

CENTRE FOR ECOLOGY AND HYDROLOGY

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Countryside Survey 2000
Module 17 - FINDING OUT CAUSES
AND UNDERSTANDING
SIGNIFICANCE (CS2000 FOCUS)

Final Report
Volume 2: Technical Annexes

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COUNTRYSIDE SURVEY MODULE 17: FINDING OUT CAUSES AND UNDERSTANDING SIGNIFICANCE (FOCUS)

EXECUTIVE SUMMARY

1. Following the publication of the Countryside Survey 2000 results a number of questions were raised about the level of confidence in the results and the interpretation of changes reported. In all, 17 specific questions were formulated that were grouped into seven topic areas. The results were re-examined, compared with non-Countryside Survey datasets and the policy relevance of the findings explored.
2. The results are reported in two ways, this report provides the supporting evidence, showing the scientific detail of the examinations, analyses and interpretations made. A second report describes the policy relevance of the changes and suggests the implications, all reports are available over the world wide web (http://www.cs2000.org.uk/FOCUS_task1.htm).
3. The seven topic areas are the six aggregations of Broad Habitats used in the report of Countryside Survey 2000¹. They are Enclosed farmland; Boundary and linear features; Woodlands; Mountain, moor, heath and down; Rivers, streams and standing waters; and Developed land in rural areas. The seventh topic is more management related and covers Agri-environmental schemes.
4. In general the more detailed analyses confirmed the interpretation made in the original publication although in some cases the extent of change recorded could be recalculated to allow for alternative interpretation, errors in field mapping and data processing.
5. The study has clarified the limits of analysis and interpretation of CS2000 data. CS is a general survey of rural habitats and is not capable of making definitive statements about Priority Habitats or urban areas as the sample has very limited observations in these areas. The data are still valuable in examining questions about these topics as they provide context, describe the background matrix in which change is occurring.
6. The report shows the importance of communication and liaison between different groups generating datasets for monitoring. Following the study, a few changes in the survey methodology are proposed, but these should be made in a conservative way so that they do not invalidate the comparison with data already collected or compromise the links with other groups and their datasets. A summary of recommendations is included after the individual chapters.
7. Additional surveys, sometimes repeating previous work, are proposed to answer questions that CS data is incapable of addressing. The work should be carried out using techniques that will maintain compatibility with CS, but should not be included within the CS structure.
8. The work has generated a list of potential modifications to field recording that should speed up the production of results. The modifications need to be reviewed to guarantee their security, consistency and comprehensiveness.

¹ R.H. Haines-Young, C.J. Barr, H.I.J. Black, D.J. Briggs, R.G.H. Bunce, R.T. Clarke, A. Cooper, F.H. Dawson, L.G. Firbank, R.M. Fuller, M.T. Furse, M.K. Gillespie, R. Hill, M. Hornung, D.C. Howard, T. McCann, M.D. Morecroft, S. Petit, A.R.J. Sier, S.M. Smart, G.M. Smith, A.P. Stott, R.C. Stuart and J.W. Watkins (2000) *Accounting for nature: assessing habitats in the UK countryside*, DETR, London ISBN 1 85112 460 8

COUNTRYSIDE SURVEY MODULE 17: FINDING OUT CAUSES AND UNDERSTANDING SIGNIFICANCE (FOCUS)

Background

1. Countryside Survey 2000 was a survey of land cover, landscape features, soils and water character and biodiversity for the rural and peri-urban environment of Great Britain (GB). The majority of the field work was conducted in 1998, with the remainder completed in 1999; it was reported in *Accounting for Nature*, Haines-Young *et al.*(2000). That report presented stock and change on land cover, landscape features and vegetation from the ground survey of sample 1 km squares by Broad Habitat (see Annex 1) and by regions within GB. In general terms, it was reported that changes in stock of habitats and features between 1990 and 1998 seemed to have been less than in the previously reported period (1984 to 1990), but changes in vegetation character had continued.
2. Since the publication of the report, additional information has been made available on the CS2000 website (<http://www.cs2000.org.uk/>). This includes detailed data that were used to generate the outputs in the Main Report, as well as findings from other elements within CS2000.
3. The findings from CS2000 have potential importance in a wide range of rural policy areas, for example the UK Biodiversity Action Plan (BAP), EU Habitats Directive and the Water Framework Directive (WFD). They also have the potential to inform policy development, for example, in changes in peri-urban areas and agricultural land.
4. There are risks involved with adopting a simplistic translation between published CS2000 findings and policy implications. This is perhaps best demonstrated using an example. One of the findings from CS2000 was that the area of *Fen, Marsh and Swamp* had increased since 1990. Wetland habitats are among the most threatened, so the result appears to be important for the conservation of both this habitat, and the plants and animals that inhabit it. There might have been a significant increase in wetlands across GB but we need to be aware that there are several other possible explanations for this change. For example, it could also have been a change in the occurrence of one or two plant species that led to the Broad Habitats being redefined. It could be explained by a consistent shift in grassland vegetation towards more damp grassland vegetation that is not of great conservation value in its own right.
5. Another issue relates to the turnover of features and habitats. A second important result of CS2000 was that the declines in hedgerow lengths observed between 1984-90 was no longer seen between 1990-98. Yet there was flux: some hedges were lost, while others were gained. This flux may be of concern to rural policy, if new hedges were somehow not equivalent to the ones that had been lost.
6. It was therefore agreed to fund a new project within the CS2000 programme to explore the data in more detail in order to answer specific policy questions. This programme, Module 17 within CS2000, was named “Finding Out Causes and Understanding Significance” (FOCUS), and was funded by range of sponsors, namely Department for Environment, Food & Rural Affairs (Defra), Countryside Council for Wales (CCW), English Nature (EN), Forestry Commission (FC), Joint Nature Conservation Committee (JNCC) and Scottish Natural Heritage (SNH).
7. The research was also co-funded by the Natural Environment Research Council (NERC). These organisations are closely involved in the project specification, provide support and advice to ensure that the research achieves the policy-oriented objectives, and debate the findings with the researchers.
8. The research was constructed around a series of specific research questions, grouped into topics. There are 17 questions reported in seven topic areas.
9. The report is in two sections. The first volume provides summary interpretation and is intended for those with policy-related interests in the research. It presents briefly the background for each of the research questions, the approach adopted, the major findings and the implications, both for

