

Protecting biodiversity: incentives for corporate action



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About this report

In late 2022, Impax Asset Management supported a research project to examine what drives companies to act voluntarily to protect biodiversity and to what extent their actions can be scaled up through the deployment of private investment capital.

This report is based on independent expert analysis produced by academics from the Centre for Climate Finance & Investment at Imperial College Business School, through Imperial Consultants, and supplemented by input from Impax.

**Imperial College
London**
Consultants

Companies must better protect biodiversity and embrace opportunities that investments in natural capital can create.





Executive summary

The unprecedented rate at which biodiversity is declining is nothing less than a global emergency. More than one million species are at risk of extinction largely because of habitat disruption or destruction.¹ Just as concerning is the fact that biodiversity underpins more than half of global GDP.²

There is growing recognition of the risks associated with biodiversity loss to individual companies and entire sectors. One-third of global crop production depends on animal pollinators, for instance.³ Companies must be part of the solution, as must investors as those responsible for allocating capital.

Biodiversity has rapidly risen up the agenda for companies and investors alike. However, there is limited information about how companies are addressing biodiversity-related risks and opportunities. Nor is there consensus over how best to respond to the challenge of protecting and restoring biodiversity at the pace and scale needed.

This project has sought to answer two key questions:

- I. What are the key drivers for companies to invest in actions that protect biodiversity within their operations and supply chains?
- II. How can these actions be scaled up, particularly using private investment capital?

To confront biodiversity loss effectively, it must be understood as a set of related sub-issues that are often local or 'multi-local' in nature. The relationship between human activity and nature is multifaceted, meaning different interventions are needed across the economy.

The research explores five case studies selected using a systematic methodology to cover a diversity of sectors and regions, as well as different motivational drivers for action.

- In **agriculture**, support for small-scale vanilla farmers and tree-planting projects by a US ingredient company in Madagascar
- In **cities**, the introduction of new building standards and ecological features by a UK property landlord to improve biodiversity on its estate
- In **energy**, the creation of artificial reefs and support for pollinators by European utilities aiming to reduce or offset biodiversity loss arising from wind and solar projects
- In **water**, the acquisition of forest land by a US utility company to protect the watershed of its reservoir
- In **insurance**, the theoretical case for integrating biodiversity restoration into policies to lower long-term disaster risks

1 Rogan, J., et al., 2023: Genetic and demographic consequences of range contraction patterns during biological annihilation. *Scientific Reports*.

2 World Economic Forum, 2020: The Future of Nature and Business.

3 Our World in Data, 2021: How much of the world's food production is dependent on pollinators?

Key conclusions

- 1 Biodiversity concerns were not the primary drivers for corporate action** in the cases that were examined. Aside from where they are required by regulation, actions to protect biodiversity are currently only pursued where they deliver broader corporate objectives. Motivations may be commercial – such as supply chain resilience – or related to other environmental, social and governance (ESG) objectives like ensuring a social license to operate. Some interventions could be interpreted as little more than window-dressing. No examples were identified in this research where companies pursue biodiversity-related goals at scale as a primary objective.
- 2 Drivers of action varied by case study.** For example, in line with expectations that industries have greater incentive to invest in biodiversity conservation where they see direct benefits, sustainable sourcing emerged as a primary driver where products rely on the natural environment. By contrast, while consumer preferences can in theory yield reputational benefits, the case studies did not provide conclusive evidence of this.
- 3 The scale of corporate action to protect biodiversity today is limited.** It is therefore important that early movers are vocal and transparent about their actions and highlight their benefits for both the business and for nature.

Recommendations

Building on these conclusions, the report identifies actions for governments, companies and researchers which can encourage and enable nature-positive investments, including:

- Governments should address market failure – and the ‘global commons’ nature of biodiversity – through stronger regulation and incentives for corporate action, including by strengthening environmental licensing and making nature-related disclosures mandatory.
- Companies must improve how they report and share information on efforts to limit their impact on biodiversity and restore nature. Relatively few companies currently disclose details beyond high-level pledges to stem biodiversity loss, though protocols for reporting on biodiversity impacts and dependencies are emerging. Platforms for information-sharing among peers and stakeholders would help propagate opportunities that mutually benefit companies and nature.
- Further research is needed into how private investments can be leveraged by public funding or philanthropy, the design of policies that price the value of biodiversity into financial decision-making effectively, as well as into the cost-benefit analysis of biodiversity-positive business models.



Introduction from Impax

Biodiversity matters. Not only does it matter for its own sake, but also because of the immense value of ecosystem services to human wellbeing.

The World Economic Forum has estimated that US\$44 trillion in economic value generation each year depends significantly on nature.⁴ Yet the silent and invisible ways in which nature provides these benefits makes it hard to assess dependencies and so place an accurate value on it.

Policymakers are waking up to the risks of runaway destruction of our natural environment. The Living Planet Index, a measure of biodiversity based on population trends among species on land and in the water, recorded an average 69% decline among animal populations between 1970 and 2018.⁵

We are encouraged by pledges made at recent global biodiversity and climate summits to address

the drivers of biodiversity loss – land-use change, climate change, pollution, natural resource use and invasive species.⁶

The landmark Kunming-Montreal Global Biodiversity Framework, agreed at the COP15 biodiversity summit in December 2022, outlines an ambitious plan to address biodiversity loss by 2030. The important role of companies and investors is reflected in a target to encourage and enable businesses to reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks and promote sustainable production.

As a specialist investor in the transition to a more sustainable economy, Impax has long paid attention to biodiversity and, in particular, to the risks associated with biodiversity loss, deforestation and the degradation of ecosystems.

