

T02083 g5 PPI 2.1.1



**Institute of  
Terrestrial  
Ecology**

- 1 APR 1999

INSTITUTE OF  
TERRESTRIAL  
ECOLOGY  
MERLEWOOD



**Centre for  
Ecology &  
Hydrology**

Natural Environment Research Council

**ITE** has six Research Stations throughout Britain, which allows the efficient use of resources for regional studies and provides an understanding of local ecological and land use characteristics. The Institute's administrative headquarters is at Monks Wood.

**This report is an official document prepared under contract between the customer and the Natural Environment Research Council. It should not be quoted without the permission of both the Institute of Terrestrial Ecology and the customer.**

### **ITE sites**

Monks Wood  
(Admin HQ)  
Abbots Ripton  
HUNTINGDON PE17 2LS  
Telephone 01487 773381-8  
Fax 01487 773467  
Email MONKSWOOD@ITE.AC.UK

Merlewood Research Station  
GRANGE-OVER-SANDS  
Cumbria LA11 6JU  
Telephone 015395 32264  
Fax 015395 34705  
Email MERLEWOOD@ITE.AC.UK

Edinburgh Research Station  
Bush Estate  
PENICUIK  
Midlothian EH26 0QB  
Telephone 0131 445 4343  
Fax 0131 445 3943  
Email BUSH@ITE.AC.UK

Furzebrook Research Station  
WAREHAM  
Dorset BH20 5AS  
Telephone 01929 551518-9, 551491  
Fax 01929 551087  
Email FURZEBROOK@ITE.AC.UK

Banchory Research Station  
Hill of Brathens  
Glassel, BANCHORY  
Kincardineshire AB31 4BY  
Telephone 01330 823434  
Fax 01330 823303  
Email BANCHORY@ITE.AC.UK

Bangor Research Unit  
University of Wales, Bangor  
Deiniol Road  
BANGOR, Gwynedd LL57 2UP  
Telephone 01248 370045  
Fax 01248 355365  
Email BANGOR@ITE.AC.UK

INSTITUTE OF TERRESTRIAL ECOLOGY  
(NATURAL ENVIRONMENT RESEARCH COUNCIL)

NI/RPT1

# **NORTHERN IRELAND COUNTRYSIDE SURVEY LINK**

**R G H BUNCE**

First Interim Report

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

Institute of Terrestrial Ecology  
Merlewood Research Station  
Grange-over-Sands  
Cumbria LA11 6JU

August 1998



# CONTENTS

	Page
Exectuvie Summary	
1. Introduction	1
2. Correspondence with Broad Habitats of the UK Biodiversity	2
3. Correspondence of NICS recording codes with BAP categories	6
4. Other Issues	8



## **Executive Summary**

Three visits have been made to Northern Ireland, firstly to discuss correspondence between the Northern Ireland Countryside Survey (NICS) recording codes and the Broad Habitats of the UK Biodiversity Steering Group and subsequently to attend the field training course and participate in quality control. The key conclusion is that *'the Broad Habitats will provide for the first time, a consistent common reporting framework for biodiversity in the UK'*, since there is good agreement with the recording codes used in NICS. A procedure is available for the production of joint figures for GB and Northern Ireland to give UK estimates and associated standard errors. The correspondence is presented between NICS recording codes, in order of Broad Habitat categories, and subsequently by the order given in the NICS field handbook.



