

COUNTRYSIDE SURVEY 2000 NEWS

FEBRUARY 2002 Issue 7

NEWSLETTER FOR THE COUNTRYSIDE SURVEY 2000

Land Cover Map 2000 launched

Land Cover Map 2000, a major component of Countryside Survey, was launched in London on the 31st October 2001 at the *Mapping the Countryside* event, hosted by Department for Environment, Food and Rural Affairs (DEFRA). Lord Whitty, DEFRA's Minister for Science, gave the keynote speech to a packed audience drawn from government, science, industry and conservation bodies.

Lord Whitty outlined the new aims and directions of DEFRA, and said that "the highest standards of science and scientific information will be used to shape our policies". He described the production of Land Cover Map 2000 (LCM2000) as a landmark exercise to map Broad Habitats in the UK, and was particularly pleased that the devolved national administrations in Scotland, Wales and Northern Ireland were part of the funding consortium.



*Lord Whitty, DEFRA's Science Minister
at launch of LCM2000*

Director of the Centre for Ecology and Hydrology (CEH), Prof. Pat Nuttall, spoke about CEH's important role in the Countryside Surveys and the Land Cover Map, and in providing sound scientific advice in support of countryside policy.

Robin Fuller and Geoff Smith from CEH Monks Wood gave a detailed explanation of the methodology and production of the Map. Geoff described how satellite scenes were classified and images segmented, and how the computer was 'trained' to identify parcels of land and allocate them to land cover classes. He spoke of the use of field reconnaissance to check the cover classes, and how the mosaic of data was built for the whole of the UK - LCM2000 includes Northern Ireland. Robin Fuller explained the methods used to link spectral classes to the widespread Broad Habitats, essential for support of national Biodiversity Action Plans (BAPs). He described the list of attributes linked to each one of the approximately 6.6 million land parcels in the database, and he outlined future work to be carried out on calibration between field survey data and Land Cover Map 2000 data.

The audience was later shown demonstrations of the LCM2000 database, the Countryside Information System (CIS), the National Biodiversity Network (NBN) Gateway, the National Land Use Database (NLUD) and MAGIC (Multi-Agency Geographic Information for the Countryside). The demonstration of the CIS included examples of how LCM2000 data can be used in conjunction with the other datasets provided in the system.

Continued on page 2

CONTENTS

**How diverse
are our
hedgerows?**

**Bird
populations &
countryside
change**

New CIS

**CS2000 in
pictures**

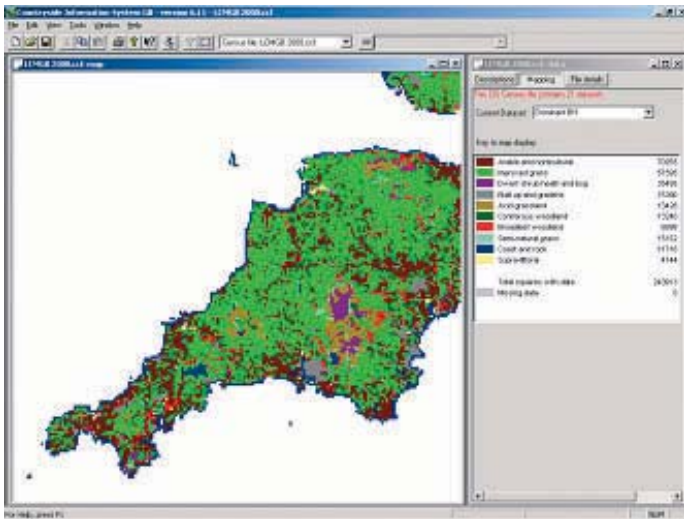
**Soil sampling
success**

**Finding
rarities in
CS2000
streams**

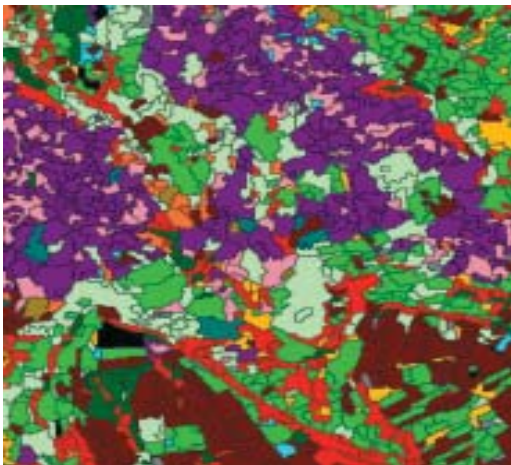
**CS2000: what
next?**

**New on the
CS2000 web
site**

**Post-CS2000
research**



Above: Land Cover Map 2000 data viewed via the Countryside Information System. **Below:** A part of the North York Moors represented in LCM2000, showing the detailed parcel structure of this upland landscape.



