

#### 5.4.7 Acidic grassland

##### 19. *Kings and Bakers Woods and Heaths*

This Site is the largest ancient woodland in Bedfordshire, and also contains remnants of lowland heath and acidic grassland. The Site includes part of Stockgrove Country Park, owned by Bedfordshire County Council. Cattle grazing occurs on an acidic grassland field adjacent to the Park on the western edge of the SSSI. The field is well-established with a rich flora, including various rare fungi dependent on cattle dung, having been cleared from ancient wood a considerable time ago (a boundary bank runs through the field). Some deciduous woodland abuts the field, but it is mainly surrounded by a coniferous plantation.

The grassland is managed through a combination of hay cutting on the drier parts and grazing between mid-August and January. This has been organized by the Park rangers with a local grazier. Three Gloucester Cattle, an endangered rare breed which seldom occurs outside its native county, were put on to the area in 1996. They are able to cope well with the wet conditions, particularly in the northern section of the field, which sheep are not. Trampling by cattle also assists bracken control on some parts of the grassland. There has been no need for a management agreement covering the grassland area, as the long established grazing pattern for the site provides good conservation management. The availability of cattle is dependent upon the availability of the grazier, who is known to have an established interest in traditional breed beef systems (see Site 22: Wavendon Heath Ponds).

##### 20. *Brotherswater*

The SSSI at Brotherswater in the Lake District National Park is owned by the National Trust and managed by local farmers. A large proportion of the Site consists of the nutrient-poor lake itself, but the remainder consists of a particularly diverse acidic grassland flora. There are two fields to the north of the lake owned by private farmers. Both are under management agreements, the one on the far northern lake edge being enrolled in the Lake District ESA Tier 2: option 3 - wetland. Adjoining is a hay meadow, with some aftermath grazing by sheep.

However, the largest block of grassland, to the south of the lake, is owned by the National Trust and rented to a local farmer. The grassland near the lake has been fenced off from the rest of the block for 10 years. This is a National Park sponsored project to recreate a transitional landscape of fen and carr between the lake shore and grassland area. About 20 cattle have therefore grazed the far southern area of the site since this time as part of a suckler beef / sheep mixed grazing regime. Early entry of cattle on to the Site in April and May helps prevent *Molinia* grass and *Juncus* rush becoming widespread. Sheep grazing alone would not facilitate this control. Cattle are then removed until July where they may graze small compartments within the block for brief periods. This approach to grazing has been agreed with the ESA project officer as part of entry into the Tier 2 wetland option. The situation at the Site is one of stability, with the ESA offering a level of 'insurance' against change.

##### 21. *Mapperton & Poorton Vales*

Acid grassland is present on 7 ha of this Site which contains a mixture of other grassland habitat types and woodland. The steep-sided valley bottoms contain numerous invertebrates, whilst the valley sides have undergone only limited improvement through agricultural intensification. There are 13 owner-occupier units, although the acid grassland block is farmed by one tenant of a larger agricultural estate. This farmer assembles a herd over the

summer months, comprising a mixture of 20 store cattle and beef for finishing. This number has declined in recent years, mainly as a farmer reaction to uncertainty over prices although BSE has also been a contributory factor. Approximately 12 animals are run on the acid grassland, but there is considerable movement of beasts due to a combination of poor pasture and overstocking. No formal stocking rate applies, as management of the Site has been agreed on the basis of sward height and bracken control.

Sheep are also kept on the Site, and recently there has been an increase in the numbers being grazed at the expense of beef animals. Bracken encroachment is becoming a problem as a result of less trampling. A Countryside Stewardship agreement has been negotiated and implemented on the farm, including that section of it which is designated as SSSI. This should encourage a more active approach to the management of bracken and scrub invasion which threatens the conservation interest of the Site and promote a stabilisation of the stocking rate which has been erratic.

#### 22. *Wavendon Heath Ponds*

This small Site comprises three artificially created ponds and species rich marshy grassland and acidic grassland. The Site is owned by a large estate which has recently been persuaded to graze the area with beef animals. It does so by letting the land to a local grazier, the same farmer who has animals at Kings and Bakers Woods and Heaths (Site 19). Highland cattle are used to graze grassland which is too wet for sheep. Grazing is viewed as an appropriate way to maintain the condition of the marshy grassland.

