

OCTOBER 2024

Through the Wilderness

The Role of Insurance in
Unlocking Nature Finance

HOWDEN



Authors

Pollination:



Valerie Pinkerton, Director



Sage Bucher-Melcer, Associate Director

Howden:



Daniel Fairweather, Divisional Director – Food Security Systems and Biodiversity



Charlie Pool, Head of Carbon Insurance

Contributors

Pollination:

Megan Flynn, Managing Director, Global Head of Advisory

Erin Gianferrara, Director

Dr. Carter Ingram, Managing Director

Annick Paradis, Executive Director

Patrick Suckling, Managing Director, Head of EMEA & Head of Asia

Geoff Summerhayes, Chair Senior Advisor Group

Howden:

Glenn O'Halloran, Executive Director, Climate Risk & Resilience

Rowan Douglas, CEO, Climate Risk & Resilience

Anthony Hoble, Deputy Chair, Climate Risk & Resilience

Isabelle Cadignan, Chief Commercial Officer, Climate Risk & Resilience

Paula Pagniez, Executive Director, Climate Risk & Resilience

About Pollination

Pollination is a specialist climate and nature solutions firm, dedicated to accelerating the shift to a net zero, nature positive and resilient future. Launched in 2019, the organisation has a presence in 13 countries across The Americas, EMEA and Asia Pacific. It works with financial institutions, companies and governments to implement ambitious transition strategies.

Its team are world leaders in diverse disciplines, including finance, investment, corporate governance and strategy, technology, law and policy. This diversity enables Pollination to connect dots to unlock new sustainable solutions.

For more information, please visit:
www.pollinationgroup.com

About Howden

Howden is a leading global insurance group with employee ownership at its heart. Founded in 1994, it provides insurance broking, reinsurance broking and underwriting services and solutions to clients ranging from individuals to the largest multinational companies.

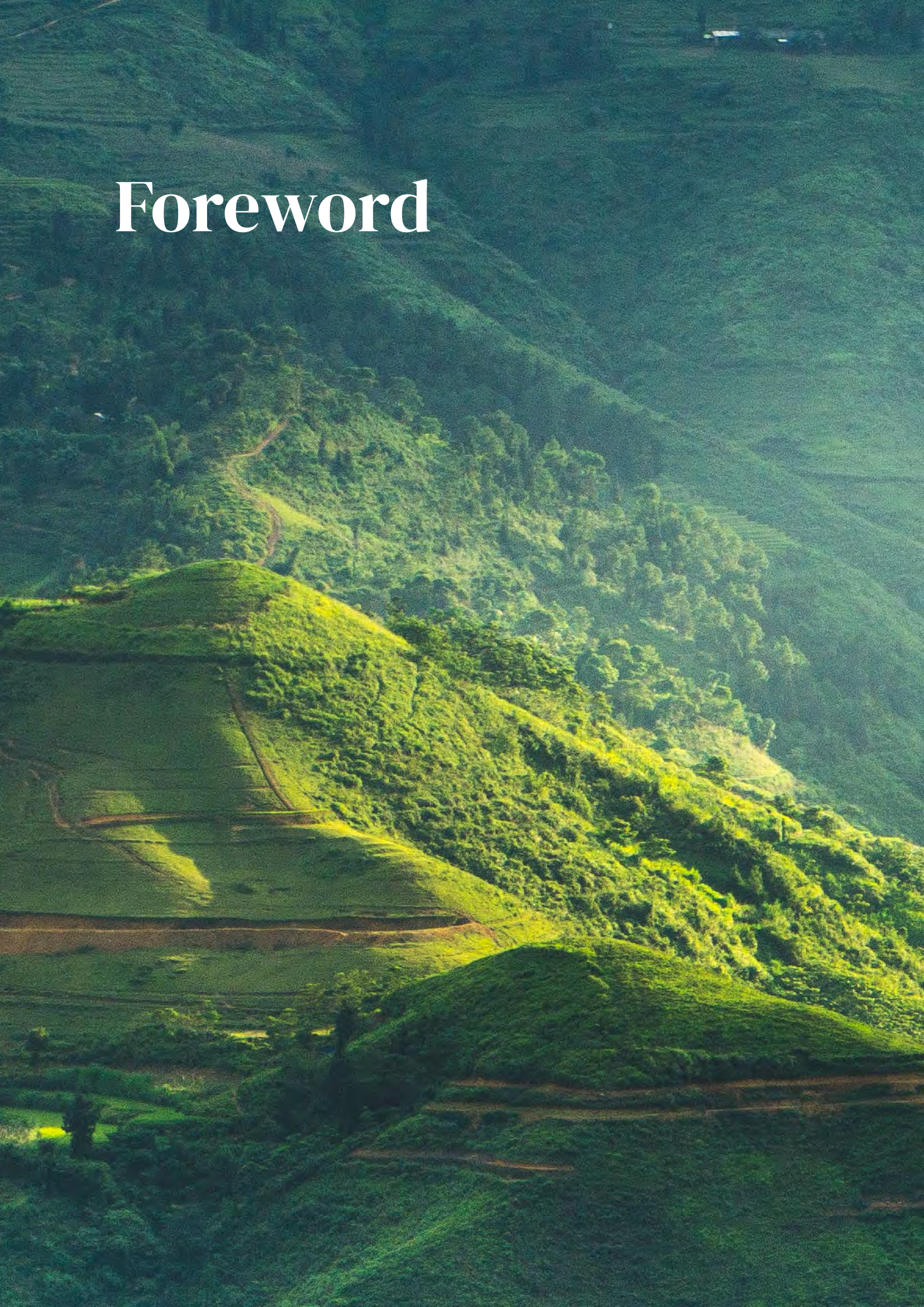
The group operates in 55 countries across Europe, Africa, Asia, the Middle East, Latin America, the USA, Australia and New Zealand, employing 18,000 people and handling \$38bn of premium on behalf of clients.

For more information, please visit:
www.howdengroup.com

Contents

4	Foreword
6	Executive Summary
8	Introduction
12	The current state of Nature Finance
16	The nexus between Insurance and Nature Finance
20	Current state of Insurance and Nature Finance
28	Recommendations and next steps
32	Conclusion and call to action
34	References

Foreword





Megan Flynn

Managing Director,
Global Head of Advisory
Pollination

We face existential, global challenges in the dual climate and biodiversity crises. Success in this decisive decade hinges in our ability to reverse financial flows from activities that degrade nature towards a new, nature positive economy.

While many of the solutions we need are available, they must be amplified. Private investment still lags public and philanthropic funding for nature, in part owing to high perceived risks in the context of uncertain revenue streams in nascent markets.

Mobilising capital towards the restoration and protection of nature at pace and scale will depend upon overcoming these barriers to investment. The insurance sector has a key role to play in delivering the risk transfer solutions needed to help unlock nature transactions. Indeed, the sector is poised to underpin and enhance the integrity of growing environmental markets – enabling transactions which protect natural carbon stores, deliver biodiversity uplift, enhance community resilience, and revive our landscapes.

I welcome the report's call to action for corporates and financial institutions to partner with the insurance sector to deliver the solutions we need for nature. Through catalytic collaboration, we can secure the ecosystem services our economies and communities depend upon and ensure a resilient future.



Rowan Douglas

CEO,
Climate Risk & Resilience
Howden

We need a Romantic Period of Finance to harmonise progress and our dependencies on nature.

I write this in Edinburgh – capital of Scotland – which shaped the modern world and inspires 'Romantic Finance'. Adam Smith's Invisible Hand was nourished by the Scottish Enlightenment, driven by the newfound powers of reason and science and local visionaries including Joseph Black who discovered the carbon dioxide molecule that has risen to become the defining challenge of our age.

This cultural richness, combined with a natural abundance of minerals and water, made Scotland a hearth of the first carbon based Industrial Revolution with coal and second, oil and gas.

But there was a countermovement. Romanticism was driven by a need to bring human consciousness and development into harmony with nature. Scotland's landscapes, described in poetry and widely illustrated, provide this vivid counterpoint.

