Livestock, Locality and EU Agri-environmental Policy in Wales: New Directions for Applied Animal Geography

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Abstract

Geographers and policy-makers alike have, until recently, ignored the importance of specific breeds of livestock in agri-environmental systems. However, the European Union has recently introduced a series of regulations aimed at protecting breeds of livestock with a local tradition. Some British rural agencies, notably the Countryside Council for Wales, have begun to consider how these measures can be included within rural development plans. Based on current thinking in 'new animal geography', this article highlights the conceptual and practical problems of defining and identifying breeds for inclusion in these policies and suggests how applied geography can be used to overcome them.

Keywords: Animal geography; Livestock; Agri-environmental policy; European Union; Wales

The Environmental Value of Livestock

Britain has a rich and diverse range of farm livestock. Recent research has revealed that there is a distinct geography of livestock breeds and that traditional breeds of farm animals contribute to local identity, culture, landscape character and environmental condition (Evans & Yarwood, 1995; Yarwood & Evans, 1999). More specifically, investigations of the relationship between specific livestock breeds and agri-environmental management outcomes are beginning to emerge (Small, Poulter,

Jeffreys & Bacon, 1999). As such research is preliminary, it is only recently that policy-makers have begun to consider the significance of particular breeds, as opposed to species, of livestock in regional and national countryside management. The potential future importance of establishing this breed-environment link cannot be under-estimated. Breed sensitivity as a component of a reformulated environmental management policy perspective offers the prospect of an approach that is culturally sympathetic to the practice of farming and one that offers potential to reinvigorate the declining fortunes of a farming industry which continues to place greatest value on food production (Evans *et al*., 2002). This would replace the currently unsatisfactory situation in which policy-makers attempt to conserve natural biodiversity and landscape character in the UK yet ignore livestock breeds within these programmes (Evans & Yarwood, 1995). To effect the environmental gain to be drawn from a revised policy approach, there is a clear role for geographers to co-ordinate and apply spatial knowledge about breeds, place and valued environments.

Animals have largely been neglected as an area of applied geography (Philo, 1995), a fact made all the more surprising given the existence of the sub-field of agricultural geography which might reasonably be expected to hold livestock as a central concern. Yet, as emerging research is demonstrating, greater attention to livestock can reveal much about society and economy (Whatmore, 1997; Woods, 1998; Yarwood & Evans, 1998; Holloway, 2001). As it has been argued elsewhere (Yarwood & Evans, 2000), particular breeds, rather than species, of livestock are vital links in the relationship between agriculture and environment. Thus, livestock can be seen to make a contribution in four ways.

1. *Biodiversity:* Livestock themselves contain unique genetic material that is irretrievably lost when a breed becomes extinct. Groups such as the Rare Breeds Survival Trust (RBST) argue that it is important to maintain this genebank to meet potential changes in farming. Of course, one such change has been the need to limit food output and control structural surpluses from agriculture since the mid-1980s. Many traditional breeds, which were previously unsuited to intensive farming, are especially suited to less intensive farming systems that do not require large capital inputs (Yarwood & Evans, 2000). It is well-established that lower levels of intensity in farming reduce adverse environmental consequences.
2. *Conservation of high nature value sites:* It is emerging that traditional breeds of livestock have an association with environmental quality (Small *et al*., 1999). Older breeds graze in a different way to their modern counterparts, improving the ability of environmental managers to deliver specific environmental outcomes, usually those that have most value to the conservation of rare species. For example, Longhorn cattle have been employed to help conserve species-rich limestone pastures in the Derbyshire Dales as their grazing habit helps reduce tough plant species which are inedible to softer mouthed modern cattle (Winter, Evans & Gaskell, 1998).
3. *The identity of local rural environments*: Livestock are an important, but often neglected, component of local rural environments for many people. Halfacree (1995) has noted that the presence of animals contributes to the way in which lay people construct rurality and, for some (Yarwood & Evans, 2000), particular breeds also contribute strongly to local identity and a sense of place (see also Clifford & King, 1995). It is seldom recognised that the breed of livestock present

in a landscape can reinforce or erode the coherences that helps to make a place distinctive (Evans & Yarwood, 1995).

4. *Environmental heritage:* A case can be made that the state should help to conserve historic breeds of livestock in the same way that it contributes to historic buildings and landscapes. Keepers of rare breeds argue that animals represent a living form of heritage. In a survey of the RBST membership, over 67% of members felt that rare breeds should be kept because they were 'part of national heritage' (Yarwood & Evans, 1998). Agricultural historians have demonstrated that particular breeds are closely linked to particular historic periods, reflecting the development of agricultural husbandry in the UK (Henson, 1982).

These ideas have been propagated mainly through the campaigns of voluntary agencies, especially breed societies and charities such as the RBST, rather than state policy. UK agricultural policy has generally dismissed the contribution of different livestock to agricultural biodiversity, countryside management, local identity, landscape coherences and heritage. However, European Union (EU) policy has evolved to recognise the value of different livestock breeds in the contexts outlined above. The next section traces the development of the EU policy framework before considering its feasibility and application in the UK, specifically within Wales.

Livestock Breeds and EU Policy

The basis for a new policy approach to environmental management in the UK does, in fact, exist. The EU has encouraged farmers to keep endangered, local breeds of livestock through a progression of policy measures. This has been partially inspired

by the need to meet international agreements reached on biodiversity and by the growing importance placed on sustainable environmental management and the conservation of genetic material. The UK government has been generally resistant to the idea that livestock can be linked to biodiversity, although pressure is mounting for the notion to be considered. Greater regional autonomy in the UK through devolved assemblies, combined with an increased emphasis on subsidiarity within the Common Agricultural Policy (CAP), have made it feasible for some countryside agencies, notably the Countryside Council for Wales (CCW), to begin to consider how financial support for the keeping of specific livestock breeds might be incorporated into future rural development plans.

Council Regulation 2078/92

This Regulation was introduced alongside the 1992 MacSharry reforms to the CAP to give them a 'green' dimension, so became commonly known as the 'Accompanying Measures' Regulation. It contained an option for EU member states to introduce support for farmers to retain rare breeds of livestock. Precise details were left to the discretion of member states, but the general qualifying principle was that livestock should be protected if they were threatened with extinction due to poor, or potentially poor, economic performance. For example, in Ireland, there is a 'rare breed' option in the Rural Environment Protection Scheme (REPS) under the supplementary heading of 'Local breeds in danger of extinction'. It applies to specified breeds of cattle, horses and sheep (Emerson & Gillmor, 1999). In 1995, it was reported that supplementary measures in REPS showed a particularly weak initial uptake, with no agreements signed supporting rare breeds. The Irish authorities

explained the low adoption rate as partly due to the late approval of the measure in the Scheme and partly due to the necessary confirmation checks that had to be made on applicants (DGVI Commission, 1998). More detailed research would be necessary to update this picture. A tailored programme has also been introduced in Greece under the heading of the 'protection of genetic resources'.