# 1. Introduction

- 1.1 ITE and the University of Ulster have been collaborating over the last 18 years over common approaches to the two countryside surveys. Differences between the two surveys have involved modifications made to adapt the GB approach to the different scale and character of Northern Ireland but the principles involved are identical. The present report mainly concerns the correspondence between the recording categories of Northern Ireland and the UK Biodiversity Broad Habitats of the Steering Group Report. The correspondence between definitions of NICS categories and Broad Habitats was developed during an initial visit in April, but some modifications were made during the attendance of ITE at the training course of NICS and subsequently during quality control in Fermanagh. These have been under discussion and modification over the last 18 months and ITE have been regularly involved in the discussions. The present document uses the final list of Broad Habitats as endorsed by the UK Biodiversity Steering Group in June 1998. The adoption of mutually exclusive categories, to cover the entire land surface removed the main difficulty in determining correspondence with Broad Habitats within NICS. Further minor modifications of the Broad Habitats may be made eg. the separation of sand dune and salt marsh, but it is not envisaged that these will cause any significant problems. It has been decided that no further work will be done on the match between the NI recording codes and the CS1990 58 reporting codes, developed under the ECOFACT project as the Broad Habitats will be used in future for reporting.
- 1.2 In both NICS and Countryside Survey 2000 (CS2000), definitions are provided, for all the codes used in the field in handbooks which are used for the guidance of field surveyors. Both surveys have held field training courses before the surveys took place and ITE attended the NICS training courses in 1990 and 1998. Both surveys have also maintained the integrity of their original land cover codes and have only improved details of the definitions of the codes in order to improve subsequent interrogations of the database. These modifications are discussed in the CS1990 Main Report and in the NICS Summary Report. These modifications are designed to use the experience built up over the surveys to improve definition in the field whilst maintaining the same land cover criteria.
- 1.3 There was greater emphasis in CS1990 than NICS on species records from vegetation than land cover with upto 27 plots being placed in the 508 1 km squares whereas NICS has recorded plots only in grasslands and heath/bogs. Whilst this has no implications for land cover recording, it has influenced the strategy for CS2000 in unenclosed semi-natural vegetation. The emphasis has shifted from mapping, to plots as it has was found in ECOFACT that species composition is necessary in the assessment of change in upland vegetation. Only major changes eg. afforestation will therefore be mapped in the uplands in CS2000 whereas in the lowlands detailed changes will be mapped. In NICS this separation will not be made because there are few unenclosed upland squares and the landscape is on a smaller scale (recognised in the 0.25 km<sup>2</sup> sampling unit), than the open moorlands and heaths of GB, especially the Scottish mountains. The basic field procedure for mapping will be identical in the two surveys, in that the field surveyors will be provided with the information from the previous survey and will be recording change only.

## 2. Correspondence with Broad Habitats of the UK Biodiversity

- 2.1 The comparisons below were made initially in early April on the final list of Broad Habitats, and refined by subsequent discussions between ITE and the University of Ulster in May and July. No serious problems were encountered in matching the NICS codes with Broad Habitats. This is due mainly to the regular consultations between Ulster and ITE over the years, but also because some of the NICS categories closely correspond more to the Broad Habitats than the ITE 58 reporting codes eg. the NICS species-rich dry grassland and the Broad Habitats neutral grassland category. It is also probable that some of the NI categories are likely to be coincident with the Key Habitats within the Broad Habitats eg. fen/meadow (NICS) within the wetland Broad Habitat.

The UK estimates for Broad Habitats will therefore be simpler to derive than for the 58 categories of the CS1990 report, with the key conclusion that *“the Broad Habitats will provide for the first time, a consistent common reporting framework for biodiversity in the UK”*.

### ***BAP1 Broadleaved woodland***

The figure of 10% of broadleaved trees for NI corresponds to the lower band suggested for Broad Habitats and, although NICS separates semi-natural from plantation broadleaved woodland, this is not important because NI WO1 and NI WO2 can be combined. In addition, NI W05, NI W06 and NI W48 should also be included. Ecological scrub ie. Shrub as used in CS1990, because of the confusion with FC *“poor woodland”*, is represented by NI WO7 and NI WO8.

In addition, NI S27 (dune scrub), 50% of NI S58 (which is a mixture of gorse and heath, and is particular to NI and parts of lowland heaths in southern England) should also be added. The other 50% is included under BAP9.

In NICS, the parcel moves into agriculture or semi-natural grassland where trees and shrubs are less than 25%, so these parcels should not be included in BAP1. Parkland in NI would be recorded as woodland because the cover of trees is set at 25% or over. In CS1990 tree cover in parkland did not reach this figure, so parcels were included in grassland of the appropriate code. The area concerned is small but represents a minor inconsistency.

Gorse in NICS is separated into areas where trees are invading (NI W07) as opposed to gorse/heath which would be NI S07. The former should therefore go into BAP1 and the latter split 50:50 with BAP1 and BAP10.

