Written evidence submitted by the Institute for Sustainable Resources (ISR) and other authors across UCL.

House of Commons Environmental Audit Committee
Inquiry: The role of natural capital in the green economy

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The UCL Institute for Sustainable Resources' (ISR) mission is to generate knowledge that promotes the sustainable use of natural resources globally. ISR's multidisciplinary team produces innovative research on a range of sustainability topics including resource efficiency, circular economy, eco-innovation and low carbon societies.

We welcome the opportunity to submit evidence to this important inquiry and would be happy to provide additional information or further testimony should it be helpful to the inquiry. Please contact Kathy Page (Katherine.page@ucl.ac.uk)

Authors: Alison Fairbrass, Abbie Chapman, Adriana Palacios Corrales, Lydia Marsden, Joshua Ryan-Collins

1. **What potential contribution can private capital investment make to measures to secure nature recovery?**

We point you towards a recent publication '*Heavy reliance on private finance alone will not deliver conservation goals*'[1] which seeks to understand a range of financial tools which 'have been designed to incentivise private funds into the delivery of conservation outcomes' and in the authors view 'these policy narratives have underplayed the inherent conflict between achieving ecological outcomes and attracting large-scale financial flows'.

This research reviewed evaluations of existing schemes, including biodiversity offsets, green bonds etc, and found no evidence that they are working. There is a suggestion that these types of instruments could work with much more proactive governance by public bodies, granular oversight and financial regulation, but this would add cost, potentially putting off investors.

In addition to this, nature markets are inherently heterogeneous and complex, which makers efficient trading difficult. There are very difference variables across environments and across the country, and ecosystem services are often interdependent. That means splitting them into separate markets is complex.

One contribution of well targeted private investment could be through integrating technological-ecological synergies with nature-based solutions. This means designing human-made technology with the purpose of nurturing the natural environment in a way that the two work together.

For example, an offshore wind farm, where there is the opportunity to provide green energy and also increase marine biodiversity. By constructing the base of the turbines with materials that attract and enhance the development of artificial reefs, technology can be designed and used in a way that collaborates with nature to

[1] Kedward et al. (2023) Heavy reliance on private finance alone will not deliver conservation goals. https://www.nature.com/articles/s41559-023-02098-6

solve a problem more effectively. By standardising and regulating ecological design practices for all projects as well as stipulating nature-based solutions the private sector could increase its nature-positive potential.[2]

2. How can investment best be aligned with environmental benefits, so as to achieve or surpass the Government's targets for nature recovery?

And,

3. What measures are necessary to (a) establish and (b) maintain the high-integrity markets in ecosystem services which are expected to attract private investment? What confidence do investors currently have in the UK's arrangements for these markets?

There are trade-offs and tensions in nature markets which haven't yet been thoroughly considered. To make an investment in nature worthwhile, there needs to be proof of additionality. This evidencing requires more oversight and evaluation, which can't be expected to be undertaken by private companies.

Therefore, there is a trade-off between a market that prioritises efficiency and cost reduction, versus environmental additionality. Biodiversity net gain for instance is difficult and costly to demonstrate. Recent academic literature argues that successful nature-related investments actually require more, rather than less of a role for the public sector[1].

Establishing and maintaining high-integrity markets in ecosystem services that attract private investment requires a multifaceted approach. Firstly, it's essential to enhance the rigor and enforceability of impact monitoring, especially for biodiversity markets. The government needs to work with the private sector to establish a clear baseline against which all gains will be measured. This baseline is crucial because it forms the foundation for evaluating the effectiveness of projects.

Moreover, the metrics used for measuring biodiversity should evolve beyond taxonomic indicators (which count species diversity in specific systems) to include food webs and ecological interactions. This expansion in measurement criteria, as advocated by Cochrane[3] and Mace[4], allows for a more holistic understanding of biodiversity impacts and gains.

Investment in research and technology to measure biodiversity such as drones, airborne laser scanning, satellite sensors, eDNA analysis, radar cameras, AI, trackers, and glider technology with sampling capabilities can revolutionise biodiversity monitoring. These technologies offer cost-effective and efficient alternatives to traditional methods, effectively filling indicator gaps and enhancing data quality.[5]

Furthermore, the UK government needs to extend its focus beyond traditional sectors like agriculture, peatland, and coastal land to include industries in energy and construction & development. Offshore wind energy projects have immense potential for delivering biodiversity gains, as noted by various researchers

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[2] Pörtner et al. (2021). Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change. https://zenodo.org/record/5101125

[3] Cochrane et al (2016). What Is Marine Biodiversity? Towards Common Concepts and Their Implications for Assessing Biodiversity Status. https://www.frontiersin.org/articles/10.3389/fmars.2016.00248/full

[4] Mace et al (2018). Aiming higher to bend the curve of biodiversity loss. https://www.nature.com/articles/s41893-018-0130-0

[5] Wentworth and Henly (2021). Effective biodiversity indicators. UK Parliament Post Note https://post.parliament.uk/research-briefings/post-pn-0644/

and the IPBES IPCC document [2,6, 7]. By including the wind energy sector in biodiversity initiatives, the government can tap into this potential and encourage private investment in projects that contribute to biodiversity net gains.