Only the UK and Denmark declined to adopt this initiative. In the UK, the explanation offered through the former Ministry of Agriculture, Fisheries and Food (MAFF) was that the survival of any high nature value flora and fauna species or assemblages is not dependent upon grazing by animals of one particular breed. However, there is the suggestion that a stronger reason for non-adoption is financially rooted, as the application of measures has required member states to match-fund EU money. Given the way that the UK makes its financial contribution to the EU, the cost to the Treasury would have been nearer 78% than 50% in reality, explaining the reluctance of the former MAFF to consider implementing it.

Council Regulation 1467/94

Since the Accompanying Measures initiative on conservation of domestic livestock, the concept has remained firmly on the EU policy agenda. In 1994, the EU passed Regulation 1467/94 on the conservation, characterisation, collection and utilisation of genetic resources in agriculture. The EU viewed its implementation as one way of honouring its commitment to the international Convention on Biodiversity made at the 1992 Rio Earth Summit. The regulation launched a five-year action programme leading to the adoption of twenty-one 'concerted action' projects,

including four animal genetic resources projects encompassing pigs, cattle and rabbits. All involved the compilation of databases on animals and breed characterisation.

Following its closure in 1999, this initiative was evaluated in February 2000, when it was concluded that, beyond their inherent contribution to biodiversity, traditional breeds of livestock had the following benefits within industrialised agrarian systems:

- possession of good health and robustness characteristics;
- use in developing quality food products for valuable niche markets;
- potential in developing new agricultural products;
- use in organic and extensive systems of production;
- their role in landscape;
- support for the above advantages further encourages farmers in marginal areas to remain on the land.

Furthermore, it was proposed to include the concept of *in situ* on-farm conservation to meet international undertakings and the needs of eco-regions. Non-governmental organisations and other operators were identified has having an important role to play in the delivery of this concept.

Following this positive evaluation, a new five-year action programme has been proposed to:

- finance measures to promote the conservation, characterisation, collection and utilisation of genetic resources which are of importance to agricultural production and to help implement the 'agricultural Biodiversity Action Plan', allowing wider coverage of plant and animal varieties;
- give more emphasis to *in situ* conservation of plant and animal genetic resources, with complementary assistance from *ex situ* animal collections;
- co-ordinate national programmes, with contributions from NGOs, and exchange information between Member States and the European Commission;
- facilitate co-ordination in the field on international negotiations, in particular within the Food and Agriculture Organisation of the United Nations (FAO).

Council Regulations 1257/1999 & 1258/1999 and Commission Regulation 1750/1999

At the same time that the 1994 initiative was deemed to be a success and a new round of action proposed, moves were made to link environmental protection more closely with the promotion of rural development as a '2nd Pillar' of CAP[1] support under the terms of the Agenda 2000 reforms. The principle of valuing specific breeds of farm livestock was reaffirmed in basic fashion in Article 22 of the 'Rural Development Regulation' 1257/1999 which replaced Regulation 2078/92. This makes general reference to the need to assist agricultural production methods that protect the environment and maintain the countryside. It is evident that livestock have an important role to play in achieving this objective. However, a key difficulty lay in how to operationalise such support. Article 13 of Commission Regulation 1750/1999 on the 'rules for application of Regulation 1257/99' permitted funding of livestock

breeds on two accounts; danger of extinction and environmental maintenance.[2] As already noted, arrangements using existing match-funding mechanisms had led to implementation differences across members states. As the new genetic resources action programme effectively contributed to the development of agricultural objectives and policy, it was recommended that it be financed using money from the CAP. The problem was that Regulation 1258/1999 on the financing on the CAP through the European Agricultural Guidance and Guarantee Fund (EAGGF) provided no legal basis to finance measures relating to genetic resources from EAGGF. Clearly, for implementation to occur, amendment of the Regulation was required.

Commission Regulation 445/2002

Following the drafting process[3], Commission Regulation 445/2002 was published in February 2002. It outlines the application of Regulation 1257/1999 for rural development under EAGGF funding. Article 14 (agri-environment) states that support may be granted to 'rear farm animals of local breeds indigenous to the area and in danger of being lost to farming' on the condition that 'the local breeds ... must play a role in maintaining the environment on the area to which the measure provided ... applies' (EU 2002, L74/6).

The adoption of Regulation 445/2002 now means that it is possible for member states to draw on EAGGF funding to subsidise farmers to keep rare breeds of

[1] As distinguished from the '1st Pillar' of the CAP which is the funding stream subsidising food production.
[2] Both had already been notionally dismissed by the former MAFF for arguments linked to the existence of the RBST, which safeguarded against extinction, and the lack of evidence for a direct local breed-species dependency.
[3] COM (2001) 617 final.

livestock as part of their Rural Development Plan. The purpose of this paper is to discuss some of the issues that will arise from implementing this Regulation. It does so primarily by studying the example of Wales where a stronger political will to apply the Regulation seems to exist than elsewhere in the UK. CCW has recently expressed interest in incorporating Regulation 445/2002 into the Development Plan for Rural Wales. If funding is to be accessed from the EU, and more positive animal-environmental management relations to be achieved, it is necessary to address three fundamental and inter-related criteria. First, it is necessary to clarify the meaning of 'local', ascertaining how breeds can be deemed indigenous to a particular locality. In this case, it needs to be established what constitutes a Welsh breed of livestock. Second, an assessment needs to be made of breed numbers, status and whether they are in danger of extinction. Third, it is important to consider the current geography of these animals to assist in the targeting of aid. Only then can an evaluation of the contribution of these animals to local agri-environmental management be established to comply with EU policy. In light of these issues, this paper considers the specific case of 'Welsh' livestock, addressing each question in turn to establish how feasible it would be to implement EU policy on the keeping of endangered livestock breeds in Wales.

Defining Welsh Breeds of Livestock

Although seemingly straightforward, defining a breed as Welsh is a complex task. Breeds have been physically and socially constructed by people over time to meet specific farming demands. The current day names given to different breeds reflect, and sometimes obscure, these processes. The development of domestic

livestock breeds in the British Isles has been a continuous process over thousands of years, proceeding at different rates at particular times. A full discussion of livestock history is beyond the scope of this paper, but some pertinent points can be noted (for full discussions, see for example Friend & Bishop, 1978; Ponting, 1980; Clutton-Brock, 1981).

Domestication was based on a combination of natural animal resources and cultural conditions within individual localities (Yarwood & Evans, 1998). The geographical distribution of domesticated animals was constantly reshaped by movement of humans through space and over time. For example, Welsh Black cattle can be traced back to Celtic Britain. After successive invasions, the Celts were forced to retreat to highland, peripheral areas of the British Isles, taking their domesticated animals with them (Alderson, 1976; Friend & Bishop, 1978).

