

Chapter (non-refereed)

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Changes in the hills and uplands: research note

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The original concept of this research note had been to compare and contrast results from 2 independent estimates of landscape change. However, for reasons that will become apparent, it has proved extremely difficult, if not impossible, to carry out any useful form of comparison of published results, due in large measure to differences in survey dates and methodology. Further work will allow results to be co-ordinated but, for the time being, this note will focus on the factual differences of approach adopted by the 2 research teams, not so much as a critical examination but more by way of clarification. Some examples of results are given. The research under review has been carried out quite independently by the Institute of Terrestrial Ecology (ITE) and Hunting Technical Services (HTS), the former as part of a continuing policy of monitoring the rural environment, and the latter under contract to the Department of the Environment and the Countryside Commission for England and Wales.

Because of ITE's existing brief to cover Great Britain, and the requirements of Huntings' customers being restricted to England and Wales, the geographical extent of the landscape change detection exercises was different. This difference is especially significant when considering changes in the uplands. Both organizations accepted the inevitability of adopting a sampling strategy for land use work at the national scale, but ITE sampled at the GB scale, using its own 'land classification' as a form of stratification, while HTS sampled at the county level, employing a soil-based stratification developed by the Forestry Commission.

The sampling unit used by ITE was a one km square, while HTS used variable-sized blocks usually totalling 5 km². One of the major differences between the approaches was in the methods of landscape change detection which, in turn, reflects the sampling intensity of the 2 systems. ITE used field survey (as part of a wider ITE project comparing survey methods), while HTS employed aerial photography supported by field survey. As a consequence, HTS were able to obtain information from 707 sites in England and Wales (giving a sampling rate of 2.4% by land area), while ITE visited only 256 sites in GB (less than 0.1% cover by area).

The trade-off for the ITE system was in its ability to detect a far greater level of detail within each site, surveyors recognizing more than 340 features (including dominant vegetation species), while the aerial photograph

interpretation undertaken by HTS revealed 41 broader categories of land cover and linear feature.

Perhaps the major reason why comparison of results is difficult is the relative timespans for which landscape change was estimated. ITE compared results from a field survey undertaken by its own staff in the summer months of 1984 with similar data from surveys during the 1977 and 1978 field seasons. Because of the availability of aerial photographic coverage, HTS chose the target dates of 1947, 1970 and 1980 for comparison. Although average annual rates of change can be estimated from both studies, they are not strictly comparable as they take no account of variation within the broad timespans.

By way of example, the following Table shows figures for some predominantly upland landscape changes from these 2 projects.

	Areas (km ²)		
	HTS 1947-69	HTS 1969-80	ITE 1978-84
Loss of 'upland heath, grass and bog' in England and Wales	1900	1100	-
Loss of 'rough grazing'			
GB	-	-	1480
Scotland	-	-	480
Wales	-	-	150
Northern England	-	-	125
Increase in 'coniferous woodland' in GB			
Wales	400	400	43
Northern England	692	76	150
Scotland	-	-	1360
Loss of 'broadleaved woodland'			
Wales	30	100	-
Northern England	46	35	-
Loss of 'broadleaved woodland and scrub'			
GB	-	-	248
Scotland	-	-	12
Wales	-	-	13
Northern England	-	-	4

Looking to the future, ITE (which is a part-Government-funded organization within the Natural Environment Research Council) will continue to monitor changes in the countryside, both to update its data bases for research purposes and to provide change statistics. As

a result of a recent contract awarded by the Department of Environment, it will be required to incorporate the results of the HTS work into its own land classification system – a positive step in data integration.

The relative costs and statistical accuracy of the approaches described here have yet to be assessed.

However, whatever the outcome, it is apparent that there are 'horses for courses'. Some assessments will require greater statistical accuracy at the expense of a detailed level of information, while the converse may be true in other circumstances, especially where detailed ecological descriptions are fundamental to the study in hand.