Some potential uses of Land Cover Map 2000 digital map data

- Atmospheric research - climate change, carbon budgets
- Water resource management - river catchments, water quality, flooding
- Conservation - habitat and species studies
- Impact assessment - proposed planning developments
- Hazard assessment - subsidence, windstorm, disease distribution
- Agricultural policy, including renewable energy, agri-environment schemes, soil erosion modelling
- Landscape planning
- Urban studies
- Maps, statistics, education, publicity.

The Land Cover Map team at CEH has overcome many technical and practical challenges during this project. The target year for image acquisition of 1998, which corresponds with the field survey year, was extremely wet. Since satellite images taken in cloudy weather are unusable, this meant images had to be used from a longer period, 1998-2001. This greatly increased the number of images required to build the mosaic for the UK-wide dataset, and consequently the processing time needed.

LCM2000 will have a very wide range of applications, especially as users can add their own information as an additional 'tag' to the attribute list for each parcel. The attribute list released with standard Level-2 datasets will include a unique parcel label and the pixel count per parcel. It will have a label corresponding to one of 27 land cover classes comparable to Broad Habitats, and a parcel processing history including the satellite image date. Data from LCM2000 are publicly available. Please see: www.ceh.ac.uk/data/lcm/LCM2000.shtm for more information.

Sue Wallis

Centre for Ecology & Hydrology, Monks Wood



Lord Whitty studies details of LCM2000

Sources of further information on data specifications and access

For stand-alone data for use in a GIS, see: www.ceh.ac.uk/data/lcm/LCM2000.shtm

For CIS data: LCM2000 datasets in CIS format will be available to licensed users without further cost. See: www.cis-web.org.uk

For information on the LCM2000 project see: www.cs2000.org.uk/mod7_info.htm

How diverse are our hedgerows?

The UK Habitat Action Plan (HAP) for ancient and/or species-rich hedgerows aims to protect these important ecological features by taking action to halt hedgerow loss. However, in order to implement the plan, it is essential to know what proportion of British hedgerows qualify under the definition of ancient and/or species-rich, what condition are they in, and what is happening to them over time. The HAP defines **ancient** as those hedgerows that were in existence before the Enclosures Acts (passed mainly between 1720 and 1840) and **species-rich** hedgerows as those that have five or more native woody species in a 30m length, or four or more in northern England, upland Wales and Scotland.

In order to gather data on these habitats, DEFRA provided funding for CS2000 to set up a baseline of hedgerow plots that could be monitored during successive surveys. These are known as Hedgerow Diversity (D) plots. Up to ten D-plots were placed, at random, in each sample 1 km square. All woody species were recorded, together with an estimate of their percentage contribution to the volume of the hedge. Gaps were also recorded, as was the average width and height of canopy base. Together with other data routinely recorded for all hedgerows, these attributes help to define the condition of the hedge.

A total of 2,393 D-plots was recorded in 520 squares across Great Britain. Of these, 0.2% contained 10 or more native woody species, while 14% contained a single woody species. To estimate the proportion of hedgerows that were species-rich, the CS2000 Environmental Zones were used; species-rich in zones 1 and 2 (lowlands of England and Wales) required five native woody species to be present whereas four species were sufficient in all other zones. Using this approach, 26% of all D-plots were classified as species-rich.

Gaps very rarely exceeded 10% of hedgerow length (5% of all D-plots had gaps accounting for up to 10% of the total length). These figures exclude the vast majority of plots that had no gaps recorded at all. Around 68% of hedgerows were 1 to 2m wide and 69% had a canopy base that was less than 0.5m high.

Hawthorn (*Crataegus monogyna*) was the dominant species, occurring in around 90% of all D-plots, and it was nearly twice as frequent as the next most common species, blackthorn (*Prunus spinosa*). The rankings of frequency differed between countries and regions; thus blackthorn was the second most frequent species in both England, the third most frequent in Wales, but ranked 6th in Scotland. Eleven species occurred in 10% or more D-plots in England, compared with 10 in Wales and only five in Scotland, demonstrating regional variation in species-richness.

These statistics help to characterise the resource; the really interesting work comes later when the plots are re-visited, and changes are observed and quantified.