A period of intense activity in the differentiation of individual livestock breeds came within the historical period known generally as the 'agricultural revolution'. This term has been used to capture the raft of improvements made to agricultural practices from the 17th century, and particularly those of the 18th century as an industrial revolution began to emerge. 'Revolution' is misleading in the sense that many agricultural developments were slowly evolving technologies that became more widely disseminated. Effort in selective livestock breeding increased dramatically in the 18th century, with the activities of Robert Bakewell (Longhorn cattle and longwool breeds of sheep) in the East Midlands of England and John Ellman (Southdown sheep) in south-east England particularly significant. Increasing population was an underlying initial driver behind the 'improvement' of livestock. Emerging scientific

principles were applied to increase size, fecundity and speed of maturity of animals, even though this was before the discovery of modern genetic science. During the 19th century, productivity considerations became accompanied by a desire to produce livestock of a certain appearance; one that could be deemed 'fashionable'. For example, blackfaced upland sheep became encultured as a sign of progressiveness in farming, regardless of their actual productivity when compared with white-faced animals.

Historically, many animals were exported to help raise food production in British colonies, and in the case of sheep, produce fine grades of wool that were increasingly demanded by the nascent textile industry. Colonies developed as breeding centres in their own right, such as Australia for Merino sheep, leading to the establishment of distinctive populations. For some breeds, improvements were made to the breed overseas which then became re-imported into Britain. For example, Herefordshire cattle were exported to North America where crossing with other breeds produced leaner carcasses and a polling factor. More recently, in the post-war period, the emphasis in the UK has been on increasing food production to achieve the strategic national goal of self-sufficiency encompassed in the 1947 Agricultural Act. Capital intensive systems of farming have become dominant in all livestock sectors, particularly for pig, poultry and some beef systems. This industrial model of agrarian progress has favoured the use of breeds of continental origin in modern farming systems at the expense of more traditional British breeds.

This brief account of historical events serves to demonstrate that breeds of domestic livestock are complex products of inherent characteristics, human necessity

and fashion over time. To associate specific livestock breeds with particular contemporary politically administered areas becomes fraught with difficulty. Indeed, a case could be made that virtually no livestock identified in this paper as 'Welsh' contain genetic material that can be proven to have originated in Wales. As each species of domestic farm livestock is derived from a small set of wild ancestors, the extent to which breeds can be linked to place is clearly a function of time and cultural practice. Indeed, Alderson (1976, p.66) has warned that 'a great deal of confusion has arisen in the past by attempting to define the origin of various Welsh breeds in an area of the same name'. For example, the genetic material of Clun Forest sheep can be shown to have originated mainly from animals that at one time inhabited the English Midlands.

Breed societies have become pivotal in the definition and continuation of specific breeds. These voluntary organisations were established during the late nineteenth and early twentieth centuries to promote different livestock breeds. Each society produces a detailed definition of the distinctive qualities found in animals of the breed it represents, some of which are based on genetic distinctiveness and some based on physical appearance. This has meant that breed characteristics have become increasingly 'fixed' throughout the modern period by these organisations. The autonomy of a breed is therefore socially constructed and reflected primarily in the existence of a dedicated breed society.

Adopting this approach, 'Welsh' livestock can therefore be defined as those farm animals currently represented by a breed society that have acquired some historically recorded element(s) of their distinctiveness whilst resident in Wales. For

completeness, this has been extended to include some livestock from English localities in the Marches because, regardless of boundary fluctuations and the current position, these animals have been strongly influenced by the activities of Welsh farmers (Table 1).

Table 1: Breeds of Welsh livestock and their current populations, where known. Source: Compiled from breed society flock and herd books.

LIVESTOCK BREED (with date society formed)	**NUMBERS OF REGISTERED ANIMALS IN UK (2000)**	**TOTAL ANIMALS IN UK (2000)**
SHEEP	(EWES)	(EWES)
Balwen Welsh Mountain (1985)	328	800 (1997)
Beulah Speckled Face (1958)	11,500	
Black Welsh Mountain (1920)		4810
Brecknock Hill Cheviot (1970)		c.30,000 – 40,000
Clun Forest (1925)	4903	
Hill Radnor (1951)		1336
Kerry Hill (1899)	2948	
Llanwenog (1957)	3044	
Lleyn (1970)		
Shropshire (1882)	265	1,085 (1996)
South Wales Mountain (1948)		c.50,000
Welsh Bleu (1990)		
Welsh Halfbred (1893)		
Welsh Hill Speckled Face (1969)		
Welsh Mountain Badger Face (1976) *(Inc. Torddu and Torwen sub-types)*	1063	
Welsh Mountain (1905) (Inc. Pedigree and Hill Flocks, separated 1958)	509	
Welsh Mule (1979)		
CATTLE		
Welsh Black (1904)	2,313	
White Park (1918)		627
PIGS		
Welsh Pig (1918)	124	
HORSES		
Welsh Mountain Pony and Cob (1901)		

Endangered Breeds of Welsh Livestock

It can be argued that those livestock breeds most in danger of extinction are most in need of support, necessitating their definition. Table 2 shows the thresholds used by the EU to signify when a breed is deemed to be in danger of being lost from farming. These thresholds are relatively high, especially when compared with the categories used by the RBST to determine the scarcity of British livestock (Table 3), but they are intended to provide a relevant guideline throughout the EU rather reflect conditions in any one member state. However, establishing a 'rareness threshold' is a relatively easy task compared with determination of exact numbers of each breed of livestock.

Table 2: Thresholds of livestock rareness used by the EU. Source: European Union. Commission Regulation (EC) No. 445/2002

Eligible Farm Species	**Thresholds under which a local breed is deemed to be in danger of being lost to farming (number of breeding females)**
Cattle	7500
Sheep	10,000
Goats	10,000
Equidae	5000
Pigs	15,000
Avian	25,000

As is evident from Table 1, information on the precise breed numbers is patchy as no official surveys record these data. The UK agricultural census, for example, only measures number of different species, rather than individual breeds. The EU recommends the use of a register 'recognised by a Member State'. As such,

this does not exist in the UK, but most livestock breeds have a fiercely loyal human following whose collective enthusiasm and support for a breed is represented through a society. Breed societies were first formed in late Victorian times as interest spread in the application of scientific principles to agriculture. The first breed society, for Shropshire sheep, was founded in 1882 and published a Flock Book in 1883. There has been a continual process of society formation and disbandment, but most breeds are recorded in this way. The Combined Flock Book, administered by RBST, covers other breeds with low numbers. Individual breed societies compile their flock books on a regular, usually annual, basis to record new registrations of pedigree animals. These societies are run and organised on a voluntary basis, raising funds from membership fees, animal registration charges and donations. There is no state funding, although voluntary umbrella organisations, such as the National Sheep Association and British Pig Association, do exist offer support and advice.

Table 3: Categories of rareness for British livestock. Source: The Rare Breeds Survival Trust

Category*	**Description**	**Cattle**	**Sheep**	**Pigs**	**Goats**	**Horses**
1	Critical	<150	<300	<100	<100	<300
2	Endangered	250	500	167	167	500
3	Vulnerable	450	900	300	300	900
4	At Risk	750	1500	500	500	1500
7	Traditional	1500	3000	1000	1000	3000

*numbers are based on registered adult females and not applicable in the case of categories 5 (Feral) and 6 (Imported).