To inspire investor confidence, it's crucial to develop strict and vigilant oversight mechanisms for biodiversity markets. The Environment Act 2021 represents a commendable goal, but it must be made practical and attainable. The government should ensure that regulations are robust and effectively enforced, addressing concerns raised by Cochrane, Mace, Pörtner, and others regarding the need for stronger monitoring and enforcement.

It is also clear that in England, government agencies such as Natural England which will be tasked with further responsibilities such as evaluating biodiversity net gain projects, will need to be properly resourced.

Collaborative decision-making within government agencies is essential in managing natural capital; it should not be the sole responsibility of DEFRA. Various benefits derived from natural capital, including public health improvements and economic gains from nature-based tourism and recreation, fall under the purview of different government departments and agencies (e.g., the Department of Health). Additionally, the Treasury's expertise in finance and the ONS's role in managing national statistics, including the UK's natural capital accounts, are vital resources. Therefore, to create an effective nature finance mechanism, a cross-ministerial collaboration is imperative.

There is also a focus here on increasing investment in conservation, however it is equally important to focus energy on stopping investment into harmful activities. Incentivising green investments does not automatically lead to an investment shift, and in fact we may need a 'more stick and less carrot' approach to switching from financing environmentally harmful activities.

5. **How can the operation of natural capital markets ensure genuine net gains for nature? How do such markets address the risk of 'greenwashing' of investments and the offsetting of natural recovery in the UK against environmental degradation elsewhere?**

The UK needs to play a key role in minimising its risk of greenwashing (and that of other nations), as it is a country with a relatively high dependency on imports from high-biodiversity nations[8,9,], and a relatively low baseline biodiversity at home[10].

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[6] Causon and Gill (2018) Linking ecosystem services with epibenthic biodiversity change following installation of offshore wind farms.
https://www.researchgate.net/publication/327395550_Linking_ecosystem_services_with_epibenthic_biodiversity_change_following_installation_of_offshore_wind_farms

[7] Gordon (2022) Offshore wind farms could turn the tide for ocean biodiversity.
https://www.energymonitor.ai/tech/renewables/offshore-wind-farms-could-turn-the-tide-for-ocean-biodiversity/

[8] Official statistics (2021) United Kingdom Food Security Report 2021: Theme 2: UK Food Supply Sources
https://www.gov.uk/government/statistics/united-kingdom-food-security-report-2021/united-kingdom-food-security-report-2021-theme-2-uk-food-supply-sources

[9] Scheelbeek et al. (2020) United Kingdom's fruit and vegetable supply is increasingly dependent on imports from climate-vulnerable producing countries.
https://www.nature.com/articles/s43016-020-00179-4

[10] Newbold et al. (2020) Tropical and Mediterranean biodiversity is disproportionately sensitive to land-use and climate change.
https://www.nature.com/articles/s41559-020-01303-0

The low baseline level of biodiversity in the UK has origins in land-use conversion from natural land to agricultural and other land uses historically[10] and highlights the importance of safeguarding the remaining biodiversity in the UK, as well as working to restore biodiversity already lost. This would, in turn and in time, improve the UK's natural capital, and increase our standing on the global market.

In addition, the UK has an international responsibility to safeguard the natural capital on which its imported goods (including healthy foods, such as fruits and vegetables) depend. Research carried out by the Institute for Sustainable Resources suggests the UK production of fruits and vegetables has a relatively low potential biodiversity pressure (due to the low baseline biodiversity), but its fruit and vegetables imports have a high biodiversity pressure overseas (including in regions where biodiversity loss and climate change are significant threats to natural capital – the tropics and the Mediterranean). Boakes et al. further emphasise that biodiversity footprints of food are greatest in Africa, Central and South America, Asia, and Pacific regions[11].

There is a question as to whether voluntary markets will in fact work to quash greenwash, or whether what is needed is further regulation. It is important to make clear that there is no substitutability between ecosystems – nature isn't equivalent, and different types of biodiversity are not comparable. This means offsetting, for instance using tree planting in the UK to offset the destruction of virgin rainforest in Brazil, is ineffectual. Even offsetting within the UK has a long way to go, including considering how to improve habitats, and bring socioeconomic benefits from projects. For instance, planting a tree is one thing, but continued care to ensure it becomes an established habitat is another.

[11] Boakes et al. (currently under review) Impacts of global food supply on biodiversity via land use and climate change. https://www.biorxiv.org/content/10.1101/2023.05.03.539201v1