CAPEX costs (e.g. transition to new machinery, staff, operating infrastructure) and lost short term earnings (e.g. payments for ecosystem services), which can be recovered in the medium term via more robust, less volatile operating performance."

Private Markets

2024 was one of the most challenging fundraising cycles for private markets this century. In fact, many entrepreneurs turned to the public markets when private fundraising wasn't forthcoming. Whether improved investor sentiment post the U.S. election will translate into heightened deal activity in 2025 remains to be seen.

Among the nature sub-markets, agrifood and forestry had a solid 2024, with USD 8.4 billion raised during the calendar year – a USD 1.3bn decline vs. 2023 but sitting comfortably within the preceding five-year period average.[xx] Last year brough significant fund closes (e.g. BTG Pactual TIG II with $1.24bn; Manulife Investment Management with $480m close, Climate Asset Management with final close in excess of $1bn), with some nascent nature strategies coming to market late in the year. And 2025 was off to a good start, with multiple fund launches or closes by Mirova[xxi] (target of EUR 350m by end of 2025), BNP Paribas Asset Management (final close at EUR 172m)[xxii] or SWEN Capital Partners (target of EUR 300m)[xxiii].

There is a hope that 2025 will bring a surge of M&A and IPO activity, facilitating distributions for LPs.[xxiv] But with a two-year backlog, the exit environment is highly congested, putting downward pressure on valuations and deal volume. Cash-strapped investors are showing a clear preference for lower risk, shorter-term and more liquid strategies within private markets. Nature funds have been caught in this downdraft.

In the U.S., expected pro-cyclical tax cuts and deregulation are likely to strengthen the economy. But what does that mean for nature? Deregulation in the US could lead to an increase in M&A, which would likely benefit buyout funds and private markets overall. But generally, the market has suffered from relatively high fixed expenses due to an overbuild and revenue volatility, with a number of companies now having trouble meeting near-term financial commitments – in particular in the NbS carbon space.[xxv]

"We see an opportunity coming up for investing in distressed nature assets that offer considerable carbon and biodiversity potential. A particular focus may be put on providing equity and securitized project finance into post-validation distressed projects targeting carbon removal credits."

With some larger investors, we expect them buying stakes in the general partnerships to get closer to the business of fund management. This can help smaller nature fund managers overcome a daunting set of challenges. For these fund managers struggling to raise capital in a tough environment, the sale of a portion of their operating business presents both opportunities and risks, though. We have seen examples of venture investors triggering short-term liquidity rights effectively collapsing project developers.

We further expect some fund managers to undergo a reality check on financial returns to be achieved through NbS investments. In particular in the nature adaptation space, underlying investments simply rarely have an immediate revenue stream that would align with an IRR target of 20+% within a 7-10 year timeframe.

Separately, direct lending or project finance strategies in the nature space, in particular if securitized by land assets, might offer superior returns at a time where public market spreads are tight. If inflation cannot be controlled enough, investments in nature-based real assets could be used as an inflation hedge. In that context, a consortium of French investors (BNP Paribas Cardif, PBCE Assurances, Caisse des Dépôts, CNP Assurances and Société Générale) is understood to award capital for a strategy focused on private assets and real assets. The call for proposals is expected for the first quarter of 2025, with a target investment volume of EUR 100m.

From our perspective, we see a tremendous pipeline of direct nature investment opportunities across Africa, Europe and Latin America, with companies mostly at Series A or Series B stage that are ready to scale up, professionalize, and be more ambitious in their nature impact goals.

Nature Credit Markets / Commodities

Nature credit markets have emerged across the global economy. Within these, carbon credits (or "offsets" or "contributions") remain the most important tool to mobilise capital towards adapting to and mitigating climate change. Notwithstanding the above, the concept of "creditization" has in recent years expanded to include other areas, such as water, soil health, and most notably biodiversity.

Carbon markets saw continuous growth in the last year, with the size of global carbon markets (compliance and voluntary) estimated at more than $1 trillion.[xxvi] Existing compliance carbon markets are centered on the EU. At present, the EU Emissions Trading System (ETS) accounts for around 90% of regulated trade.