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Table 1 shows the numbers of breeds recorded in flock and herd books for the year 2000, where known. The data are somewhat patchy because the maintenance and publication of flock/herd books is the responsibility of individual breed societies, leading to variation in the way that animals are recorded. Most societies tend to list 'new' animals registered in a particular year, rather than the total numbers of animals of each breed. This avoids the complex and time-consuming task of recording exact numbers of animals in existence. Monitoring a total breed population would require the breed society to trace the birth, sale and slaughter of individual animals from a variety of sources in an exercise that would rapidly become dated. Most societies, given their voluntary nature, do not have the resources to undertake such an exercise, particularly on a regular basis.

There may also be problems of non-registration in flock/herd books. Registration is the responsibility of the owner and is required if an animal's pedigree is to be officially recognised. As already discussed, to maintain purity, animals must display the appropriate physical and genetic characteristics appropriate to that breed to be included in a flock book. Successful registration ensures pedigree and the right to breed as such. There is no guarantee that every keeper will register all his/her animals, especially as payment of a fee is usually involved. However, the economic benefits of registration ensure that most do and it has been estimated by RBST that flock/herd books contain over 80% of all animals. Overall, this means that flock books remain a vital source of information about individual breeds and offer the best available way of mapping current livestock populations. Compared with other sources of agricultural data, they represent a unique and unmatched resource from which to

explore the geography of particular breeds. However, like any source, they need to be treated with caution and the drawbacks highlighted must be fully appreciated.

The most recently available flock books are those compiled in 2000. These pre-date the 2001 Foot and Mouth Disease (FMD) epidemic which will have clearly affected numbers of many breeds, particularly in the extensively infected Brecon Beacons National Park of south-central Wales. Indeed, it can be anticipated that it will take several years before breed populations and their registrations stabilise following FMD, establishing 2000 as a particularly import benchmark year. The legacy of FMD will be recorded in forthcoming editions and the full geographical consequences of the effects of FMD, if any, will only then be known. The data presented in this paper therefore represent a useful 'snapshot' of breeds before the disease struck.

According to EU thresholds, many Welsh breeds for which data are available would be classed as endangered. As these are very broad brush guidelines, a far better way of assessing danger of extinction is to refer to the RBST classification. This is a more sensitive guide than that set by the EU because the RBST's monitoring programme, established since 1974, records trends over time as well as current numbers of livestock.

According to the RBST, there are no Welsh breeds in a critical state with regard to extinction (Table 4). The most vulnerable Welsh breed of all is the White Park cow (endangered), with the Balwen being the sheep breed most threatened with extinction. Overall, very few Welsh breeds are endangered or vulnerable, but more sheep breeds appear in the 'at risk' section of the classification. This may be a

concern at first glance, but this belies a trend of numerical improvement exhibited by some breeds over recent years. Hill Radnor sheep moved from ‘endangered’ in 1995 to ‘at risk’ in 2002. Llanwenog sheep have also improved from ‘vulnerable’ to ‘at risk’ during the same period. White Park cattle, although still endangered by 2002, have moved away from their 1996 ‘critical’ status. Kerry Hill sheep suffered a dip in fortunes in the 1990s and were first recognised as being ‘at risk’ in 1995 when the number of breeding ewes fell below 1,500. Numbers recovered by the start of 1998 which transferred them from the RBST ‘Priority List’ to the status of a ‘Minority Breed’, redefined in 2001 as a ‘Traditional Breed’, over which a watching brief is maintained.

Although some Welsh breeds are still classed as rare, it would appear that those in most danger have gained in popularity and, according to RBST records, no Welsh rare breeds appear to be declining in number. However, the Welsh Pig would appear to be an exception here. Registrations of the breed numbered 1341 in 1981, but only 124 were made in the draft register of the 2001 Welsh Pig Herd Book. This appears to reflect a rapid and relatively recent decline. The RBST is aware of the situation but not able to act because it does not have support from the membership of the Welsh Pig Society. Breeders have resisted the involvement of the RBST because they wish to be seen as involved with production of a ‘mainstream’ breed rather than a minority one.

Table 4: Rare and endangered breeds. Welsh breeds are highlighted in **bold**. Source: Rare Breeds Survival Trust (2002).

Category	*Cattle**	*Sheep*	*Pigs*	*Goats*	*Horses and Ponies*
1. Critical	Irish Moiled Shetland Vaynol Lincoln Red [OP]	Boreray Castlemilk Moorit		Bagot	Cleveland Bay Eriskay Pony Suffolk
2. Endangered	Gloucester **White Park**	Leicester Longwool Norfolk Horn Teeswater Whitefaced Woodland	British Lop Tamworth		Exmoor Pony Fell Pony
3. Vulnerable	Beef Shorthorn Red Poll **Hereford [OP]**	**Balwen** Cotswold North Ronaldsay Portland Soay	Berkshire Large Black Middle White	Golden Guernsey	Dales Pony Dartmoor Pony Highland Pony
4. At Risk		Dorset Down Greyface Dartmoor **Hill Radnor** Lincoln Longwool **Llanwenog** Manx Loghtan **Shropshire** Southdown Wensleydale	British Saddleback Gloucester Old Spots		Clydesdale
5. Feral	Chillingham	Boreray Soay			
6. Imported		Galway			Irish Draught
7. Traditional Breeds	*Belted Galloway* British White Longhorn	Hebridan **Kerry Hill** Oxford Down Ryeland Shetland White Faced Dartmoor Wiltshire Horn			Shire

* [OP] indicates an original population

The Geography of Welsh Livestock

As the preceding section has demonstrated, it is difficult both to define local indigenous breeds and to establish their numbers accurately. Further, when considering the geography of these animals, Regulation 445/2002 provides support only for 'local breeds indigenous to the area'. This policy dimension raises two important issues. First, animals can be in danger of extinction but located away from their area of origin and thus fail to qualify for support. Second, the policy clearly favours the geographical concentration of animals. As the FMD outbreak demonstrated, breeds clustered in particular localities may be in heightened danger of

extinction if they are all located in an infected area. Special arrangements were made during the outbreak to spare rare sheep and pig breeds (along with animals of high genetic value and hefted sheep) from contiguous culling. Even so, this did not prevent, for example, in excess of 23% of the population of Hill Radnor sheep, which were geographically concentrated in Carmarthenshire and Powys, from becoming victims of FMD (The Ark, 2001).

More information is needed on the geographic, as well as numeric, status of livestock breeds. To provide this, data from 2000 flock and herd books were used to map the distributions of Welsh livestock in Britain. This mapping exercise revealed three types of distribution.

