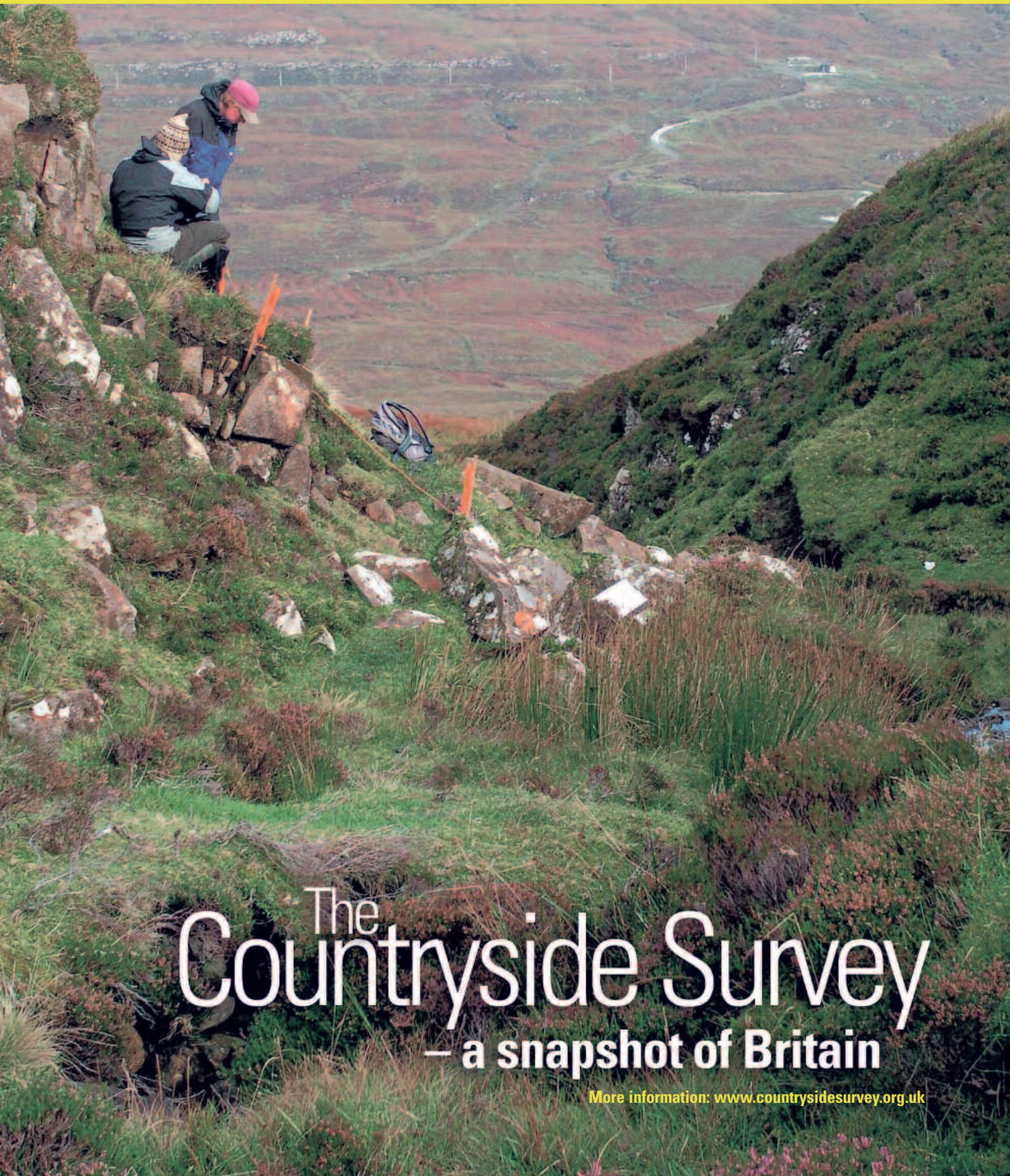


The fifth Countryside Survey will create an invaluable knowledge base to help ensure the countryside's natural resources are used sustainably. As the pilot phase draws to a close, **Dan Osborn** and **Ian Simpson** explain why the UK is a world-leader in this field.



The Countryside Survey

– a snapshot of Britain

More information: www.countrysidesurvey.org.uk

Our demands on natural resources are putting increasing pressure on biodiversity and the landscape. But what is the total effect of all these pressures? If we are in the midst of the sixth extinction, as some scientists suggest, what is the prime cause of this biodiversity loss in the UK - increased temperature? Nitrogen pollution? Ecosystem loss, or the intensive nature of land management? Are all the changes undesirable? Due to changes in the way the EU's Common Agricultural Policy works, are we already halting, or even reversing, the decline in biodiversity? Is the character of the different regions of the UK being maintained or is it in decline - are we heading for a homogenised Britain?