The 10 most frequent native woody species in D-plots, by GB and country

GB		England		Scotland		Wales		
Species	% of plots	Species	% of plots	Species	% of plots	Species	% of plots	
1	Hawthorn	90	Hawthorn	89	Hawthorn	92	Hawthorn	94
2	Blackthorn	47	Blackthorn	47	Elder	19	Hazel	72
3	Elder	35	Elder	36	Ash	15	Blackthorn	69
4	Hazel	29	Dog rose	29	Dog rose	13	Elder	34
5	Dog rose	27	Ivy	26	Ivy	10	Ash	30
6	Ash	26	Ash	26	Blackthorn	8	Dog rose	20
7	Ivy	25	Hazel	25	Wild gooseberry	3	Ivy	18
8	Field maple	15	Field maple	17	Wild raspberry	3	Rowan	18
9	Oak	14	Oak	16	Holly	3	Holly	14
10	Holly	11	Field rose	12	Rowan	3	Field maple	10

Colin Barr

Centre for Ecology & Hydrology, Merlewood

Bird populations and countryside change

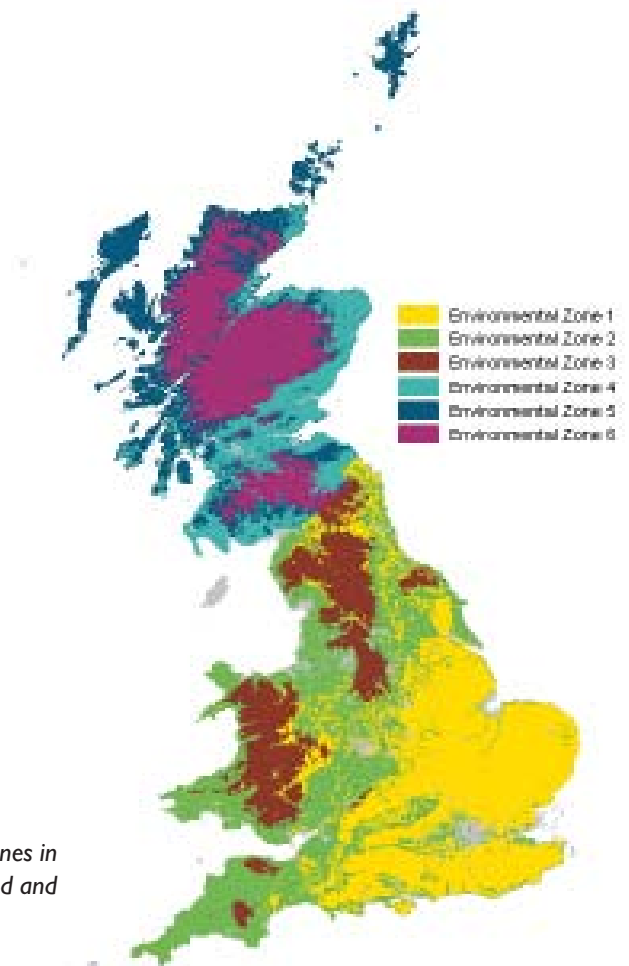
During the spring of 2000, volunteers for the British Trust for Ornithology undertook bird counts in 340 CS2000 squares. This is the first time that birds have been incorporated into the Countryside Survey and these data will allow detailed analysis of bird-habitat relationships.

Preliminary analysis of the data has focused on comparing bird population density estimates and frequency of presence at a range of scales. Examining the results by the six Environmental Zones (EZ), we are able to characterise the bird communities of each zone in terms of its diversity and diagnostic common species.

A total of 61 species were noted in all six Environmental Zones. A further 18 were found in five of the six zones, 14 in four, 25 in three, 16 in two and 40 in just one zone. As reported in *Countryside Survey 2000 News Issue 6*, the mean number of species per square was highest in Environmental Zone 1 (37 species per square) but across the whole sample, the greatest diversity of species was found in Environmental Zone 2 (136 species). Zone 2 also seems to be the most important for scarce species: it held 15 of the 40 less widespread species that were found in only one of the 6 zones. As is to be expected, species diversity was lowest in Environmental Zone 6 (the true uplands of Scotland).

Table 1: Diagnostic common species in each Environmental Zone, and density (birds/km-square)

England & Wales		Scotland	
Environmental Zone 1		Environmental Zone 4	
Red-legged Partridge	3.9	Willow Warbler	23.1
Pheasant	10.1	Environmental Zone 5	
Wood Pigeon	60.4	Oystercatcher	7.3
Wren	30.7	Ringed Plover	1.1
Duncock	10.8	Golden Plover	2.2
Mistle Thrush	4.6	Dunlin	4.3
Whitethroat	9.9	Common Gull	7.6
Blackcap	7.4	Great Black-backed Gull	2.7
Blue Tit	43.3	Rock Pipit	2.1
Great Tit	20.4	Wheatear	3.1
Yellowhammer	9.3	Hooded Crow	1.9
Environmental Zone 2		Environmental Zone 6	
Feral Pigeon	5.0	Red Grouse	4.5
Swallow	28.0	Meadow Pipit	55.1
Wren	34.2	Wheatear	2.3
Duncock	6.2	Ring Ouzel	0.9
Robin	31.7		
Blackbird	43.3		
Blue Tit	34.2		
Magpie	9.1		
Carrion Crow	17.0		
House Sparrow	50.9		
Chaffinch	45.1		
Greenfinch	16.4		
Goldfinch	10.7		
Environmental Zone 3			
Curlew	5.7		
Meadow Pipit	50.4		
Redstart	1.7		
Whinchat	1.7		
Wheatear	2.8		



This map shows the 6 Environmental Zones in Great Britain. Zones 1 to 3 are in England and Wales, 4 to 6 are in Scotland.

