PASTORAL (2003) ***European pastoralism: farming with nature***

PASTORAL Project Information Note 8

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This series of eight Information Notes and accompanying video are intended to provide a brief introduction to some of the issues facing pastoralism in Europe today. They were produced as part of the output from the PASTORAL project, an EU-funded Concerted Action which considered the agricultural, socio-economic and ecological characteristics of high nature value pastoral systems in Europe.

The PASTORAL project was steered by a consortium consisting of the Scottish Agricultural College (UK), European Forum on Nature Conservation and Pastoralism, ALTERRA, (The Netherlands), Institute for European Environmental Policy (UK), Asociacion para el Analisis y Reforma de la Politica Agro-rural (Spain), Universidad Autónoma de Madrid (Spain), Escola Superior Agraria de Castelo Branco (Portugal) and Coordination Paysanne Européenne (Belgium).

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Further detailed information on the PASTORAL project and European pastoralism can be found at: www.sac.ac.uk/envsci/external/Pastoral/default.htm

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This, the last in the series of eight Information Notes, contains the script of the voice-over for the video produced to provide an overview to the issues facing European pastoralism. Consequently, in many places it makes reference to images which (as would be expected) can only be seen on the video itself. Broad headers have been introduced in this copy to help (in the absence of images) the flow of the text.

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Introduction

- When people think of European farming they tend to think of intensive, mechanised agriculture highly dependent on artificial fertilisers and chemicals; with bird species declining; pollution of lakes and rivers; ploughing up grasslands rich in orchids and other wild flowers. The way that European agriculture has developed over the past thirty years, partly driven by the Common Agricultural Policy, has created the over-riding impression that environmental damage has been caused virtually everywhere.

- On the other hand when most people think of Europe's biodiversity they think of places remote from human influence – nature reserves or national parks protected from the ravages of human activity, or those wild places where man's influence hasn't yet reached.

- But in reality the picture across Europe is much more complicated. Agriculture has been around for so long – in some places up to 10 000 years - that much of Europe's wildlife has developed alongside it. Most of our typical wildlife and some of our most valued habitats are not in areas untouched by humans, but are on farmed land. Often the richest mixtures of flowering plants, with the greatest diversity of species, are found

in open grasslands and heaths periodically grazed by grazing animals, such as sheep, cattle, goats and horses.

- This special land is not the intensively managed fields, but the large proportion of European farmland (perhaps as much as 30 million hectares) that is still open land covered by natural vegetation – land managed by extensive livestock grazing - by extensive pastoralism.

- Low stocking with traditional breeds of cattle, sheep and other herbivores that are able to maintain more natural patterns of grazing behaviour, strongly influences the vegetation of these landscapes. A complex interwoven mosaic of different communities of vegetation gradually develops, with different species, a range of heights and varying densities. This mosaic is an intimate reflection of the grazing patterns of domestic animals and the present variation of soil types, wetness, underlying rocks and exposure to wind and weather.

- The subtle patterning of textures and colours that can be seen from a distance represents a broad spectrum of habitats for numerous species of plants and animals. These are able to co-exist side-by-side in an inter-dependent web of life because of the diverse vegetation structures that can be produced by grazing.

- European agriculture has always been changing – sometimes very dramatically in whole areas of the continent. Despite these changes, we still have areas of biodiversity rich farmland left. We need to invest time and effort now to maintain these valuable places.

Examples from across Europe

- We are now going to look at some examples from across Europe, why they're special and at the challenges facing low-intensity pastoral agriculture and its associated wildlife as we enter the 21st century.

- The regions in Europe where we still find these systems are usually mountainous or remote. They may be too dry for intensive agriculture (much of the Mediterranean falls into this category), they may be too wet (like the north west fringes of Britain and Norway) while in other areas the land is too cold or steep. Large areas still occur in many of the countries of central and eastern Europe where semi-subsistence agriculture has survived for political and economic reasons. So extensive pastoral systems are very diverse, reflecting the climate, topographical and cultural traditions that shaped them.