#### **Synopsis of acidic grassland**

- Cattle grazing is vital to maintain the nature conservation interest of all acidic grasslands investigated. This is because they are able to access wet areas often associated with this habitat type which sheep are not. At Kings and Bakers Wood, continuation of cattle grazing is also necessary for the rare fungi.
- Cattle are the most efficient management tool to help control invasion by scrub and rushes, and Sites are already showing signs of deterioration where numbers have been reduced for commercial reasons.
- The emphasis in these areas is very much on maintaining what is left rather than improving Site quality.
- Agri-environmental policy has been demonstrated to play a useful role in ensuring stability of grazing on Sites.
- The Bedfordshire case studies reveal that the nature conservation interest of more than one Site can depend upon just one grazier. Attention is thus drawn to the potential vulnerability of some Sites to changes in the beef market and farmers' personal preferences.

#### 5.4.8 Neutral grassland

#### 23. *Ashleworth Ham*

This site in west Gloucestershire is adjacent to the River Severn and provides a grassland area for over wintering wildfowl such as widgeon, teal and Bewick swans. The botanical interest in the site is residual and contracted between 1974 and 1985 due to agricultural improvement, as indicated by the notification, part deletion and re-notification of the Site. There are three major and three minor (single field) landowners with an interest in the Site.

One landowner leases land to the Gloucestershire Wildlife Trust who in turn lease the grazing to a local farmer. The rest of the Site is managed by another farmer who owns part and rents the remainder. This is a landowning change following a lengthy period during which the farmer managed rather than owned this section of the Site.

The Trust managed area of the Site is in Countryside Stewardship under the 'Waterside' target landscape option to help maintain the grassland and control water levels. Negotiations are underway to replicate this arrangement for the area of the Site owned and occupied by the farmer. The farmer has expressed an interest provided that farming can be conducted profitably in conjunction with nature conservation. In particular, water level management and later cutting for hay is to be encouraged to reinstate the summer bird breeding interest. If the area was ungrazed, it would become unsuitable for wildfowl which would probably stray on to adjacent farmland. Adoption will depend upon the calculated economic viability of farming under the restrictions that CS will impose.

The Site was known to be predominantly aftermath grazed following a hay cut, with the remaining small area grazed all year round. Beef was thought to be the main farming enterprise on the area, but enquiries revealed that dairying was in fact the farmer's main venture. Excess calves are sold off at a young age. The farmer felt that little would change in the dairy sector as a result of the BSE crisis due to the large amount of capital many had invested in the enterprise and the costs associated with a shift to something different. Indeed, structural rigidity in agriculture is a well-known consequence of greater enterprise specialisation. His opinion was that beef farmers had possibly more flexibility to effect an enterprise shift.

#### 24. *Charleshill*

Charleshill is a mixture of dry and wet neutral unimproved pasture together with a band of wet alder woodland. The Site is owned by Surrey Wildlife Trust and the SSSI forms the core of a Trust reserve (Thundry Meadows Reserve). It has been owned by the Trust since 1980 and since 1994 has been grazed under licence by a local farmer who runs a family farm business. This practice continues a traditional system of management at Charleshill, although it should be noted that there was a brief period within the last 10 years when no grazing took place. Even during this brief grazing interlude, some deterioration of the quality of the Site was noticeable. Restoration of grazing has arrested any decline and resulted in improvement of the conservation interest.

Grazing is consented under EN's Reserve Enhancement Scheme. A total of 12 Aberdeen Angus beef animals are used exclusively to graze 60% of the Site. They help to maintain the high quality tussocky species-rich grassland that sheep would be unable to do due to their grazing habitats and the wetness of the Site. The recently established stability at the Site looks set to remain due to the choice of beef animal that the grazier keeps. Aberdeen Angus cattle have not been affected by BSE and there has been active promotion of beef from this breed of animal as a quality consumer product. A market premium exists for beef derived from this source so that profitability of the enterprise remains reasonably good.