Almost all solutions identified to date by investment managers focus on reducing loss of biodiversity,

4 World Economic Forum, 2020: The Future of Nature and Business.

5 World Wide Fund for Nature and the Zoological Society of London.

6 These five drivers of biodiversity loss have been identified by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

30% by 2030

At least 30% of the world's land and water will be protected by 2030 under an international pledge made in 2022.



rather than restoring or enhancing it. As with addressing climate change, however, preventing harmful practices is a crucial first step. Given that progress on addressing biodiversity loss lags climate action, there are currently fewer substitutes to economic processes that damage nature. Corporate practices must swiftly evolve though to better protect biodiversity and embrace the opportunities that can reduce the drivers of biodiversity loss.

This motivated our collaboration with independent academics from Imperial College London to find case studies where companies are investing in activities that protect nature to reduce risks and generate commercial benefits, such as supply chain resilience, cost reductions, revenue creation and commercial advantage. By shining a light on these examples, we identify actions that governments and companies can take to mobilise more private sector investment in service of biodiversity protection or restoration, as well as areas for further research.



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A close-up photograph of a vanilla plant. A bright yellow flower is in bloom, surrounded by several green, unopened buds. Long, green, bean-like pods (vanilla beans) are visible, some attached to the stem and others hanging down. The background is a soft-focus green, suggesting a lush environment. A dark green diagonal overlay covers the left side of the image, and a semi-transparent dark green shape is on the right.

Agriculture

Agriculture: Where interventions can support nature and valuable ingredients that depend on it

The issue

Agriculture and food systems have been one of the main drivers of nature loss to date through land conversion and the release of pollutants like pesticides, greenhouse gases (GHGs) and nitrogen run-off. Agriculture is also subject to the double materiality of nature-related risks, being both a driver of biodiversity loss and a victim of the resulting impacts.

Agriculture that is more integrated with nature tends to be more resilient, productive, pest resistant, nutrient-conserving and biodiverse. Yet the dominant agriculture practice over the past 50 years has been industrialised monoculture, focused on economies of scale. There is a perception – rooted in evidence, for some crops and methods – of a trade-off between biodiversity and yields, in the short-term at least. With increasing understanding of the consequences of biodiversity loss and the benefits of more diverse agricultural landscapes comes a willingness to try more holistic approaches.

The intervention

US company **McCormick** is the largest producer of spices and related food products worldwide.⁷ It has committed to sourcing all herbs and spices according to a sustainability policy that focuses on regenerative production systems, ethical supply chains and resilient communities.⁸

Vanilla is one of five ingredients that McCormick aims to source fully in line with its policy by 2025. Its focus has been on Madagascar, home to 80% of the world's vanilla supply. The island is a biodiversity hotspot with a large concentration of endemic species under intense pressure from human activity and severe weather patterns exacerbated by climate change.⁹ Agriculture provides employment for an estimated two-thirds of Malagasy people, 81% of whom live in extreme poverty.¹⁰ Balancing

development needs with agriculture's impact on biodiversity is complex.

McCormick has partnered with non-governmental organisations (NGOs), state development agencies and farming cooperatives to build 'environmentally friendly vanilla value chains' in Madagascar. Efforts include a sizeable tree-planting project – forests provide critical shade for growing vanilla – and a conservation and biodiversity initiative in collaboration with USAID.¹¹ McCormick also supports small farmers' financial resilience through interest-free loans and technical assistance, as well as by encouraging the formation of cooperatives that can increase their bargaining power during product sales.

⁷ Based on revenue, 2020 figures. The specific securities identified and described are for informational purposes only and do not represent recommendations.

⁸ McCormick, 2023: Purpose-led Performance: Grown for Good.

⁹ More than 90% of the local plant and animal species can only be found on the island. Source: Wurz et al, 2022: Win-win opportunities combining high yields with high multi-taxa biodiversity in tropical agroforestry.

¹⁰ World Bank, 2022. The international poverty line referenced by the World Bank is US\$2.15 per capita, per day.

¹¹ Details on the collaboration can be found here: <https://medium.com/usaaid-2030/a-flavorful-partnership-2e0a1ca2c185>

The impact

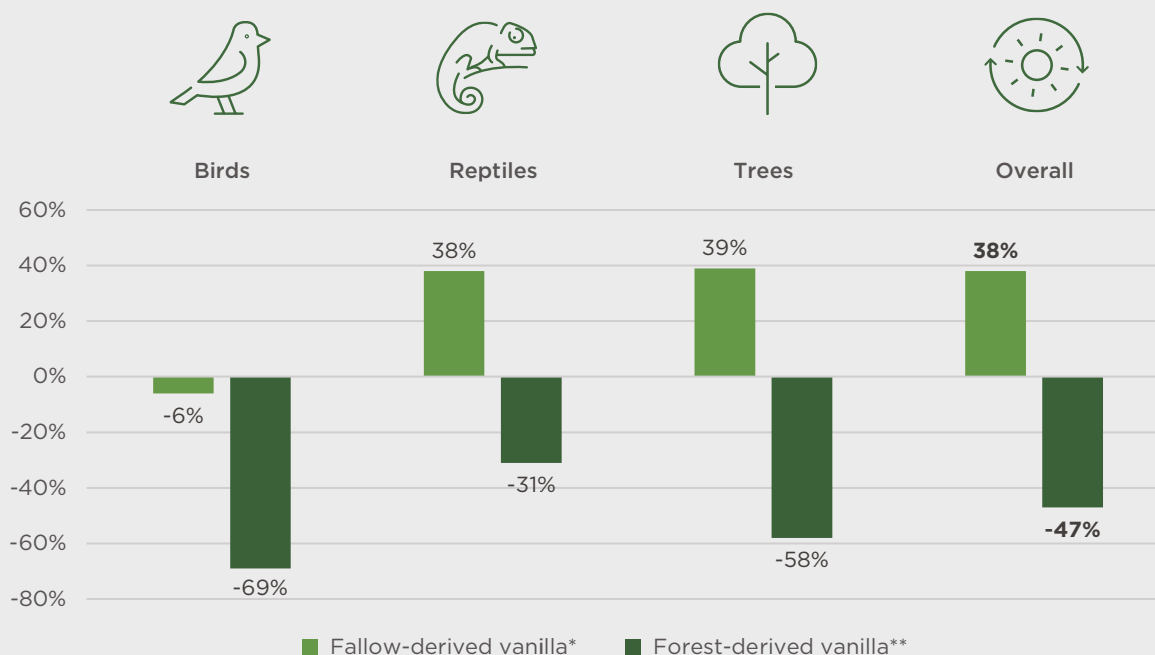
McCormick's interventions in Madagascar should support its aspiration for sustainable vanilla supply chains in two ways.