The table shows a list of diagnostic *common* species in each Environmental Zone. These are species whose population density estimates for that zone are significantly greater than the density estimates for Great Britain as a whole.

A report on the CS2000 bird population survey will be published on the CS2000 web site soon. Analysis so far has focused on identifying which of the Broad Habitats and other environmental variables are the key determinants of bird community structure.

Andy Wilson
British Trust for Ornithology

In the pipeline - new version of Countryside Information System

The Countryside Information System (CIS) was originally developed as a software application for analysing and presenting data from Countryside Survey 1990, using the kilometre squares of the OS Grid as a framework. CIS has since developed in leaps and bounds and currently allows interrogation of a wide range of datasets for the UK countryside.

The latest development of CIS is Version 7.0. The new version will provide access to wildlife and countryside datasets collected on a 10 km square basis in addition to data collected at a 1 km square level. The new version will also provide access to a wider geographical area by including Ireland and the Channel Islands in addition to Great Britain and Northern Ireland.

Version 7.0 was developed to provide access to data collected by the Plant Atlas 2000 project, an update to the 1962 *Atlas of the British Flora*. The 'New Atlas of British and Irish flora' is scheduled for publication by Oxford University Press in May 2002. This publication will provide a distribution map and accompanying text for some 3,000 flowering plants and ferns in Great Britain, Ireland and the Channel Islands. The distribution maps are based on a database of over 9 million records, including nearly 5 million records which have been collected since 1987 by over 1,600 volunteers. An accompanying CD-ROM will allow users to view and manipulate the maps and associated data tables by using limited functions of CIS 7.0.

The full version of CIS 7.0 will be completed by mid-2002 and, for existing CIS users, upgrades will be available to download from the CIS web site: www.cis-web.org.uk. An order form for new purchases can also be found on the CIS web site.