The Invisible Hand must now be retrained to account for our dependencies on nature. Financial systems are being reconnected to nature through science, data, and modelling. Attention is focusing on how to integrate nature risks and assets into financial management, regulation and accounting.

Insurance has a significant role in creating value and mobilising finance towards the natural capital we must protect. This report creates a path for insurance to help evaluate ecosystem risks and create the governance systems to reduce, manage and share risks, to both protect natural assets and mobilise public and private capital to align with nature.

Executive summary

A photograph of a desert canyon with a winding river, used as a background for the executive summary title. The canyon walls are eroded and layered, with a river flowing through the center. The lighting is warm, suggesting late afternoon or early morning.

The insurance sector has a critical role to play in unlocking finance for nature at pace and scale. The industry can maximise its impact by delivering risk transfer solutions across a range of emerging opportunity areas for nature finance, including environmental markets. To enable investment in nature, the sector can play four core roles: (i) risk transfer to mobilise capital; (ii) protecting natural assets; (iii) enabling trading in environmental markets; and (iv) governance.

Emerging experience in adapting and designing new products for regenerative agriculture, coastal, and forest systems demonstrate nascent but

growing capacity across the sector. The industry has a significant opportunity to scale and adapt existing products, as well as deliver new solutions, to drive a step change in nature finance.

The sector can best drive this agenda forward in partnership with public and private actors, delivering a set of priority interventions to reduce barriers to investment into nature.

Four Key Roles for the Insurance Sector to Unlock Finance for Nature:

Risk transfer to mobilise capital

- Adapt crop insurance solutions for transition finance for regenerative agriculture
- Scale use of existing insurance products for nature-based debt instruments

Protecting natural assets

- Scale use of parametric products
- Incentivise habitat restoration through resilience insurance

Enabling trading in environmental markets

- Expand insurance coverage for carbon markets
- Adapt offerings for other environmental markets

Governance

- Investigate where traditional insurance incentivises nature and biodiversity loss

Especially when engaged early by corporate or financial partners in investments in nature projects, the insurance sector can support deal structuring and help unlock the capital needed to address the interdependent biodiversity and climate crises.

Introduction



We are in a decisive decade for the future of our climate and nature. Delivering on global nature positive and net zero ambitions will require significant acceleration of private sector capital flows towards activities that benefit nature. The insurance sector can make a major contribution to helping unlock and scale the financial flows that are critically needed to mitigate and adapt to climate change and conserve and restore nature.

By helping to proactively manage risks arising over the course of the investment life cycle, the insurance sector can drive a step change in the investments needed to tackle the interdependent global climate change and biodiversity crises.

Recent trends have drawn significant attention to the need for investment to halt global biodiversity loss and protect nature:

1.

Greater awareness of the scale and speed of the deterioration of nature and nature's positive contribution to people;

1 million

species already facing extinction, with the global rate of species extinction at least tens to hundreds of times higher than the average over the past 10 million years¹

2.

A clearer understanding of the major role of nature in supporting climate change mitigation and adaptation;²

1/3

of cost-effective mitigation needed to stabilise warming to below 2°C can be provided by natural climate solutions (NCS)³

\$65 billion

in flood protection provided by mangroves annually⁴

3.

Growing recognition of the global economy's impacts and dependencies on nature;

\$44 trillion

of economic value generation moderately or highly dependent on nature⁵

Introduction

However, financing for nature will still need to triple by 2030 (Table 1). Nearly \$7 trillion in annual finance is directed towards activities which drive negative impacts on nature. This overwhelms the \$200 billion invested each year in Nature-based Solutions (NbS) that protect and restore nature.¹ Achieving global targets for limiting global warming, halting biodiversity loss, and achieving land degradation neutrality by 2030 will require reversing these trends and significantly accelerating capital flow towards NbS.²

Table 1.

Annual Investment in NbS needed to reach the Rio Targets on Biodiversity, Climate Change and Desertification.³

2025	\$436 billion
2030	\$542 billion
2050	\$737 billion

Nature further plays an integral role in building resilience to natural catastrophes but is underleveraged. In 2023, natural catastrophes caused \$280 billion in economic losses globally⁴ and were highlighted by WEF as the top ranked risk over the next decade.⁵ Nature presents a critical opportunity to reduce the impacts of climate change: 71% of studies assessed in a recent global review indicated that NbS presented a cost-effective solution for disaster risk reduction and climate change adaptation.⁶

Several industry-led frameworks and regulations are providing guidance and momentum that will support the needed shift in financing away from activities that degrade nature.

A few of these include:

Key frameworks



SCIENCE BASED TARGETS NETWORK
GLOBAL COMMONS ALLIANCE

Spotlight on evolving EU Regulations



- EU Corporate Sustainability Reporting Directive (CSRD)
- EU Corporate Sustainability Due Diligence Directive (CSDDD)
- EU Deforestation Regulation (EUDR)
- Nature Restoration Law

In addition to redirecting significant amounts of capital away from activities that degrade nature, opportunities are increasingly emerging to directly invest in projects or activities that support nature conservation and restoration; however, much more capital must flow towards nature to meet the targets of the Kunming-Montreal Global Biodiversity Framework.

For example, most funding into NbS (82% or \$165 billion) still comes from governments and public funding represents most of the 11% increase in total funding for NbS from 2021 to 2022. In contrast, private finance into NbS only totalled \$35 billion (18% of total finance flows) in 2022. The fastest growth came from philanthropy and private finance mobilised through overseas development assistance.⁷

The insurance sector can play a catalytic and significant role in accelerating this urgently needed investment in nature. However, a critical element to unlocking capital at pace and scale will be overcoming key challenges to the incorporation of nature into insurance solutions.



An aerial photograph of a rugged coastline. The land is characterized by vibrant orange and red sandstone cliffs and a wide, sandy beach. The beach is scattered with numerous dark, jagged rocks. The ocean is a deep turquoise color, with white foam from the waves washing onto the shore. The overall scene is a stark and beautiful natural landscape.

The current state of Nature Finance

Nature markets trade an estimated \$9.8 trillion worth of goods or services annually, with over 40% of this value being derived from agricultural products.⁸ Developments are helping to better incorporate the value that nature provides to our global economic, financial, and social systems

– including new standards and methodologies to support nature markets, frameworks to evaluate and disclose nature impacts and dependencies, and natural capital accounting methods – where the insurance sector can accelerate transformation.

Table 2.
Taskforce on Nature Markets – Nature Markets Taxonomy⁹

Type	Description	Examples
Asset Markets	Trading the right to use ecosystem assets	Agricultural land, timberland, water rights
Intrinsic Markets	Trading ecosystem services	Use of provisioning services for products – like commodities – paying for access to cultural services as in wildlife tourism, or benefiting from regulating services resulting from conservation in payment for ecosystem services structures
Credit Markets	Trading credits reflecting efforts to enhance or conserve ecosystem assets or services	Nature-based carbon credits, voluntary biodiversity credits, water quality credits
Derivative Markets	Financial products which directly reflect ecosystem values or risks	Commodity derivatives, water futures

Key Trends and Emerging Opportunities for Insurance

The insurance sector can maximise its impact on nature finance by focusing on priority sectors. For example, the global food system is the primary driver of biodiversity loss, owing to habitat destruction for crop production and pasture¹⁰, but would also benefit significantly from the restoration of nature. Yet a financing gap of \$200 billion to \$450 billion remains to support widespread adoption of regenerative practices over the next decade.¹¹ Unlocking landscape-scale investment to support the transition to regenerative agriculture can deliver financial benefits and support nature.