First, its tree-planting programme and conservation projects should help deliver better biodiversity protection and crop yields. Recent research suggests that agroforestry with vanilla cultivation in Madagascar can co-exist with and indeed improve biodiversity when established on fallow, previously deforested land, as opposed to converting forests.¹²

Second, support for farming cooperatives should reduce the financial insecurity facing small vanilla producers and so help mitigate unsustainable practices that can harm biodiversity. In turn, this kind of initiative could help demonstrate that agricultural practices more integrated with nature can help improve the resilience of the customers of small farms.

Planting vanilla agroforests on fallow land boosts biodiversity

Change in endemic species richness in Madagascar vanilla plantations



*Endemic species richness in fallow-derived vanilla agroforest versus fallow land

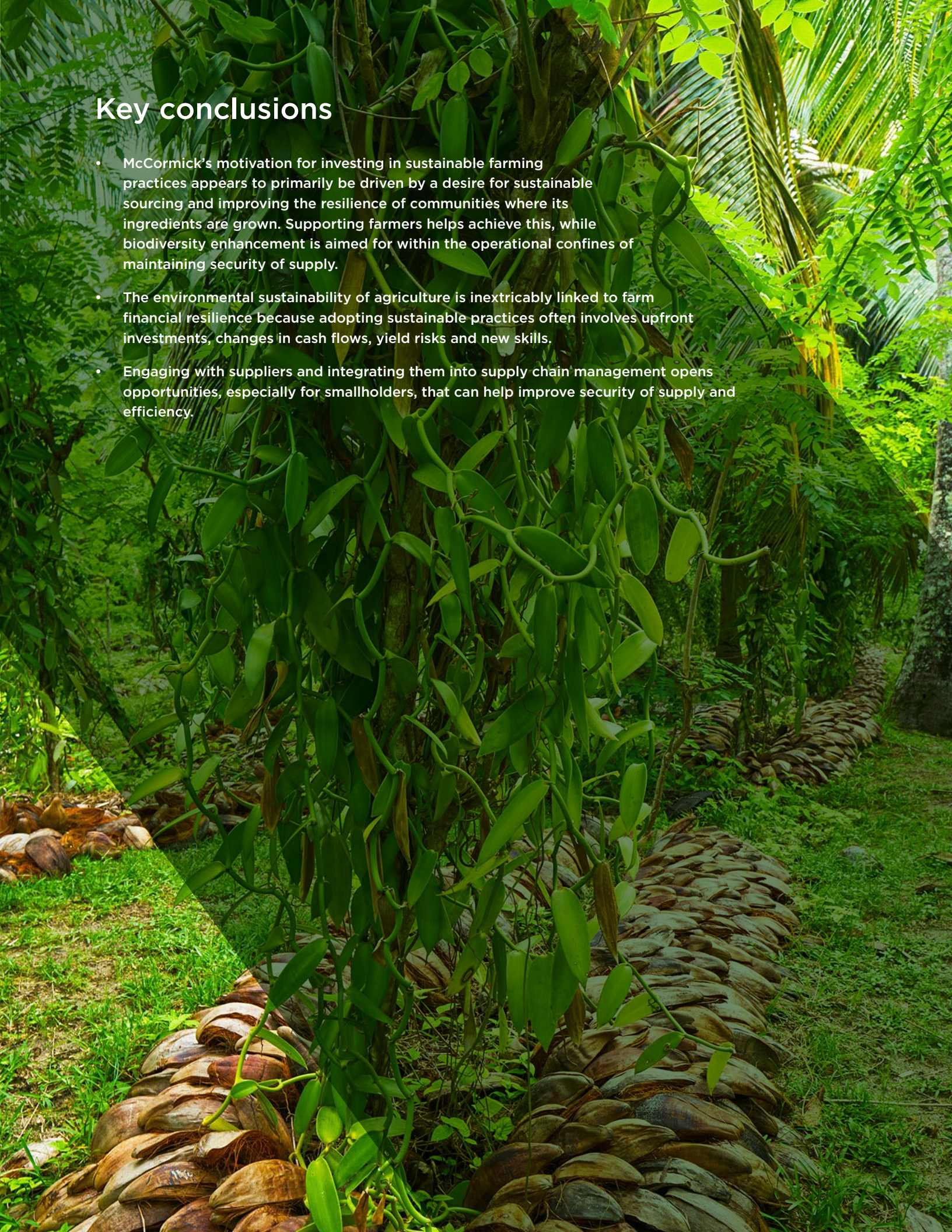
**Endemic species richness in forest-derived vanilla agroforest versus old growth forest

Source: Wurz, A., et al., 2022: Win-win opportunities combining high yields with high multi-taxa biodiversity in tropical agroforestry.