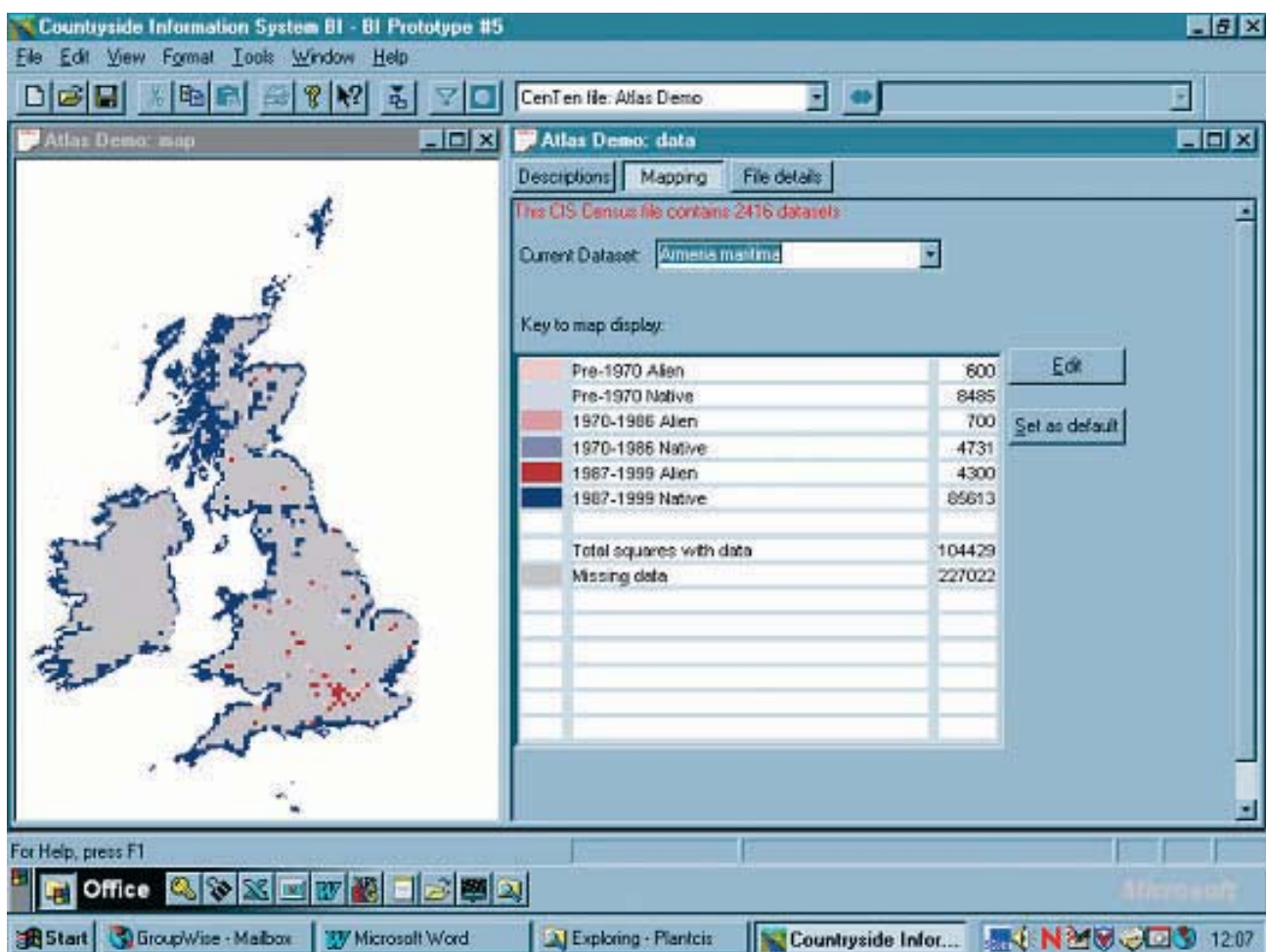


Figure 1: A screen shot from the prototype CIS 7.0 showing a demonstration Plant Atlas 2000 map (10 km square data).

Countryside Survey 2000 in pictures

The survey phase of Countryside Survey is now complete. Data analysis and presentation of results is well underway, and the programme will soon move into a research-dominated phase (see page 12). Here we present a selection of images from Countryside Survey 2000.



In the field

Detailed field surveying was a major component of CS2000. Land cover, land use and features such as hedgerows, fences, ponds and streams were mapped in 569 1 km squares. Data were digitised and analysed using a Geographical Information System.

Plant species occurrence was recorded in 16,691 vegetation plots, 9,596 of which were also surveyed in 1990.

The character and biological condition of freshwater streams occurring in the CS2000 squares was also surveyed, repeating a similar survey in CS1990.

Soil samples were collected from all the survey squares, and analysed for soil chemistry and soil biota.

A survey of breeding birds was carried out in CS2000 squares, the first of its kind in the Countryside Surveys.

Sampling the length and breadth of the country ...



The view from on high

The second major component of Countryside Survey 2000 was Land Cover Map 2000, a complete census of land cover created using satellite images (see pages 1 & 2 and images right and below left).

In addition to this, a pilot study was conducted as part of CS2000 to assess the use of airborne scanner techniques for countryside monitoring. Images of sample CS2000 1 km squares were taken from an Environment Agency aircraft equipped with sophisticated scanners (see CS2000 News issue 5 and images below right).



Countryside Survey 2000

DEFRA
Department for Environment, Food and Rural Affairs

NATURAL ENVIRONMENT RESEARCH COUNCIL

Land Cover Map 2000 (LCM2000) was launched on 17th October 2000 in London, as part of the Spring 99

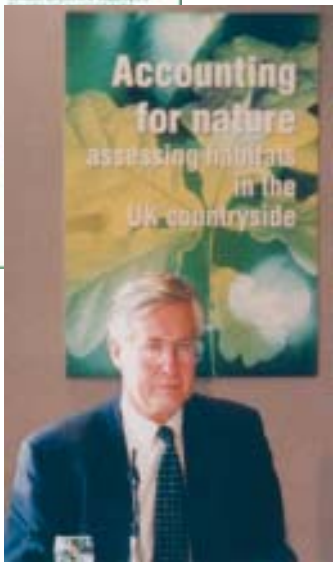
CS2000 has been funded by the Department for Environment, Food and Rural Affairs, along with the Natural Environment Research Council and other organisations (see Contact for details).

Introduction
Detailed field observations have been made in a representative sample of 1 km grid squares across Great Britain. Collection of data such as habitat types, vegetation, grass species and flower/seed production, soil properties, ground water, water quality, and air quality is being done in a systematic and consistent manner. Many of the surveys have been repeated in 1973 and measurements in 2000 will be used to assess the extent of change in the countryside.

Observations of the 4 km² four square grid squares have defined information about the Earth's surface. The data techniques for analysis, including image processing, are available, and the data are available via the web, and in CD-ROM and DVD-ROM format.