1. Breeds found almost **exclusively in their area of origin**. These include Hill Radnor sheep, Welsh Black cattle, Welsh Mountain sheep (Figure 1), and Welsh Half-Bred sheep. The popularity of these animals can partly be explained by their suitability to the environmental and economic conditions of hill farming found in Wales. However, there is also a high degree of cultural attachment to these breeds. Welsh Black cattle, for example, can trace their ancestry to animals kept by the Celts and Welsh Mountain sheep have been lauded as a 'truly national breed' in Wales. This 'brand loyalty' means that the breeds may remain popular in their areas of origin and will be continue to be kept for reasons of heritage as well as economics. As previous research has demonstrated, rare breeds are often found in their area of origin and have been sustained by local loyalty when they have fallen from favour elsewhere (see Yarwood & Evans, 1999). Although only one of these breeds, the Hill Radnor sheep, is currently classed as rare by the RBST, caution is

needed to ensure that breeds are not overly clustered in particular places in case of attack by disease.

2. Breeds with a **strong association with their area of origin but also found elsewhere in Britain.** These include Balwen Welsh Mountain sheep, Welsh Black Mountain sheep, Clun Forest sheep, Kerry Hill sheep, Llanwenog sheep (Figure 2), Lleyn sheep, Shropshire sheep, Badger Face sheep and the Welsh Pony. Generally, these breeds have enjoyed commercial success that has seen them adopted by many farmers across Britain and, indeed, other countries further afield. There are exceptions to this: Balwen sheep, Shropshire sheep and Llanwenog sheep are still classed as rare by the RBST and Kerry Hill sheep are listed as a 'Traditional Breed' in need of careful monitoring. Thus, it is important to note that animals with widespread distributions may benefit from area-based conservation policies.

3. Breeds found elsewhere in Britain but **not in their area of origin**. These include Welsh pigs and White Park cattle (Figure 3). These are two of the most endangered breeds of Welsh livestock and in most need of conservation, particularly the Welsh Pig whose breeders have resisted approaches of assistance by the RBST. The danger is that these animals, despite their Welsh heritage, may not benefit from any area-based protection policies applied to Wales.

These distributions reveal a complex geography that reflects the influence of environmental, economic and cultural factors. Policy has acted to reshape these distributions, strongly directing farmers' decision-making to favour breeds that are

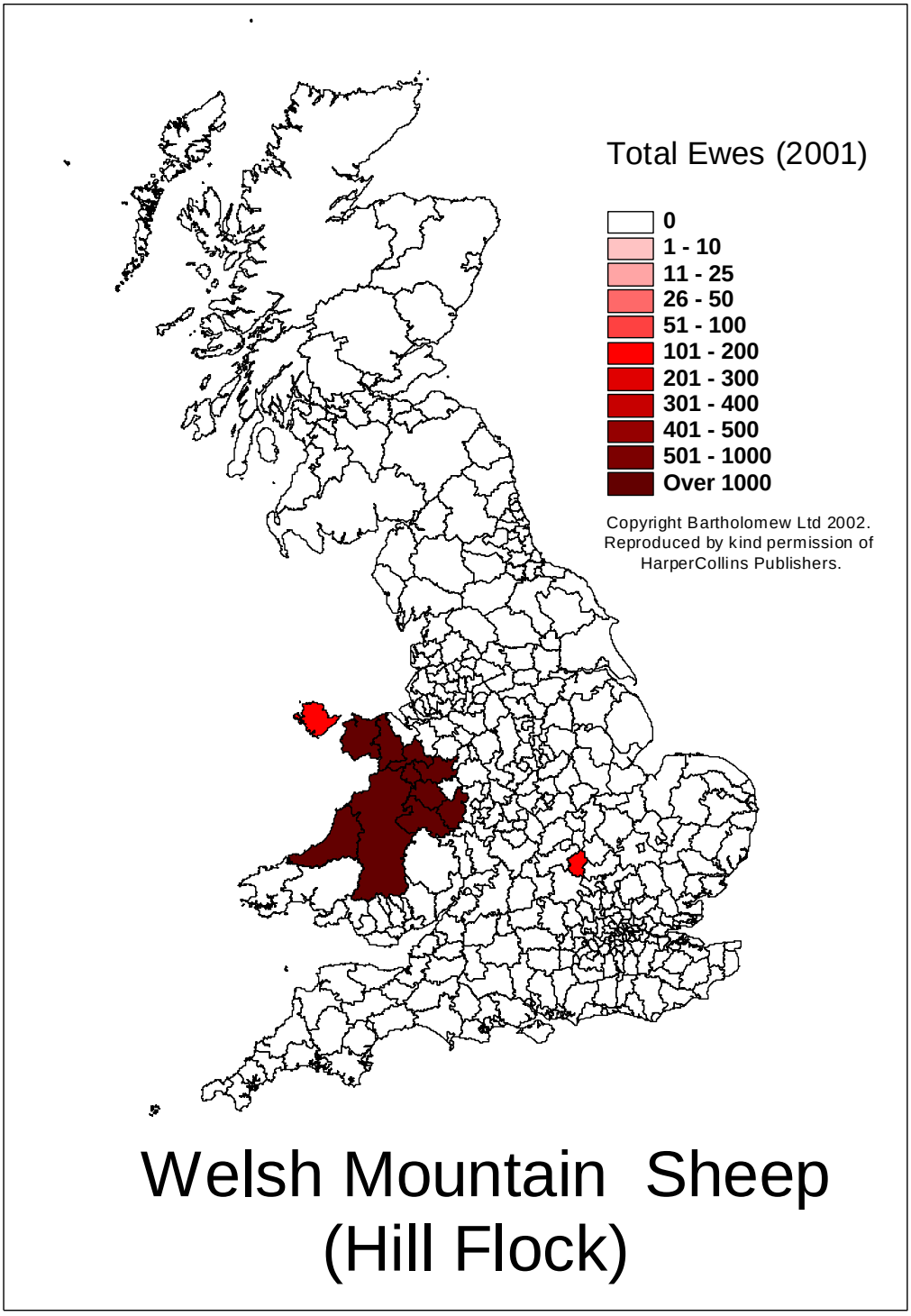

Figure 1. Welsh Mountain Sheep (Hill Flock) Ewes (Welsh Mountain Sheep Society, Hill Flock, 2002)