The fifth Countryside Survey will help answer these and other questions. We are going to survey around 600 sites throughout England, Scotland and Wales during the summer of 2007. These one kilometre squares will be complemented by a land cover map based on satellite imagery to provide coverage of the whole country. This makes the survey globally unique because it collects large amounts of varied environmental information at the same point in time from set locations selected to represent a whole country, in a statistically rigorous survey design.

The sampling framework is based on 'land classes' with every one-kilometre square of the UK assigned to a dominant land class, for example, 'undulating country, varied agriculture, mainly grassland' and 'fertile agricultural lowland with intensive agriculture'.

The Countryside Survey has been carried out at intervals since 1978; each succeeding survey adds to the value of the series as a whole. No other country has anything that compares to the survey and it is rightly regarded as the gold standard. More countries in Europe are developing this type of monitoring and there are moves to have a European Union-wide survey.

NERC's Centre for Ecology & Hydrology (CEH) is leading on the field survey, the land cover map and their interpretation. During the two-year build up there has been close collaboration with Defra, the Welsh Assembly and the Scottish Executive. This has ensured a

close alignment between science and policy. The preparatory work has won support from a number of the individual countryside agencies as well as from the lead departments in each country and the Joint Nature Conservation Committee.

Our survey teams of four will spend on average four days at each site. Work in individual survey squares varies from a stroll in a Surrey park to struggling through horizontal rain in the wildest and most remote corner of Scotland. Each team will use specially developed state of the art, rugged hardware and software to collect data on terrestrial and freshwater habitats, biodiversity, linear features (for example, hedgerows or walls), soil condition and pollution. There are thousands of plots to survey at known locations we have visited in earlier surveys. As the field teams progress across the land, samples will be travelling the length and breadth of the UK to be

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analysed in CEH laboratories. For example, we will quickly measure soil characteristics and nutrient status and archive selected samples as a future resource for research on, for example, organic pollutants, aspects of microbial diversity and gene prospecting.

Of course, even before the survey starts, we need permission from the landowners or managers. Without this cooperation from over a thousand members of the public the surveys could not have achieved the status they have.

Results of the field survey will be to hand as early as possible in 2008 so they can be used as part of the UK input to international work on biodiversity. For the first time, in addition to the national level of reporting of change in the countryside, it should be possible to provide reports for each of the UK's constituent countries, a pressing need for the relevant country agencies.

As ever, the survey will provide some surprises, and it is sure to help resolve important uncertainties. One important issue relates to the carbon status of UK soils. Current evidence is conflicting. We are not sure whether overall carbon levels

have risen or fallen in the last 40 years. The survey should settle the issue - an important one for the climate modellers.

The first batch of results will be followed by a new version of the UK Land Cover Map, which it is hoped will be fully compatible with the Ordnance Survey's MasterMap. This will provide users with a product that they have long wanted; a map showing the land cover type of each parcel of land in the UK. It is also hoped that this will be complemented with other developments, including three-dimensional habitat mapping from aircraft - which would help untangle links between habitat quality and biodiversity.

CEH will be creating an accessible data resource for the NERC community, UK and European researchers. The survey is important from the research perspective because, by combining its data with that from the survey work done in 1978, 1984, 1990 and 1998, there will be

enough time points from which to detect trends in time and space with improved levels of certainty. This will make it possible to relate findings more clearly to a number of environmental

processes and policy drivers. In the light of such knowledge about the pace of change and its causes, sustainable policies and practices should be easier to devise. Because of the strength of the evidence base, these should have more predictable and testable outcomes of relevance to government initiatives on natural resource protection and enhancement. Such policies, based on sound knowledge of environmental processes, will ensure future generations will be able to enjoy the countryside and benefit from the wide range of economic and social services it provides, such as food, renewable energy and flood defence.

Overall, the Countryside Survey will help the UK address the agenda set by the United Nation's Millennium Ecosystem Assessment. More on that when the results from the 2007 survey are in.

Ian Simpson is based in CEH, Lancaster and is the new project manager for the Countryside Survey. Dan Osborn recently stepped down as science director for CEH's Sustainable Economies programme. They are grateful to the CS2007 work-package leaders for their inputs. Contact: iss@ceh.ac.uk, tel: 01524 595820