NI S08 (gorse heath-scattered) should also be included in BAP1 until the gorse falls below 25%. Felled woodland would be included in the same category as the standing forest felled, which is coincident with CS2000 and with BAP coding.

### ***BAP2 Coniferous woodland***

This category is equivalent to NICS cover codes NI W03 (coniferous semi-natural) and NI WO4 (coniferous plantation). The Caledonian pinewoods of Scotland are irrelevant in the NI context.

### ***BAP3 Boundaries and linear features***

This category would include NICS landscape feature codes NI L06 (verge/embankment), NI L10 (road/track) and NI L11 (railway track) which are very scarce in NI. Subsequent database management can ensure that there is a common approach between NICS and CS2000. At the meeting in April in Coleraine, various definition problems concerned with boundary features, especially hedges were discussed. It was decided that the minor inconsistencies between the categories used could be sorted out by subsequent database management, once the data had been processed. ITE sent the definitions for relict and derelict hedges immediately after the meeting and following discussion, the NI survey included the number of woody species in hedge sections to allow comparison with the hedgerow diversity plots of CS2000.

Several specific points were noted for subsequent attention:

- Gorse is not considered as a hedge species in NICS, so that in the Mourne a fence with gorse beside it would be recorded only as a fence;
- There is no hedge laying in NI;
- Most NI hedges are on banks;
- The minimum mappable length in NI is 10 m compared with 20 m in GB. This will cause minor differences in detail;
- Many NI hedges have trees incorporated but they are not comparable to the lines of trees which GB hedges may become; this was confirmed subsequently in the quality control. Such differences will need to be sorted out at the database management stage.
- There is a high frequency of hawthorn in NI and few other native hedge species, such as dogwood or wayfarers tree.

The recording of the woody species in NI hedges, as agreed at the April meeting, will enable comparisons to be made with the hedgerow diversity plots of CS2000. A relict hedge below 25% cover would be recorded on the linear feature (bank or fence) together with shrubs/trees. This is the same approach as CS2000 and can therefore be sorted out at the database management stage.

### ***BAP4 Arable and horticulture***

CSNI used the same categories as CS2000 and includes NI A 12-14, NI A 01-05, NI A10 and NI A39 (orchard, soft fruit, vegetables, wheat, barley, oats, potatoes, brassicas, ploughed/fallow, root crops). There is no set-aside in NI.

### ***BAP5 Improved grassland***

Includes NI A07 (Italian ryegrass), NI A08 (perennial ryegrass), NI A09 (mixed species grassland) and NI A11 (other agricultural grassland). These categories agree exactly with CS2000 and, following the quality control visits in June, it was confirmed that the definition of NI S01 (species-rich dry grassland) was coincident with the herb-

rich category used in CS2000. NI S34 (ruderal vegetation) should also be included in improved grassland as it contains many grass species. NI L05 (amenity grassland) should also be included here.

### ***BAP 6 Herb-rich grassland***

Directly equivalent to NI SO1 (species rich dry grassland). Contains only those grasslands that have grass cover less than 50% together with specified quality indicators.

### ***BAP7 Calcareous grassland***

Equivalent to NI S06 and to the same category in CS2000.

### ***BAP8 Acid grassland***

The corresponding semi-natural categories are: NI SO3 (bent/fescue hill pasture); NI SO4 (mat grass hill pasture); NI SO5 (Molinia grasslands). Molinia in a lowland/fertile grassland setting almost always has low cover and the grassland would be included in BAP11, wetland. Although there are two broad types of Molinia grasslands in NI: upland and cut over bogs in the lowlands, which have different origins, both would be identified by the dominance of Molinia. This approach corresponds to CS2000 and would fit directly into BAP8. NI S33 (bracken-scattered) would also be included here as virtually all this category occurs in acid grassland, although this could be improved in subsequent database management by linking the occurrence of parcels with neutral rather than acid grassland species. 50% of NI S12 (dry heath mosaic) should also be included here because the mosaic is of dry grassland and heath.

### ***BAP9 Dense bracken***

This is coincident with NI S33 (bracken-continuous) and with the CS2000 code. In addition, 50% of NI S58 (gorse heath/bracken mosaic), a category unique to NI, needs to be added.