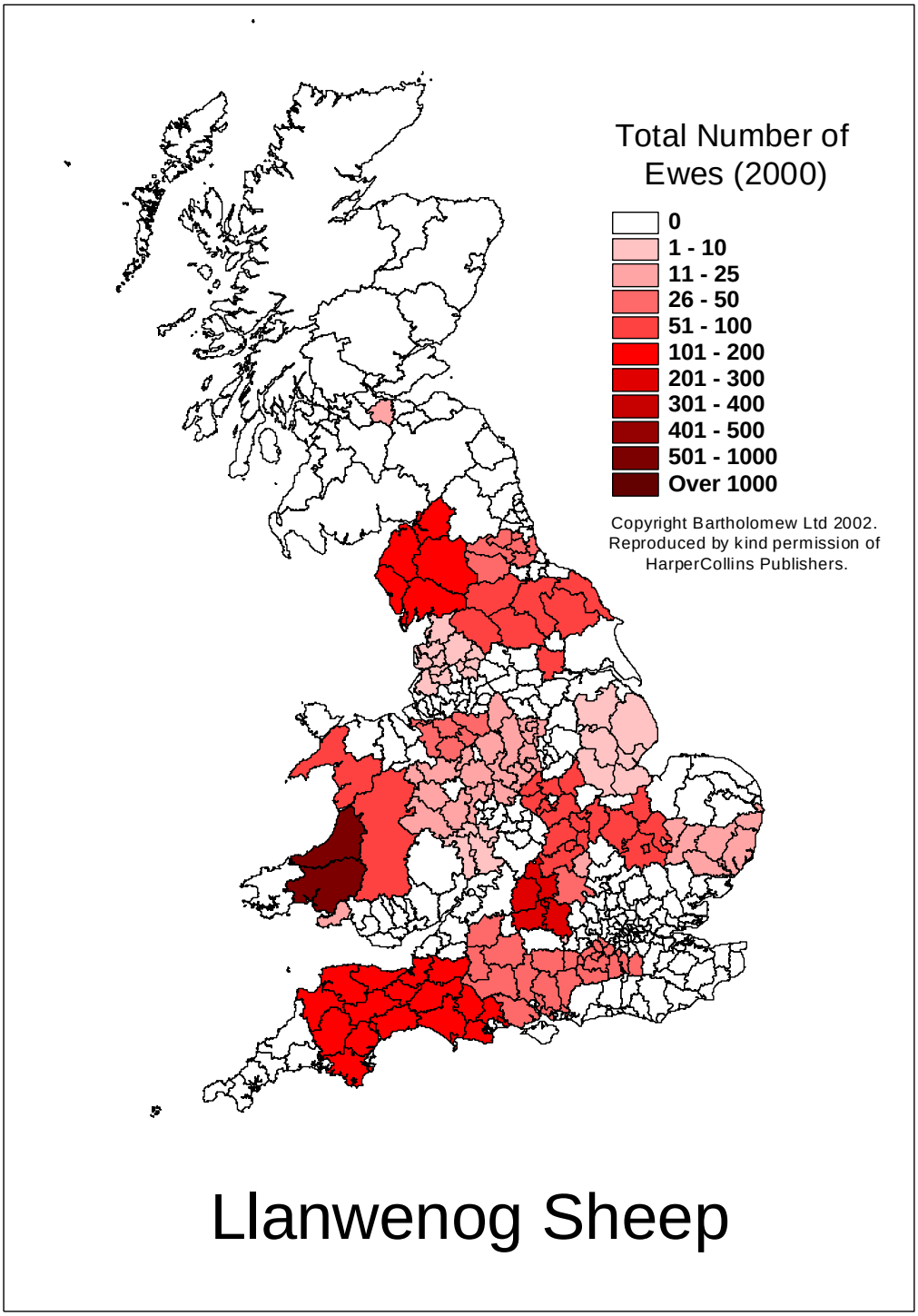

Figure 2. Total Llanwenog Ewes, 2001 (Llanwenog Flock Book 44, 2001)

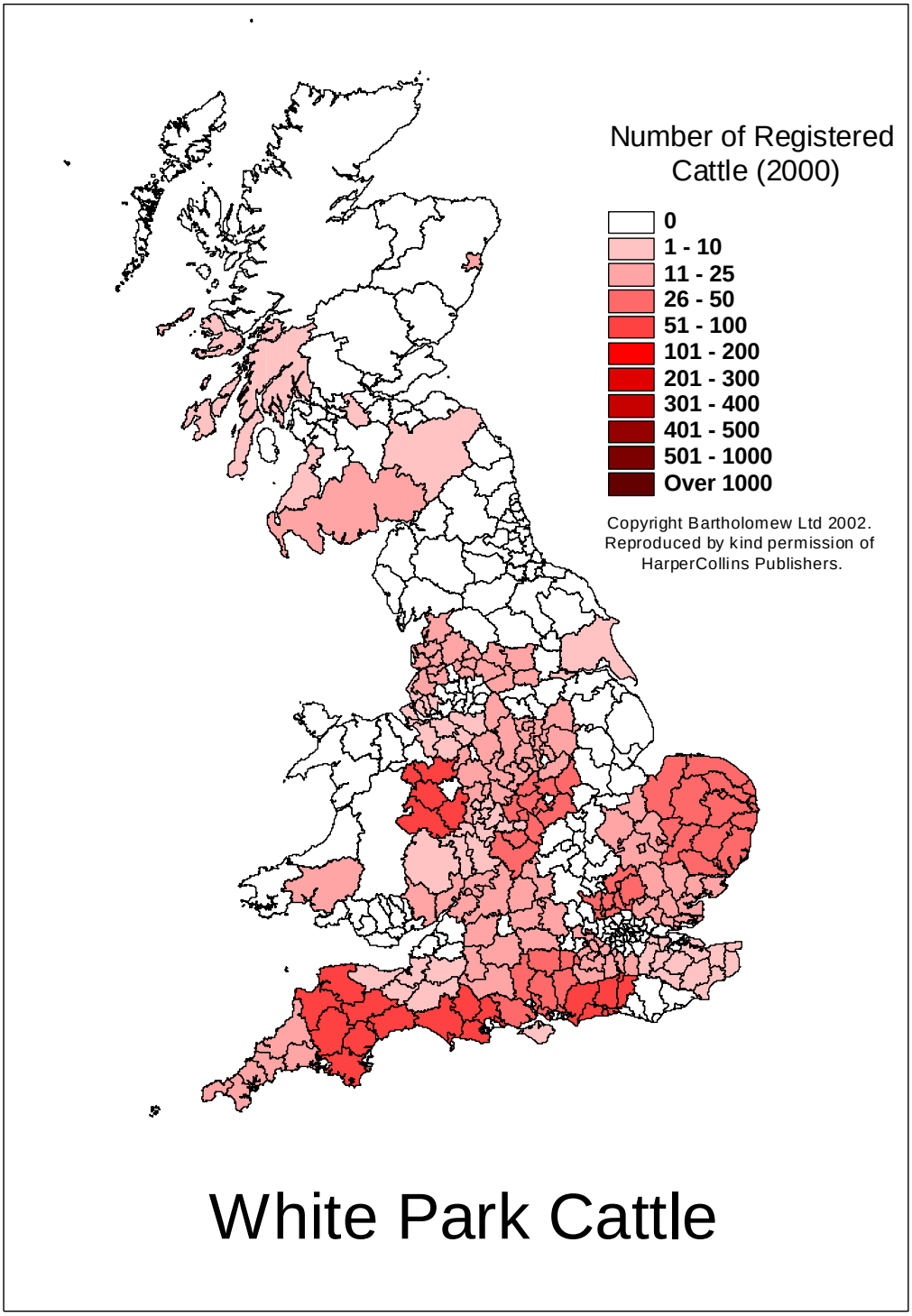

Figure 3. Total Number of White Park Cattle, 1998 (Source: The Herd Book of White Park Cattle, Volume 9, 1998)

suited to intensive food production systems. If farmers are to be encouraged to keep particular breeds, especially in places where they are not well established, there is a need for more research on the reasons why farmers choose to keep particular breeds of livestock and what circumstances might influence these choices. They also highlight the need to target policy measures at the animals themselves to ensure that those located away from their area of origin receive adequate support and protection.