- Mediterranean areas experience pronounced drought in the summer which influences the location and timing of grazing practices. In La Crau, in south-eastern France, a complex system of sheep rearing has evolved over time linking the distant summer alpine pastures with spring grazing on the local open pseudo-steppe habitat and autumn and winter use of the aftermath grazing on the unique hay fields. In the past the transhumant journeys to and from the Alps were on foot, but now use a fleet of lorries. The pseudo-steppe, known as coussoul, is an integral part of this system of pastoralism and it is also very important for its wildlife, including the little bustard and the sandgrouse. But it is under threat from activities that transform the open stony pasture land into intensive agriculture.

- The western part of the British Isles and Norway experience the highest rainfalls in Europe. The growing season is very short and livestock have to cope with long bleak winters and low productivity pastures. On the island of Islay, off the west coast of Scotland, traditional cattle and sheep breeds able to withstand a very wet and windy climate produce high quality meat from an open pasture. This extends across a mosaic of Atlantic bogs, heaths and grasslands identified as important for biodiversity at an international level under Natura 2000 and other wildlife conventions.

- In mountainous areas, the short growing season and the difficulty of the terrain limit the potential for intensive agriculture. Whether in the Carpathian mountain area of Romania, or the Gredos Mountains of central Spain sheep, goats and cattle need to move from the lower ground to higher pastures in summer. Some of these movements are relatively short, more local movements, while others cover hundreds of kilometres to the high-level summer shepherd camps. While the livestock are away, the lower ground is mown for hay to provide winter fodder - in the process creating an unenclosed mosaic of mixed habitats. In addition, in central and eastern Europe, social, political and economic factors have combined to maintain a rich concentration of traditional, semi-subsistence systems unique in Europe.

- Even in the lowland areas of western Europe patches of such habitats have been retained for a variety of historical reasons. The unique landscape of the New Forest in Southern England, which is made up of a wide variety of habitats including ancient woodland, heaths and bogs, was originally a Royal hunting reserve. The expanses of open grazing land are maintained by commoners' livestock as well as by wild deer. In the past, pigs foraged in the Forest but nowadays cattle and ponies are the main grazers.

The historical context

- One of the reasons why these semi-natural habitats are so special is that many of them are very old. Here on Islay farming has been practised for thousands of years. In this field where oats are being cut for winter fodder, over 3,500 pieces of worked flint have been found as well as a 7,000 year old Mesolithic hearth. After the Ice Age humans arrived in this area at the same time as the first trees: since then there has never been a truly 'wild' time when man's impact was not felt.

- On the open stony plain on La Crau in south-eastern France extensive sheep grazing still survives with large flocks tended by shepherds on the unenclosed landscape. Nineteenth century sheep barns are still used to house the sheep overnight. Archaeological evidence has revealed the remains of some 50 Roman sheep barns of a similar design, showing a continuity of sheep grazing stretching back over 2000 years. Here in the foreground are the outlines of a Roman barn, with a nineteenth century barn behind it.

- In Romania the alpine pastures have been used for at least 800 hundred years - long enough for them to have developed a distinctive and diverse flora associated with pastoralism. Shepherds are at the heart of Romanian culture – their wanderings united the very language over the centuries and this pattern of characteristic culture and wildlife surviving alongside each other, and depending on each other, is repeated across Europe.

The links between biodiversity and grazing livestock

- Another reason why these systems are special is because the behaviour of grazing animals on these large open areas is more natural than in enclosed fields. So, extensive pastoral systems can mimic natural grazing patterns similar to those of the large herds of wild grazers which used to roam across the European landscape in the long distant past until they were replaced by domestic livestock, directly managed by man to provide meat, milk and wool. Grazers, both wild and domesticated have a major impact on the vegetation composition, vegetation structure and the species composition.

- Which plants grow where, their relative abundance and how prolifically they can flower is to a large extent determined by the behaviour of grazing animals - by what they eat, when they eat it and how frequently they return to the same spot to feed. The effects of grazing on the plants that are eaten produce diverse structures of vegetation: these range from the small scale variations in the height of plants in a short grazed turf, to the larger and more obvious differences in the height and density of tall herbs.