New opportunities will also continue to emerge in environmental markets – where the insurance sector can support high-integrity market

development. For example, the carbon credit insurance market could grow to an estimated \$1 billion by 2030 and \$10–\$30 billion by 2050.¹² While the Voluntary Carbon Market (VCM) contracted in 2023, following negative media scrutiny of REDD+ projects in particular, analysis from Ecosystem Marketplace demonstrated strong preferences amongst buyers for high-integrity removals projects with ‘beyond-carbon’ social and nature co-benefits.¹³ Nature-based carbon credits still realised a 91% price premium over credits from engineered project types in 2023.¹⁴ VCM transactions from projects with co-benefit certifications also increased by 6% between 2022 and 2023, highlighting potential convergence of demand for biodiversity and other positive nature outcomes to be integrated into carbon credits. Carbon dioxide removals companies further represented \$271 million of the \$377 million raised by the VCM between May 1 and the end of August

The current state of Nature Finance

this year.¹⁵ While biodiversity credit markets are more nascent, WEF estimated the size of the market to total \$8 billion per year in 2023, with the potential to grow 100-fold in the next 10 years.¹⁶

Thematic biodiversity funds are also growing, with total AUM in funds or strategies with biodiversity in their title growing over 200% in 2022 to \$984 million. Across fixed income, labelled bonds with biodiversity-related uses of proceeds grew by 54% in 2022.¹⁷ The growth in the bond market represents an opportunity for innovative insurance products to underwrite nature risks, with the potential to enhance the credit ratings of bonds and reduce overall transaction costs.

Insurance is also well placed to leverage its unique risk expertise to share insights and help scale investment into green infrastructure, catalysing adaptation solutions which deliver biodiversity and resilience benefits. For example, the U.S. Coral

Reef Task Force (USCRTF) recently approved a resolution recognising coral reefs as natural infrastructure and expanded opportunities to use U.S. federal funding for their restoration.¹⁸

An estimated \$94 billion will be spent on infrastructure over the next two decades. De-risking investment in NbS can help reallocate capital away from grey, built approaches to deliver resilient, nature-based infrastructure that is fit for purpose in a changing climate.¹⁹

Barriers to Private Investment in Nature

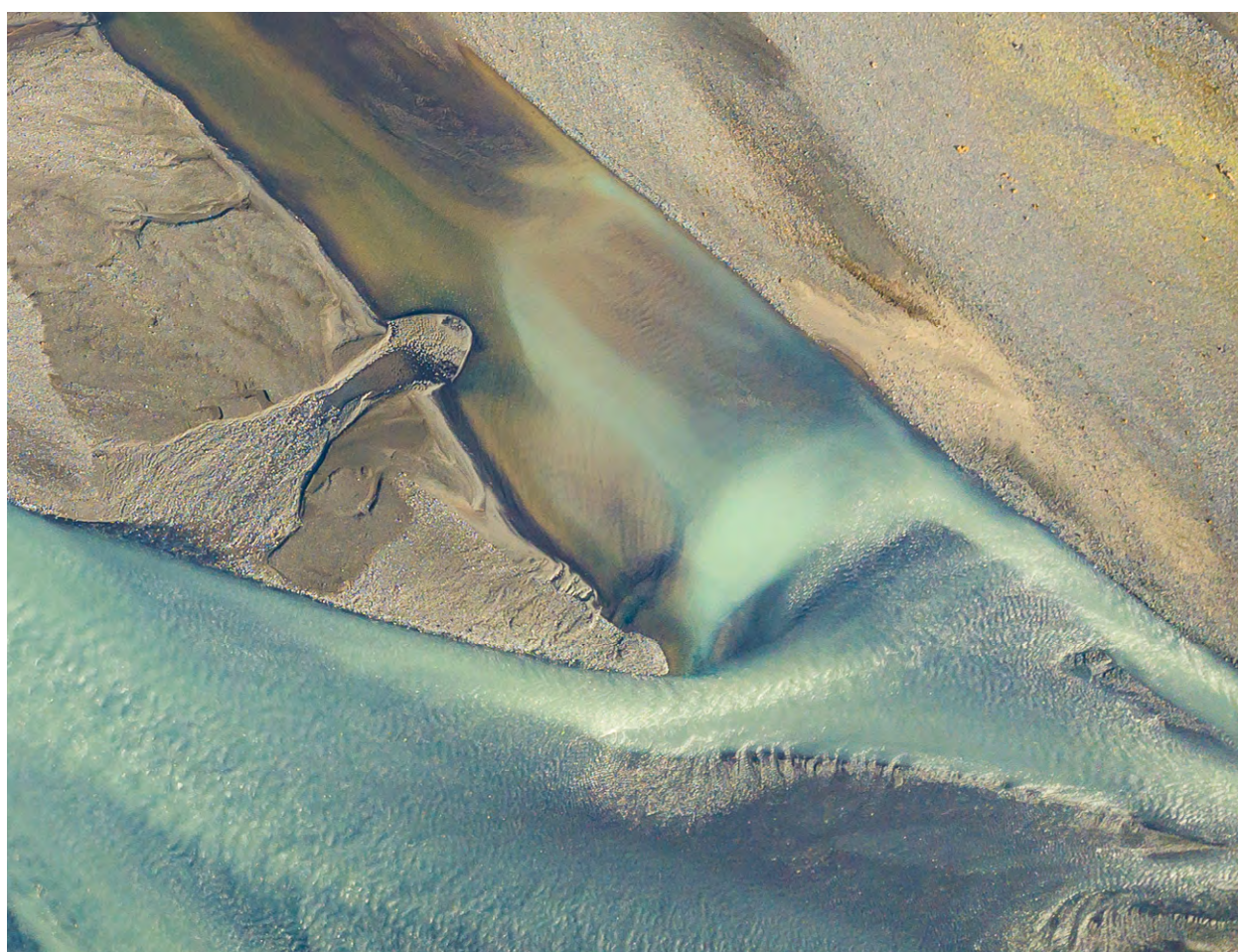
However, nature finance is still not well defined and barriers to private sector investment remain.

Investment from the private sector will greatly benefit from the backing of the insurance market to mobilise nature finance at the speed and scale required.



Table 3.
Key Barriers to Private Sector Investment in Nature

Financial	Governance	Informational
<ul style="list-style-type: none"> • High perceived risks²⁰ • Lack of proven revenue models(exacerbated in the context of significant risks)²¹ • High upfront costs, long time horizons, and delivery uncertainty for returns²² • Lack of investor awareness and capacity²³ • Limited market size and liquidity²⁴ 	<ul style="list-style-type: none"> • Lack of enabling policy and regulation²⁵ • Ongoing maturation of Natural Capital Accounting and limited uptake of corporate natural capital accounting²⁶ • Lack of universal, standardised taxonomy to establish nature as an asset class²⁷ 	<ul style="list-style-type: none"> • Lack of standardised metrics to translate biodiversity and ecosystem data into investment and business insights²⁸ • Challenges in accessing and applying tools for measuring and valuing ecosystem services²⁹ • Difficulty and expense of monitoring nature at scale³⁰



An aerial photograph of a river delta, showing a network of water channels and land. The water is a dark, muddy brown, and the land is a mix of green vegetation and tan, sandy soil. The title is overlaid on the left side of the image.

The nexus between Insurance and Nature Finance

The insurance sector is well positioned to unlock nature finance and can realise a significant business opportunity from delivering solutions to mitigate nature-based risks. It can play four core roles to enable investments in nature.

1. De-risking investment to mobilise capital

Insurance can be used to unlock other sources of finance for nature through de-risking.

When engaged early in a transaction, insurance can play a valuable, complementary role within a capital stack alongside debt and equity to enhance financial resilience. In collaboration with businesses and financial institutions, the insurance sector can offer products and solutions to help manage the costs of key risks to private investment in NbS and, thus, can be an important part of the emerging landscape of nature finance mechanisms.³¹ However, not all risks are insurable; for some risks that the insurance sector can't take on other financial actors will need to play a role, underlining the importance of collaboration.

Opportunities for insurance to address key risks and barriers related to investing in nature³²

- Difficulty in securing upfront capital for project development.
- Challenges in securing local stakeholder support for projects.
- Non- or partial delivery of targeted credits, ecosystem services, or environmental outcomes, for example owing to:
 - Natural catastrophes.
 - Changes in methodology.
 - Technology failures and/or;
 - Lack of stakeholder support for delivery.
- Long time horizons for achieving intended outcomes and revenue delivery.
- Counterparty risk of default on contractual agreements.
- Fraud or negligence in project delivery.
- Political, legal, regulatory risk in country (e.g. market frameworks).
- Greenwashing or reputational risks from project-related claims and;
- Credit or payment for ecosystem services price risk (e.g. if credits need to be replaced at an unknown future price).

