

# SHEEP GRAZING INTENSITY IN EDALE, DERBYSHIRE, 1692 – 1747, AND ITS EFFECT ON BLANKET PEAT EROSION

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## INTRODUCTION

The characteristic dissection and erosion surfaces of the blanket peats of the Kinderscout area of Derbyshire are well known, dominant landscape features. Over the past two decades, considerable literature has been generated in the presentation of surveys and suggestions for the causative factors responsible for the widespread erosion. Several authors have speculated that historical land use changes have been an important contributory factor, whilst others consider that associated climatic and geomorphological processes are the dominant factors for both initiation and continuation of erosion. Pollen analytical data from peat at Featherbed Moss (SK 0992) provided by Tallis<sup>2</sup> has shown that there has been: (a) a continual slow extension of streams into the peat blanket from 3000 B.C. with a possible acceleration after A.D. 1000; and (b) 'an extensive sheet erosion of the peat caused by human interference with the vegetation', with a rapid extension of gullies after *c.* A.D. 1770.

The nature of this human interference has been assumed to be due to the use of the plateau for hill grazing of sheep, but little data on the subject is available. However, the analysis of detailed tithe returns in the papers of the Bagshawe family of Ford, Castleton and Norton in Derbyshire in archives provides a valuable insight into this aspect of the agricultural history of the Edale region in the period 1692–1747.<sup>3</sup>

## LAND USE IN THE EDALE REGION BEFORE 1750

The southern and western slopes of the High Peak were farmed by a relatively large number of freeholders (Fig. 1) when compared with other areas of Derbyshire. It is interesting to note the concentration in the three river valleys — six in the Kinder township and the River Sett valley, nine in Edale and five at the head of the Noe Valley in Castleton.<sup>4</sup> In consequence the present boundaries between Edale and the other townships were laid down by the end of the 17th century. For example, Castleton commons enclosure took place in 1691, while Chapel-en-le-Frith commons and Malcoff Moor had their bounds defined by 1714. The hill grazing of stock would therefore be well controlled in the south and west of the region.<sup>5</sup> In the north and east, the surveys of Senior in the early 17th century had delimited the commons of Hope Woodlands and Ashop and existing ancient piles remain as markers of these bounds. The presence of tenant shepherds rather than yeoman farmers in the upper Ashop valley probably resulted in a similar degree of controlled grazing.<sup>6</sup>

The vale of Edale was divided into booths or vaccaries, formerly the royal farms within the Forest of the Peak. Contemporary maps have not been located during the present research, but according to various deeds the vaccaries consisted of three types of pasture — 'improved', 'sheep' and 'mossy' or permanent grass, hill grazings and blanket peats respectively.<sup>7</sup> The tithe returns show an obvious concentration of sheep rearing mainly of the indigenous Midlands Woodland breed, but also considerable beef production on the better pastures. Records for the tithe of calves was scanty but the following data indicate that livestock rearing was considerable:<sup>8</sup>

Tithe of calves: 1713 — 43; 1727 — 44; 1744 — 48; 1745 — 27; 1746 — 36

The fluctuations in calf production are probably attributable to the prevalence of speed or blackleg, a rapidly fatal disease of young cattle and sheep caused by the anaerobic