policy and for possible amendments for future Countryside Surveys. This second volume consists of technical annexes, where the detailed work programmes for each question is presented. Scientific papers from these findings will be submitted to refereed journals as appropriate.

Objectives

- 1 The formal objectives of the work programme (as defined in the project specification) were:
 - i. to undertake further critical analysis of the data arising from CS2000 to answer a series of specific questions concerning interpretation and understanding of the results in terms of ecological processes and land management effects;
 - ii. to acquire and use other contextual data to assist in the analysis, interpretation and assessment;
 - iii. to recommend improvements to survey protocols;
 - iv. to establish and consult a steering group and organise workshops as necessary to ensure that user requirements are defined, clearly understood and addressed;
 - v. to publish the results in technical reports and concise non-technical summaries and to present the results at a seminar; and
 - vi. to maintain the CS2000 website following completion of the current Module 16 and to facilitate internet publication of the results of ongoing CS2000 projects.

Task, Topics & Questions

- 2 The objectives have been met through three main areas of work (**tasks**):
 - i. Answering specific research **questions** arising from published results.
 - ii. Recommending improvements to survey protocols.
 - iii. Maintaining the CS2000 Website.
- 3 It has been agreed that the specific research questions should be aggregated under seven distinct **topics**. Each topic relates to one of the Broad Habitat groups (Chapters) in the CS2000 main report (Haines-Young *et al.*, 2000), with the exception of one (Topic 7) which is of a more over-arching nature.
- 4 The aggregation of FOCUS questions as shown in Table 1.
- 5 A number of general points apply to the way this suite of questions were addressed:
 - i. Where possible, work used external (i.e. to CS2000) research and survey results, including information and expertise held by the funding consortium.
 - ii. Although this programme of work was been initiated to clarify or expand on some of the results from CS2000, it was been necessary to include an assessment of uncertainty of these further, second-stage results. Statistical significance has been handled in the same way as in the earlier analyses but, in addition, discussion has been held with interested sponsors and other experts about the policy significance and relevance of any results and conclusions.
 - iii. The work adopted a flexible approach to the use of geographical frameworks according to customer requirements; i.e. Environmental Zones (Annex 3), countries, including the production of separate reports for England and Wales and investigated the appropriateness of using other possible geographical breakdowns – regions, catchments and natural areas.

- v. There now follows a report on each of the research questions, structured to review in summary only:
- the background to the research question, including a précis of results from CS2000
 - the significant results from the FOCUS work programme
 - suggested implications for policy.

Volume I presents a concise summary which will be useful to policy customers. This document, Volume II, contains much greater detail with each chapter providing a Technical Annex supporting the interpretations made in Volume I.

Table 1. Aggregation of 15 specific research questions under 7 topic headings.

Topic no.	Topic heading	Question no.	Question
T1	Enclosed farmland	1	Decline in semi-natural grasslands?
		2	Newly cultivated land in CS2000?
		3	Conservation value of weed species?
T2	Boundary & linear features	4	Change in hedges 1990, 1993 and 1998?
		5	Plant diversity, hedge characteristics, land use?
		6	Value of hedges for birds?
		7	Hedges that are being gained/lost?
		8	Condition of ancient and/or species-rich hedgerows?
T3	Woodlands	9	Differences in estimates of woodland cover? Correspondence with AWI sites? Woodland changes - where and how?
T4	Mountain, moor, heath & down	10	Changes in dwarf shrub heath?
		11	Increases in fen, marsh & swamp?
		12	Bracken invasion?
T5	Rivers, streams & standing waters	13	Causes of overgrown streamside vegetation?
		14	What and where are the new ponds?
T6	Developed land in rural areas	15	Habitat creation on developed land
		16	Countryside around towns
T7	Agri-environment schemes	17	Agri-environment schemes?

Reference

Haines-Young, R.H., Barr, C.J., Black, H.I.J., Briggs, D.J., Bunce, R.G.H., Clarke, R.T., Cooper, A., Dawson, F.H., Firbank, L.G., Fuller, R.M., Furse, M.T., Gillespie, M.K., Hill, R., Hornung, M., Howard, D.C., McCann, T., Morecroft, M.D., Petit, S., Sier, A.R.J., Smart, S.M., Smith, G.M., Stott, A.P., Stuart, R.C. and Watkins, J.W. (2000) *Accounting for nature: assessing habitats in the UK countryside*, DETR, London.

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- 7 We are grateful to the project Steering Group for their the support and input throughout the project. The Steering Group members were: David Allen (CCW), Richard Brand-Hardy (Defra), Simon Gillam (FC), Jane Goodwin (Defra), Debbie Jackson (Defra), Ed Mackey (SNH), Stephen Preston (EN), Andrew Stott (Defra) and Ian Strachan (JNCC).
- 8 Lastly, we are grateful to a number of people who attended a workshop in May 2002 and who gave helpful advice and guidance to the project at that stage.