¹² Wurz, A., et al., 2022: Win-win opportunities combining high yields with high multi-taxa biodiversity in tropical agroforestry.

Key conclusions

- McCormick's motivation for investing in sustainable farming practices appears to primarily be driven by a desire for sustainable sourcing and improving the resilience of communities where its ingredients are grown. Supporting farmers helps achieve this, while biodiversity enhancement is aimed for within the operational confines of maintaining security of supply.
- The environmental sustainability of agriculture is inextricably linked to farm financial resilience because adopting sustainable practices often involves upfront investments, changes in cash flows, yield risks and new skills.
- Engaging with suppliers and integrating them into supply chain management opens opportunities, especially for smallholders, that can help improve security of supply and efficiency.



A photograph of a modern city skyline, likely Canary Wharf in London, featuring several tall glass skyscrapers. The buildings are reflected in the calm water in the foreground. A large teal diagonal shape overlays the left side of the image, containing the word "Cities".

Cities

Cities: How nature-based investments can deliver co-benefits for property owners

The issue

Home to 56% of the world's population and producing more than 80% of global GDP, urban areas are both the main destination of products that drive global environmental change and, at the same time, are often vulnerable to its effects.¹³ For example, heatwaves tend to be more intense in urban areas than in the surrounding countryside: the 'heat island effect'.

While cities can never boast the attributes of natural ecosystems, they can make an important contribution to biodiversity protection. Urban environments can support ecosystems that many species depend on, especially migratory species. Though the benefits of urban natural capital are difficult to measure and quantify, action to improve biodiversity can help make cities and their populations more resilient to a variety of external shocks.

The intervention

Canary Wharf Group is the owner of a London commercial property estate with over 150 office tenants and where 120,000 or so people work.¹⁴ The company ranks climate change and nature as its top material priorities and created its first biodiversity action plan in 2004, with no apparent regulatory driver and before its peers.

Its latest plan defines three key objectives: first, to embed the biodiversity 'net gains' principle within management and planning – no new developments are approved unless they generate a biodiversity net gain on-site; second, to develop and apply actions for climate change resilience; and third, to improve ecosystem service value and in particular people's health, well-being and productivity.¹⁵

The five-hectare estate on former docklands comprises 348,000 m² of open water habitats, four urban parks (totalling 24,000 m²), 13 buildings with living roofs (totalling 8,000 m²) and over 650 trees. The company has implemented ecological features such as bird boxes, bat boxes, beehives and insect hotels to improve biodiversity.

¹³ World Bank, 2023.

¹⁴ Canary Wharf Group, 2021. The specific securities identified and described are for informational purposes only and do not represent recommendations.


¹⁵ Canary Wharf Group, 2018: Biodiversity Action Plan 2018-2028.

The impact

Canary Wharf Group's interventions to improve biodiversity on their estate may deliver economic benefits in two ways.

First, integration of biodiversity is expected to positively influence stakeholders, including tenants and the community. People derive real benefits from contact with nature in terms of physical and mental health and well-being. A study in another UK city, Manchester, showed business owners, residents and workers were willing to pay a premium in rent for green infrastructure (in this case, trees).¹⁶ In a competitive real estate market, stronger customer relations may translate to longer term tenancies.

Second, there are potential economic benefits from services provided by ecosystems and habitats – for example, flood regulation, noise reduction, energy savings and air quality improvements. Research has found that green roofs can mitigate the heat island effect by reducing urban temperatures.¹⁷ They have also been shown to reduce buildings' energy consumption: lower solar absorption means less electricity is needed for cooling buildings in summer.¹⁸



6% Reduction in summer energy demand among tall buildings with green roofs¹⁹

Canary Wharf's actions have also supported biodiversity. As of their latest assessment, the estate supports five bat species, a diverse variety of aquatic life and priority bird species, including black

redstart and kingfisher. The net biodiversity impact of their interventions has not been measured, though.

¹⁶ Mell, I., et al., 2013: Promoting urban greening: Valuing the development of green infrastructure investments in the urban core of Manchester, UK. *Urban Forestry & Urban Greening*.

¹⁷ Rosenzweig, C., et al., 2006: Mitigating New York City's Heat Island with Urban Forestry, Living Roofs and Light Surfaces.

¹⁸ Saiz, S., et al., 2006: Comparative Life Cycle Assessment of Standard and Green Roofs. *Environmental Science & Technology*.

¹⁹ As above.

Key conclusions

- Canary Wharf's biodiversity action plan is likely to have been driven by adaptation considerations and stakeholder relations. Estate tenants may value outcomes such as cleaner air and improved aesthetics, giving Canary Wharf a potential advantage over rival landlords.
- While practically impossible to restore the original biodiversity of an urban environment, interventions can still help to protect biodiversity. Cities will likely never be comparable to natural habitats, but they can provide habitats for many species with some planning and intentionality.
- Canary Wharf's biodiversity actions are replicable. However, other real estate developers may require financial incentives or regulation that integrates biodiversity as part of the licensing process to follow suit, particularly in urban environments that are less well financed and more environmentally damaged or have a different socioeconomic makeup.





Energy

Energy: How interventions can deliver benefits for nature and renewable energy producers

The issue

Addressing the global climate emergency requires an urgent transition to a low-carbon economy. Renewable energy projects have potential side-effects that could exacerbate the biodiversity crisis, though. Hydroelectric plants can flood vast areas and alter the flow of rivers; wind turbines can be detrimental to birds and bats; and solar farms can have a negative impact on biodiversity, especially when large-scale plants are close together.