- Although it is easy to take for granted all these grazing-induced variations in the height, density and types of vegetation that make up a landscape, these structures are all critically important for the whole diversity of animals and plants that need their own special habitats. Many rely on short, open conditions, others need taller and denser vegetation, some need both contrasting structures at different stages in their life cycles.

- This diversity of vegetation structure and species-composition is principally governed by the way in which herbivores select the plants they eat. Both the choices made by animals, and the way in which plants react to being grazed, affect the type of vegetation that develops. Some species, like soft rush and stinging nettle, for example, are usually unpalatable and are likely to be ignored while other herbs and grasses are selected. But the palatability and acceptability of individual species can vary under different stocking densities and at different times of year. A species ignored or avoided at one time can be heavily grazed at another. Similarly, some plants, like kidney vetch and wild angelica, are very vulnerable to grazing while they are actively growing but can tolerate being grazed later in the year.

- More natural patterns of grazing behaviour can exist under traditional pastoralism in open landscapes, compared to the heavy stocking in fields typical of more intensive livestock rearing. The large-scale variety of vegetation and habitats in open pastoral systems is vital to support Europe’s rich biodiversity.

- In some areas there may be fences, but the pastures are so large that a semi-natural grazing behaviour develops - cattle wander in herds utilising the pastures in a systematic way like their wild ancestors; sheep tend to be territorial and ‘heft’ to the area where they were born. In fact most of the breeds used in traditional systems retain many of the grazing characteristics of wild herbivores.

- Sometimes the traditional livestock management involves a large amount of human intervention and the grazing behaviour of the animals on the pastures is guided by shepherds. Additionally, in many places the flocks and herds are moved long distances to seasonally available pastures - a practice known as transhumance. In southern Europe, these seasonal pastures are linked by ancient drovers' roads running between the plains and the mountains. Before the heat of summer dries up the low ground

pastures, flocks and herds travel to the mountain grasslands. The process is reversed before winter, with the animals led back to the plains. These long distance livestock movements can also serve to disperse wildlife, by seeds passing through herbivores' guts and seeds, and even animals like grasshoppers, carried on wool and on feet.

- The impacts of livestock on biodiversity are much wider than just grazing. Dung is a waste product but it is also a rich source of food for many species of invertebrates and their larvae. They in turn become the food for badgers and for birds such as the chough.

- Cattle dung can play an important part in the life cycle of annual plants in seasonally dry Spanish grasslands. It provides good conditions for seeds that have passed through a cow's digestive system to germinate and establish new generations of plants.

- The trampling effect caused by the feet of grazing animals can also be important because it creates niches for seeds to germinate. It can also provide for the special needs of animals such as many insects and some lizards that need bare areas where they can bask in the sun or lay their eggs. It also creates niches for seeds to germinate.

- In life, the grazing animal's digestive system is host to a vast complex of small life forms like bacteria and parasitic invertebrates. In death, the carcass becomes a food source for many carrion eaters from vultures to clothes moths and highly specialised beetles. Naturally decomposing carcasses are a vital ecological component of pastoral habitats. But increasingly these direct benefits of pastoralism are under threat as a result of existing and proposed EU regulations.

Pastoralism is not just about grazing

- But pastoralism is not just about grazing. Because natural pastures can't always provide sufficient forage throughout the year for large flocks and herds other management practices have been developed. The forage deficit can be met by moving the animals to distant pastures, or forage can be grown and stored for use when natural grazing isn't available. Growing crops and hay for winter forage is an essential part of the system and an important element of the landscape diversity that is so beneficial for wildlife.

- Haymaking is a widespread and traditional method of management. Pastures are left to grow and then the tall grasses and herbs are cut and dried so that they can be stored in good condition until needed. Traditional hay meadows that do not receive artificial fertilisers are very rich wildlife habitats, especially for flowering plants, insects and birds, but they have been largely lost in intensively farmed areas. Traditional haymaking entirely by hand still survives in Romania but it has long since been mechanised in western Europe.

