



Gresham House
Specialist investment



Natural Capital Q&A

What is natural capital?

Natural capital is the stock of renewable and non-renewable natural resources that combine to provide a flow of benefits to people and planet. These benefits are commonly known as ecosystem services.

Renewable natural resources includes plants and water, and non-renewable, finite resources includes fossil fuels and minerals.

Nature delivers benefits to society through four core ecosystem services:

Provisioning

Material outputs from nature



Food



Water



Timber



Energy

Regulating

Indirect benefits generated through regulation of ecosystems



Carbon Sequestration



Water filtration



Crop pollination

Supporting

Fundamental ecological processes that support the delivery of other ecosystem services



Nutrient cycling



Soil formation

Cultural

Non-material benefits from nature



Spiritual



Aesthetic



Recreational

Benefits to society



How is biodiversity related to natural capital?

Biodiversity is defined as the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.¹

It is an essential characteristic of nature and is critical to maintaining the quality, resilience, and quantity of ecosystems.² The provision of the ecosystem services on which business and society rely are underpinned by biodiversity and without it many ecosystem services will fail.

Biodiversity loss poses an existential threat to human survival and prosperity which must be addressed within all aspects of our economies and financial systems.

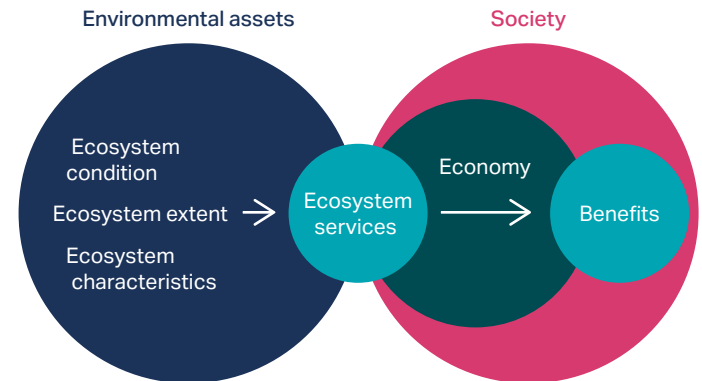
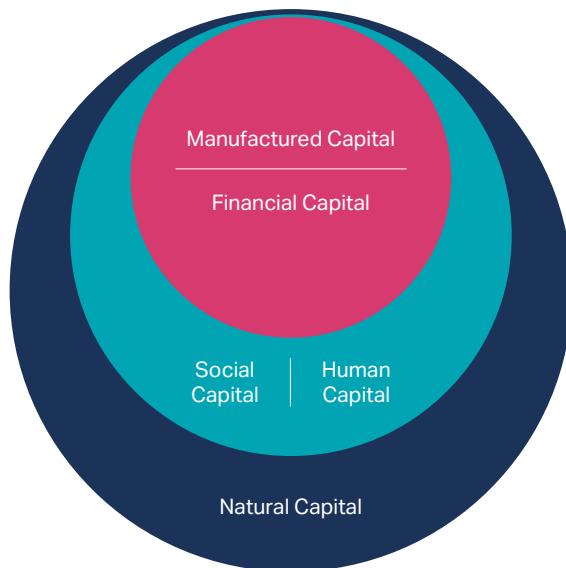
1. UN 1992