2. Protecting natural assets

Insurance can directly provide financial protection to replace and restore damaged ecosystems and natural assets, including where companies or other entities face risks through exposure to or dependency on ecosystems. Providing an insurance cover for a natural asset can deliver payment towards the asset directly. For example, insurance can provide payouts for the restoration of habitats damaged during disasters to ensure they continue to deliver resilience benefits, as in the Mesoamerican Reef Insurance Programme.³³ Traditional forestry products have similarly provided covers for loss and damage to timberland holdings, such as from wildfire.

3. Enabling trading in environmental markets

Insurance can also drive systemic change across nature finance by enabling environmental markets to function and reducing embedded risk. For example, the insurance sector is increasingly engaging in carbon markets, providing new products³⁴ that can be used alongside other risk management tools, such as buffer allowances. This helps to improve transparency and risk management across carbon markets, while driving preferences for high-quality credits.³⁵ In addition to facilitating the trading of final assets (credits), the insurance sector can also support transactions of funds, companies, or projects, again by providing an additional layer of diligence and assurance of project integrity. By building confidence in the VCM, the sector can unlock greater climate finance for Nbs.



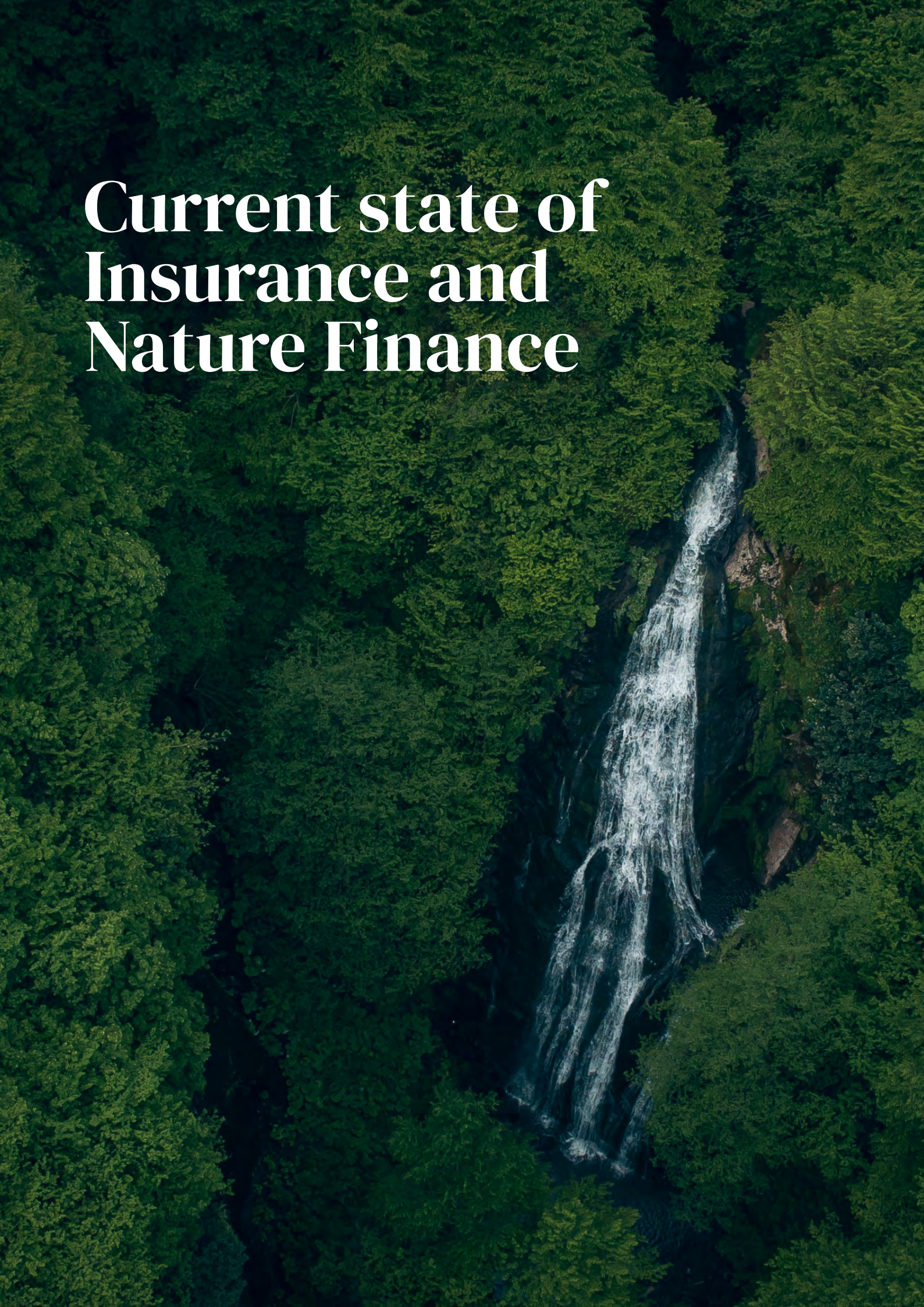
4. Governance

Insurance can also incentivise their own clients to improve their performance and investments into nature through offering sustainable claims options, integrating nature into underwriting criteria and guidelines, and embedding nature into broader risk management frameworks.³⁶ For example, insurers can offer green building coverage enhancements, incentivising property owners to rebuild damaged hard infrastructure with NbS after a disaster.³⁷ Offering preferable terms or a wider array of products for clients that are delivering for nature could also help incentivise their transition.

This will require agile responses to unintended adverse effects, ensuring policy requirements are amended if they drive poor management, as previously observed in crop insurance.³⁸ The sector's unique expertise on risk and role in financial transactions provides a critical intervention point to accelerate the transition from activities that degrade nature into a new, nature positive economy.



Current state of Insurance and Nature Finance



The insurance sector increasingly recognises that underwriting and investing in nature can reduce their own exposure to the nature-based physical, transition, and financial risks facing their clients, enhancing their overall resilience.³⁹ The sector has continued to evolve with respect to the incorporation of nature into its practices but will require significant acceleration to unlock the investment needed to achieve net zero and nature positive goals.

A UNDP and SIF survey found the insurance sector remained in early stages of integrating nature considerations into business practices.⁴⁰ As corporates increasingly implement disclosure frameworks like TNFD, they will require specialised risk management and risk transfer solutions for nature. In response, many insurers are now beginning to expand nature-risk underwriting to help corporates build resilience to nature loss, implement NbS for physical climate risks, and de-risk net zero strategies by protecting natural capital.⁴¹

New technology is also helping to drive down implementation and MRV costs for NbS projects, in turn facilitating the development of new insurance products for nature-based risk.⁴² For example, NatureX Venture Studio is developing a parametric instrument for regenerative agriculture transition, and a wildlife insurance product with requirements for ecological forestry practices to reduce risk in the Amazon. NatureX aims to leverage remote sensing, analysis of on-farm data, and nature observations to underpin this offer with a nature insurance focused data and risk modelling platform.⁴³ The insurance sector has an opportunity and need to leverage and build upon emerging technology to facilitate data collection (e.g. remote sensing, eDNA) and analysis (e.g. AI, machine learning) to more efficiently evaluate nature risks and project outcomes.

A review of recent examples through the case studies below within regenerative agriculture, coastal systems, and forests demonstrate nascent but growing capacity across the insurance sector to offer solutions that help to integrate nature risk into traditional underwriting approaches and unlock investment into nature. The sector can build upon these examples to deliver offerings at scale and catalyse nature finance.

