

TRENDS IN UK FUNDING FOR ECOLOGY

Executive Summary



BRITISH
ECOLOGICAL
SOCIETY

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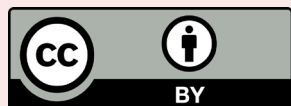
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EXECUTIVE SUMMARY

Ecology is a key discipline in the effort to tackle the twin crises of biodiversity loss and climate change by protecting and restoring nature. For this reason, and for the many other benefits it brings to society, sufficiently funding ecological research should be a priority. Despite this, there have been suggestions for years that ecology is receiving a decreasing proportion of overall research and development (R&D) funding at the expense of sciences that underpin high-value industries or other socio-economic objectives such as health and defence.

This report provides evidence for this debate by analysing the amount of funds available for ecological research in the UK, using a combination of publicly available data and data provided by governmental organisations and funding institutes.



QUESTIONS

1	Has unadjusted funding for ecology changed over time?
2	Has funding for ecology kept up with inflation or decreased in real terms over time?
3	Has funding for ecology increased at the same rate as overall R&D funding?
4	Has funding for ecology increased at the same rate as it has for other fields?

SCOPE

Research funding in the UK comes from sources that can be grouped into three broad categories: public, private and overseas (Figure 1). The data available for analysing what the funding goes towards varies between funding sources.

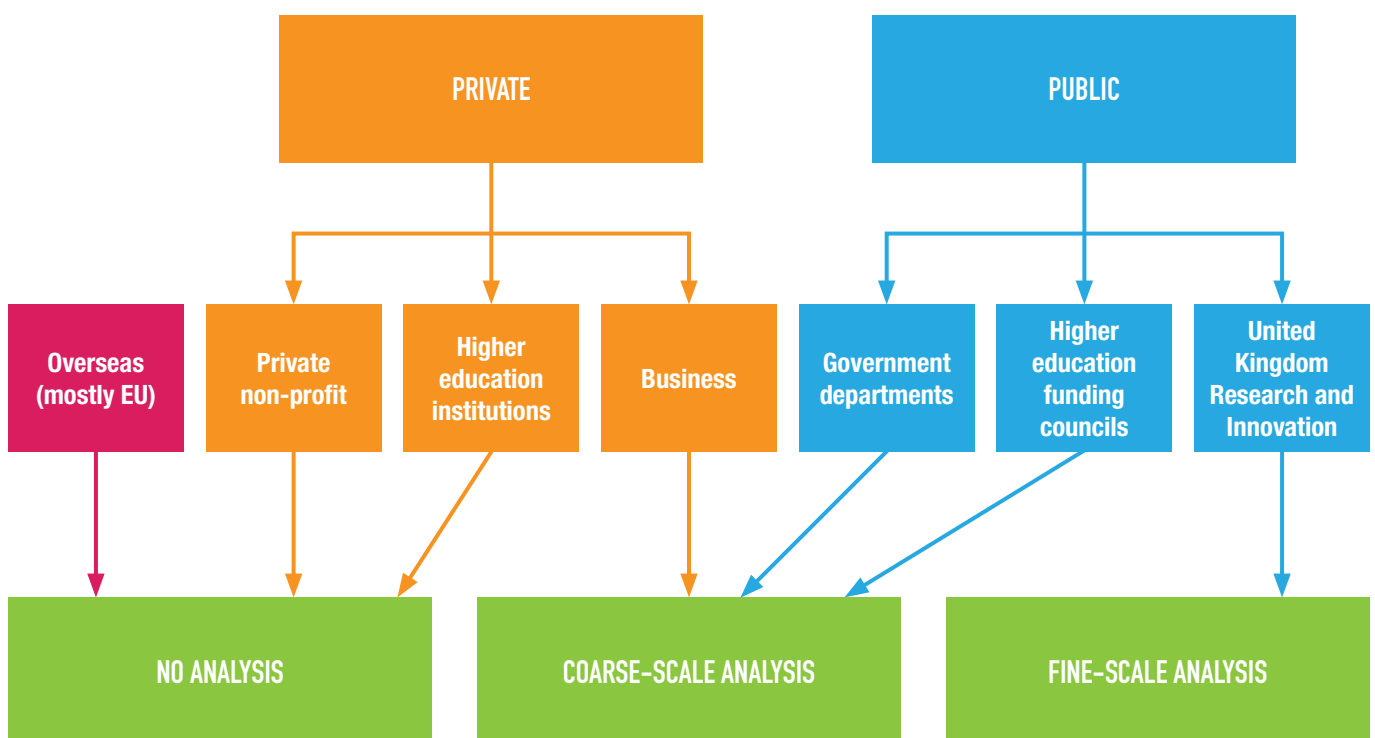
Lack of available data means that coarse-scale analysis is only possible for some categories of funders (higher education institutions, business, government departments and Higher