2. Taskforce for Nature Related Financial Disclosures

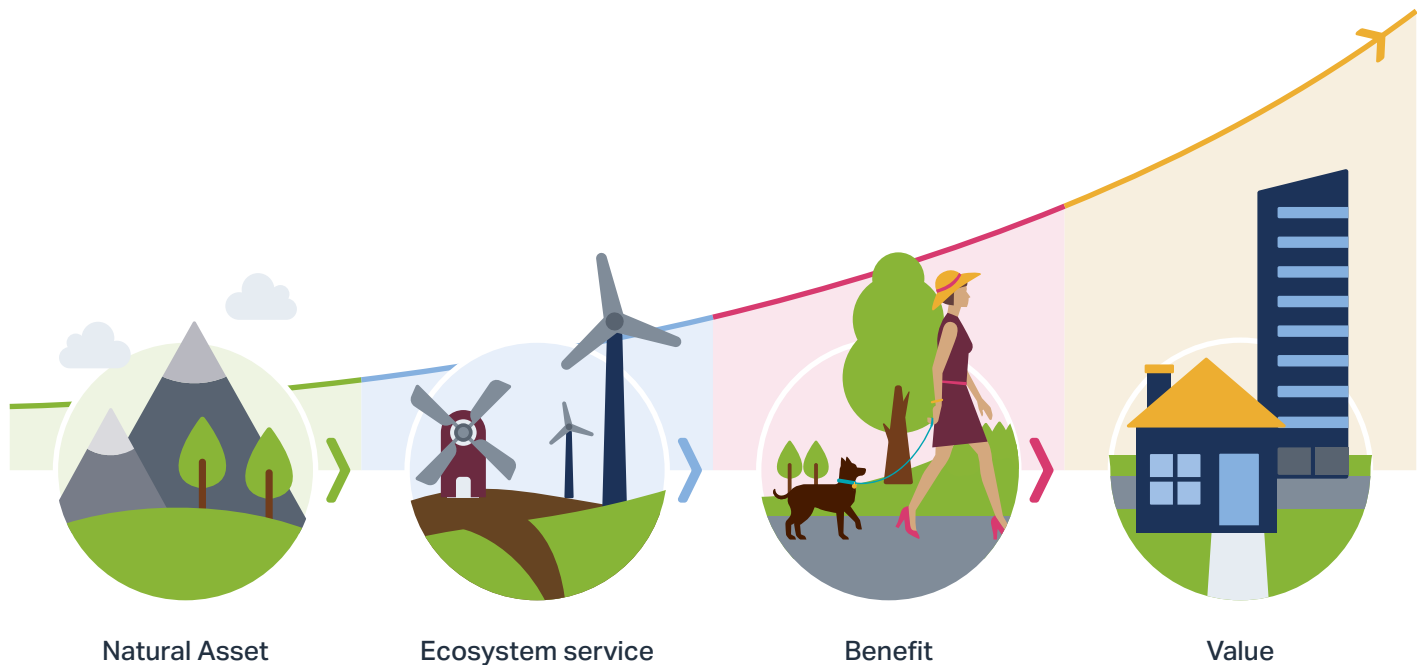
What is the role of natural capital in the global economy?

In economic systems we need to value all types of capital. Humans are in the most part paid a salary, placing a value on human capital. The products and services we consume are rarely free, placing a value on produced capital. The third capital component of our economies is natural capital.

All economic activity relies on natural capital. From creating the conditions to support life on earth to producing the raw materials used in the products we consume, the global economy would not exist without nature.



Despite this fundamental role, natural capital has not been recognised as an economic asset in the same way as human or produced capital for example. If the contributions of natural capital to the global economy were to be valued in the same way as other types of capital, it would have an estimated value of \$125tn, equivalent to 1.25x Global GDP in 2022.³



3. WWF Living Planet Report 2018: Aiming Higher



What is the state of nature today?

Today, we consume the equivalent of 1.6 Earths just to maintain our current way of life.⁴ This has led to 75% of the Earth's land surface being significantly altered by human activity,⁵ with just 3% of terrestrial ecosystems still ecologically intact.⁶ Wild populations of mammals, birds, amphibians, reptiles and fish have dropped on average 69% in the last 50 years.⁷

Since 1990, the planet has lost 420 million hectares of forest through deforestation; this is not only harmful for biodiversity, but also contributes between 12-20% of global GHG emissions.^{8,9}

The UK in particular is one of the most nature depleted countries, with more than half of its biodiversity lost through human activity since the industrial revolution.¹⁰

4. Becoming Generation Restoration, UNEP

5. IPBES

6. Where Might We Find Ecologically Intact Communities?

7. WWF Living Planet Report

8. Deforestation has slowed down but still remains a concern, new UN report reveals

9. Climate Finance Thematic Briefing: REDD+ Finance

10. State of Nature report

What is causing the loss in nature?