Welsh Livestock and Local Environments

The final condition necessary for the payment of support for traditional livestock breeds is that they must 'contribute to the maintenance of local environments'. To date, there has been little policy sensitivity to the value of livestock, particularly rare breeds, in the new conservation effort. Yet, traditional breeds can contribute significantly to both nature and landscape environmental conservation (English Nature, 1994; Small, 1995).

First, rare breeds have become useful in maintaining certain habitat conditions favoured by endangered plants and animals. Most agri-environmental schemes require farmers to follow management agreements. Grazing with rare breeds may be the most efficient option available for the farmer to maintain the nature conservation interest of a particular site. For example, Hebridean sheep exhibit a marked preference for grazing the upland grass Molinia (purple moor grass). They have been used successfully by the Game Conservancy in Swaledale, North Yorkshire (part of the

Pennine Dales Environmentally Sensitive Area (ESA)) to encourage the regeneration of heather. Similarly, Longhorn cattle have been employed in the Derbyshire Dales on species-rich pastures that are declining in biodiversity as they become overrun by tough plant species that are inedible to softer mouthed modern cattle. In the case of Burnham Beeches ancient woodland near Slough, Black Berkshire pigs have been reintroduced to restore traditional wood-pasture (a system of pannage) following a 100 years of decline (Rackham, 1987). The Scottish Rural Development Plan also offers landowners and occupiers incentives to keep Highland cattle.

Second, it is also apparent that rare breeds have importance in landscape conservation. The potential significance is that there has been a growth in government commitment to landscape conservation schemes in the UK. Agri-environmental policies have evolved from an intention to protect what is left towards seeking more positive gains by reconstructing key landscape elements. Hence, current schemes encourage the re-establishment of traditional field boundaries (hedges and walls), restoration of traditional buildings and works to raise water levels in wetlands. However, livestock have been wholly neglected in these attempts at reconstruction (Evans & Yarwood 1995). For example, the ESA established in the Cotswold Hills aims to return wold arable landscapes back to traditional Jurassic limestone grassland, with incentives also given to restore the network of 18th century enclosure limestone walls. It can be argued that if this restoration exercise to a landscape typical before the 1960s is to be truly authentic, then the pastures recreated should also be grazed by Cotswold sheep, a 'vulnerable' rare breed. Cotswold sheep are seldom kept nowadays by farmers in this locality because it is a wool breed and so lacks a profitable market. Indeed, no agri-environmental scheme currently offers farmers general incentives to

re-create place-breed associations that have contributed to landscape distinctiveness in localities prior to the advent of a postwar highly capitalised, industrial-based and production-orientated agriculture.

Of the two dimensions just discussed, increasing attention is being paid to the nature conservation role that traditional livestock have in maintaining and enhancing environmental biodiversity (that is beyond the inherent value of the livestock themselves). A major problem is that it is difficult to prove conclusively a direct environment-breed relationship due to the lack of existing research already noted. This is a point that MAFF/DEFRA have made in justifying non-adoption of the earlier provision made for support of rare breeds under 2078/92. Further, it must be made clear that only preliminary research has been undertaken, with that by Small *et al.* (1999) representing by far the most sophisticated work conducted to date. Investigations by Winter *et al*. (1998) and Gibson (1996) have also contributed knowledge about the relationship between environmental quality and grazing with beef cattle and horses respectively. In short, much research remains to be done. The preliminary research available suggests that some traditional breeds of livestock are important in the conservation of specific habitats.

In an attempt at a systematic review of the link between breeds and grazing habit, Small *et al.* (1999) conducted a questionnaire survey in 1998 of land managers to collate information as one aim of the Grazing Animals Project (GAP). Land managers were derived mainly from sites run by conservation bodies (RSPB, National Trust, English Nature), although some contacts from the membership of RBST and GAP were also circulated. A total of 122 responses were received, eight of which

came from sites in Wales (although of course this does not necessarily mean that Welsh breeds of livestock were being used in their management). Tables 5 and 6 presented are derived from this work as it represents by far the best analysis of the relationship between breeds and conservation grazing available at the present time.

Table 5: The qualities of Welsh sheep in agri-environmental management. Source: Adapted from Small *et al*. (1999).

Usefulness in conservation grazing for management objectives	**BREED – SHEEP**								
	Beulah Speck' Face	BSF x Suffolk	BSF x Welsh Mule	Black Welsh Mtn	Clun Forest	Lleyn	Lleyn x Bleu de maine	Welsh Mtn	Welsh Mtn X
bird conservation								vg 1	
butterfly conservation	av 1							good 1	
control bracken	poor 1		vp 1					vp 1 poor 1	
control invasive grass	poor 1 av 3 good 2	poor 1	av 1	good 1	good 1	poor 1		av 1 good 1	
control trees/shrubs invasion by taking seedlings	poor 1 av 2 good 6 vg 1	good 1	good 1		poor 1 vg 1	av 1	vg 1	av 1 good 1	good 1
develop vegetation mosaic	poor 2 av 2 good 4	good 1	good 1	good 1		good 1 vg 1	vg 1	good 3	
dog-proof						poor 1			
elimination of trees and shrubs	poor 3 good 5	good 1	av 1		vp 1 good 1	av 1			
improve vegetation structure	poor 1 av 4 good 4 vg 2	vg 1		good 1	good 1	av 1		av 1 good 3	good 1
increase amount of bare ground	poor 1 av 2 good 1					poor 1		good 1	av 1
maintain vegetation structure	av 3 good 4 vg 3	vg 1	good 1 vg 1		good 1	good 1 vg 1	vg 1	poor 1 good 1	vg 1
reduce fire risk	good 1					av 1			
single species management						av 1			

Key: vp = very poor; vg = very good; av = average; The numbers refer to the number of times the effect was reported by surveyed graziers; blanks indicate where no association was made between breed and conservation management objectives.
N.B. No Welsh sheep breeds contributed to the following management objectives: aesthetic; dragonfly conservation; deforestation management; insect conservation.

Table 6: The qualities of Welsh cattle and ponies in agri-environmental management. Source: Adapted from Small *et al*. (1999).