### ***BAP10 Heath***

The definition of at least 25% ericaceous cover is coincident with NICS and also with CS2000. The following categories should be included: NI SO9 (ericaceous (dry) heath); 50% of NI S12 (dry heath mosaic); NI S59 (mixed heath vegetation) although this category may have some bog species, its main affinity lies in BAP10, because of the *Calluna* and *Vaccinium* components.

### ***BAP11 Wetland***

NI SO2 (species-rich wet grassland), with the proviso that in NI these are within the farmed area. NI S65 (fen meadow), which contains *Cirsium dissectum*, and would contain in England, the Culm lowland grasslands that contain some Molinia. Whilst this category is probably different in NI to GB, because of the combination of soil and climate, the correspondence is sufficiently close to be included here. The degree of overlap could only be determined by joint analysis of vegetation quadrats. NI S16

(poor-fen) - this is a category that has more upland affinities than the previous category, with more *Carices* and *Juncus* species, and lacks the mesotrophic element of NI S02 and NI S65. This is also coincident with the flush code of CS2000. NI S17 (reedbeds), NI S18 (fen), NI S66 (swamp) and NI S68 (water inundation vegetation) also fall within BAP11.

### ***BAP12 Bog***

This is coincident with the following NI categories: NI S10, NI S13 and NI S14. NI S10 (wet heath) is coincident with blanket bog in NI. NI S13 (wet heath mosaic) belongs here because its main affinity is with bog; it has probably originated from bogs and will regenerate into bog in time. NI S14 (bare soil/peat/mud) is directly coincident. L16 (poor-fen) should be included here as it is only temporarily bare and will mainly revert to some form of bog.

### ***BAP13 Waterbodies***

NI L20 (lough/lake) and NI L21 (reservoir) are directly coincident. Canals are not relevant to NI. NI S19 (freshwater vegetation) also belongs here.

### ***BAP14 Rivers***

Directly coincident with NI L22 (river/stream) with the same width definition, 2.5 m as in GB.

### ***BAP15 Subarctic/mountain***

Not relevant in NI as the mountains do not reach sufficient altitude to override the mildness of the climate.

### ***BAP16 Inland rock***

This category includes NI L15, 17, 18, 19 (landfill/dumping, sand/gravel, boulders/scree and rock) and also NI S29 (crevice/ledge vegetation) as it is mainly rock.

### ***BAP17 Urban***

Directly coincident with NI L01-04 (urban, industrial/commercial/public, agricultural buildings and domestic buildings).

### ***BAP18 Maritime***

Directly coincident with NI S28 (coastal cliff vegetation).

### ***BAP19 Saltmarsh, sand dune and strand line***

All three of these categories are currently included in BAP 19 but it is expected that they will be reported separately in due course. Both NICS and CS2000 record these separately so there is no difficulty here. Directly coincident with NI S20 (intertidal),

S21 (saltmarsh) and NI S22 (shingle gravel ridge with vegetation present) and in agreement with CS2000. Totally bare mud is excluded in both surveys.

Directly coincident with NI S24 (foredune) and NI S25 (dune grassland). Totally bare sand is excluded in both surveys from vegetation cover.

### 3. Correspondence of NICS recording codes with BAP categories

The following table gives the complete list of correspondence given in the order of the NICS handbook with BAP categories.

#### 3.1 Woodland

BAP1	NI W01 Broadleaf semi-natural
BAP1	NI W02 Broadleaf plantation
BAP 1	NI W48 Fen carr
BAP 2	NI W03 Coniferous semi-natural
BAP2	NI W04 Coniferous plantation
BAP1	NI W05 Mixed semi-natural
BAP1	NI W06 Mixed plantation
BAP1	NI W09 Parkland
BAP1	NI W07 Dense scrub
BAP1	NI W08 Scattered scrub