The five main drivers of nature loss are: land use change, climate change, resource extraction, pollution, and invasive alien species.¹¹

The global food system is the primary driver of biodiversity loss with agriculture alone threatening 86%¹² of species at risk of extinction. However, sacrificing nature to meet increasing food demand has now put \$577¹³ billion in annual crop production at risk due to the loss of pollinator species.

Despite the worsening state of nature, around \$7 trillion is invested globally each year in activities which have a direct negative impact on nature.¹⁴ This includes private financing of industries such as construction, electric utilities, real estate, oil and gas, and food and tobacco. These industries in aggregate represent 16% of investment flows in the global economy but represent 43% of all nature-negative flows.

As well as this, government subsidies for agriculture, fossil fuels, fishery, and forestry that focus solely on economic output and drive unsustainable practices totalled \$1.7 trillion in 2022¹⁵.

11. TNFD

12. Institute for Sustainability Leadership (CISL), April 2021

13. UN Environment Programme - Facts about the nature crisis

14. State of Finance for Nature 2023

15. UN State of Finance for Nature 2023



How are nature and climate change linked?

Losses to nature are being accelerated as global temperatures increase. Even if global temperature increases are limited to 2°C, 8% of the world's mammals will lose their habitats.¹⁶

Climate change is one of the key causes of nature loss but we need nature and biodiversity to avoid the worst affects of climate change. The two topics are inherently linked and cannot be considered in isolation.

Nature is a crucial ally in our ambitions to limit global temperature increases and avoid the worst impacts of climate change. Over the past 10 years nature has absorbed 54% of man-made carbon emissions in our land and our oceans, with the remaining 46% of emissions accumulating in the atmosphere, contributing to climate change.¹⁷

The combination of emissions continuing to increase and nature being increasingly destroyed is deadly. Nature is our greatest ally in the fight against climate change, and it's loss from our planet our greatest threat.

16. UN

17. Our climate's secret ally: Uncovering the story of nature in the IPCC Sixth Assessment Report

What is the biodiversity finance gap?

Just \$200 billion was invested in nature-based solutions in 2022.¹⁸ Global investment in nature needs to increase at least four-fold, equivalent to \$536 billion a year, to adequately address the climate, biodiversity and land degradation crises,¹⁹ this is known as the biodiversity finance gap.

Closing the biodiversity finance gap is crucial for our societies and economies future prosperity. For every \$1 invested in nature restoration, up to \$30 of economic benefits are generated through the better provisioning of ecosystem services.²⁰

Can you invest in biodiversity today?

In the last five years, a combination of regulation and voluntary frameworks have created tailwinds for delivering biodiversity as a new nature market commanding economic returns. The introduction of mandatory biodiversity net gain for planning permissions in England from February 2024, has created a catalyst for biodiversity as an investment class with biodiversity credits now sold in compliance and voluntary markets.

18. State of Finance for Nature 2023

19. State of Finance for Nature 2023

20. Beyond GDP: making nature count in the shift to sustainability

How can we transition from a nature-harming to a nature-positive economy?

It is estimated that the world's natural capital could be worth as much as \$125 trillion but nature markets today are only valued at just under \$10 trillion.²¹ This highlights that nature's true value is not accurately reflected in our current economic and financial systems.

Our failure to value nature, has led to its degradation. Putting a value on nature is complicated, but by doing so, market participants can be incentivised to;

- 1 Avoid causing further damage to nature
- 2 Reduce unavoidable impacts on nature
- 3 Take action to restore and regenerate nature.

Taking these three actions across our global economies should aid in the transition to a nature-positive economy.

Moving to nature-positive models could create annual business opportunities worth \$10 trillion by 2030, as well as creating nearly \$700 billion in savings annually through reduced operating costs.²²

Investors will need to take precautions to ensure that their natural capital allocations and wider investment portfolios are driving positive outcomes and not adding to the \$7 trillion of nature-negative flows, as many existing nature-market opportunities in agriculture, forestry, and fishing are driving nature loss.