#### 25. *Deadman*

This Site is a rich mixed mire occupying a valley cut into the plateau of the Blackdown Hills. Deadman has a significant quantity of uncommon wet flora and a breeding colony of marsh fritillary butterflies. There are 3 landholding units of significance. The northern part of the Site is owned by Somerset Wildlife Trust and grazed by a farmer who owns the central field within Deadman. The southern section of the site is owned and occupied by a

second farmer. Both farmers run family farm businesses which have been operating at this locality for at least two generations.

The southern sector of the Site is 15 ha and forms part of a 35 ha farm. As there are no gates on the farm, 35 beef suckler cows are permitted to run extensively across the area. The farmer has no other stock. The land is grazed to the level required on an all year round basis. Sheep would be unable to graze this Site due to its wetness. The overall impact of beef animals grazing on the Site is positive, although this occurs by fortune rather than through active management. Indeed, there is little consultation between EN and the farmer about the grazing regime. In particular, stock are allowed to cross one botanically important wet field (4 ha) of the Site in winter as a route between improved pasture and a water supply (River Yarty) which both lie adjacent. Use over the last six winters has led to severe poaching. A five-year consent was originally granted by EN for stock to have access to the area in winter, but this expired five years ago. The damage evident means that there is no possibility of consent being renewed as the field requires time to recover from the effects of trampling. MAFF was approached and asked to consider withdrawing Suckler Cow Premium claimed by the farmer as a method to enforce communication. However, MAFF refused, arguing that the damage was present prior to the introduction of the premium. This argument may or may not be correct, but damage has undoubtedly been exacerbated during the lifetime of the premium. The age and health of the farmer mean that a change of occupation of ownership is likely to occur in the near future. No direct heirs exist so that there may be an opportunity to negotiate a more appropriate management regime for this part of the Site.

The central 2.5 ha sector and the northern Trust-owned 7 ha part of the Site is grazed by a combination of dairy and beef animals from a 50 ha farming business. Dairying is the main activity, comprising a herd of 70 milking cows with 60-70 mixed dairy followers and store cattle. This is supplemented by a flock of 140 ewes which do not graze the SSSI. Beef animals are male calves derived from the dairy herd and thus are Friesians crossed with a continental Simmental or Limousin beef breed. Calves are reared with increasing intensity for finishing at 18 months, a recent development implemented by the farmer in an attempt to raise profitability. The change had occurred prior to the BSE crisis and no direct impact can yet be observed. With a move to a more intensive system, winter feeding and housing of animals is necessary. Pressure for winter grazing was therefore been removed from the SSSI two winters ago and has benefited the Site. The move to summer only grazing in the central sector effectively mirrors the beneficial regime on the northern Trust part of the Site where 10 cattle graze from May to September.

#### 26. *Lord's Wood Meadows*

This Worcestershire SSSI comprises one field and a section of bank in another field totalling 6.7 ha. It is a complex grassland site with variable quality interest. A geological boundary between sandstone and limestone contributes to the natural diversity of the Meadows. The Site is contained entirely within a very large mixed arable family farm unit of some 2500 ha. The Site is managed as a permanent pasture in which hay cutting is prohibited to enhance the invertebrate interest. Cattle grazing is necessary to achieve the desired sward height of between 2-5cm over 80% of the Site. Sheep alone would be less able to cope with the long grass at the start of the grazing period and would not contribute to scrub control through grazing and trampling. Horses have been grazed on the site in the past as a non-commercial interest, although the long-term impacts would have to be monitored closely if replacement of cattle was proposed.

The Meadows are grazed from mid-June to September with a herd of 40 pedigree Hereford beef cattle. The herd roams over a total area of 20 ha which includes the SSSI. This is not the only cattle enterprise on the holding. The size of the farm means that the land does not

have to be farmed in an aggressively intensive manner. A Wildlife Enhancement Scheme agreement has been negotiated which has allowed scrub clearance (especially from the bank area), fencing for sheep to increase grazing flexibility (a switch to this enterprise exclusively is not intended) and the removal of a line of conifers. The conifers caused a tendency for uneven grazing to occur across the Site because it provided shade adjacent to a water supply, resulting in a congregation of cattle at that point. The farm business is sufficiently large for the BSE crisis to be viewed as an insignificant problem by the operators, so that no changes are anticipated.