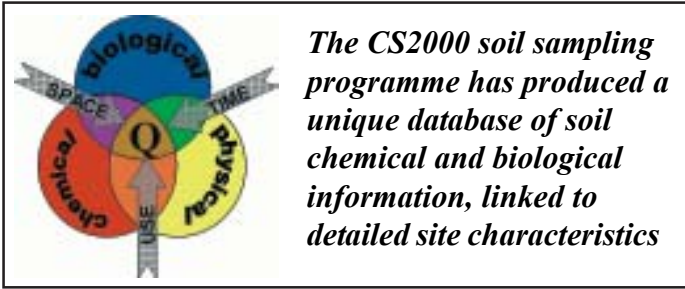
Outputs

Countryside Survey 2000 data and results are available in a variety of formats, such as the report, *Accounting for Nature: assessing habitats in the UK countryside*, the Countryside Information System and via the Scientific Support Service. The CS2000 web site (www.cs2000.org.uk) provides information on how to obtain CS2000 outputs.



www.cs2000.org.uk
COUNTRYSIDE SURVEY2000

Soil sampling success – the MASQ initiative



The CS2000 soil sampling programme has produced a unique database of soil chemical and biological information, linked to detailed site characteristics

Soils are a vital part of our environment. They carry out a wide range of functions from supporting agriculture to maintaining our natural heritage (see Figure 1). However, despite their importance, environmental policies have traditionally taken soils for granted. More recently the development of soil protection strategies and policies, at national and European levels, aims to address this neglect. Appropriate strategies and policies must be built upon sound scientific principles and their development is a major challenge. For example, to predict the state (or “health”) of

a soil requires knowledge of what soil properties would be expected in a given location under a particular use. Until now, the information to address such issues has not been available. The principles and requirements for soil protection were highlighted in “Sustainable Use of Soils”, the 19th report of the Royal Commission on Environmental Pollution¹. The RCEP proposed soil sampling within the Countryside Surveys as a mechanism to obtain the necessary information, with soil data directly linked with other environmental parameters measured during the Surveys. *Monitoring and Assessing Soil Quality in the British Countryside (MASQ)* was thus established to produce soil data from Countryside Survey 2000.

The MASQ² initiative has produced a unique series of datasets that provide information on the chemical and biological properties of soils in combination with detailed site characteristics (e.g. vegetation type, habitat, land use history, geographical location, soil type etc) for over 1,000 locations across the British countryside. The inclusion of soil biological properties was seen as a key element. The broad acceptance of the significance of soil organisms, in particular their ecological significance³, has led to increasing consideration of soil biological properties within the wider context of sustainable management of our soil resources and the assessment of soil health.

These datasets are now a baseline resource for soil and other environmental monitoring programmes while the feasibility of assessing biological soil properties in a national survey has been established. The next challenge for the MASQ project team will be interrogating the datasets to develop a better understanding of the relationships between soil biological and chemical properties and their environment in terms of both inherent characteristics (e.g. location, climate, geology) and human influence e.g. management, land use, pollution.

Further information can be obtained from the CS2000 web pages or from Helaina Black at CEH Merlewood (hbl@ceh.ac.uk).

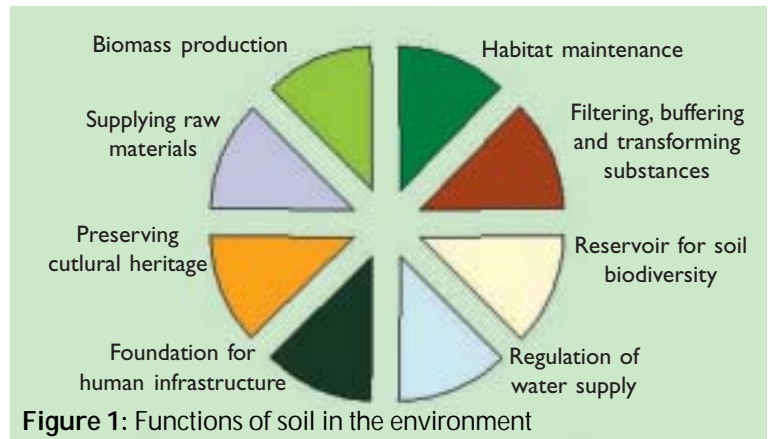


Figure 1: Functions of soil in the environment



¹RCEP (1996). The Royal Commission on Environmental Pollution (Nineteenth Report) “Sustainable use of soil” Norwich: The Stationery Office.

²MASQ is funded by EA, DEFRA, NERC and SNIFFER.

³Hagvår, S. (1998). The relevance of the Rio Convention on Biodiversity to conserving the biodiversity of soils. *J. Appl. Ecol.* 9; 1-7.

Helaina Black

Centre for Ecology & Hydrology, Merlewood

Rare animals abound in CS2000 stream sites

Evidence from the CS2000 freshwater survey suggests there has been a significant improvement in the biological condition of streams between 1990 and 1998, and that this is good news for invertebrate species (animals without backbones) of national conservation importance. CS2000 has recorded an increase in the number of rare taxa in CS2000 streams compared with the 1990 survey.

Streams and rivers comprise one of the most important linear features of the British countryside. They vary in character from tiny upland streams at the river's source to large lowland rivers such as the Trent and Thames. Each watercourse will have its own distinctive macro-invertebrate fauna according to its size, chemistry, substratum type and many other environmental parameters.

Area	Number of taxa present ('species richness')	Number of individual taxon records ('abundance')
EZ1	18	26
EZ2	14	22
EZ3	8	13
England & Wales	29	61
EZ4	10	12
EZ5	8	12
EZ6	3	7
Scotland	17	31
Total	39	92

Table 1: The distribution, by environmental zone and country unit, of taxa with conservation status recorded during the Countryside Surveys of 1990 and 1998 (CS2000)

Despite its relatively small land area, Great Britain has a total stream and river length estimated to be in excess of 200,000 km. It has also been estimated that, excluding bacteria, these watercourses, together with other British freshwater habitats are home to over 4,000 invertebrate species.

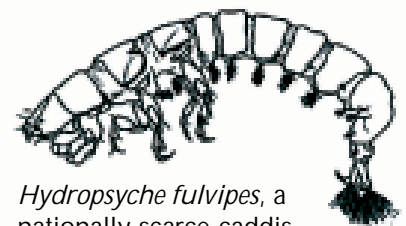
It has been estimated that almost 150,000 km of watercourse length (75% of the national total) are sections within 2.5km of their source. Recent studies have shown that these streams support approximately 20% of the total aquatic macro-invertebrate species richness of complete river catchments. Many of these species are rare and of national conservation importance.

So numerous are rivers in general, and headwaters in particular, that 404 (70%) of CS2000 survey squares had at

least one watercourse running through it. Of the 404 streams sampled 288 (71%) were within 2.5km of source and 352 (87%) within 5km. So when identification of specimens began in 1998 we expected to find a high number of "nationally scarce" and Red Data Book (RDB) taxa.

In fact 33 (7%) of the 462 distinct taxa recorded in the 441 CS2000 samples (including replicates) were of national conservation importance. This compared with 19 such taxa in the 351 samples (a subset of CS2000 samples) found in the 1990 survey. In total, 39 distinct taxa of conservation importance were found in the two surveys.

The rare species present in CS2000 covered a broad taxonomic range including one Red Data Book snail, one nationally scarce mayfly, one Red Data Book stonefly, 20 "scarce" beetles, one "scarce" alderfly, five nationally scarce and one Red Data Book caddis (including *Hydropsyche fulvipes*, pictured) and four scarce flies. The occurrence of these taxa was spread across all six of environmental zones recognised in CS2000 (table 1). This increase in rare taxa reflected a wider increase in the number and distribution of aquatic invertebrates in CS2000.



Hydropsyche fulvipes, a nationally scarce caddis found in CS2000, together with RDB1 species *H. saxonica*

The headwater streams surveyed in CS2000 are of great potential value, if unpolluted or otherwise heavily modified, in promoting diversity in the wider countryside. Unfortunately, because of their size and predominantly rural location headwater streams are susceptible to a wide variety of impacts including agricultural pollution, channel dredging, straightening, relocation, culverting, loss of riparian zones, forestry practices and acidification. Many of these impacts may be further exacerbated by low flows resulting from field drainage management, abstraction and climatic change.

The evidence of CS2000 is that the impacts of these sources of environmental stress have been much ameliorated over the last decade. This is good news for the maintenance and spread of populations of rare or threatened taxa.

Countryside Survey 2000: where next?

Monitoring and mapping of the countryside is not a one-off or singular event, but rather, a continuous process of data collection, analysis and reporting. The countryside itself is subject to change, new concerns and pressures emerge (e.g. the recent foot-and-mouth epidemic) that have major implications for the countryside, and new policy imperatives arise. Consequently, demands for data are constantly evolving. Publication of the report *Accounting for Nature*, in November 2000, and the launch of the Land Cover Map 2000 in October of this year, therefore, do not mark the end of CS2000 – merely the end of the beginning! Attention must now turn to how to make best use of this information, how to interpret and follow-up the results, and how to develop future monitoring of the countryside.



To these ends, DEFRA and the NERC Land Use Research Co-ordinating Committee (LURCC) hosted *Countryside Survey 2000: where next?*, a two-day workshop in Cambridge, on 10-11th December. The workshop involved an invited audience from all the main provider, user and research organisations, including government departments, the statutory countryside agencies, NGOs, voluntary organisations and universities. In addition to introductory presentations on the background to CS2000 and the policy context, the workshop comprised a series of case studies illustrating the use and potential application of CS2000 data. In the light of these, participants were invited to discuss the policy challenges which CS2000 might help to address, to suggest ways in which the data should now be analysed and used, and to consider the future of countryside survey in the UK.