Voluntary carbon markets (VCM) – which allow businesses to voluntarily purchase carbon offsets for their own emissions – are at an earlier stage of their evolution with around $1.5 billion value in 2024.[xxvii] Companies are generally buying voluntary carbon credits as a residual piece of their corporate net-zero strategy, with the most active buyers in the market being the energy, shipping and transportation, consumer goods, and finance and insurance sectors. Stable demand for voluntary carbon credits is in 2025 and beyond expected to continuously come from sectors that face challenges in quickly cutting emissions since a large share of their emissions come from either an infrastructure or technological base which they cannot quickly upgrade, or from parts of their supply chain or portfolio they have less influence over than direct operations.

Importantly, we believe that VCM offer a transitional strategy for these companies to become carbon neutral quickly enough to help avert climatic tipping points while working to fully decarbonize in the medium to long term. Depending on different price scenarios, the market value of VCM in 2030 is estimated to be between USD 30-50 billion, with natural climate solutions (NCS) accounting for 65-85% of total supply potential. Three factors are expected to unlock material growth in the voluntary purchase of nature-based carbon credits:

1. International climate change negotiations have facilitated a rule book for global trading of sovereign carbon credits (i.e. agreement at UNFCC level on so-called Article 6 trades) in the spirit of "voluntary cooperation";

2. Growing realization by sovereigns and institutional investors that NCS are the most efficient tool to adapting to and mitigating climate change by 2030 and potentially beyond;

3. 45% of global Fortune 500 have publicly disclosed net-zero commitments by 2050 to markets and shareholders.[xxviii] VCM offer a mechanism to achieve net zero on a cost-efficient basis and ahead of schedule which continues to drive large scale demand.

As a result, the existing bifurcation of compliance and voluntary markets has been set on a path to convergence. Through making possible the voluntary purchase of what is in effect a compliance grade asset that tackles climate change, we believe that voluntary carbon which complies with the Paris Climate Agreement will encourage a wider range of market participants to finance and offtake such credits to reach net-zero targets. Alongside this, there are a growing number of mandatory carbon pricing schemes allowing, or signaling they might allow (e.g. EU ETS), the use of VCM credits as a compliance route. Most notably participants in CORSIA, the carbon offsetting and reduction scheme for international aviation, are expected to retire nearly 200 million tons CO_2 from the voluntary market in 2025 alone, which would be 36% more than all VCM retirements in total in 2024.

Nature-based carbon: a flight to quality

As the market has matured, market actors have become more focused on their own preferences by defining integrity and distinguishing credit attributes (e.g. social co-benefits; reductions vs. removals, nature-based vs. technological). The Integrity Council of the Voluntary Carbon Market's (ICVCM) first Core Carbon Principles approvals for standards and methodologies have established a minimum threshold for carbon credit quality.

To meet the significant increase in demand for carbon credits by 2030 and beyond, supply can principally come from four categories: 1. *Avoided nature loss* (including avoided deforestation/REDD+/mangrove protection); 2. *Nature-based sequestration* (such as reforestation); 3. *Avoidance or reduction of emissions such as methane* from landfills; and 4. *technology-based removal* of carbon dioxide from the atmosphere.[xxix]

The growth in the market in 2024 was felt most acutely in demand for nature-based projects, primarily nature-based sequestration. Credit prices stabilized after a turbulent year; removal-based credits commanded a premium.[xxx] While terrestrial nature-based carbon has already been established, credits from marine and coastal activity (blue carbon) are on the rise. Comprising still less than one percent of overall VCM transactions per year, blue carbon credits fetch significantly higher prices per credit.[xxxi] The broader blue carbon market has an estimated market potential of > USD 190bn per annum.