27. *Moss Valley*

The Moss Valley SSSI is a semi-improved wet grassland and woodland site notified for its considerable invertebrate populations, particularly hoverflies. It is therefore important to maintain the structure of the Site as mixed wood and grassland with uneven tussocks. However, the major difficulty here is the location of the Site. It lies adjacent to an area of urbanisation and industrialization on the southern edge of Sheffield. Problems of vandalism make the management of the area extremely difficult. Hence, only two out of six parts (units) of the Site are currently grazed with beef cattle. To enable discussion, each unit is identified moving progressively westwards across the Site.

Unit 1: Eastern field, south of Moss Brook. The first unit at the eastern end of the Site is grazed well. Up to 12 store cattle are kept on the unit by a family firm of agricultural hauliers. The cattle enterprise is incidental to the main business activity. They graze from summer until Christmas.

Unit 2: Eastern field, north of Moss Brook. Beef cattle were introduced into this unit from 1996. The 12 stores grazing Unit 1 can now access the unit. This has been permitted by the installation of a ford with assistance from EN.

Unit 3: Eastern location, to west of road. Moving eastwards, the second unit of the Site lies across a road and is beyond the sight of the family residence. Its seclusion means that no grazing takes place for social reasons, and the area is reverting to alder scrub as a consequence. A grazing regime similar to that in the first unit would be both necessary and desirable. The area is wet and cattle would help to maintain a diverse grassland sward, thereby supporting as many invertebrates as possible.

Unit 4: Centre east field, containing a disused tip. The unit is used for silage, but retains an interesting invertebrate population. The silage supports animals elsewhere on the owner-occupier's farm, but they are not kept at this locality due to threats of injury. Grazing would be beneficial in this unit.

Unit 5: Centre south field, adjacent to path The Moss. This was formerly a grass pasture but has now been ploughed for arable crops because of vandalism. A grass strip remains to the north of the path within the SSSI boundary. This is now cut manually but could be grazed again by cattle or sheep.

Unit 6: Western strip. This is grazed by replacement dairy heifers, although the farmer's main enterprise is arable crops due to attacks on livestock. This unit of the Site is just about grazed adequately to ensure its nature conservation interest remains.

The key consideration at this Site is to maintain the complex mixture of habitat encountered in the SSSI. A lack of beef grazing would reduce the diversity of invertebrates. A fall in the profitability of beef cattle serves only to discourage further this type of grazing given the considerable difficulties associated with keeping animals in this locality.

28. *Plumpton Pasture*

This Site consists of a single field of unimproved pasture within a grass- only farm system. Finishing of beef animals is the main agricultural enterprise. The field is ridge and furrow and lies on a heavy clay soil which characterises this part of Northamptonshire. The farm is tenanted from a College of Oxford University by a farmer who has operated the farming business for many years. The farmer is sympathetic to conservation, but requires remuneration to maintain business profitability in the face of rising rents. A compensatory style agreement has recently been renewed as the only sure way of preventing ploughing and reseeded for the development of improved pasture. However, the agreement has been modified to encourage a longer sward through the introduction of cattle on to the Site later in the year. No hay cut is taken as special equipment would be required to cope with the unevenness of ridge and furrow.

A total of six cattle are introduced into the field in July to reduce grass of considerable height to a sward of 5-10cm. Sheep or horses would be less able to deal with grass of such height and to produce a variable sward by October when the animals are removed. With EN permission, stock were introduced into the Site earlier in 1996 due to the BSE crisis, although this short-term measure will have no longer term impact. The site is improving in quality given the extra time now allowed for seed setting to occur, although its future is closely linked to the continued profitability of the owner-occupier's farm business.