21. Taskforce on Nature Markets, McKinsey

22. New Nature Economy Report II: The Future of Nature and Business





How is the nature crisis being addressed in the global sustainability agenda?

A major milestone in the transition to a nature-positive economy occurred at the fifteenth meeting of the Conference of the Parties (COP 15), with the adoption of the Kunming-Montreal Global Biodiversity Framework (GBF). This global agreement sets out 4 goals for 2050 and 23 targets for 2030, with the headline ambition “30x30” – to conserve, restore and protect 30% of land and oceans by 2030.

Within this ambition is a goal to mobilise \$200 billion per year by 2030 for investment in biodiversity, and a goal to progressively reduce harmful subsidies by at least \$500 billion per year to 2030.

Prior to this, the Sustainable Development Goals (SDGs) set goals 14 (Life Below Water) and 15 (Life on Land) to directly address the degradation of nature.

The Taskforce for Nature Related Financial Disclosures (TNFD) is an international initiative formed to develop nature-related disclosures so that organisations can provide clarity to investors, consumers and other stakeholders on where they have an interface with nature and what the nature related risks and opportunities faced by the business are.

The Capitals Coalition is another organisation that has formed to support businesses, financial institutions and governments by providing guidance on how to take a natural capital approach and include the true value of natural capital in decision-making.

What is the status of nature markets today?

Nature markets are where nature-specific revenues are generated as an integral part of the trade; these are estimated to be worth around \$9.8 trillion today.²³ The majority of this is driven by commodity production, including agriculture.

Only a fraction of current nature markets are verified with sustainability certifications²⁴. Hence investors allocating to natural capital through existing nature markets need to be careful to ensure their capital is not causing nature destructive outcomes.

Credit based markets and conservation markets are a growing focus for natural capital investors, however these markets currently represent just 1% of the value of all goods and services traded in nature markets.²⁵

Examples of a credit based market - Carbon forestry

Carbon forestry is a developing natural capital market which places a value on carbon sequestration in forest biomass to generate carbon credits. Well executed afforestation projects can contribute significantly to the atmospheric carbon removals required to stabilise global temperatures and create important co-benefits for local biodiversity and ecosystem integrity.

23. Global Nature Markets Landscaping Study

24. McKinsey, State of Nature Markets Today & Tomorrow

25. Global Nature Markets Landscaping Study

What could future nature markets look like?

Research from McKinsey suggests that nature markets such as credit, insurance and sustainability linked bonds will grow in demand, driven by climate change and consumer preferences. Nature specific credits and payments for ecosystem services are also gaining traction. Supply of these solutions is relatively low but is expected to grow as corporates and governments become more aware of how their activities negatively impact nature.

Going forward nature markets need to align themselves to nature-positive outcomes to ensure our global prosperity. This can be achieved through valuing nature as part of our economic and financial systems. The challenge arises in ensuring that the valuation methodologies are consistent across different assets and regions.

Payments for ecosystem services

Another innovative market-based mechanism where beneficiaries, or users, of ecosystem services provide payment to the stewards, or providers, of ecosystem services. The income is then spent on management and conservation of the ecosystem to guarantee a flow of ecosystem services over-and-above what would otherwise be provided in the absence of payment.



What makes Gresham House well positioned for investing in natural capital?

Gresham House is the ninth largest natural capital manager globally and is investing in an increasing range of scalable and profitable natural capital assets.²⁶

We provide our clients with a platform of return-generating natural capital assets with established track records, including sustainable forestry, sustainable agriculture, carbon forestry and biodiversity creation. Each asset has different risk and return profiles and outcomes for nature. We work with our clients to provide access to these options to create their natural capital portfolios which promote the transition towards a more sustainable economy.

26. IPE February 2024

We support the promotion of high standards throughout the whole Natural Capital market, for example:

- Gresham House is a co-founder of the International Sustainable Forestry Coalition which aims to achieve greater recognition of the importance of sustainable management and preservation of global forests in the fight against climate change
- We are investigating how we can collaborate with other investors to create a standardised approach to monitoring and reporting on the generation of carbon credits from certain forestry projects
- Rebecca Craddock-Taylor is a part of a biodiversity working group at the Institute & Faculty of Actuaries to ensure actuarial advisers can guide their stakeholders on why natural capital is critical to risk management and investment strategies.