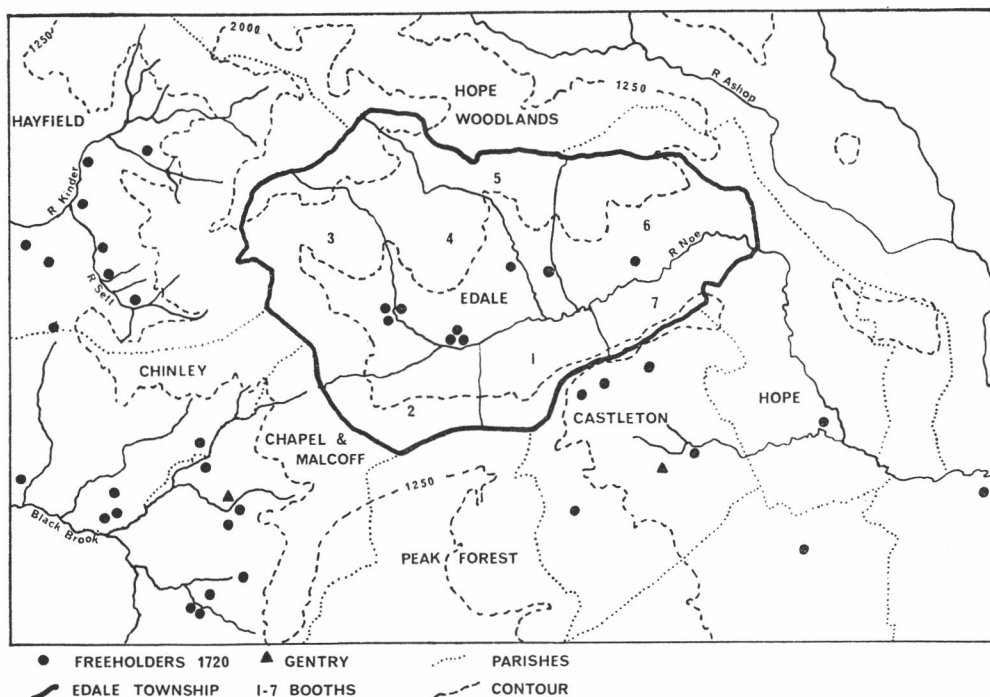


Fig. 1 Edale in the early 18th century.

bacterium *Clostridium chauvoei* which is found commonly in marshy and mossy hill districts. Richard Bagshawe of Castleton, a progressive farmer, lead mine owner and later High Sheriff of Derbyshire, had an interesting recipe for the prevention of the disease:

To prevent the Speed or Hyene in calves, etc.

One spoonful of gunpowder and two spoonfuls of soot; distil over night in two or three spoonfuls of buttermilk and give next morning with more milk if occasion lets it be given before they are put to eddish or fogg.<sup>9</sup>

Bagshawe kept his tithe calves on the limestone pastures at Cowlow in Castleton (SK 143824) and along with other livestock for fattening at Black Edge (SK 7606) on the gritstone near Buxton. This tends to suggest that blackleg was as prevalent on the upland limestone plateau as on the gritstone slopes.<sup>10</sup>

#### ANALYSIS OF THE WOOL AND LAMB TITHE RECORDS<sup>11</sup>

The wool and lamb tithe records are in the form of inventories taken on Wool Day (9th/10th July) and Lamb Day (12th/14th June). For each owner, the numbers of sheep are listed as *in*, *out* or *up*, that is the numbers folded, unfolded and taken for tithe. In certain years, and apparently always after 1747, several of the owners of larger flocks commuted their tithes with a composition payment of one shilling for every ten sheep and 3½d. for each lamb. Each of the five Edale booths also submitted a *tithe pay* which was for small tithes and services such as winter folding, dipping and shearing rendered to each owner within the booths. The circumstances behind the collection of such accurate data are probably two-fold. Firstly, the tithes were owned by the Bishop of Chester, granted to the rectory of Castleton (which included Edale) and leased in 1688 by Richard Torr of the same village. By his will in 1696 they passed to his grandson Richard Bagshawe, who made the earlier tithe lists.<sup>12</sup> The reason for the detail is probably

accounted for by Bagshawe's initial interest in whether the lease of the rectory for £11 per annum was a profitable venture. The detail of 1727 and 1747 represents a reappraisal of value at the end of periods of lease. Secondly, the earlier tithe lists may have been collected during a period of dispute between Torr and the people of Edale who claimed that around 1660 they had been discharged of all tithe payments except for a modus of 40 shillings. The lessee of the tithes was awarded the verdict in the subsequent law suit with respect to tithes of wool and lamb, but a modus was granted for tithe of corn and hay.