Questions addressed included:

- how are policy issues changing and what are the implications for countryside survey?
- does CS2000 provide sufficiently sensitive information on habitat quality and change, or on vulnerable species?
- are broad habitats the appropriate framework within which to monitor and report on the countryside?
- what additional indicators are needed from countryside survey to inform and support policy?
- how can countryside survey be made more prospective and predictive – so that it provides an early warning for future risks and impacts?
- how can countryside survey in the UK (and Europe) be made more integrated and coherent?
- how can the need for broad-scale information at national and EU scale be better matched to the needs of practitioners at the regional and local scale?

The presentations will be made available via the CS2000 web site and discussions at the meeting will form the basis for a review report, to be produced by Roy Haines Young and David Briggs in spring 2002.



David Briggs
Imperial College

The shape of things to come

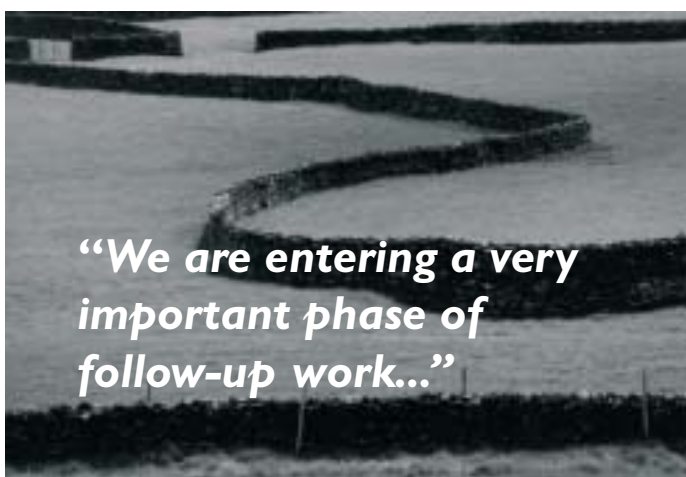
With the launch of Land Cover Map 2000, all the major components of CS2000 are now available to the science and policy communities. We are therefore entering a very important phase of follow-up work, which will refine our understanding of what the results can tell us about our countryside, and shape the science and policy agendas that will determine plans for any future survey.

Although CS2000 will stand as a base line against which we can measure change over the next decade or so, the most active phase of follow-up research will be the next three to four years. As a result of discussions with the organisations that advised on the design and management of the survey, it is now possible to identify the major research themes that are likely to be explored. Ideas are crystallising around five key questions (see box).

Major post-CS2000 research themes

1. What factors are contributing to change in stock and turnover of broad habitats and vegetation and what are the implications for biodiversity?
2. What is the relationship between changes in freshwater quality and changes in habitat structure and condition in the wider landscape?
3. How can CS2000 data be used with other information about countryside change to derive indicators of countryside character, quality and environmental capital?
4. How, in the future, should changes in stock and quality of habitats be monitored and changes in the condition of the wider countryside assessed and reported?
5. How are the socio-economic drivers of countryside change reflected in CS2000 data?

Consortia are being set up amongst members the CS2000 Advisory Group to take the exploration of these issues forward. For example, work on the factors contributing to changes in stock and turnover of the Broad Habitats and their implications for biodiversity is now being



commissioned from the Centre for Ecology and Hydrology (CEH), funded by DEFRA, English Nature, Joint Nature Conservation Committee, Scottish Natural Heritage, Countryside Council for Wales and the Forestry Commission. The outputs from the study will be made available through the CS2000 web site (www.cs2000.org.uk) and the scientific literature.

It is important to stress, however, that in the long-term, CEH and the others involved in CS2000 look to finding *new partnerships* with those in the wider science and policy communities to identify other questions and issues, and to develop a much broader perspective on countryside survey results. The CS2000 database is a valuable resource for those interested in the UK countryside. All those involved in the

Survey are keen to see these data used as widely as possible. Mechanisms have been put in place to help disseminate the data and to support the wider user community. Further information can be found on the CS2000 web site. Those interested in using CS2000 data or in developing joint research with CEH can also contact John Watkins, CEH Merlewood (e-mail: jww@ceh.ac.uk).

Roy Haines-Young

CEH Monks Wood/University of Nottingham

Countryside Survey 2000 is sponsored by: Department for Environment, Food and Rural Affairs, Natural Environment Research Council, National Assembly for Wales, Scottish Executive, Environment Agency, Scottish Natural Heritage and Countryside Council for Wales.

Countryside survey 2000 News has been collated and produced by the Centre for Ecology and Hydrology on behalf of DEFRA and NERC.

Contact address:

CS2000
CEH Merlewood, Windermere Road
Grange-over-Sands, Cumbria LA11 6JU
Tel: 015395 32264
Fax: 015395 34705
Email: cs2000@ceh.ac.uk
<http://www.cs2000.org.uk>

DEFRA

Department for
Environment,
Food & Rural Affairs



**NATURAL
ENVIRONMENT
RESEARCH COUNCIL**