29. *Robert Hall Moor*

Robert Hall Moor lies between the uplands of Bowland and the lowlands of Lunc and is an improved pasture with wet flushes situated on a drumlin. The Site has a complex history and survives despite a continual lack of appropriate management. In the late 1970s, Robert Hall Moor was overgrazed and fences were erected in an experiment to exclude cattle. A change of owner-occupation led to a new tenant entering the Site in the early 1980s. Suggested improvements to the Moor threatened its existence, but this was averted by the restrictions on expansion which accompanied the introduction of milk quotas in 1984. Subsequently, there has been a lack of grazing on the Site which has led to a continual decline in its quality which has been monitored.

A combination of bullocks and replacement dairy stock now graze the Moor occasionally as they are permitted to roam freely across a wide area through dilapidated fences on the farm unit. As a result, gorse and scrub has increased and is swamping the rare bird's eye primrose. In addition, *Juncus* is taking a firm hold in the wet flushes and *Molinia* grass is invading. Remedial action would ideally entail the establishment of a suckler herd by the tenant with fencing required to divide the area into manageable grazing units. Initial hard grazing is necessary to restore the condition of the Site. The irony is that the tenant wanted to introduce exactly this type of grazing regime upon taking over the holding in the 1980s. Hence, it might be difficult to achieve a reduction in grazing following the initial introduction of cattle. One barrier to a suckler herd is that winter feeding would be necessary, thereby reducing profitability of the enterprise. Countryside Stewardship payments are potentially available for the management of grazed pastures, but are currently insufficient to provide the necessary incentive.

30. *Rookery Cottage Meadows*

These Worcestershire meadows have been maintained by a traditional system of hay cutting and aftermath cattle grazing over three ridge and furrow fields. A late hay cut is taken and the hay used for a beef fattening enterprise helping to perpetuate a rich variety of flora.

Approximately 30 cattle are allowed on to the Site in August and are removed in late November. The cattle are held on another part of the farm outside the boundary of the SSSI.

The Site has been under the control of a family business since 1992. It is a 'part-time' household, both husband and wife earning income from occupations other than agriculture. Prior to 1992, the Site was poorly managed. Some damage occurred to the Site (slight reduction in floristic diversity) during the change of owner-occupation, probably through inadvertent slurry-spreading by a neighbouring farmer. The Site is recovering, and entry into a Countryside Stewardship management agreement has undoubtedly accelerated and co-ordinated this process.

### 31. *Wadenhoe Marsh & Achurch Meadow*

This SSSI consists of two units divided by the River Nene. Only the eastern (Achurch) flood meadow is cattle grazed, the western section (Wadenhoe Marsh) comprising alder woodland, reed swamp and open sheep-grazed grassland on limestone outcrops. Achurch Meadow is unimproved permanent pasture which also provides a habitat for curlew and breeding waders.

The Meadow is a single grazing unit and has been farmed by one family for many years. It was entered into the waterside option of the Countryside Stewardship scheme in 1993. Around 50 store cattle are fattened at the Site, although arable enterprises form the main interest of the 172 ha agricultural business. They graze from August to March, with no supplementary feeding permitted at the Site. A cut of hay is taken in the Summer. Traditionally, roughly every three years, a cut of hay is not taken and summer grazing is used to produce a sward height of about 7cm. Grazing with sheep would be a possibility if cattle were unavailable, but cattle traditionally have been used and the introduction of sheep would cause changes to the structure of the site. Management at this Site appears stable over the medium term.

### Synopsis of Neutral Grassland

- Cattle grazing provides an ideal method to regulate sward height at specific localities and maintain the diversity of nature conservation interest, particularly for grassland flora and invertebrates.
- Sheep and ponies/horses offer possibilities of substitution for cattle on some sites, especially smaller ones and where swards are initially very high prior to the introduction of grazing animals<sup>16</sup>. However, there is a consensus that continued grazing with sheep could lead to a decline in floristic diversity on many larger sites.
- Undergrazing is a far more common threat at Sites than overgrazing. This trend was apparent prior to the BSE crisis which can only exacerbate matters.
- The continued existence of beef enterprises appears more assured where farmers have an additional off-farm source of income. Enthusiasm and the identification of niche or quality product markets, especially where related to specific breeds of cattle, helps to explain the post-BSE crisis survival of beef herds at some Sites.
- Countryside Stewardship agreements are in evidence at some Sites. There is potential to expand the operation of this mechanism as management problems were evident at just under