The prioritisation of access to clean, affordable energy means environmental damages caused by clean energy projects have, at times, been neglected. Yet they can also help to conserve nature, helping to address both the climate and biodiversity crises. To minimise the negative impacts of renewables projects on natural habitats and biodiversity, conservation and careful planning must be embraced from the early stages of projects.

The intervention

Several European utility companies have adopted biodiversity-specific policies and actions, ahead of their North American counterparts. In many cases, biodiversity interventions are required by the licensing process. Large infrastructure projects, which have potentially major implications for nature, are subject to environmental impact assessments (EIAs) that often include an explicit focus on biodiversity.

Interventions can minimise harm or lead to no-net-loss biodiversity outcomes. It is feasible that they could be net positive over the lifecycle of an asset.

Among actions cited by European utility companies Iberdrola, Enel Green Power and UK-based Gridserve have supported beehives or planted wildflowers on their solar parks to help pollinator populations.²⁰

There are also opportunities for offshore wind platforms to enhance or support marine biodiversity. By creating artificial reefs, Danish company Ørsted – the world's largest offshore wind producer – aims to help address coral loss, one of the main impacts of climate change already under way.²¹

Restoring or maintaining mangroves can also support biodiversity, while protecting energy assets. Mangroves serve as nurseries for many marine species, including fish and shrimp, providing food and shelter during early life stages and act as a critical source to replenish some of the ocean's fish stock.²² Though biodiversity restoration was not the main objective of the project, mangrove planting and protection alongside construction of a coastal wind farm in Pakistan operated by Zephyr Energy illustrates the potential biodiversity benefits of such interventions.

²⁰ The specific securities identified and described are for informational purposes only and do not represent recommendations.

²¹ Based on installed offshore wind generation capacity, 2022.

²² International Union for Conservation of Nature, 2017: Mangroves: nurseries for the world's seafood supply.

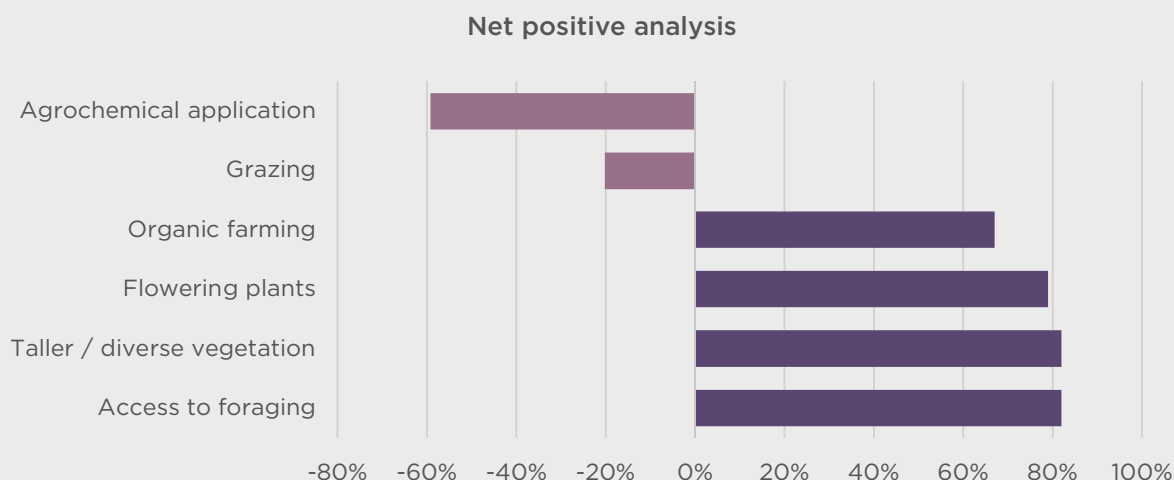
The impact

While many of the biodiversity actions described by energy companies do have some positive effect on biodiversity, little evidence is provided on how interventions have led to a reduction or reversal of biodiversity loss.

Nonetheless research has shown that, with the right interventions, solar parks can potentially mitigate drivers of pollinator decline locally.²³

Ingredients for pollinator-friendly solar farms

Net positive analysis of pollinator impacts based on literature review



*Net figures have been derived by subtracting the percentage of negative studies from that of positive studies. Literature review based on 185 articles relating to the impacts of interventions affecting pollinator populations.

Source: Blaydes, H., Potts, S.G., Whyatt, J.D., Armstrong, A., 2021: Opportunities to enhance pollinator biodiversity in solar parks., *Renewable and Sustainable Energy Reviews*.

The potential for interventions by energy companies to deliver financial benefits alongside biodiversity benefits is illustrated by the examples of Ørsted and Zephyr. As well as supporting vulnerable aquatic biodiversity, artificial reefs may help protect offshore wind platforms against wave erosion in sandy ocean soils.

Mangroves can be a cost-effective barrier to coastal flooding and erosion, compared to 'grey' infrastructure (like sea walls), and can serve as nurseries for aquatic species. Zephyr estimates that the investment in mangrove restoration alongside its wind farm (financed by the UK government's development finance body) will generate savings of up to US\$7 million in maintenance costs over the project's 25-year timeframe.²⁴

²³ Blaydes, H., et al., 2021: Opportunities to enhance pollinator biodiversity in solar parks, *Renewable and Sustainable Energy Reviews*.

²⁴ Zephyr Energy's wind power project in Pakistan was not one of the case studies in this research, but one example cited. A cost-benefit analysis of the project can be found at: <https://www.earthsecurity.org/reports/the-investment-value-of-nature-the-case-of-zephyr-power-limited>



Key conclusions

- While European utilities have adopted highly replicable biodiversity-specific policies and actions, these efforts appear to have been driven by the need to comply with regulatory requirements and for a social licence to operate. They may also help companies to establish and protect reputations for sustainable operations.
- Regulatory drivers should be strengthened to catalyse transformations both within corporate culture and across supply chains. The negative impacts on biodiversity of large infrastructure projects may often be very difficult to mitigate, but strong EIA requirements can help ensure companies' actions cause no further losses to biodiversity and, ideally, create the enabling conditions for net-positive outcomes.