Case studies: investing in natural capital at Gresham House



Sustainable forestry: Brycheiniog Forest, mid-Wales

Gresham House invested in Brycheiniog forest, planted in the 1950's. It has evolved into a diverse mosaic of species of all ages. Containing around 200,000 cubic metres of timber, the forest represents a significant store of value to investors.

The forest supports biodiversity, providing nature corridors for species in a landscape with fragmented woodland cover. After harvesting, a greater diversity of species will be replanted, contributing positively to the forest's biodiversity and visual impact.

The forest, including veteran trees, provides habitats for 66 protected or threatened species, including bats, dormice, and red squirrels, while ancient woodland remnants support vast numbers of invertebrate species. Advances in technology, such as DNA sampling ('e-DNA'), will improve quantifications and management of forest biodiversity.

Sustainable agriculture: Fischer Farms

Gresham House invested into this platform to develop multiple indoor, controlled environment "vertical farm" projects that currently grow herbs and leafy greens indoors on multiple levels of shelving, using hydroponics and LEDs.

There are many positive environmental impacts from growing food in vertical farms. These include reduction in food miles and subsequent carbon emissions (growing lettuce in the UK in winter instead of flying it in from Europe), increase in shelf life reducing food waste, reduction in the use of fertiliser and pesticides and the avoidance of monocultures which contribute to the degradation of soils and loss of biodiversity.



Carbon forestry²⁷

Gresham House's UK and international afforestation projects are estimated to sequester 15 million tCO₂e over the next five decades.

In New Zealand, over 92 million trees under management will generate 13 million carbon units over the project life. The compliance credits generated are designed for the New Zealand emissions trading scheme (ETS) and will generate cashflows through a long-term off-take agreement with a New Zealand based utility company.

In Scotland, one of our investments has created nearly 800 hectares of new sustainable forestry. Consisting mostly of native Scots pine and broadleaved species, the new forest is expected to sequester over 450,000 tonnes of carbon over the next 60 years, while contributing positively to local biodiversity by creating a vital woodland corridor between lowland and upland zones.

27. Gresham House internal calculations. For more details on targets, estimates and assumptions, please contact Gresham House

Biodiversity creation: Environment Bank

The introduction of mandatory biodiversity net gain for planning permissions in England from January 2024, has created a catalyst for biodiversity as an investment class. Gresham House is supporting Environment Bank in the development of large landscape scale habitat banks across England. These are 25 to 500+ hectare sites where habitats such as wildflower meadows, wetlands or woodland scrub are created and will serve both this new biodiversity credit compliance market and the emerging voluntary markets which is being catalysed by businesses wanting to take action to transition to a nature-positive world.

26 natural capital terms from Gresham House

Afforestation - Afforestation is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources.

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

Biodiversity credit - Biodiversity credits are a verifiable, quantifiable and tradeable financial instrument that rewards positive nature and biodiversity outcomes (e.g. species, ecosystems and natural habitats) through the creation and sale of either land or ocean-based biodiversity units over a fixed period.

Biodiversity Financing Gap - The difference between how much is currently spent and how much is needed annually in the next ten years to protect the most important biodiversity and the services it provides.

Biodiversity metric - A biodiversity accounting tool created by Natural England that uses changes in the extent and quality of habitats as a proxy for nature and compares the habitat found on a site before and after development as a measure of Biodiversity Net Gain.

Biodiversity net gain - An approach to development, land and marine management that leaves biodiversity in a measurably better state than before a development took place.

Carbon credit - A financial instrument that represents a reduction or the avoidance of one tonne of carbon dioxide equivalent (tCO₂e) from the atmosphere.

Carbon pricing - The cost of emitting CO₂ into the atmosphere, either in the form of a fee per tonne of CO₂ emitted, or an incentive offered for emitting less. Putting an economic cost on emissions is widely considered the most efficient way to encourage polluters to reduce what they emit into the atmosphere.