Education Funding Councils (HEFCs)), and fine-scale analysis is only possible for projects funded by United Kingdom Research and Innovation (UKRI) (Figure 1). Fine-scale analysis here means that we can analyse the individual projects that money is spent on and whether they can be classed as ecology, and coarse-scale analysis means that the available funding data have been aggregated into broad subject or departmental groups, and we cannot tell exactly what projects have been funded.

UKRI is a non-departmental public body, which brings together funding from seven disciplinary research councils as well as Research England and Innovate UK. UKRI funds a significant amount of research every year, approximately 11% of all UK R&D funding. This is likely to include a large proportion of the ecological research in the UK as our coarse-scale analysis suggests that the field only receives a small proportion of the research funding of business and other government departments. The two research councils that are most relevant to ecology and fund almost all of the scientific ecology research within UKRI are the Natural Environment Research Council (NERC) and the Biotechnology and Biological Sciences Research Council (BBSRC).

In this executive summary, we only present the UKRI fine-scale analysis which focuses on funding from UKRI between 2006 and 2021. Coarse-scale analyses and an overview of the structure of UK research funding and how the overall amount of funding has changed over time are presented in the full report.

FIGURE 1 SOURCES OF R&D FUNDING IN THE UK AND THE TYPE OF ANALYSIS THAT WAS POSSIBLE FOR EACH OF THEM



Source: Own elaboration

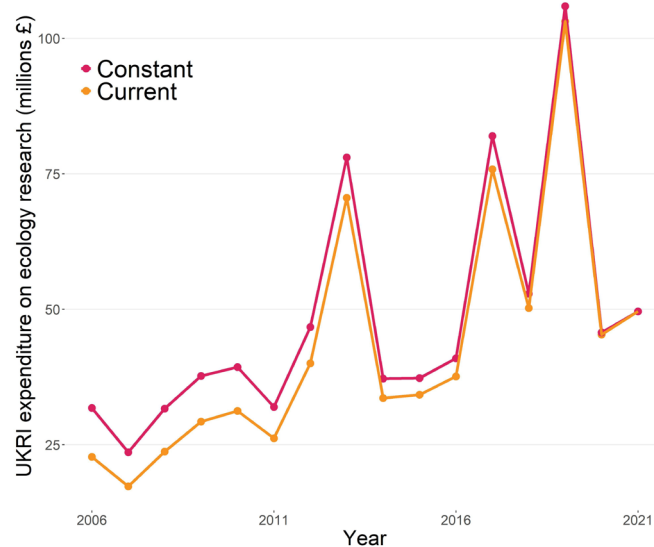
METHODOLOGY

UKRI has developed the **Gateway to Research (GtR)** website as part of the Innovation and Research Strategy of the Department for Business, Energy and Industrial Strategy (BEIS). GtR's objective is to provide information about publicly funded researchⁱ and it provides data on research funded since January 2006. We designed a methodology to classify which projects count as ecology, and thus show how funding for ecology has changed over time and what proportion of UKRI funding goes toward the field.

RESULTS

There was a real-terms increase in the amount of funding awarded to ecology projects by NERC and BBSRC between 2006 and 2021 (Figure 2). In 2021, £49.6 million was awarded to ecology research, compared to £31.7 million in 2006 in constant prices (when accounting for inflation). There was a 56.1% increase in funding in constant prices over this period.

FIGURE 2 THE CHANGE IN THE AMOUNT OF FUNDING AWARDED TO ECOLOGY PROJECTS BY NERC AND BBSRC BETWEEN 2006–2021 IN CURRENT AND CONSTANT PRICES. INFLATION WAS CALCULATED USING THE CONSUMER PRICE INDEX



Source: Own elaboration using data from UKRI *Gateway to Research*ⁱⁱⁱ

Crucially, the change in annual research funding over time was significantly different between ecology and non-ecology research, with non-ecology research increasing at a much greater rate (Figure 3). From 2006 to 2021, funding for ecology research increased by 118%, whereas funding for non-ecology research increased by 430%.