Water

Water: How cost-effective ‘green’ infrastructure can protect water resources

The issue

Freshwater habitats cover less than 1% of the world’s surface but are exceptionally rich and diverse in biodiversity.²⁵ They play important roles in recycling nutrients, mitigating flooding and purifying water for human consumptions. Yet they are under immense pressure from pollution, unsustainable levels of water withdrawals and changing land use.

Highly regulated water utility companies have a responsibility to source and deliver clean water to customers. Treatment plants (‘grey’ infrastructure) filter, chemically sanitise and purify water to ensure compliance. A variety of nature-based water management practices and measures offer a ‘green’ infrastructure alternative, however. Forests, for instance, can protect drinking water sources and filter out pollution, nutrients and sediment, while also helping to regulate the water cycle and provide habitats for animals and plants.

The intervention

Central Arkansas Water a water utility in the US state of Arkansas, issued a US\$31.8 million US municipal green bond in 2020 that was certified under the Climate Bonds Initiative’s water infrastructure criteria.²⁶

Just over one-third of the proceeds were used to purchase approximately 1,820 hectares (4,500 acres) of forest land in the watershed of one of the company’s reservoirs, Lake Maumelle. It will be protected as forest land to provide filtration services upstream of the lake. The rest of the bond’s proceeds were used to upgrade existing ‘grey’ water infrastructure.

6% Average loss in tree cover across the world’s watersheds, 2000 to 2014²⁷

²⁵ World Wide Fund for Nature, 2023.

²⁶ The specific securities identified and described are for informational purposes only and do not represent recommendations.

²⁷ World Resources Institute, 2016: Watersheds Lost Up to 22% of Their Forests in 14 Years. Here’s How it Affects Your Water Supply.



The impact

The company's investment to protect forests in and around the Lake Maumelle watershed is expected to increase the quality and quantity of freshwater available for its purposes. The acquisition mitigates the risk that the land could have been sold for development or exploitation, which could have harmed the watershed of its reservoir. Following the investment, 45% of Lake Maumelle's watershed will be protected as forest.

As well as improving the security of Central Arkansas Water's supply, the action also stands to lower the company's water treatment costs, versus chemical processes. The city of Philadelphia estimates that its 25-year green stormwater infrastructure plan will only cost one-quarter of what grey infrastructure would cost to deliver the same result.²⁸

A co-benefit of the intervention is the protection of natural habitats and biodiversity in the forests, which are home to 11 local species of conservation concern. Central Arkansas Water is also partnering with the Army Corps of Engineers to undertake an ecosystem restoration project on the Maumelle River. Though mainly aimed at securing clean water supplies, the project could also deliver material biodiversity benefits.

**€99 to €138
per hectare**

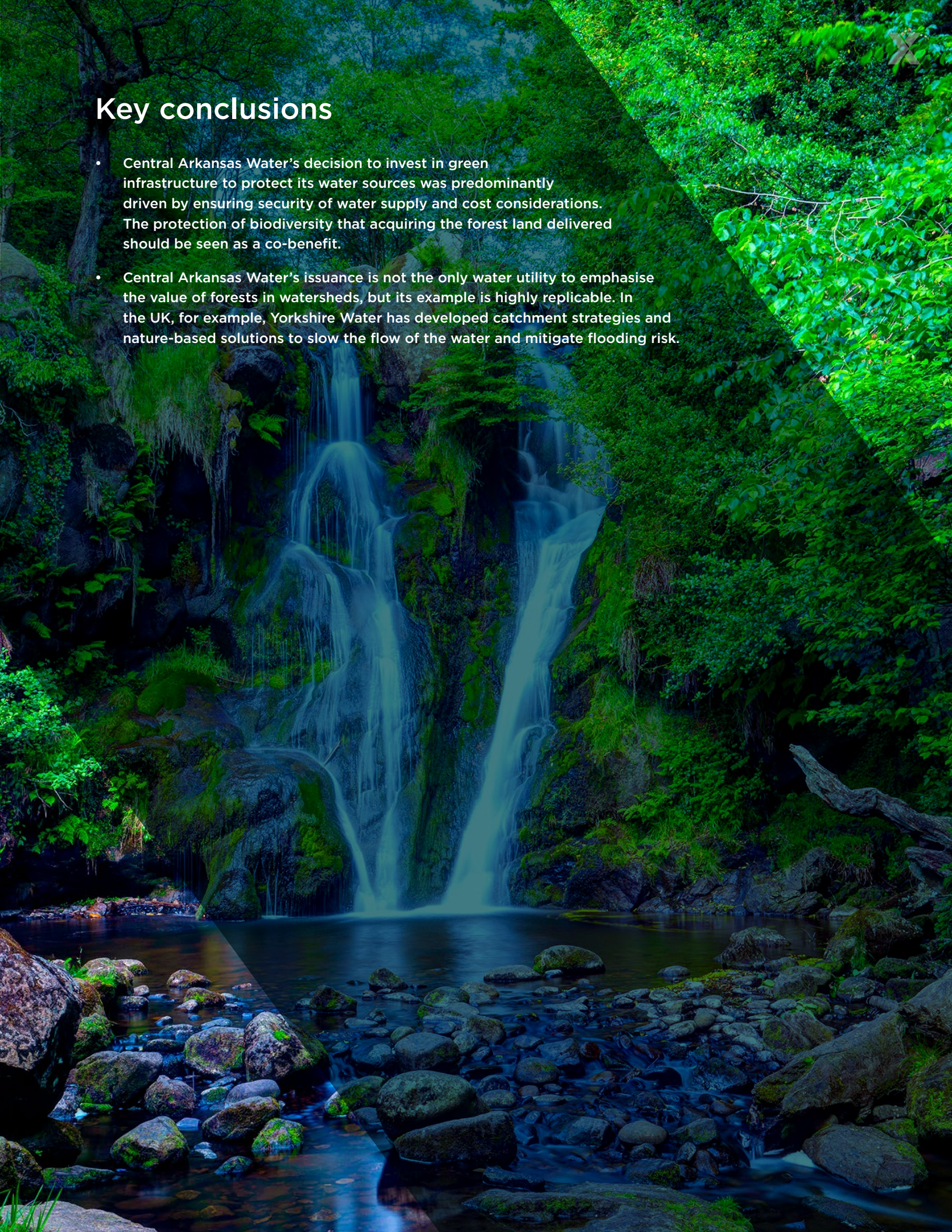
Economic value of the
ecological service of forests
for water quality²⁹