Integrating Nature Risks into Traditional Underwriting Approaches

While the market for insurance focused on nature risk is still nascent, there are significant parallels in other markets, with opportunities to leverage existing solutions. For example, the sector can begin by building upon established insurance coverage that can already be applied to NbS projects, such as for political risk, negligence, fraud, and natural catastrophes. Further, related areas such as timber or crop insurance could be extended through innovative partnerships to specifically incentivise sustainable, regenerative practices which benefit nature.⁴⁴ Other established products like environmental impairment liability insurance can be adapted to provide protection against nature loss events.⁴⁵

Table 4.
Adaptation of Insurance Products for Nature Finance

Existing insurance products	Indicative opportunities for nature
Crop Insurance	Coverage for losses related to changes in yield and price; can be designed to incentivise practices that are financially beneficial, support nature and build resilience to climate change
Directors’ and Officers’ Liability	Coverage for cost of compensation claims for wrongful acts; can extend to responsibilities for mitigating nature risks
Environmental Impairment Liability	Coverage for costs of remediation and defense following a pollution incident; could provide protection for nature loss events
Forestry Insurance	Coverage for losses incurred, including following extreme weather events such as drought or wildfire; can provide protections for sustainable forestry management
Fraud & Negligence	Coverage for losses related to actions below reasonable standard of care or intentional misrepresentation of material facts; can be implemented as part of environmental markets transactions
Political Risk	Coverage for losses related to impact on returns as a result of political change or instability; can be implemented as part of environmental markets transactions



Integrating nature risk into crop insurance is explored in Case Study 1:

Regenerative Agriculture

Case Study 1.

Precision Conservation Management

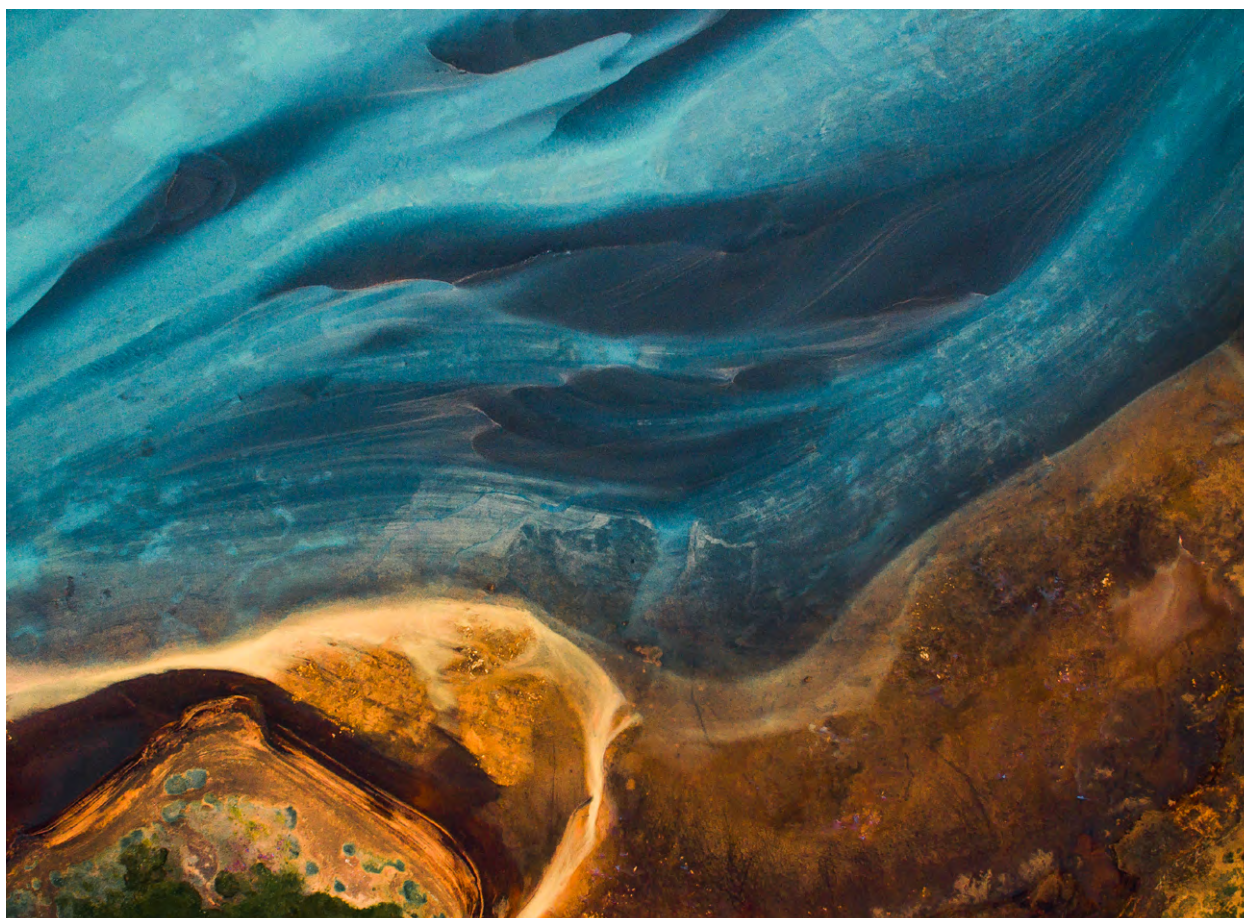
Combining insurance solutions, technical assistance, and public, private, and philanthropic funding to accelerate the transition to regenerative agriculture

An innovative sustainability-linked crop insurance subsidy was used as part of a broader program to de-risk investment into the adoption of regenerative agricultural practices in the U.S. Short-term uncertainty in yield is a key risk that holds many farmers back from switching to a regenerative approach. In line with the goals of regenerative agriculture, using insurance to support transition finance for farmers has effectively delivered positive outcomes for soil health, water quality, and climate, while supporting sustainable financial performance.⁴⁶

As part of the Precision Conservation Management (PCM) program, PepsiCo funded a sustainability-linked crop insurance subsidy.⁴⁷ To be eligible for the Maximum Return to Nitrogen (MRTN) insurance, farmers needed to have three years of data recorded in a data portal, enroll all acres into PCM for monitoring, and apply the MRTN rate (limiting nitrogen application to the rate which

maximises the dollar return to nitrogen)⁴⁸ on all acres. The structure incentivised farmers to curb nitrogen loss into the environment, while carbon assets generated from regenerative practices implemented under the program would then be claimed by PepsiCo.⁴⁹

The program was initially developed with funding from the United States Department of Agriculture (USDA) and other partners, including the Walton Family Foundation. The insurance instrument within this blended financing stack, alongside technical assistance, helped protect farmers from changes in yield. The program's technical platform also helped to make the economic and environmental trade-offs for adopting new practices more transparent.⁵⁰ To date, PCM has expanded to support over 500 farmers across 500,000 acres of row crop production.⁵¹



Insurance Solutions to Support Nature Financing:

The insurance sector is also delivering solutions that facilitate transactions to deliver urgently needed financing for nature. For example, green bonds represent a rapidly growing segment of debt capital markets. These bonds commit the issuer to allocate proceeds of the offering to projects generating climate, nature, or other broader environmental benefits. However, green bonds create exposure to a distinct set of risks from those associated with traditional bonds. A lack of an agreed, universal standard for what constitutes a green bond, risks that the issuer fails to align with the green bond framework, and reputational risks associated with subsequent claims of greenwashing all present key challenges in this market.⁵²

The insurance sector can already leverage existing products and approaches to help mitigate these risks and drive capital towards projects that

benefit nature within green bond frameworks. This can include robust product governance over internal business lines, second line monitoring controls and compliance reviews of green bonds, and assurance services through audits that funds are delivering intended green outcomes.⁵³ The insurance sector can further provide coverage against key risks to the delivery of projects envisioned under a green bond framework, such as extreme weather exposure (e.g. through parametric instruments), policy or government risk (through political insurance), and other standard products.

The following case studies demonstrate positive first steps in innovative solutions to support nature financing, which can be used as a starting point to develop and implement solutions that are scalable and repeatable.

Coastal Systems

Case Study 1.

Ecuador Galápagos Debt Conversion for Nature

Risk Transfer: Reducing transaction costs to enhance the efficiency of a debt-for-nature swap

Insurance can play a powerful role in helping to de-risk debt-for-nature swaps, mitigating the significant transaction costs which can eat away at capital intended for nature restoration and conservation.

Ecuador executed a 'debt conversion for nature' in 2023, which deployed \$656 million of private sector funding for marine conservation and eliminated \$1 billion of foreign debt.

For the transaction, Credit Suisse structured the issuance of a Galápagos marine conservation linked bond. Several de-risking mechanisms were incorporated into the bond offer:

- U.S. International Development Finance Corporation (DFC) provided political risk insurance for the entire value of the bond;

- 11 private insurers provided over 50% reinsurance for the DFC's commitment and;
- The Inter-American Development Bank (IADB) further provided an \$85 million credit guarantee.

These de-risking solutions increased the credit rating of the bond issuance to Aa2. As a direct result, the interest payable on the bond was lowered, in turn reducing Ecuador's cost of borrowing by 2/3.

The bond itself will provide \$450 million for marine conservation in Ecuador through 2041 and The Galapagos Life Fund will distribute funds through grants.⁵⁴

Case Study 2.

US Coral Reef Insurance in Hawai'i

Protection: Building upon growing experience with reef insurance to expand coverage and strengthen post-storm habitat recovery

The first insurance policy for a natural asset, the Mesoamerican Reef Insurance Programme, has inspired other geographies to explore similar solutions for reefs and mangroves – recognising the critical resilience benefits provided by these habitats. Using a parametric design, an insurance payout is triggered by weather events that meet certain metrics of severity, e.g. for rainfall, wind speed, etc., and funds are automatically provided to deliver restoration of damaged habitats. For example, following Hurricane Lisa in 2022, the Mesoamerican Reef Fund received a \$175,000 payout within two weeks of the storm to finance reef restoration activities.⁵⁶

The first U.S. coral reef insurance policy was purchased in Hawai'i in 2022. TNC and WTW have collaborated to develop a new policy that:

- Adds 314,976 square miles to the coverage area, capturing more storm events;
- Provides a maximum payout of \$2 million

over an annual policy period and \$1 million per storm – and;

- Doubled the minimum payout to \$200,000.

The advantage of the parametric design of the insurance product is that it enables rapid response following a storm event, which is important to maximise the likelihood of successfully restoring damaged corals. By quickly and efficiently providing restoration finance following extreme weather events, these innovative insurance products help ensure coastal habitats continue to deliver valuable resilience and adaptation benefits – as well as support local hospitality and tourism businesses.

The Hawai'i policy reflects increasing demand from stakeholders for nature-based resilience interventions and growing comfort amongst insurers for developing parametric protections for natural assets.⁵⁷

Forests

Case Study 1.

Howden Carbon Credits Warranty and Indemnity Insurance Policy

Governance: Improving trust in the quality of carbon credits to de-risk investment into nature through the Voluntary Carbon Market

In 2024, Howden announced the placement of the first Carbon Credits Warranty and Indemnity (W&I) insurance policy. The policy provides assurances, supported by insurance, that guarantee that the buyers of carbon credits can be compensated if social, environmental, or financial issues arise that undermine the integrity of the credits. The warranties are written into sales contracts, capturing in legal language the expectations for the credits to meet market standards for integrity.

The new policy covers the sale of carbon credits generated through reforestation of degraded areas in Ghana by Mere Plantations and was underwritten by a leading managing general agent. The policy allows Mere Plantations to signal to buyers the additional environmental, social,

and financial due diligence underpinning the endorsement of the insurance policy. By clearly demonstrating the high quality of the credits generated in this way, Mere Plantation has realised a price premium on credits sold when compared to other reforestation projects.

The W&I policy effectively leveraged a well-known mechanism, warranties, and adapted it to support carbon markets. The solution helps build trust between buyers and sellers, grounded in the additional level of approval provided by the insurer. This de-risking mechanism can help make transactions cheaper and faster, while also increasing the value of credits, supporting capital flow towards nature through carbon markets.⁵⁸

The insurance sector can build upon these emerging opportunities and growing experience. Collaboration will be essential to navigate the complexity of this new market and deliver the patchwork of nuanced insurance solutions needed to unlock financing into nature. Leading brokers will play a critical role in facilitating both design and access to bigger, better, and bolder de-risking solutions necessary to drive a step-change in investment. However, key financial, governance, and information challenges still curb the implementation of insurance solutions to support nature finance:

Financial

Lack of clear demand signals

The insurance sector faces limited demand from clients for nature-focused products and solutions, owing to the nascent stage of most corporates in assessing both the materiality of nature-related risks across their value chains and the risk reduction benefits of nature.⁵⁹

Difficulty of identifying buyers

Although clearer for some sectors, many natural assets are public goods with potentially multiple beneficiaries who may value these assets differently (for example, a wetland may provide multiple benefits such as risk reduction from storm surges and carbon storage – all of which have different social and economic values for a range of beneficiaries). It can prove challenging to identify an appropriate, interested buyer⁶⁰ who is willing and able to purchase an insurance policy for an ecosystem, receive payouts following insurable damage, and manage disbursements to deliver restoration.⁶¹

Variability in market penetration

Geography will influence the types of NbS that can be implemented as well as the types of risks facing investors. Owing to this variability, insurance may not prove affordable enough to be viable in all areas as high premiums can pose a barrier to adoption.⁶² The degree to which NbS can mitigate risks and provide

benefits, as compared to grey alternatives, will also vary by region, shaping opportunities for nature finance.

Increased frequency of triggering events

Climate change is a key driver of biodiversity loss,⁶³ undercutting the effectiveness of NbS, while increasing the frequency of events which trigger NbS insurance covers.⁶⁴ Nature-related losses increasingly will occur simultaneously with compounding effects. As a result, the insurance sector may face greater frequency, magnitude and geographic concentration of claim events. This dynamic can pose liquidity risks, raise premiums, and potentially force the sector to withdraw coverage from assets or regions.⁶⁵

Governance

Lack of regulatory and supervisory guidance

The lack of formal guidance or requirements associated with assessing nature-related risks, either directly or indirectly, through client regulatory requirements for underwriting presents a key barrier to expanding nature offerings.⁶⁶ However, insurance regulators continue to work to build regulatory understanding and capability in nature; regulation is expected to follow.

Long-term liabilities

NbS projects will generate exposure to long-term liabilities in order to appropriately deliver permanence. For example, carbon and nature standards will require project outcomes be maintained for upwards of 30–50 years. However, insurance is typically structured around short-term protection, over years rather than decades.⁶⁷

Informational

Shortcomings in risk models

Insufficient and/or unclear explicit representation of certain habitats, inadequate modelling of waves, currents, tides and storm events, lack of inclusion of long-term climate change dynamics, limited modelling of habitat fragility⁶⁸ and insufficient granularity of data currently undermine sector risk models for nature-based assets.

Challenges in quantifying monetary value of nature

Without material loss history and performance data for NbS⁶⁹ as well as evolving data and tools to underpin the monetary value of ecosystem services,⁷⁰ it can be difficult to develop appropriately priced underwriting models.

Overcoming these barriers will require close partnerships with corporates, financial institutions, public partners, and academia. Actions and leadership in this area are urgently needed to deliver solutions that can help efficiently manage the costs of nature finance risks and build climate resiliency both for the sector and its clients.

Recommendations and next steps



Through collaboration with public and private actors, the sector can help drive this agenda forward and move the needle on financing for nature.⁷¹

Through a set of priority interventions, the insurance sector can act now to help develop solutions that can reduce barriers to investments into nature. It can maximise its immediate impact

by linking established insurance products to new risks, adapting and scaling offerings to meet the challenge at hand.

Recommendations

1. Risk Transfer to Mobilise Capital

a) Adapt crop insurance solutions to support transition finance for regenerative agriculture

The transition to regenerative agriculture presents opportunities for both indemnity and parametric products. Farmers can face both initial yield reductions and lost revenues as part of the transition to regenerative agriculture, while they simultaneously take on additional costs related to changes in equipment, operational practices, training, and other inputs. Updating existing crop insurance models to protect against losses incurred as part of the transition, including through conditions requiring the implementation of regenerative practices, can help unlock the capital needed to finance the transition and build the resilience of the agricultural sector.⁷²

Other approaches could draw on existing parametric models that help build resilience to climate change impacts. For example, successful pilots have demonstrated the value of parametric microinsurance products, designed to rapidly deliver payouts tied to perils like excess rainfall or drought.⁷³ This approach could be delivered at a landscape scale, providing pooled coverage

across smallholder farms for yield or revenue losses. These covers could help build their overall resilience and in turn, ability to take on the additional risk of changing agricultural practices over time.

b) Scale use of existing insurance products for nature-based debt instruments

Growing experience with green bonds for NbS and debt-for-nature swaps present a key opportunity for the insurance sector to facilitate investment.

Internationally, high transaction costs both impede and reduce the efficiency of debt-for-nature swaps. This ultimately risks reducing the amount of capital delivered for nature, as well as impacts the ability of the transaction to actually reduce debt burdens.⁷⁴ Sophisticated insurance products can help de-risk these transactions and unlock greater total capital for restoration and conservation projects, which can play a critical role in building resilience to climate change (**see Coastal Systems Case Study 1**). For example, catastrophe wrappers for bond structures can cover payments in the case of a natural disaster, helping sovereigns raise funds at more favourable terms.⁷⁵

2. Protecting natural assets

a) Scale the use of parametric products

The insurance sector can scale offerings of parametric products, which support restoration after a destructive event occurs, to natural assets beyond coastal systems delivering monetisable ecosystem services. Initial priority geographies could include regions with high exposure to climate impacts, strong potential resilience benefits from NbS, and a concentration of impacted sectors, such as tourism. Scaling this offering could effectively unlock capital for natural assets.⁷⁶

b) Incentivise habitat restoration and conservation through resilience insurance

A gap remains in the market for insurance products that incentivise conservation or ongoing ecosystem management. There is an opportunity to integrate the risk reduction values that ecosystems, when well-managed, provide within insurance. Such an instrument would reflect the condition of habitats or ecosystems – and in turn their ability to deliver resilience benefits – in its pricing.

For example, wildfire catastrophe modelling found that establishing a fire buffer, including managed green space with reduced fire fuel, could significantly reduce average annual losses from wildfire events like the 2018 Camp Fire in Paradise, California. The study proposed linking such large-scale restoration and conservation measures with Community-Based Catastrophe Insurance.⁷⁷

As in the wildfire example, there is an opportunity to expand this approach to other contexts. This type of product could be designed to offer reduced insurance premiums, conditional on the implementation of nature-based interventions that reduce risks. Investment in NbS to deliver resilience benefits can reduce impacts and the likelihood of payouts, in turn helping to provide more affordable insurance solutions. This joint approach can also help reallocate risk, for example to public actors who can provide further de-risking capital for delivering NbS projects alongside private investors.⁷⁸

3. Enabling trading in environmental markets

a) Expand insurance coverage for carbon markets

The insurance sector should continue to expand its capacity and products for carbon markets – helping to ensure the integrity and effectiveness of carbon credits, building confidence in the VCM, and in turn scaling climate finance for nature.⁷⁹ A growing number of products have come onto market, providing insurance for political risk⁸⁰, non or under-delivery of credits, reversals,⁸¹ and other more traditional types of cover such as for counterparty risk, fraud, and negligence (**see Forests Case Study 1**).

A priority political risk in carbon markets is the revocation of Article 6 authorisation or failure to apply a corresponding adjustment, which could lead to a ‘double-claim’. Crediting programs that have applied for assessment against CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation) Emissions Unit Criteria (to supply CORSIA Eligible Emissions Units) were asked to demonstrate how they would address this risk. Insurance provides an eligible solution for this challenge – providing a credible commitment to replace affected units in the event of the risk materialising.⁸²

b) Adapt offerings for other environmental markets

The sector can leverage this growing suite of offerings for the VCM in other types of environmental markets (e.g. voluntary biodiversity credit, water quality, or compliance markets like Biodiversity Net Gain (BNG)). Project developers, investors, off-takers, and standards bodies will benefit from products related to similar risks.

For example, parametric products could facilitate rapid payouts to mitigate reversal events or non-delivery of outcomes owing to perils like extreme weather events for biodiversity credit or nature-based carbon credit projects.

Innovative solutions could also help provide longer-term insurance products needed for NbS projects. For example, SCOR has developed an

insurance product for ecological restoration projects, that insures the financial costs of creating conditions to get recovery back on track following any adverse impact (e.g. drought, fire, etc.). Each policy tranche lasts five years and can be renewed at each of three stages in a restoration project (implementation, ongoing recovery, and maintenance). The approach helps provide longevity over decades, while still adapting coverage to different phases of the project.⁸³

Expanding the range of solutions provided by the insurance sector can help to build confidence in a broader set of market structures and diversify sources of nature finance.

4. Governance

a) Investigate where traditional insurance incentivises nature and biodiversity loss

Increasingly businesses are being asked to manage and demonstrate responsible governance over how their business activities and investments impact nature. The insurance sector also has an opportunity to evaluate current products and solutions and assess where traditional approaches may inadvertently be incentivising practices and operations that contribute to the \$7 trillion in annual finance for activities with negative impacts on nature.⁸⁴

Amending policies at point of renewal or making other design changes, such as adding coverage enhancements, can help accelerate the transition on nature across client portfolios, guiding investment towards activities that benefit nature.





Conclusion and call to action

Urgent action is needed to close the financing gap for nature and catalyse the nature-positive transition to a more resilient global economy. The insurance sector is poised to help break down barriers to investment and drive a step change in capital flow for nature.

Through partnerships with corporates and financial institutions, the insurance sector can jointly approach investments in nature projects to support deal structuring. This collaboration presents a significant opportunity. The insurance sector can provide advisory services both before and after final investment decisions, helping to align investments with addressing key nature impacts and dependencies for investors and off-takers. It can further de-risk investments and support decision-making to drive investments into nature. The sector has a critical role to play both during initial financing and over the course of a project's lifetime, ensuring delivery of environmental outcomes.

Corporate and financial actors should engage and collaborate with the insurance sector early - consulting with advisors on the strategic use of insurance to de-risk nature-related investments and enhance deal economics to drive real capital flow. The insurance sector further has an opportunity to catalyse this agenda by engaging in the international architecture of climate and biodiversity agreements shaping markets and finance for nature.

Through design and allocation of appropriate risk-transfer mechanisms, the insurance sector can support and enable the global financing solutions urgently needed to address the interdependent biodiversity and climate crises.