Carbon sequestration - The process of capturing and storing atmospheric CO₂. It is one method of reducing the amount of CO₂ in the atmosphere with the goal of reducing global climate change.

Conversion - Change of a natural ecosystem to another land use or profound change in a natural ecosystem's species composition, structure, or function. Deforestation is one form of conversion.

Deforestation - Loss of natural forest as a result of: i) conversion to agriculture or other non-forest land use; ii) conversion to a tree plantation; or iii) severe and sustained degradation.

Ecosystem services - The contributions of ecosystems to the benefits that are used in economic and other human activities. The benefits are widely categorised into four categories:

- 1 Provisioning services - material outputs from nature that meet human needs such as food, drinking water, timber, critical minerals, and fossil fuels.
- 2 Regulating services - indirect benefits from nature generated through the regulation of ecosystem processes. Examples include mitigation of climate change through carbon sequestration, water filtration by wetlands, and crop pollination by insects.
- 3 Cultural services - non-material benefits from nature such as aesthetic, recreation, education, sense of place, and physical and mental wellbeing.
- 4 Supporting services - ecological processes that support the delivery of other ecosystem services such as nutrient cycling and soil formation.

Emissions trading scheme (ETS) - Emissions trading, also known as 'cap and trade', is a cost-effective way of reducing greenhouse gas emissions. To incentivise firms to reduce their emissions, a government sets a cap on the maximum level of emissions and creates permits, or allowances, for each unit of emissions allowed under the cap. Emitting firms must obtain and surrender a permit for each unit of their emissions. They can obtain permits from the government or through trading with other firms. The government may choose to give the permits away for free or to auction them.

Forest - Land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or other land use. Forest includes natural forests and tree plantations. For the purpose of implementing no-deforestation supply-chain commitments, the focus is often on preventing the conversion of natural forests.

Habitat bank - Sites where habitat is created in advance, to offset or compensate for the negative environmental impacts of development or other human activities. This habitat will need to be secured and managed longterm.

Kunming-Montreal Global Biodiversity Framework - The Kunming-Montreal Global Biodiversity Framework (GBF) was adopted during the fifteenth meeting of the Conference of the Parties (COP 15). This historic Framework, which supports the achievement of the Sustainable Development Goals and builds on the Convention's previous Strategic Plans, sets out an ambitious pathway to reach the global vision of a world living in harmony with nature by 2050. Among the Framework's key elements are 4 goals for 2050 and 23 targets for 2030 which include 30 per cent conservation of land, sea and inland waters, 30 per cent restoration of degraded ecosystems, halving the introduction of invasive species, and \$500 billion/year reduction in harmful subsidies.

Land use change - The change from one land use category to another. Land use change refers to the modification or management of natural environments into human dominated environments, such as settlements, semi-natural, agricultural areas and other living things.

Natural capital - Natural capital is the stock of renewable and non-renewable natural resources that combine to provide a flow of benefits to people and planet.

Natural Capital Approach - A natural capital approach to policy and decision making considers the value of the natural environment for people and the economy.

Natural forest - A forest that is a natural ecosystem, possessing many or most of the characteristics of a forest native to the given site, including species composition, structure, and ecological function.

Nature-based solutions - Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human wellbeing and biodiversity benefits.

Nature-positive - A high-level goal and concept describing a future state of nature (e.g., biodiversity, ecosystem services and natural capital) which is greater than the current state.

Net Deforestation - The difference in forest area between two points in time, taking into account both losses from deforestation and gains from forest regeneration and restoration.

Payments for ecosystem services - Payments for Ecosystem Services is the name given to a variety of arrangements through which the beneficiaries of environmental services, from watershed protection and forest conservation to carbon sequestration and landscape beauty, reward those whose lands provide these services with subsidies or market payments.

Primary forest - A forest that has never been logged and has developed following natural disturbances and under natural processes, regardless of its age.

Sustainable Agriculture - Sustainable agriculture is farming in sustainable ways meeting society's present food and textile needs, without compromising the ability for current or future generations to meet their needs.



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