A summary of the tithe data is presented in Table I. It may be immediately noted that there was a comparatively large number of sheep in the vale of Edale during the 60 years of records, with a maximum number in 1727. There were also quite wide fluctuations in numbers, but the total numbers of flocks remained relatively constant. These fluctuations may be interpreted through the effects of climate and disease or variations in the affluence of individual flock owners, rather than local agricultural policy changes. Between 1692 and 1747 there is clearly no shift in the agricultural population of the Edale valley. The most common flock size was in the 11 to 30 range, but a wide and fairly even spread of flock sizes is apparent in the data. The three largest flocks recorded in 1727 were 500, 370 and 337 respectively, with variations between 210 and 170 in other years. The total numbers of lambs also fluctuated considerably, as did the number of lambs per flock. Unfortunately, no details of the lambing percentage can be derived from the data, but the ratios of lambs per flock (that is lambs to ewes, store hogs and lambs) were all well below modern standards. In most years the lamb/flock ratio in flocks of over 50 sheep can be seen to be less than the ratios calculated for all flocks, indicating an overall lower lambing percentage in the larger flocks.

TABLE I  
Sheep numbers and flock sizes in Edale, 1692-1747, *passim*

Date	1692	1694	1695	1696	1700	1727	1747
Sheep .. ..	2474	1842	2193	2416	2683	3332 <sup>3</sup>	2122
Lambs .. ..	799	—	732	580	966	971	—
Lambs/flock <sup>1</sup> ..	0.32	—	0.33	0.24	0.36	0.34	0.28 <sup>4</sup>
Lambs/flock <sup>2</sup> ..	0.30	—	0.26	0.29	0.32	0.25	—
Flock size 3-10 ..	5	10	11	8	14	10	8
11-30 ..	16	8	8	13	8	14	17
31-50 ..	6	6	6	4	3	6	9
51-100 ..	6	9	8	8	10	11	7
100+ ..	11	5	9	8	10	7	5
TOTAL FLOCKS ..	44	38	42	41	45	48	46

<sup>1</sup>Based upon total flocks.

<sup>2</sup>Based upon flocks with over 50 sheep only.

<sup>3</sup>Figures adjusted for composition payments; 1700 — 1250 added; 1727 — 190 added.

<sup>4</sup>Tithe lamb data incomplete; figure based upon 27 owners.

The most complete records are those collected in 1727, in which year the owners and flocks were listed according to their location in the several booths of Edale. The acreages of the booths and the relative areas of improved pastures and hill grazings are readily calculated from Ordnance Survey maps, and thus the grazing pressures in the different parts of the vale can be determined. These data are presented in Table II. The calculation of grazing pressures in Edale in 1727 is fraught with difficulties. For example, the derivation of an overall parish grazing pressure must be based upon the acreage of 7,026, the size of the parish when created in 1863. Similarly, the acreages of different booths are based upon mid-19th century, rather than contemporary sizes. In the first instance, the assumption that the total acreage was virtually the same in 1727 as in

TABLE 2  
 Sheep distribution and grazing pressures in Edale, 1727

Map ref. no.	Area	Acreage <sup>1</sup>	Acreage <sup>2</sup>	Owners	Sheep	Grazing pressures <sup>3</sup>	
						(a)	(b)
1	Hollins/Cold Side	600	362	3	203	2.95	1.78
2	Whitmoorlee Booth	710	462	4	231	3.07	2.00
3	Crowdenlee Booth	1582	1147	7	752	2.10	1.52
4	Grindsbrook Booth	1486	916	9	318	4.67	2.88
5	Ollerbrook Booth	813	616	3	433	1.87	1.42
6	Lady Booth	1323	809	10	551	2.40	1.46
7	Backtor	512	347	7	154	3.32	2.25
	Ellis Needham <sup>5</sup>	—	—	1	500	—	—
	Composition payers	—	—	4	190 <sup>4</sup>	—	—
TOTALS		7026	4659	48	3332	2.10	1.40

<sup>1</sup>Total acreages.

<sup>2</sup>Approximate acreage of hill grazings and commons based on first edition Ordnance Survey 6", 1878–80.