References

1. UNEP (2023) State of Finance for Nature: The Big Nature Turnaround Repurposing \$7 Trillion to Combat Nature Loss.
2. UNEP, see note 1.
3. UNEP, see note 1.
4. SwissRe Institute (2024) Sigma: Natural Catastrophes in 2023: Gearing Up for Today's and Tomorrow's Weather Risks.
5. WEF (2024) The Global Risks Report 2024: 19th Edition
6. Vicareli, et al. (2024) On the Cost-Effectiveness of Nature-based Solutions for Reducing Disaster Risk.
7. UNEP, see note 1.
8. Taskforce on Nature Markets (2022) Global Nature Markets Landscaping Study; Note: A nature market defined as a system composed of transactions between separate buyers and sellers, in which the transacted good or service specifically reflects a stock of ecosystem assets or a flow of ecosystem services from terrestrial or aquatic ecosystems.
9. Taskforce on Nature Markets, see note 8.
10. Benton, et al. (2021) Food System Impacts on Biodiversity Loss: Three Levers for Food System Transformation in Support of Nature.
11. Pollination, Transformational Investing in Food Systems Initiatives, The Rockefeller Foundation (2024) Financing for Regenerative Agriculture.
12. Kita (2024) Are Carbon Credits the Next Billion-Dollar Insurance Market?
13. Ecosystem Marketplace (2024) State of the Voluntary Carbon Market.
14. Ecosystem Marketplace, see note 16.
15. Quantum Commodity Intelligence (2024) Analysis: CDR Companies Dominate Funds Raised in the VCM in the Last Four Months.
16. WEF (2023) Biodiversity Credits: Demand Analysis and Market Outlook.
17. Sustainable Fitch (2023) Biodiversity in ESG: Focus on Impact Grows.
18. U.S. Coral Reef Task Force National Natural Infrastructure Team (2024) Coral Reefs Recognized as National Natural Infrastructure.
19. Green Gray Community of Practice (2020) Practical Guide to Implementing Green-Gray Infrastructure.
20. WWF & Terranomics (2022) Nature Based Solutions – a Review of Current Financing Barriers and How to Overcome These.
21. Young, D., et al. (2022) Financing Nature Recovery UK: Scaling Up High-Integrity Environmental Markets Across the UK.
22. UNEP, see note 1.
23. PWC (2023) Accelerating Finance for Nature: Barriers and Recommendations for Scaling Private Sector Investment.
24. European Investment Bank & European Commission (2023) Investing in Nature-Based Solutions: State-of-Play and Way Forward for Public and Private Financial Measures in Europe.
25. UNEP, see note 1.
26. Dasgupta, P. (2021) The Economics of Biodiversity: The Dasgupta Review.
27. UNEP, see note 1.
28. Paulson Institute, The Nature Conservancy, Cornell Atkinson Center for Sustainability (2020) Financing Nature: Closing the Global Biodiversity Financing Gap
29. Dasgupta, P., see note 26.
30. PWC, see note 23.
31. Taskforce on Nature Markets, see note 8.
32. Kita & Oxbow Partners (2024) Gross Written Carbon: Are Carbon Credits the Next Billion Dollar Insurance Market?; Pollination & Sustainable Markets Initiative's Financial Services Task Force (2023) Financing Coastal Nature-Based Solutions: Mobilising Commercial Capital for the Protection of Coastal Ecosystems.
33. Kelso et al (2024) Nature-Based Solutions & Risk Management: Recommendations for Integrating Nature into Risk Science & Insurance.
34. Kelso et al., see note 33.
35. Howden & Blackford (2021) Insuring Nature-Based Solutions in the UK.
36. UNEPFI (2023) Nature-Positive Insurance: Evolving Thinking and Practices.
37. Kelso, et al., see note 33.
38. Renton, et al. (2020) The Case for Crop Insurance Reform.
39. Cambridge Institute for Sustainability Leadership (CISL) (2022) Why Nature Matters: Nature-Related Risks and Opportunities for Insurance Underwriting & Marsh Guy Carpenter Mercer Oliver Wyman (2023) Rooted in Resilience Innovations in Nature Insurance for Business

40. Sustainable Insurance Forum (SIF) (2021) [SIF Scoping Study: Nature-Related Risks in the Global Insurance Sector.](#)
41. Marsh, Guy Carpenter, Mercer, & Oliver Wyman, see note 39.
42. Marsh, Guy Carpenter, Mercer, & Oliver Wyman, see note 39.
43. Ferragioni (2024) ["The Next Big Frontier": High Hopes for Nature Insurance to Scale Biodiversity Markets; NatureX Studio \(ND\) The Need in the Market: De-Risk Investments in Nature Based Solution.](#)
44. Howden & Blackford, see note 35.
45. Marsh, Guy Carpenter, Mercer & Oliver Wyman, see note 39.
46. PCM (2024) [About Us](#)
47. WEF (2024) [100 Million Farmers: Breakthrough Models for Financing a Sustainability Transition](#)
48. Nafziger, E. (2018) [Using the Maximum Return to Nitrogen \(MRTN\) Recommendation System in Illinois](#)
49. PCM (ND) [New PepsiCo Incentive Payment Program.](#)
50. PCM (2024) [The Business Case for Conservation.](#)
51. PCM, see note 50
52. Farrell, et al. (2022) [Green Bonds – How can Robust Product Governance Assist Underwriters to Manage the Risk of Greenwashing.](#)
53. Farrell, et al., see note 52.
54. SYSTEMIQ (2023) [Financing Nature A Transformative Agenda.](#)
55. Kelso, et al., see note 33.
56. Conway (2023) [WTW and MAR Fund Reef Insurance Programme Pays Out to Finance Restoration after Hurricane Lisa.](#)
57. WTW (2024) [Major Upgrade to first U.S. Coral Reef Insurance Policy Increases Coverage and Enables More Robust Post-Storm Response.](#)
58. Howden (2024) [Howden Launches First-of-its-Kind Warranty & Indemnity Policy for the Sale of Mere Plantations Carbon Credits; & Pool \(2024\) Introducing W&I Insurance for Carbon](#)
59. Kelso et al, see note 32.
60. Marsh Guy Carpenter Mercer Oliver Wyman, see note 39.
61. Kelso et al., see note 23, & The Geneva Association (2022) [Nature and the Insurance Industry Taking Action Towards a Nature Positive Economy.](#)
62. Kelso et al., see note 33.
63. IPBES, see note 1.
64. Howden & Blackford, see note 35.
65. CISL, see note 39.
66. Sustainable Insurance Forum (SIF) (2021) [SIF Scoping Study: Nature-Related Risks in the Global Insurance Sector.](#)
67. Howden & Blackford, see note 35.
68. Kelso et al., see note 33.
69. Howden & Blackford, see note 35.
70. The Geneva Association, see note 60.
71. UNEPFI, see note 36.
72. Renton, et al., see note 38.
73. Nespresso (2018) [Nespresso and Blue Marble Microinsurance Launch Pilot Weather Index Insurance Program for Smallholder Coffee Farmers in Colombia.](#)
74. Chandrasekhar, et al. (2024) [Q&A : Can Debt-for-Nature 'Swaps' Help Tackle Biodiversity Loss and Climate Change](#)
75. Kelso, et al., see note 33.
76. Kelso, et al., see note 33.
77. The Nature Conservancy & Marsh McLennan (2021) [Quantifying Insurance Benefits of a Nature-based Approach to Reducing Risk: Wildfire Risk Reduction Buffers](#)
78. Munich Re & TNC (2021) [Nature's Remedy – Improving Flood Resilience Through Community Insurance and Nature-Based Mitigation.](#)
79. Kita (2024) [The Critical Role of Insurance in Ensuring the Integrity of Carbon Credits in the VCM 2.0.](#)
80. Kita (2024) [Insurance Products.](#)
81. Oka (2024) [Insurance Increases Carbon Credit Value; CarbonPool \(2024\) Our Products: What do We Insure Against](#)
82. Kita (2024) [Corresponding Adjustments and Political Risk and Insurance, Oh My](#)
83. Howden (2024) [London Climate Action Week: Howden Roundtable on Derisking Nature Investment](#)
84. UNEP, see note 1.



This report is intended to only provide inspiration and illustrative financing instruments, structures, and examples for project stakeholders and investors. Illustrative financing instruments, structures, and examples are not intended to be used in the format that is provided in this report. Stakeholders and investors may adapt these tools as they deem appropriate to the context of their projects, acknowledging that financial considerations and project impact considerations are context-dependent.

Also note that the examples provided in this report are not exhaustive lists of best practices in any form, but provide only illustrative examples of different financing instruments and structures in the market at this point in time.

This document is intended solely for informational purposes and does not constitute a financial promotion or provide investment advice, recommendations, advice, or endorsements of any kind. The content presented here is general in nature and should not be considered as tailored advice for any individual or entity in any manner.

The information contained in this document has been compiled from various sources, but no representation and/or guarantee is made regarding its accuracy, completeness, or timeliness in any manner. Any decisions made based on the information provided in this document are solely at the reader's responsibility, discretion, and risk.

Howden Group Holdings Limited is registered in England and Wales under company registration number 2937398. Registered office: One Creechurch Place, London, EC3A 5AF

© 2024 Pollination