

## Field boundaries and other landscape features in upland areas of England and Wales

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### Introduction

Changes in farm support away from grant-aided livestock production and towards compensation to maintain and improve landscape and nature conservation have occurred in response to both changing market requirements and environmental legislation. This has important implications for hill and upland management. Many of Britain's National Parks and designated Environmentally Sensitive Areas (ESAs) are in upland areas where past farming practices have shaped the landscape. However, recent technical success in improving agricultural productivity has often resulted in loss of landscape quality and biological diversity, while woods, hedges, walls and other vernacular features have deteriorated through neglect. Provisions to protect landscape and wildlife have increased since the 1981 Wildlife and Countryside Act (Bury, 1985) and particularly with the introduction of ESAs in 1987 (Smith, 1989). Further schemes were introduced in 1992 to encourage planting of farm woodlands (Ministry of Agriculture, Fisheries and Food, 1992) and for improvement of hedgerows (Countryside Commission, 1992).

In addition, farming in the uplands is often no longer the mainstay of the local economy. The economic value of landscape and wildlife is being recognized in land use policies for hills and uplands, as rural communities derive an increased proportion of income from tourism and other activities, and through grants to support environmentally friendly farming.

### Methods

This paper reports information on landscape features in seven upland districts of England and Wales recorded in a survey of 145 farms (Hopkins and Wainwright, 1989). The surveyed districts were in the Pennines (Teesdale-Weardale, Hellifield, Tideswell), the Shropshire hills (Pontesbury) and Wales (Llanfyllin, Denbigh, Carmarthen-Lampeter). Results are presented of (1) type and quality of field boundaries, (2) incidence and type of farm woods, and (3) the extent of botanically diverse grassland as characterized by different categories of forb species.

### Results

#### *Field boundaries*

Hedges predominated in the Welsh districts though a high proportion of hedges had become open or derelict and were frequently reinforced with wire (Table 1). Many of the fence-with-trees boundaries were former hedges that had long been derelict. In the Pontesbury district trees formed an important addition to the hedgerow landscape. In the Pennine districts walls predominated, though in Hellifield, where farming was comparatively intensive, post and wire fencing was the dominant boundary type.

#### *Farm woods*

The Welsh districts generally had the highest proportions of farms with woods, and they included many relics of ancient woodland alongside streams (Table 2). A high proportion of farm woods were grazed by livestock, thus preventing understorey growth and regeneration.

#### *Botanically diverse grassland*

Approximately 30% of swards contained forb species associated with traditional or low input management. Most of these swards were grazed only, or were grazed with one hay cut, and received little or no fertilizer nitrogen (less than 50 kg N per ha). Few swards were very rich in species diversity. Table 3 shows the variation between districts, with the highest incidence of botanically diverse grassland in Teesdale-Weardale and Tideswell. Variation between districts reflected the recent management, particularly reseeding, fertilizer use and mowing regime. Highest proportions of swards aged over 35 years were in Hellifield and Teesdale-Weardale (65% of grassland) and the lowest in Llanfyllin, Pontesbury and Denbigh. However, nitrogen use (often associated with early cutting for silage) was highest in Hellifield, and in Pontesbury (where 90% of grassland received over 50 kg N per ha), but low in Teesdale-Weardale (only 35% received over 50 kg N per ha).

### Discussion

The districts surveyed in this investigation represented contrasting areas of English and Welsh upland, from the margins of open hill to relatively

intensive valley land. It would appear that the retention of intact hedges and walls, and the proportion of grassland that has retained some floristic interest, are greater in upland and marginal areas than in many lowland areas. Comparisons with earlier survey records (of grassland only) do, however, point to marked effects of recent agricultural change, notably in the Hellifield and Pontesbury districts. Several of the surveyed districts have been given ESA status since the fieldwork was conducted. This study forms a valuable bench-mark against which future landscape change can be assessed.

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**References**

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**Table 1** Fields classified by boundary type in seven upland districts (as %)

Type of boundary	Weardale/ Teesdale	Hellifield	Tideswell	Denbigh	Llanfyllin	Pontesbury	Carmarthen
Wall	71.0	29.0	99.0	1.0	1.0		4.0
Managed hedge	1.0	3.0		16.0	17.0	13.0	13.0
Hedge with wire	2.0			13.0	10.0	16.0	12.5
Derelict hedge	2.0	1.0		13.0	16.0	14.0	7.0
Hedge with trees	3.5	1.0		6.0	11.0	29.0	15.0
Fence	11.0	39.0	1.0	20.0	10.0	8.0	22.0
Fence with trees	9.5	27.0		31.0	35.0	20.0	26.5

**Table 2** Proportion of farms with one or more farm woods present, and woods further classified by type, within seven upland districts

	Weardale/ Teesdale	Hellifield	Tideswell	Denbigh	Llanfyllin	Pontesbury	Carmarthen
% of farms with woodland	35.0	25.0	15.8	40.0	30.0	9.5	73.1
% of woods in category†							
1	26.6		60.0		7.7		
2	20.2			33.3	15.4		6.0
3	26.6	67.0	40.0	44.4	69.2		46.0
4	26.6	33.0		23.3	7.7	100.0	48.0

† 1. Planted deciduous/mixed. 2. Planted coniferous. 3. Grazed woodland. 4. Ancient/relict woodland.

**Table 3** Proportion of fields with botanically diverse swards in seven upland districts and classification of these swards by % in different forb species associations

	Weardale/ Teesdale	Hellifield	Tideswell	Denbigh	Llanfyllin	Pontesbury	Carmarthen
% of fields	42	10	34	23	24	9	36
% of fields in each category†							
1. Hay meadow spp.	13	51	12		3	3	8
2. Neutral pasture spp.	67	16	70	71	49	85	47
3. Acid pasture spp.	16	27	15	26	43	3	39
4. Other forb spp.	4	6	3	3	5	9	6

† 1. Ox-eye daisy, cow parsley, cranesbill etc. 2. Yarrow, ribwort, knapweed etc. 3. Catsear, harebell, bedstraw etc. 4. Calcareous and marsh species.