28 Stutz, B., 2018: With a Green Makeover, Philadelphia Is Tackling Its Stormwater Problem. *Yale Environment* 360.

29 Abildtrup, J., Harcia, S., & Stenger, A., 2013: The effect of forest land use on the cost of drinking water supply: A spatial econometric analysis. *Ecological Economics*.

Key conclusions

- Central Arkansas Water's decision to invest in green infrastructure to protect its water sources was predominantly driven by ensuring security of water supply and cost considerations. The protection of biodiversity that acquiring the forest land delivered should be seen as a co-benefit.
- Central Arkansas Water's issuance is not the only water utility to emphasise the value of forests in watersheds, but its example is highly replicable. In the UK, for example, Yorkshire Water has developed catchment strategies and nature-based solutions to slow the flow of the water and mitigate flooding risk.





Preserving and restoring nature-rich mangrove habitats could reduce local disaster risk and also help deliver substantial biodiversity benefits.

Insurance: Nature-based solutions could reduce natural catastrophe risks and lower premiums

Nature has the potential to protect people and the economy, including built structures. Protecting coral reefs and restoring wetlands are examples of natural insurance solutions which asset owners – and by extension their insurers – could consider as potentially cost-effective solutions to address risks from coastal hazards like storm surges and coastal erosion. Preserving and restoring these nature-rich habitats, which are vulnerable to the impacts of climate change, would also help deliver substantial biodiversity benefits.

One study estimated that removing existing mangroves would increase the cost of flood damages globally by more than 16% (US\$82 billion).³⁰ From the perspective of an insurance company, restoration of mangroves – of which almost one-fifth were lost between 1980 and 2005 – can be a form of disaster risk reduction as it reduces the consequences of expensive and recurrent localised events.³¹

US\$37,500 per hectare

Estimated annual economic value of mangrove habitats³²

Despite the strong theoretical case for insurers to integrate nature restoration into their policies, it is seldom carried out in practice. There is therefore an 'insurance value' of conservation that is currently not captured by conventional insurance products.

An important barrier to implementation is a lack of data on restoration benefits and inadequate models for capturing them. The public goods nature of many benefits created by coastal nature restoration is another complicating factor.

The Restoration Insurance Service Company, currently in development with a pilot planned for the Philippines, is an experiment that may yield useful insights for eventual private financing of mangrove protection.³³ Under its mechanism, insurance companies would insure coastal assets that benefit from mangrove restoration and, in turn, pay a fee. Over time, insurers could translate reduced risk into insurance premiums for coastal asset owners. Lower premiums in acknowledgement of nature restoration efforts would be the ultimate expression of an effective and sustainable nature-based insurance solution.

³⁰ The Nature Conservancy et al., 2018: The Global Value of Mangroves for Risk Reduction.

³¹ As above.

³² Aburto-Oropeza, O., et al., 2008: Mangroves in the Gulf of California increase fishery yields. Estimates based on annual economic median value of fisheries per hectare of mangrove fringe in Mexico.

³³ Details of the initiative can be found here: https://cpilabs.wpenginepowered.com/wp-content/uploads/2019/03/RISCO_Instrument-analysis-1.pdf

Conclusions

Overall, the research illustrates broad opportunities for companies to invest in ways that help protect biodiversity. It also highlights the limited scale of corporate action to protect biodiversity today. After all, no examples were identified in this study where companies pursue biodiversity-related goals at scale as a primary objective, using only private financing.

Aside from where required by regulation, investments to protect biodiversity are only pursued where they are co-benefits of cost-effective interventions that are in companies' own long-term interests.

Motivations for corporate action are found to vary by case study. Supply chain security emerged as a primary driver where companies rely on the natural environment for their products and services, as illustrated by the agriculture and water sector case studies. Regulatory requirements are another key driver, as demonstrated by interventions in the energy sector. The case studies did not reveal consumer preferences to be a major motivating

factor behind action, however, despite expectations that more biodiversity-supportive practices would be perceived to yield reputational benefits or higher product prices for companies.

- The **agriculture** sector example illustrates the importance of working effectively with suppliers in ways that enable them to adopt biodiversity-positive results, delivering more robust supply chains that are resilient to environmental challenges, and helping to ensure a social license to operate. However, efforts to improve a social license to operate may or may not have real-world positive impacts and can sometimes be more about public relations - something analysts need to be aware of.
- The **cities** example illustrates how the incorporation of nature and biodiversity into long-term plans by landlords and property developers can improve urban spaces and, theoretically at least, support tenant retention and local wildlife.

