INSTITUTE OF TERRESTRIAL ECOLOGY
(NATURAL ENVIRONMENT RESEARCH COUNCIL)

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NORTHERN IRELAND COUNTRYSIDE SURVEY LINK

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Second Interim Report

Contract Report to the
Department of the Environment, Transport and the Regions

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Executive Summary

A worked example (for broadleaved woodland) is provided in which the independent figures produced for Northern Ireland and Great Britain are combined into a single figure for the UK with associated standard errors. The overall estimate of error is lower than the separate figures. A Quality Assurance exercise, funded by the Environment & Heritage Service for Northern Ireland (EHSNI) and managed by the Institute of Terrestrial Ecology (ITE) produced acceptable figures that are comparable to similar assessments carried out in Great Britain in 1990 and 1998. A combined Irish team has been included in a proposal to the Fifth Framework to produce figures for Broad Habitats to set Ireland within the European context.

1. Introduction

The first interim report described the three visits that had been made to Northern Ireland and presented the correspondence between the Northern Ireland Countryside Survey (NICS) recording codes and the Broad Habitats of the UK Biodiversity Steering Group. The key conclusion was that '*the Broad Habitats will provide for the first time, a consistent common reporting framework for biodiversity in the UK*'.

Two further pieces of work have been carried out following that report. Firstly, a small sub-contract was negotiated with the Environment and Heritage Service for Northern Ireland (EHSNI) to carry out quality assurance for NICS. Secondly, a visit was made to finalise the analytical procedures for combining Northern Ireland and GB estimates to obtain UK figures. This report is therefore in two parts, the first dealing with the quality assurance and the second with the production of combined estimates.

At the last two meetings held in Ulster, contact has been attempted with the Environment Service of the Republic, without a satisfactory conclusion However, since that time,
Dr Alan Cooper has managed to contact John Wilson and they have agreed to participate together in the EUROLUS (*A quantitative assessment of land use, biodiversity and indicators for the wider European countryside*) proposal submitted to the Fifth Framework in June of this year. This is an important step forward as, if the proposal is successful, figures will be produced for the whole of Ireland.

2. NICS Quality Assurance

2.1 This project was mainly carried out by David Kershaw who had been a field surveyor in NICS with support from ITE and the University of Ulster. Within NICS, 25 sample squares were located, stratified by the region and proportional land class, to provide a basis for an independent quality assurance survey (QA). ITE assisted with the design of the sample, visited the province prior to, during and following the survey and produced the report to EHSNI detailing the results.

2.2 Within each sample square, nine regularly spaced points were marked on the sample map and used as a basis for a fully independent quality assurance assessment. A total of 225 land cover points and 200 boundaries were surveyed.

2.3 QA results show a similar balance of land cover and boundary types for the whole of Northern Ireland from a baseline survey completed 10 years ago, indicating that the QA sample is representative and covers the principal land cover and boundary types.

2.4 Correspondence between QA and NICS at the UK Broad Habitat level was 90.7%. The main reason for disagreement between the two surveys was due to different interpretations in the field of land cover criteria (4.9%). Categorical error only accounted for 0.9% of the disagreements.

2.5 At the NICS type level, correspondence of land cover types between QA and NICS was 70.4%. Of the disagreements, interpretation of land cover criteria accounted for 14.4%; splitting of one land cover type into two others accounted for 4.4%; seasonal changes accounted for 3.6%; interpretation of land parcel border location accounted for 1.8%; difficulty in identification of *Lolium perenne* varieties accounted for 1.3%; and categorical error accounted for 4.0%.

2.6 Within woodland land cover types, the correspondence between QA and NICS was 88.9%. Within semi-natural land cover types the correspondence was 47.9%. Within agricultural land cover types, the correspondence was 69.8%. Within landscape land cover types, the correspondence was 81.3%.

2.7 These results are in broad agreement with the QA carried out during Countryside Survey 2000 (CS2000) in GB.

3. Analytical Procedure for Combined Errors

3.1 The basis for the discussion was the specification for CS2000 spatial analysis produced by the Spatial Analysis Group at ITE Merlewood. This document is based on the seven reporting outputs specified in the ITE proposal to the Department of the Environment, Transport and the Regions (DETR). The following sections are under the same headings as in the specification document.

3.2 ***Summaries of Stock and Change by Widespread Habitat***
Comparable definitions are available from the previous report and there are no problems with producing UK figures at the Broad Habitat level. Within Northern Ireland the environmental regions will be upland and lowland, on the basis of the Northern Ireland land classes. Some assumptions will have to be made concerning dates, due to differing time periods of the NICS. There are seven regional reports in Northern Ireland and Broad Habitats will probably be reported at this level as well as Northern Ireland as a whole.

3.3 ***Summaries of the Change in Land Cover***
There are no consistent vegetation data for Northern Ireland, therefore in all cases it will not be possible to report on vegetation character. Change in Broad Habitats will be reported as for stock with the same assumptions having to be made concerning dates, which are no exactly coincident with GB. However, clear statements will be made so there is no ambiguity.

3.4 ***Summary of the Stock and Change and conditions of Linear Landscape Features***
The same comments apply as those given in 3.2 and 3.3 above, ie. concerning dates. There is an additional problem in that in NICS there are no measures of roads or rivers. Therefore only broad comparisons can be made for these linear features. Furthermore there is no firm detail on condition and therefore this is not applicable to Northern Ireland and can only be inferred by the relative proportion of types eg. ‘hedges’ in comparison with ‘hedges with gaps’.

3.5 Sections 4. and 5. within the specification are solely concerned with vegetation and are therefore not applicable to Northern Ireland. Section 6, *summaries of the stock and change of each main land cover type*, can be analysed using the table produced for correspondence in the ECOFACT report. Certain assumptions will be need to be made regarding aggregation and division of some the categories. Regional figures can also be produced.

3.6 ***Summary flow accounts showing the breakdowns of the type of change***
Summary flow accounts can be carried out at the regional level and it will probably be possible to present these for the UK. Finally, there is no information on pattern in NICS.

4. Procedure for Combining Estimates and Standard Errors between NI and GB

4.1 A collaboration over many years, between the University of Ulster and ITE has resulted in identical statistical procedures being used. NICS has used the appropriate statistical procedure for combining errors between independent estimates, as they have been combining regional figures from separate surveys eg. of Fermanagh and the Mournes, to produce estimates for the province. This procedure has also been agreed by ITE statisticians and the first example of a combined estimate is given below.

4.2 The figures are for broadleaf woodland, taken from Table 3.9 of the main report for CS1990 and from the appropriate section in the NICS report. In Northern Ireland the estimate for woodland is 24 787 ha with a standard error of 3 148, giving a coefficient of variation of 12.7%. In GB there are 23 180 000 ha of woodland with a standard error of 90 000 with a coefficient of variation of 10.1%. The combined figure is 24 534 197 ha with a standard error of 90 055 and a coefficient of variation of 9.8%. It is likely therefore that the combined estimates will have lower error terms, which is not surprising, considering the sample size has increased.