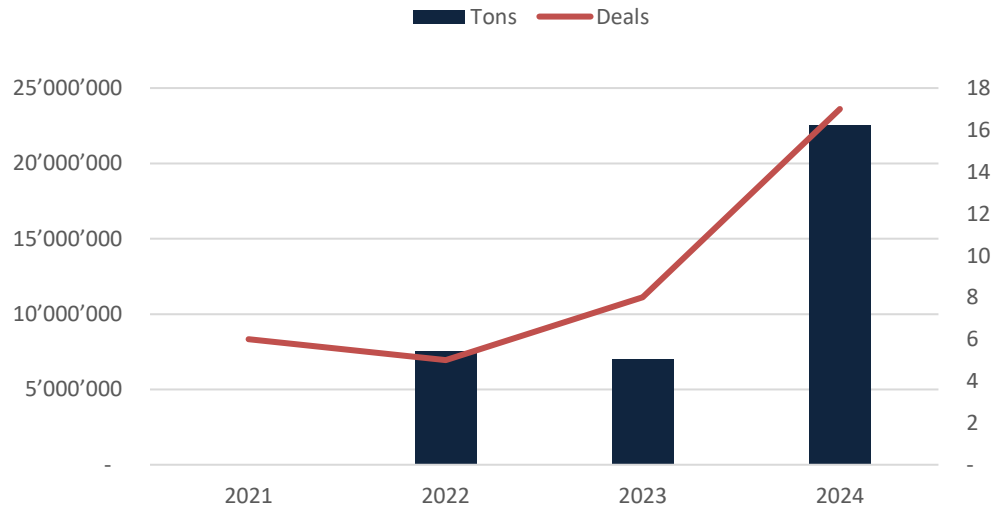

FIGURE 1
NbS carbon offtake Agreements 2021-2024. Source: AlliedOffsets "VCM 2024 Review.

Despite some market turbulences, long-term offtake agreements for nature-based carbon credits have hit a new record in 2024.[xxxii] New purchase commitments from companies like Shopify and Microsoft highlight the corporate sector's growing interest in higher-quality – and higher-priced – credits in the nature-based removal, or CDR, corner of the voluntary market. And Google alone spent over $100m on carbon removals in 2024, with an expectation to scale up such funding in 2025.[xxxiii]

Removal projects still account for less than 5% of credits in the voluntary carbon market, though. The rest comes from carbon avoidance projects in renewable energy, forest management and nature conservation – many of which have struggled with credibility and transparency and low prices in 2024. At the current level of pricing, many of the latter projects will struggle to meet their cost base on an ongoing basis.

"Where will the paradigm shift be coming from when it comes to pricing which is commensurate with the value these nature assets provide and the OPEX required to sustain them? And will this shift be market-driven or project-driven?"

An analysis of retirements and credit prices against BeZero Carbon ratings in 2024 has indicated that buyers have a preference for higher quality credits which continues to grow stronger, with the average price premium for each additional rating on rating scale reaching as much as 40%.[xxxiv]

While efforts have been made by the ICVCM, UNDP, the World Bank and others to operationalize "high quality" or "high integrity" credits in the VCM, it often remains a buzzword in an industry seeking to get ahead of regulation. That said, we noticed in 2024 that most Tier 1 buyers of nature-based credits started requiring two additional labels or certifications as mandatory prerequisites to purchase nature-based carbon: (i) a Letter of Authorisation (LoA) and (ii) a credit rating of at least BBB+ by a leading carbon credits rating agency.[xxxv] We foresee nature-based projects that are Article 6 compliant and eligible for Corresponding Adjustments through an LoA will see massive demand in 2025 and beyond. To provide a reality check, at this stage only 12 projects have formally met these hurdles but many more have signalled their interest in participating in the Paris Agreement Crediting Mechanism.[xxxvi] Pricing-wise, though, such credits with government authorisation for international trade can command a price premium of up to 80%.[xxxvii]

How do we get to a critical scale of nature-based projects meeting these quality criteria? From a supply perspective, developers need to be acutely aware of what is happening in their local and national ecosystem. The priority for them is to understand the ever-changing landscape they operate in, the communities they interact with and the path to integration in a national or jurisdictional carbon program. The latter requires proactive engagement with relevant government ministries in host countries where knowledge of market demand requirements is often not existing yet. Through our project development work at Posaidon Climate Venture Partners[xxxviii], we have observed first hand the importance of regular interaction with key political and community stakeholders on-site.

In terms of sustained market growth, we see a key challenge to scale in the creation of "market silos" (e.g. different applications for different carbon project types under different standards). With Verra's continued backlog of project verifications and validations, the selection of a reliable certification standard with predictable issuance delivery has become a more important choice than ever.