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<sup>16</sup>There is considerable debate in scientific circles over the relative merits of different grazing animals. For a report of recent research on horse grazing of neutral grassland see: Gibson 1996.

half the Sites investigated. However, adjustments to payment rates and/or reductions in support available for agricultural commodities seems necessary to widen the appeal of such agreements to farmers.

#### 5.4.9 Semi-improved grassland

##### 32. *Woodchester Park*

Woodchester Park SSSI occupies a predominantly wooded valley cut into Cotswold Jurassic limestone. The Site is important for several invertebrates, including snails, dragonflies and butterflies. Within its confines, there is a small area of semi-improved grassland which is of little botanical interest in itself. Hence, the Site does not fit neatly into a habitat classification. The main nature conservation purpose of the grassland is to act as a feeding area for a colony of breeding greater horseshoe bats. Two grass paddocks lie adjacent to the roost site and are the only open areas that are in close enough proximity to provide young bats with feeding opportunities. Indeed, the colony has suffered a decline in numbers from around 400 in 1959 to 60 in the 1980s as the valley floor had been afforested with larch (mainly) utilising Forestry Commission grant.

One important source of food for bats in the grass paddocks are dung beetles which in turn are dependent upon cattle grazing the fields. This is especially critical in the period from June to the end of August. Approximately 20 beef animals (Welsh Blacks and Devon Reds) are supplied by a tenant grazier. She is a local part-time / hobby farmer who farms livestock organically, and thus avoids use of chemical anthelmintic treatment of stock, which is vital if beetles are to exist in the cattle dung. The National Trust, who are gradually restoring the Park in the eastern section of the valley, are trying to persuade the grazier to expand her herd and graze their land. However, expansion of cattle is currently limited by the lack of winter grazing possessed by the grazier, the high occurrence of TB in the Valley and the BSE crisis affecting prices and availability of stock.

This rather unusual Site serves to demonstrate the complex inter-relationships which can exist between nature conservation interest and beef grazing systems. The consequences of the removal of beef animals may not be immediately obvious, but 'knock-on' effects frequently appear to exist. Undergrazing is already the main problem of grassland sites, as indicated by the case studies selected for this report, and the subtlety of change caused by the further reduction of beef animals from Sites should be a major cause for concern.

#### 5.4.10 Calcareous/Neutral Grassland

##### 33. *Rose End Meadows*

This recently notified SSSI consists of herb-rich unimproved grassland occupying areas which range from isolated individual fields of around 1 ha in size to larger blocks of approximately 30 fields. The Site is a mixture of hay meadows and unimproved herb-rich calcareous pastures on the eastern fringe of the limestone mass forming the White Peak area of Derbyshire. This geological edge has led to extensive mineralization of the limestone and so the locality has been extensively mined. This activity has ceased, although the spoil heaps produced have become re-vegetated and provide additional habitat diversity for flora and lichens. Quarrying remains a major feature impinging on the SSSI. The Tarmac owned Dene Quarry is a large active area of limestone extraction which adjoins several SSSI designated fields in the south east of Rose End Meadows. A further small locally owned and run quarry company possesses land in the SSSI.

The Site is complex, reflecting areas of differing value based on the extent to which farmers have attempted to 'improve' individual field pastures. Hence, there are 18 owners across the 48.5 ha designated. This landownership fragmentation has been exacerbated by a local land market in which there is considerable competition amongst individuals to acquire farmland. For example, £8,000 was paid in 1996 for one field of under 1 ha in size which contains two spoil heaps! There is little dairying here due to lead in the soil, thin soils at 300m above sea level and vulnerability to drought. Curiously, local tradition means that sheep are absent from the Meadows. Most of the cattle that characterize the locality are beef stores bought for fattening on individual fields. A selection of the major landholders are considered below.