- Sheep, goats and cows on the high pastures of the Carpathian mountains have traditionally provided the milk for cheese making to supply local needs. Here the old techniques are still in use, making cheese three times a day after milking in the isolated mountain shepherd camps that are in use through the summer months.

- Elsewhere in western Europe, extensive sheep and goat systems maintain traditional grazing practices but in association with modern dairy facilities. In Spain and Portugal high quality sheep and goat cheeses are produced to modern hygiene standards, but the biodiversity benefits of extensive pastoralism are still achieved through the traditional grazing.

- Regional foods, from Romanian cheese to Iberian ham to Scottish Highland beef are based on slow-maturing traditional breeds grazing semi-natural pastures. On this large-scale, natural variations in soils, topography and climate, interacting with grazing animals, create a rich mosaic of habitats and vegetation types. Pastoralists maintain these complex webs of life because their very livelihoods depend on maintaining the vegetation of the natural pastures. Ultimately, it is this vegetation that supports a pattern of rich and varied wildlife.

Trends and threats to the viability of pastoral systems

- Over the last 30 years technology and grants have encouraged farmers to intensify production - artificial fertilisers have been used to convert semi-natural pastures rich in wildlife into species-poor but agriculturally more productive grasslands, supplementary feeding has enabled stock numbers to be increased, hay has been replaced by silage. This all adds up to monotonous landscapes low in biodiversity.

- Modern breeds have largely replaced old varieties. Extensive pastoral systems depend on hardy breeds that are well adapted to natural conditions and to practices such as transhumance. Avileña negra cattle in central Spain can walk 20-40 km a day on the journey to their summer mountain pastures. Scottish Highland cattle have big stomachs capable of coping with large quantities of rough vegetation and thick skin and a hairy coat to protect them against the wet and windy Scottish weather.

- The intensification of European agriculture and the drive for increased productivity has led to the development of modern breeds that can produce a lot of milk and meat but only at the expense of losing the characteristics that allowed traditional breeds to adapt to regional environmental conditions. They also need large quantities of rich grass and supplementary feeds. These breeds cannot cope with the harsh conditions of extensive pastoralism. Resulting in the abandonment of remote pastures in many areas and the loss of biodiversity that depends on grazing impacts.

- Across Europe these traditional farming systems, that are environmentally so sustainable, are becoming economically and socially unviable. Europe's pastoral areas are mostly remote. They offer poor incomes and little in the way of social infrastructure to attract young people. Individual farmers in these areas tend to be old and rural populations as a whole are ageing. Other farmers tend to view tried and tested low-intensity systems as old-fashioned or backward. Agricultural colleges give them little attention.

- Food from low-intensity farming is often highly appreciated by consumers but in practice they usually choose cheaper, intensively produced food. Despite this there are still many places where pastoral farmers' incomes are maintained through the production of distinctive local products. Examples are many of the regional sheep's cheeses of Spain and Portugal.

- For pastoral systems in the countries of Central and Eastern Europe modernising production will be a major challenge. Current concerns for hygiene mean that without

substantial changes to his methods needing thousands of Euros' worth of investment, a traditional Romanian sheep cheese maker cannot have access to EU markets. In addition to hygiene requirements there are numerous other rules and regulations with which farmers have to comply, such as dealing with animal welfare, the movement of animals and the need to track and identify individual animals. There is therefore, a tremendous amount of form-filling to deal with. All these burdens, taken together, are a severe threat to the continuation of these valuable pastoral systems.

Action required to support pastoral systems

- So why aren't the threats to these areas recognised by agricultural and environmental policy? Too often the debate is focused on intensive agriculture - agricultural trade is dominated by it, environmental concerns focus around its excesses, farming unions are often run by and for commercial farmers. Small, economically marginal farms often lack a voice in the corridors of power. One of the main aims of the Common Agricultural Policy is the promotion of efficiency in agriculture, which in practice means the amalgamation of small farms, fewer farmers and more intensive production in locations with optimal conditions near the large consumer markets.