From a demand side, small ticket sizes required to get projects through to validation remain an issue. More intermediaries (or risk takers) are needed to act as an aggregator of smaller projects to appeal to the still homogenous group of large-scale buyers. When it comes to financial models, it will remain important not to be too creative – buyers have responded to structures they are familiar with (e.g. pre-payment against delivery of milestones).

What clearly excites us in 2025 is the increasing integration of the VCM's carrot-based financing infrastructure into compliance systems. The real value of the VCM over the past few years has been as a testing ground or a sandbox environment for building high-quality compliance markets. The evolution of standards, registry platforms, and quality assurance can now be proving its worth in a mandatory context.

Biodiversity credits: an unclear business case

Beyond the carbon markets, biodiversity crediting schemes promise to have an equally sizeable potential for increasing nature-positive investment. Under different scenarios, global demand for biodiversity credits is estimated to be US$1-2 billion in 2030 and US$6-69 billion by 2050.[xxxix]

The market for biodiversity credits is still in an early stage of development. Many of the foundations of an effective market are still missing, expect for some countries that have established national biodiversity crediting schemes (e.g. Australia, Colombia). While the economic benefit – or rationale – is clear for buyers within a regulatory framework, further work is needed on the voluntary demand side. And might arguably never achieve the same appeal as voluntary carbon compensation or contribution in the absence of a defined demand driver, e.g. a corporate net zero equivalent.

While voluntary biodiversity markets are growing, integrity measures are maturing, and early transactions have been executed, they lack significantly behind the voluntary carbon markets.[xl] In 2024, the voluntary market stood at an estimated US$5.82m globally.[xli] Right now, we see a massive over-supply in the biodiversity credit market. A clear economic case for the voluntary acquisition of biodiversity credits has yet to be made. France and Finland might act as a good test ground for whether a government-induced creation of a voluntary biodiversity credit market has some legs to stand on.[xlii]

"We hold the view that biodiversity markets may work in some case but will not work in others. Or only in specific nature contexts where carbon is not an option."

We also continue to witness investors maximizing the carbon part first in their projects. In the absence of any compelling economic benefit for biodiversity protection, investors may then even prefer the sustainable processing of commodities to the protection of biodiversity. For one, commodity pricing is much clearer and familiar to investors.

However, stronger biodiversity-related markets are needed to help drive significantly more financing towards nature. As we see it, the creation of country-level biodiversity compliance markets will have the greatest chance to contribute such funding at scale in the year ahead.

Compliance markets offer several benefits over a voluntary auction system. They secure long-term buyer commitments through fixed price, forward offtake agreements. They integrate clear price transparency and benchmarking. And they provide less volatile annuity income to project developers over the long-term. The EU, for example, has tabled a compliance market for nature credits on various occasions, including recently by its President von Der Leyen.[xliii]

From our perspective the currently most interesting case in point is the Biodiversity Net Gain (BNG) regulation in the United Kingdom. Developers in the UK, as of February 2024, must deliver a 10% uplift of natural habitat versus what there was before development. They can achieve BNG through creating biodiversity on-site, a mixture of on-site and off-site or the purchase of statutory biodiversity credits from the government.

We have set out to exploit this new market through a joint venture – Connected Habitat – as we believe there is an arbitrage opportunity in markets such as BNG where significant upfront payments allow for efficient, relatively low-cost nature interventions that can be amortized over a longer time frame.

Under the global biodiversity framework, wealthy nations were supposed to come up with USD 20 billion of annual funding by 2025 – less than US$200m has materialized so far. There is no path to an environmental transition without tangible money on the table.

Deep pockets with no direction

Where is the money?

In 2024, global capital allocators used a range of excuses for overwhelmingly investing in asset managers in London, New York and Singapore – and not in Belém, Lusaka, or Hanoi. Even for capital targeted at nature opportunities in emerging markets. While these large, incumbent fund managers are necessary, they are not sufficient to turn the tide in terms of deploying capital to nature assets in places where conservation and restoration matters most. Why? Because often, geographies rated as higher risk investment landscapes hold irrecoverable natural assets too valuable to lose or fail.

Emerging, if unproven, asset managers and project developers with a presence in underdeveloped markets will be essential for identifying quality nature projects, while supporting local communities and local finance institutions in creating an investment pipeline to scale up financing for the one planet we have.

Why? Local capital providers are consciously and with conviction building the market at the early stage. They are in a prime position to find these profit models that sync with functioning and well accepted impact models on the ground. If we don't invest in them, we are not going to have the building blocks required to get to later-stage investments and beyond. They can also be more experienced and accurate in pricing risk scenarios.

Simultaneously, we are witnessing a silent paradigm shift in alternative financial information: the use of geospatial insight informing investment decisions. NatureTech has already brought big data to biodiversity monitoring (see illustration below): we see cheap and effective imaging, ecoacoustics and eDNA, earth observation, and predictive analysis. Artificial intelligence can also help prioritize conservation and restoration areas (e.g. through the CAPTAIN program released under a Creative Commons license [xliv].)

FIGURE 2

Ecosystem of leading NatureTech start-ups. Source: Posaidon Capital; adapted from Adrian Dellecker

As investors, we are prone to overestimate the effects of using such technologies in the short run but equally underestimate their effects in the long run. While we are excited about AI's potential for reducing the cost of nature-related measurement, reporting and validation ex-post when making investments, we believe that its use case, if used responsibly, is much more impactful going forward to better define investment strategies ex-ante.

How to do that? Complex contexts – such as nature – are the domain of emergence where there are no absolute best practices or right answers. We can observe the land and seas, intervene with experiments and projects, and try to make sense of what emerges. But we may never fully understand them or predict their behavior with the highest degree of certainty. Improving the understanding and unlocking change in such a complex adaptive system requires a shift in the paradigms that sit at the core of our innovation models.

If we are to unlock a rapid and unprecedented nature transformation, we need to shift the paradigm from today's single-point solutions to directional systems innovation, which can deliver transformative action that in turn will help implement connected and system-wide solutions. The quest for understanding *how* starts with mapping the system we want to change. This means in the nature finance industry identifying and characterizing the nodes and relationships with and within the nature system as well as its behaviors and dynamics across different spatial and temporal scales.

We know from both theory and practice that system transformation happens along gradient pathways. However, certain interventions in a system have greater potential than others to cause the system to change. To achieve our nature targets (e.g. UN SDGs 14 and 15), we need to identify in a first step these levers, understand their interplay and, based on these findings, develop a dynamic learning systems modelling framework that allows us to compute the direct effort required to achieve the overall target, each of the sub-targets and the network effects that reinforce, or hinder, progress over time. This network effect is fundamental as rarely does a single intervention approach lead to the desired outcome. This systemic understanding of relationships not only allows for a greater return on management investment. It also indicates where our nature impact targets conflict with other targets, which informs important decisions regarding inevitable trade-offs and the prioritization of subsequent investment decisions in a time-constrained environment.

Without adequate investments, the conservation and restoration of nature remains mere conversation. We believe in the huge potential of a novel approach in our industry – spatial finance –, which combines the best of geospatial analytics (e.g., cross-impact/network analysis, system dynamics modelling, and analysis of earth observation data) and finance (e.g., modern portfolio construction considering the financial risk-return-impact frontier) to create new value signals and risk mitigants. The ultimate aim is to inform wiser, science-based choices about where and when to invest in nature by addressing the key leverage points. From our perspective, the guiding question needs to be: where could comparatively small investments trigger a larger positive change in the nature system that becomes irreversible, and where do non-linear feedback effects act as amplifiers?

Nature-related data has been improving and will continue to progress as nature disclosures become more mainstream. However, lack of transparency and access to the primary data is what makes current AI solutions or large nature ESG datasets still challenging for investors to use in a consistent way. We have seen many data providers apply algorithmic assumptions with beyond acceptable deviation spreads relative to the primary data points. Is there too much focus on building breadth of coverage, even if erroneous, rather than quality and accurate materiality analytics?

We hold the opinion that many investors do the market a disservice by thinking extensively about the target outcome only. We cannot control the outcome but we can control the decision process. Improving decision quality is about increasing our chances of good outcomes, not guaranteeing them.

"Integrating geospatial analysis into financial decision-making will over time have material implications for information markets, new financial products (creation of investment alpha) and long-term risk management (reduction of beta risk). A significantly more precise, science and data-based valuation of natural capital is essential if the capital and investment markets are to be effective in helping to bend the curve on biodiversity loss."

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