There are three main blocks of fields in the SSSI; eastern, central and south western.

- i. Within the eastern block of fields, eight fields at the east margin are owned by Derbyshire Wildlife Trust. They are grazed from late summer to mid-winter (weather dependent) under licence by a farmer who lives 10km from the Site. This is unusual as most owner-occupiers live in close proximity to Rose End. The central fields of this section of the Meadows were owned by a local farmer and butcher. The responsibility for farming the area has now passed to his sons following his recent death. They have shown little interest in the site and have decided to let the grass to a local farmer (Mr. S.), who already owns fields in the south west of the SSSI, for grazing his suckler herd. The fields in the west of this block are owned by the small quarrying business and are let on a fixed annual grazing licence as anticipation of development is still held by the company. The same farmer who grazes the central part of this sector again has suckler cows here.
- ii. The majority of the central group of fields in the SSSI are also owned by the small quarrying company and grazed by Mr. S., replicating the arrangements in the west of the eastern block. This has proved to be the least accessible part of the Meadows through the years and so this is where the grassland is most flower-rich. The western fields of this block are owned by a hobby farmer retired from an industrial occupation who buys in beef stores and sells them on.
- iii. The south western sector of the SSSI is mainly owned by Mr. S. who has a large suckler herd. He does derive a proportion of his income from a land-related off-farm occupation.

Given the tradition of cattle farming in this locality, it is unlikely that farmers will change enterprises away from beef due to the BSE crisis. Intensification and improvement, particularly through slurry spreading, remains the biggest threat to the nature conservation interest at Rose End Meadows.

#### 34. *St. Catherine's Valley*

St. Catherine's Valley is a mixed neutral hay meadow and calcareous grassland Site in the southern Cotswold fringe near Bath. Like Rose End Meadows, it was notified in 1996 for its unimproved grassland interest. There are seven landholding units, three of which are owned by private individuals and four are rented by farmers from Wessex Water.

Of those renting from Wessex Water, one family can be taken as an example of Site management. 'Family L' have farmed a section of the Site for 50 years, amounting to 34 ha of a 182 ha farm. Their farm has an extensive beef store enterprise, a dairy herd and some sheep. In total, there are 220 young stock (beef stores and dairy followers) and 130 dairy cows. The SSSI is grazed by the beef animals and never by the main dairy herd. There is an equal amount of neutral and calcareous grassland land grazed in the SSSI by the beef herd

on the farm. Beef stores, dry cows and followers may graze the SSSI (all grass types - they are adjacent to each other) throughout the spring and summer. Animals are rotated around the farm in groups of about 65 and moved every four weeks. Cattle are removed from the Site in November and sheep introduced for around six weeks over the winter. Stocking rates on the farm have increased recently, although more cattle are housed over winter in new buildings so that grazing has effectively become more extensive. Less rotation of stock is also required during this period.

A complete replacement of cattle with sheep would affect the plant and invertebrate communities and give less efficient control of scrub. Wet flushes are also evident at the Site which sheep would avoid. Fencing and walls would require upgrading for sheep management. Hence, the existing cattle grazing regime is maintaining the special interest of the Site. A Countryside Stewardship agreement has been put in place as an insurance measure to protect the Site. This seeks to maintain existing practice rather than induce change.

(A Synopsis of the Calcareous / Neutral Grassland habitat type is incorporated with that for Calcareous Grassland).

#### 5.4.11 Calcareous Grassland

##### 35. *Arnside Knott*

Situated in the Arnside and Silverdale Area of Outstanding Natural Beauty, Arnside Knott is a steep and craggy limestone hill rising to 159m immediately above Morecambe Bay. The SSSI is extensively wooded and extremely diverse in botanical and butterfly interest. This is because many species are at the boundary of their ranges. Grassland occurs in the eastern sector of the Site where blue moor-grass dominates. This is a tough limestone grassland species confined to Northern England and its tussocks are only valuable for grazing in the spring. The area is owned by the National Trust.