<sup>3</sup>Grazing pressures in acres/sheep (a) for total acreage of booths, and (b) for hill grazings and commons only.

<sup>4</sup>An estimated number for composition fees of £1 17s. 6d., taking the tithe of one lamb to be 3½d. and wool tithe to be one shilling for every ten sheep, with the proportion of three lambs to ten sheep.

<sup>5</sup>The grazing location of Ellis Needham's flock is not specified.

1863 is reasonable, since the bounds of the parish were delimited before the former date, but whether the actual booth sizes varied over a century cannot be ascertained with any certainty. It may also be argued that the calculation of the extent of hill grazing and common from maps produced over a century later cannot represent a true picture. However, geographical studies of the vale of Edale have suggested that there was little land improvement after the mid-18th century and that land use patterns were similar in 1750, 1860, 1900 and 1960.<sup>13</sup> All these considerations apart, the overall figures of one sheep to every 2.10 acres for the parish and one sheep to every 1.40 acres of rough pasture and blanket peat still represent extremely intense grazing for this type of Pennine landscape.

#### DISCUSSION: THE IMPLICATIONS OF THE DATA IN THE LIGHT OF CURRENT RESEARCH

Recent investigations into the grazing patterns and behaviour of hill sheep have revealed several interesting features. Firstly, the Heather (*Calluna vulgaris*) is an important source of winter food and the Draw Moss or Cotton Grass (*Eriophorum vaginatum*) is the earliest spring herbage on hill grazings. Secondly, in mixed hill grazings the more productive Fescue/Bent Grass pastures are selectively grazed and preferred to blanket bog. The average grazing pressure on blanket peat vegetation in the northern Pennines is one sheep to 14 acres, and pressures less than one sheep to four acres are necessary for the maintenance of a healthy *Calluna-Eriophorum* vegetation.<sup>14</sup> Thirdly, there is evidence of a complex social behaviour pattern in hill sheep. The ewe maintains a territory consisting of several sward types and overlapping with the territories of related individuals. Consequently, both individual and group territories (home ranges) are subject to behavioural stresses. Defence behaviour protects the richer Fescue/Bent Grass swards and thus these are grazed by a similar number of sheep each year, irrespective of the total sheep population size. Increase in flock size therefore leads to increased grazing of the poorer grassland and blanket bog swards.<sup>15</sup>

Applying these three considerations to the Edale area in the period 1692–1747, it can be deduced that:

- (a) there would have been intensive winter and spring grazing pressure on the two specific components of blanket bog vegetation, *Calluna vulgaris* and *Eriophorum vaginatum*;
- (b) at any time in the period the grazing pressures would have been greater than one sheep to four acres — the maximum pressure that blanket peat vegetation is capable of tolerating without significant compositional and sward changes;
- (c) the social behaviour of hill ewes and flocks is such that any increase in overall, sheep numbers, such as between 1695 and 1727, would tend to concentrate a greater pressure on the poorer summer grazings of the blanket peats rather than the richer Fescue/Bent swards of the dale slopes; and
- (d) because of this behaviour pattern, attempts at the careful stinting of the blanket peat commons would probably be unsuccessful.

The intense grazing pressures and associated moorland management practices, such as heather burning and turbary, would thus tend to create a degenerate vegetation sward in the October–April period of greatest precipitation. In addition, the evidence of climatic deterioration in the 18th century, manifest by the increasing wetness and lower spring temperatures, undoubtedly reinforced the effects of such pressures and initiated the widespread sheet erosion of the peat in the latter half of the century.<sup>16</sup>

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- <sup>8</sup>J.R.L. B24/2/23, B24/2/24.
- <sup>9</sup>S.C.L. OD1468, Miscellaneous High Peak rental accounts, 1729–43. *Eddish* or *fogg* is the dead, decaying or frosted grass left on the poorer pastures throughout the winter.
- <sup>10</sup>J.R.L. B19/1/22, Stock taken into Cowlow and the Black Edge, 1712–14; B19/1/23, Inventory at Goosehill Hall, 1750.
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