FIGURE 3 THE CHANGE IN NERC AND BBSRC FUNDING FOR ECOLOGY AND NON-ECOLOGY RESEARCH



The change in the amount of funding awarded to ecology and non-ecology projects by NERC and BBSRC between 2006 and 2021 in current prices on **A (above left)** an arithmetic scale and **B (above right)** a logarithmic scale, with least squares lines of best fit and 95% confidence intervals. This is presented in current prices as we are interested in the differences between the two groups. The change in ecology prices in constant prices is presented in Figure 2.

Source: Own elaboration using data from UKRI *Gateway to Research*ⁱⁱⁱ

^{i, ii, iii} UKRI *Gateway to Research*. Available at: <https://gtr.ukri.org> [Accessed 29/03/2022]

DISCUSSION

UKRI funding for ecology has increased in real terms but not as fast as other subjects

This analysis shows that UKRI funding for ecology has increased in real terms since 2006, although there is big interannual variation. UKRI funding for ecology in constant prices also increased at a faster rate than the overall Gross Expenditure on Research and Development (GERD).

Despite this increase, UKRI funding for ecological research has not increased at the same rate as it has for non-ecology research over the same period so arguably the importance placed on ecological research by this vital research funding body research has been declining.

KEY RESULTS

- 1 **Unadjusted funding for ecology increased in current prices by 117.9% between 2006-2021.**
- 2 **Funding for ecology has not decreased in real terms over time. In fact, in constant prices there was a 56.1% increase between 2006-2021.**
- 3 **Funding for ecology has increased faster than overall R&D funding, measured as UK GERD.**
- 4 **Funding for ecology has not increased at the same rate as funding for other fields. UKRI funding for non-ecology research has increased at a significantly higher rate than funding for ecology.**

Little change in the importance placed on R&D funding in the UK

R&D funding has increased in real terms in the UK over the past three decades, although it has not done so as a proportion of GDP. The proportion of GDP given over to GERD is lower than the OECD and EU averages. This is worrying because R&D is a vital component of the response that is required to tackle the climate and biodiversity crises that we face.

There is a lack of data across all funding sources

Attempting to analyse how funding for ecology research has changed over time has revealed the lack of detailed data on what disciplines and subject areas R&D funding is spent on in the UK. This makes any detailed and robust analysis on the relative importance placed on disciplines and subject areas difficult. There are more data available in the public sector than the private sector, but it is still difficult for stakeholders or the public to hold public bodies to account for their R&D funding. This is a key problem for people or organisations who would like to investigate R&D funding in the UK, and advocate for specific disciplines.

FUTURE CHALLENGES AND OPPORTUNITIES

We urge UKRI, Defra and other public organisations to increase the amount of funding they provide for ecology research. Alongside public money, there are also opportunities to increase funding from private sources. Ecological consultancy work that helps businesses to mitigate risks from environmental degradation, and meet regulatory requirements, will generate a significant amount of valuable data. If the connections between ecology research and consultancy can be improved, these data could be used more often for research. Government requirements to fund research alongside consultancy work could also increase the funding available for ecology research.

The lack of data on R&D funding means that it remains very difficult to accurately assess the impact that any changes to the UK system would have on the funding received by different fields. Without better data, there may be a 'silent crisis' in ecology research, where a lack of funding undermines the ability of the field to provide benefits for society and help tackle the climate and biodiversity crises, but we are not able to recognise or quantify this.

ACRONYMS

AHRC Arts and Humanities Research Council

BBSRC Biotechnology and Biological Sciences Research Council

BEIS Department for Business, Energy and Industrial Strategy

BES British Ecological Society

DAERA Department of Agriculture, Environment and Rural Affairs
(Northern Ireland)

Defra Department for Environment, Food and Rural Affairs

DFID Department for International Development

EPSRC Engineering and Physical Sciences Research Council

ESRC Economic and Social Research Council

GDP Gross Domestic Product

GCRF Global Challenges Research Fund

GERD Gross Expenditure of Research and Development

GtR Gateway to Research

HEFC Higher Education Funding Council

HEFCE Higher Education Funding Council for England

HEFCW Higher Education Funding Council for Wales

MRC Medical Research Council

NC3Rs National Centre for the Replacement, Refinement
and Reduction of Animals in Research

NERC Natural Environment Research Council

NRW Natural Resources Wales

ONS Office of National Statistics

QR Quality-related Research

R&D Research and Development

REF Research Excellence Framework

REG Research Excellence Grant

SFC Scottish Funding Council

STFC Science and Technology Facilities Council

SPICe Scottish Parliament Information Centre

UKRI United Kingdom Research and Innovation



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