- The **energy** sector example shows how interventions can lead to positive outcomes for utilities, nature and climate adaptation, but it also highlights the importance of regulation to minimise damage to biodiversity and to drive net-positive outcomes.
- The **water** sector example illustrates how investing in green infrastructure can be cost effective and deliver important co-benefits for biodiversity.
- The **insurance** sector provides a good illustration of how theoretically strong mechanisms for potentially lowering risk and restoring biodiversity could have significant impact, though there are few real-world examples of how incorporating biodiversity provisions could lower insurance premiums, pay-outs or both.

In some cases, companies' actions may be construed as being driven more by reputational or marketing objectives than by corporate strategy. Analysts and observers must be alert to the risks of greenwashing, especially in an emerging area of consumer and investor interest like biodiversity.

In many respects, the case studies illustrate the limits to what corporate biodiversity actions can deliver, or be expected to deliver, on their own without policy intervention.

Ultimately, **only once appropriate financial values are assigned to natural capital will markets allocate capital to biodiversity solutions at the scale needed to ensure the health and prosperity of future generations.** Building on insights from the case studies, actions that governments and companies should take to encourage nature-positive investments, as well as areas for further research, are proposed on the following pages.



Recommendations for governments

- **Governments should address the market failure that drives corporate inaction on biodiversity loss through stronger regulation.** The case studies indicate that most companies will not act voluntarily at the scale required to address the global challenge.
- **Governments should ensure that regulatory frameworks promote action** by the private sector, for instance by allowing utilities to introduce consumer tariffs for nature-related investments as laws already permit in the US and elsewhere.
- **Governments should explore the full complement of policy levers, from tighter environmental licensing to introducing biodiversity-related incentives.** Actions taken out of commercial interest that deliver co-benefits for nature represent the lowest hanging fruit for governments to encourage. Public-private partnerships are already being used and should continue to be considered to overcome the issues of scale and coordination that can complicate biodiversity action.
- **Governments should make the assessment and disclosures of impacts and dependencies on nature mandatory for companies.** Given growing recognition of the systemic risks associated with biodiversity loss, this would provide impetus to explore how risks can be mitigated.

Recommendations for companies

- **Companies that are early movers in their respective sectors should be vocal** about their actions to protect biodiversity and highlight their benefits – both for the business and for nature.
- **Companies should engage with their customers, suppliers and employees** on biodiversity-related topics and use their common interest, where it exists, to identify actions that benefit all stakeholders – particularly where it relates to business resilience.
- **Companies can improve their understanding** of how their operations and value chains affect biodiversity, and what the potential benefits of biodiversity protection and restoration might be for their specific business models.
- **Companies and investors can join voluntary initiatives**, such as the Taskforce on Nature-related Financial Disclosures (TNFD), to better understand and disclose on their impacts and reliance on biodiversity.
- **Companies can help replicate and scale biodiversity investments** by improving data measurement and metrics, by sharing data with industry partners and by incorporating data into decision-making processes and tools.

Areas for further research

Building on the key findings in this report, **the following topics warrant further study:**

- How to design policies (penalties or incentives) that effectively price the value of biodiversity into financial decision-making. The failure to invest in protecting or restoring biodiversity mainly results from a failure to price natural capital.
- How to calculate the cost-benefits of biodiversity-related interventions. More data would help inform the replicability of actions. This is especially useful with regard to the importance of insurance and natural disasters, and the role biodiversity can play in reducing those risks.
- How to leverage public funding or philanthropy to mobilise private funding for biodiversity actions. Better understanding of how to maximise the multiplier effect is key to scaling public-private partnerships.
- How to use natural ecosystems as part of coastal insurance schemes.





Methodology

The researchers at Imperial College London developed a systematic methodology to select the case studies according to the following set of criteria:

- 1** Cases were only included where it appeared that companies had biodiversity as a primary objective or intentional co-benefit. Those where biodiversity considerations appeared to be coincidental (unintentional co-benefit) were avoided. Selection criteria largely reflected the guidance released by the International Finance Corporation in October 2022, which divides into (i) investment activities that seek to generate biodiversity co-benefits, (ii) investments in biodiversity conservation and/or restoration as the primary objective, and (iii) investments in nature-based solutions to conserve, enhance, and restore ecosystems and biodiversity.
- 2** The research aimed for sector diversity and chose cases from five contexts. First, the energy sector is one example of a sector under high scrutiny, partly for its importance in the climate agenda and for decades of environmental impact. Second, water utilities directly depend on nature and there are examples of green infrastructure investments by these companies. Third, cities are at the forefront of multiple nature and climate related crisis, and it will become crucial to both mitigate and adapt urban landscapes. Fourth, the agricultural sector is not only linked to deforestation and biodiversity loss but is also highly dependent on nature. Finally, due to its direct exposure to damage claims, the insurance industry is perhaps one of the most obvious candidates for being at the forefront of creating innovative solutions which integrate nature considerations.
- 3** Effort was made to cover a diversity of regional contexts and to include developed and developing markets. Of the 17 cases on the long list of potential case studies, nine were in the 'Global South' and one can best be described as global. The final list consisted of one global case, two from the 'Global North' and two from the 'Global South'.
- 4** The research avoided scrutiny of cases that have already received attention in the literature, as this would limit the added value of the investigation. Since the goal was to identify private sector motivations, initiatives with a significant public sector component were avoided.
- 5** Finally, case selection aimed to cover a range of motivational drivers. The hypothesis was that companies' actions can be categorised in four 'buckets': risk management, license to operate (regulatory compliance and social contract), revenue generation or cost reductions, and resilience of supply chains and of commercial revenues.

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