- Many of the habitats and species in pastoral areas are recognised by international nature conservation agreements as being threatened. So how are we trying to maintain this threatened biodiversity? Agri-environment schemes are often presented as the solution to all these problems. These programmes pay farmers compensation for following environmental management prescriptions. Often they don't look at the whole pastoral system. Frequently this rules-based approach, devised or interpreted by people that do not have local knowledge, doesn't deliver the desired results. The kind of agri-environment schemes that many countries operate do not address biodiversity at all and even when they do, they often have very detailed prescriptions aimed at just a few conspicuous species.

- Much of the ecological diversity on farmland is a result of the idiosyncrasies of individual farmers with different interests and economic circumstances, working farms of different potential. This variety is homogenised by prescriptive agri-environment schemes. Yet ironically in many extensive pastoral areas, maintaining biodiversity at a large scale relies on the mix of habitats and vegetation structures produced by these same farmers' complex grazing systems. Biodiversity can be compared to traditional food - it's not a set recipe, but a thousand meals made with the same ingredients. Changing little, yet always different.

- Using extensive pastoralism to maintain biodiversity is in fact an elegant and cost effective solution to a difficult problem, but to achieve this goal we will need a radical rethink of the current model of agri-environment schemes.

- Even with a perfect agri-environment model, the poorer countries of the European Union and the Accession and Candidate Countries of central and eastern Europe would still face problems. Their governments cannot afford to put the necessary funding into agri-environment schemes.

- In western Europe, the challenge is to recognise the social and economic realities of pastoral farming and to allow greater flexibility in support schemes. There also needs to be more of a partnership between farmers and technical advisors. We can afford it - at present 80% of agricultural subsidies go to just 20% of large commercial farmers so

we could, if we wanted, redistribute the agricultural budget to favour pastoral systems. But the time is short.

- In Central and Eastern Europe the challenge is even more stark. Pastoral farming has survived against the odds through both the rigours of communism and the chaos of its decline. Now, ironically, the chance to join the European Union and its supposedly multi-functional Common Agricultural Policy may see the final destruction of some of Europe's finest pastoral landscapes and their natural riches. Agri-environment schemes following the current western European model are not enough to prevent or ameliorate this.

- We need to improve our understanding of pastoralism and to apply this knowledge so that the wildlife of open semi-natural habitats grazed by domestic livestock can survive. But most of all we need urgent action from policy makers. Firstly, they need to ensure that new Regulations aimed at intensive production systems do not inadvertently accelerate the decline of pastoralism and its associated biodiversity. Secondly, new support measures for pastoralism, whether they're called agri-environment, rural development or less favoured area schemes, need to be targeted both at the systems of production and at the areas where they survive.

- There is little time left. In another 10 years it may be too late - these pastoral systems and the local and traditional knowledge on which they depend may have become extinct.

A total of eight Information Notes have been produced from the PASTORAL project:

- 1: *An introduction to European pastoralism*
- 2: *The need for a typology of European pastoral systems*
- 3: *The nature of European pastoralism*
- 4: *Examples of European pastoral systems*
- 5: *Trends and threats to the viability of European pastoral systems*
- 6: *Potential policy approaches to support European pastoralism*
- 7: *Gaps in the understanding of European pastoralism*
- 8: *European pastoralism: farming with nature*

Many of the points in these Information Notes are illustrated by examples taken from the location of the four main workshops held during the course of the project, Sierra de Guadarrama Mountains (Spain), Transylvania (Romanian Carpathians), Isle of Islay (Scotland) and the plain of La Crau (south-east France).

These Information Notes were compiled by Sally Huband (the dedicated officer employed by SAC on the PASTORAL project) with additional input from the other members of the project steering group: Davy McCracken and Gwyn Jones (SAC), Eric Bignal (EFNCP), Berien Elbersen (ALTERRA), David Baldock and Harriet Bennett (IEEP), