

CASE STUDY

CUSTOMER

UK and European governments

DELIVERABLE

Decades of monitoring, three Countryside Surveys and over 100 million species records

OUTCOMES

Evidence of ecosystem change that feeds directly into national biodiversity and climate change legislation



The 2007 Field Survey has made a significant contribution to policy related to: sustainable agriculture... soils...air pollution and climate change."

Final report, DEFRA
Policy Impact and Future Options for Countryside Survey (2012)



Photo - courtesy of Cairngorms Environmental Change Network

Tracking and responding to environmental change

Monitoring biodiversity and ecosystems to safeguard natural capital and ecosystem services

The challenge

Biodiversity and the environment are critical to our society. They provide us with food and water, absorb pollution, improve health and assist recovery from natural disasters.

Biodiversity is faced by growing threats, however, such as climate change and the spread of diseases. An area the size of Greece is lost to deforestation every year, soil is being lost 13 to 18 times faster than it is being formed, and invasive species are thought to be causing 40% of all known extinctions over the past 300 years.

Responding to these interacting threats requires a better understanding of ecosystem processes and how they change over time.

The research

The Centre for Ecology & Hydrology (CEH) has decades of experience in large-scale monitoring of biodiversity and ecosystems in the UK, covering species populations, ecosystems, habitats and landscapes. Three of CEH's main programmes are:

- Countryside Survey and Land Cover Mapping - CEH works with partners to conduct these regular 'audits' of the UK's countryside, a ground-breaking approach to the assessment of ecosystem services and drivers of change across the UK. The latest Survey from 2007 covered a total of 591 1x1km sample squares.



The evidence base provided by the National Ecosystem Assessment (NEA) was vital to the approach set out in... (the) White Paper. The depth of detail... also added to the credibility of the policy thinking as it made it clearer to other departments... what the underpinning evidence base and rationale was, how different strands fit together and the scale of the issues to be addressed."

Dr Bryony Butland

Policy Advisor at the Department for Business, Innovation and Skills

- Biological Records Centre (BRC) - since its founding in 1964, CEH's BRC has become a national focus for UK terrestrial and freshwater species recording. CEH now works with 85 volunteer recording schemes to collate the data from more than 100,000 recorders in the UK, and their printed atlases now cover more than 10,000 species of plants and animals.
- Environmental Change Network (ECN) - CEH coordinates the UK's ECN which systematically monitors the physical, chemical and biological characteristics of 57 terrestrial and freshwater long-term ecosystem research sites spread across the UK.

The outcomes

CEH's evidence on the trends, causes and consequences of changes in biodiversity and ecosystems has been used by UK and European governments to inform the development of new policies and strategies such as the Natural Environment White Paper (2011), the UK National Ecosystem Assessment (NEA) (2011), and the UK Climate Change Act (2008).

The BRC has detected changes in species ranges, the effects of climate change, the spread and impact of alien invasive species, and the status of rare and threatened species. CEH's own data have contributed to the State of Nature Report and the Priority Species Indicator which tracks changes in the status of about 230 species of conservation concern.

ECN data have been used extensively in UK government policy, contributing to RoTAP (2012), a report that provided policy advice on rural air pollution in the UK, as well as a Report Card on biodiversity's response to climate change. The 2007 Land Cover Map has been downloaded 1,200 times and is used by businesses, governments, and non-governmental organisations. It also contributed to the Corine Land Cover Map, a key component of pan-European environmental assessment and evidence-based policy-making.

Our advanced network of biodiversity monitoring systems allows CEH to inform government policies that help maintain the life-sustaining systems of the biosphere.



Photo - Jan Dick, Cairngorms, Environmental Change Network



Photo - Gina Mills, CEH

Solar domes, CEH Bangor

The CEH projects described here have multiple partners across the UK, Europe and worldwide that are too numerous to mention individually. Please visit our website for partner details.