Usefulness in conservation grazing for management objectives	BREED – CATTLE / PONY							
	Heref x Beef Short-horn	'Black' Heref	Heref X Friesian	Heref	Heref x	Welsh Black	White Park	Welsh Pony
aesthetic						good 1		good 1
bird conservation								vg 1
control bracken	poor 1				vp 1 av 1	good 1	av 1 good 1	good 4
control invasive grass	vg 1	av 1	av 1 good 1	av 1	av 3 good 1	good 1	vg 1	good 2
control trees/shrubs invasion by taking seedlings	av 1		av 1 good 1	av 2	poor 1 good 1	good 1	poor 1 av 1 good 1	good 1
develop vegetation mosaic	good 1		good 2	av 1 good 1	poor 1 av 1 good 1	good 1	good 1 vg 2	good 3 vg 2
dog-proof		good 1						
dragonfly conservation					vg 1		vg 1	
elimination of trees and shrubs	poor 1		poor 1	poor 1 av 1	vp 1 poor 1 good 1	good 1	poor 1 good 1	av 1 good 1
improve vegetation structure	good 1	good 1	good 1	av 1 good 1	av 1 good 2	good 1	good 2 vg 1	good 5 vg 2
increase amount of bare ground	good 1	av 1	av 1 good 1	av 1	av 1 good 1	good 1	av 2 good 1	good 3
maintain vegetation structure	vg 1		av 1 good 1	av 1 good 1	good 4 vg 1		good 1 vg 1	
reduce fire risk		av 1			av 1 good 1	good 1	av 2	av 1 good 1
single species management		av 1			av 1			

Key: vp = very poor; vg = very good; av = average; The numbers refer to the number of times the effect was reported by surveyed graziers; blanks indicate where no association was made between breed and conservation management objectives. N.B. No Welsh cattle / pony breeds contributed to the following management objectives: butterfly conservation; deforestation management; insect conservation.

Nine breeds of Welsh sheep, seven of cattle and the Welsh (Section A) Pony were reported as involved in conservation grazing. The tables demonstrate the effects on flora and fauna that respondents had noticed when grazing with them on a scale from very poor through to very good. The responses reflect opinion and each site is likely to vary slightly in its characteristics, which account for effects varying across the scale. Even so, some interesting trends emerge that demand further investigation and experimentation. Welsh sheep breeds seem to contribute most to the development, maintenance and improvement of vegetation structure. They are more

mixed in their performance at controlling or eliminating unwanted trees and shrubs, and rather poorer at controlling invasive grass and bracken where tried. Of the individual breeds, it is the Beulah Speckled Face that is notable for achieving good reports in the control of trees and shrubs. Indeed, this breed has rapidly established itself with a reputation as an effective conservation tool. Pedigree Welsh Mountain sheep also feature as a breed that seems well suited to producing a good mosaic of desirable vegetation. For control of invasive vegetation and bracken, it is the Welsh Pony that returns an outstanding performance. Welsh Black cattle are also remarkable in that they receive good ratings across all types of conservation practice investigated.

Small *et al.* (1999) acknowledge that there are many complex factors at work, including the sex of the animal, timing of grazing and availability of feed on site which influences whether some species of plant are grazed out of preference or necessity. All these dimensions require detailed research, but there is sufficient evidence here to suggest that policy-makers need to adjust their thinking on the delivery of conservation management. Not only should the use of particular breeds be supported through agri-environmental policy to increase its effectiveness, but effort should be made to encourage the use of breeds with a local tradition where they are capable of delivering the desired management objective(s). If funding through modulation is to be increased, as the Curry Report recently proposed (Cabinet Office, 2002), then it appears logical and necessary to restructure agri-environmental schemes to enable the wider farming community to participate in conservation grazing and report results back. This cannot be achieved without sensitivity to breed of livestock. If implemented, a leap in current efforts to safeguard and enhance biodiversity seems to be a certain outcome.

Conclusions

The decision by the EU to include livestock breeds in rural development programmes at last provides formal recognition of the differential value of domestic farm livestock breeds. It additionally suggests that a conceptual shift is occurring away from broad aspatial notions of livestock as commodity towards a new perspective in which a geographical focus on 'the local' becomes central. As discussed in this paper, such localness is founded in loose definitions of traditional place associations and agrarian practice. Given such redefinition, it can be predicted that rural agencies and policy-makers in the UK will demand to know more about the geography of livestock breeds. Using the example of Wales as a case study, this paper has highlighted that three key questions need to be answered in order to implement effectively policy measures.

First, it is difficult to monitor numbers and locations of traditional livestock breeds. To date, this task has been undertaken on a voluntary basis. There is a need for the state to take a more active role in the process, preferably by working in partnership with breed societies and charities to utilise knowledge and information accumulated over years of husbanding animals.

Second, attention must be paid to the geography, as well as numbers, of breeds. It is imperative that any programme to preserve these animals is targeted equally on those located away from their area of origin as well as those remaining *in*

situ. Some breeds can exhibit a population level that appears non-threatening in absolute terms. However, if the population is highly localised, it is particularly vulnerable to severe decline and possible extinction from the outbreak of disease. A wide geographical spread of animals is also undesirable as, despite modern developments in communication, there is inevitably less breeder interaction and knowledge exchange over distance. A scattering of animals in small herds and flocks also makes the environmental consequences of grazing habits more difficult to establish.

Third, in applied geographical analysis, there is a need to focus on 'animal geography' rather than simply on locality itself. This suggests that EU policy-makers need to revisit the condition that there is only a role for breeds in 'maintaining the environment in the area the scheme applies'. Doubtless, this is a useful role that can be played in some circumstances by some animals, but its practical implementation is hindered by inconclusive evidence on the environmental benefits brought by specific traditional breeds. In the UK, this has acted as a fundamental resistance to policy implementation, leading to a lack of state concern for the conservation of traditional livestock breeds. Further, it should also be noted that the breeds themselves make a significant contribution to landscape quality especially in areas where they are exclusively clustered, but that again this has escaped the attention of policy-makers (Evans & Yarwood, 1995). For example, Welsh Black cattle are as distinctively important to the landscape of North and West Wales as its topography, architecture, boundaries and natural flora and fauna.

The complexity of the association of livestock with place, especially that rooted in cultural attachment and environmental-breed relations, seems to act as an obstacle, rather than an incentive, to including local breeds in farming policy. Besides, local breeds, their genetic material aside, have the potential to bring many benefits to the future of farming. The recent Curry Report (Cabinet Office, 2002) has advocated stronger links between producers and consumers and the promotion of locally produced food. The emphasis here is on local products produced in an environmentally friendly manner. There is clear scope to use traditional and rare breeds in the marketing of local niche products, especially rarer breeds suited to extensive systems. The legislative framework is in place at the EU level and there is clearly interest from regional policy-makers in the UK, as demonstrated with CCW in this paper, looking for ways to express their new-found autonomy. It is only through the application of geography that the potential fruits of such policy initiatives on traditional livestock breeds can be properly implemented and brought to bear in the interests of the farm sector, farmers, the environment, consumers and the animals themselves. In all cases, the relevance of emerging ideas from agri-'cultural' geography and new animal geographies to inform future research is brought sharply into focus.

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