#### 3.2 Semi-natural Vegetation

BAP6	NI S01 Species-rich dry grassland
BAP11	NI S02 Species-rich wet grassland
BAP8	NI S03 Bent/fescue hill pasture
BAP8	NI S04 Mat-grass hill pasture
BAP8	NI S05 Molinia grassland
BAP7	NI S06 Calcareous grassland
BAP1	NI S07 Gorse heath-continuous
BAP1	NI S08 Gorse heath-scattered
BAP10	NI S09 Ericaceous (dry) heath
BAP12	NI S10 Wet heath
BAP08 (50%)	
BAP12 (50%)	NI S12 Dry heath mosaic
BAP12	NI S13 Wet heath mosaic
BAP10	NI S57 Mixed heath vegetation
BAP01 (50%)	
BAP09 (50%)	NI S58 Gorse heath/bracken mosaic
BAP12	NI S14 Wet bog
BAP08	NI S15 Dry bog
BAP11	NI S16 Poor-fen
BAP11	NI S65 Fen meadow
BAP11	NI S17 Reedbeds
BAP11	NI S18 Fen
BAP13	NI S19 Freshwater vegetation
BAP11	NI S66 Swamp

BAP11	NI S67 Ditch vegetation
BAP11	NI S68 Water inundation vegetation
BAP09	NI S32 Bracken-continuous
BAP08	NI S33 Bracken-scattered
BAP08	NI S34 Ruderal vegetation
BAP16	NI S29 Crevice/ledge vegetation
BAP19	NI S20 Intertidal
BAP19	NI S21 Saltmarsh
BAP19	NI S22 Shingle/gravel ridge
BAP19	NI S24 Foredune
BAP19	NI S25 Dune grassland
BAP01	NI S27 Dune scrub
BAP18	NI S28 Coastal cliff vegetation

### 3.3 Agriculture

BAP05	NI A07 Italian ryegrass
BAP05	NI A08 Perennial ryegrass
BAP05	NI A09 Mixed species grassland
BAP05	NI A11 Other agricultural grassland
BAP04	NI A12 Orchard
BAP04	NI A13 Soft fruit
BAP04	NI A14 Vegetables
BAP04	NI A01 Wheat
BAP04	NI A02 Barley
BAP04	NI A03 Oats
BAP04	NI A04 Potatoes
BAP04	NI A05 Brassicas
BAP04	NI A39 Root crops
BAP04	NI A10 Ploughed/fallow
BAP13	NI A20 Lough/lake
BAP13	NI A21 Reservoir
BAP14	NI A22 River/stream

### 3.4 Landscape

BAP17	NI L01 Urban
BAP17	NI L02 Industrial/commercial/public
BAP17	NI03 Agricultural buildings
BAP17	NI L04 Domestic building
BAP05	NI L05 Amenity grassland
BAP03	NI L06 Verge/embankment
BAP03	NI L10 Road/track
BAP03	NI L11 Railway track
BAP16	NI L15 Land fill/dumping
BAP16	NI L16 Bare soil/peat/mud
BAP16	NI L17 Sand/gravel
BAP16	NI L18 Boulders/scree
BAP16	NI L19 Rock

### 3.5 Boundaries

BAP03	NI B02 Hedge
BAP03	NI B04 Dry stone wall
BAP03	NI06 Ruined dry stone wall
BAP03	NI B10 Earth bank
BAP03	NI B07 Mortar/brick/concrete wall
BAP03	NI B09 Sheep wire fence
BAP03	NI B11 Wood post and wire fence
BAP03	NI B12 Other fence

## 4. Other Issues

- 4.1 A procedure has been developed by Ralph Clarke of ITE Furzebrook for the production of joint figures from England, Wales and Scotland to produce GB figures that can be adapted for the inclusion of NI to give UK estimates. This procedure involves the adding of areas derived from the land class means and extent, together with the variances, which can then be used to obtain standard errors using the standard formula.
- 4.2 ITE have cooperated with the University of Ulster following discussions with EHSNI, for ITE to coordinate quality assurance in 1998 and a vegetation survey in 1999. The response of EHSNI to both proposals is awaited. Analysis by Jenny Duckworth of data from her thesis indicates that some of the species assemblages in NI are different from GB, confirming the opinion of Dr Alan Cooper. This will mean that joint vegetation analyses will have to be carried out, and that plots that are more than two standard deviations away from GB data, will need to be removed and analysed separately. The vegetation within the GB range of variation can be summarised using the CVS.
- 4.3 Future collaboration with Eire has also been discussed and the European classification could be used as a basis for developing Irish sub-classes which would rise above the local issues between north and south. Discussions are ongoing.