Arnside Knott has suffered significant scrub invasion following the withdrawal of grazing on the Site in the 1950s. Grazing has only recently resumed after an absence of 40 years, so no stable grazing regime has yet been established. The Site is still in the process of clearance, and rare breeds of farm livestock are being used to achieve restoration. This has necessitated the use of a 'flying flock' rather than local continental beef breeds. Red Poll cattle have been used on the Site, together with Exmoor Ponies and Hebridean sheep. These are owned by a local grazier who utilizes grazing at several localities (see also case 47). The flying flock enterprise is organic, and not the main business interest of the owner.

Once established, cattle will assist the maintenance of a grass sward which varies in structure, benefiting the butterfly communities in particular. A Countryside Stewardship agreement with the National Trust is assisting positive change on the Site, although it should be noted that this change was already underway prior to the establishment of the agreement. The reason is the appointment by the National Trust of a new site manager who is an ecologist.

##### 36. *Axbridge Hill and Fry's Hill*

This Site is situated on a southern flank of the Mendip Hills and predominantly comprises calcareous grassland with secondary woodland and scrub. The priority is to maintain herb rich unimproved grassland, although there is some small mammal interest (dormice and bats).

The Hills are owned in two sections by one family and farmed entirely by one household which is part of that family. Three-quarters of the SSSI (56 ha) is stocked all year round with a suckler herd of 56 cows, which is the household's main farming enterprise. The calves from these cows are retained on the farm and fattened to between 18 and 24 months. There are also 12 heifer beef replacements and a bull. Even with an additional 14 ha of improved grassland to which the animals have access, this is well in excess of the capacity of the hill to support them and so they are supplementary fed throughout the winter. The feed is obtained from the remainder of the farm, amounting to 53 ha for hay and silage production on the Mendip plateau above the SSSI and additional rented grass keep on the Somerset Levels.

The beef cattle do cause significant problems on the Site through nutrient enrichment and poaching which are both derived from the policy of winter feeding (with hay and silage over significant areas) and grazing. Clearly, sheep would provide a more suitable grazing regime for the Site. The intensity of the system has replaced traditional management within the last 10 years, but predates the notification of the Site in 1990. The situation would be worse but for an expensive management agreement established at notification which limits stock numbers and winter feeding. The herd has remained BSE free and the beef produced supplies a single farm shop outlet. This has insulated the business from a drop in beef prices and no reduction in numbers has been observed. A gradual deterioration in the quality of the Site is likely to occur over the longer term with the continued operation of the current management system. However, further arrangements are being made to clear scrub from the Site and this may help increase Site sustainability as the impact of a fixed number of livestock (through the management agreement) becomes dispersed over a larger area.

### 37. *Castle Hill*

This is a good example of chalk grassland habitat which is rich in flowering plants and breeding birds together with grasshoppers and crickets which are of special importance. Castle Hill SSSI also contains a National Nature Reserve on 40% of the notified area. There are three owner-occupation units.

Unit 1: The first unit comprises the 46.5 ha of NNR owned by Brighton Borough Council and leased to EN. A grazing licence has been granted to a local farmer.

Unit 2: This is again owned by Brighton Borough Council and tenanted by a second local farmer (60 ha).

Unit 3: A small area (8 ha) is owned and managed by another local farmer.

On the NNR area about which most is known, extensive beef cattle for fattening are raised from dairy cows and used to graze the area under the grazing licence. EN follows the cattle with a flock of their own sheep. Average stocking densities equate to 15 head of cattle, but there have been years when no grazing has occurred and years (such as 1996) when 30 cattle grazed the NNR. The actual number is dependent upon the decision of the Site Manager. Poaching can be a minor problem in wet winters, but cattle help to produce the long tussocky grassland necessary to support the diversity of species (especially butterflies and the nationally rare wart-biter cricket). Cattle have therefore been of importance to maintain the conservation interest over recent decades even though sheep represent a more 'traditional' grazing animal in the locality. Outside the NNR on unit 2, the farmer has a tendency to overgraze with sheep. It is hoped that the existence of the South Downs ESA will help encourage more positive management of areas such as unit 2 in the future.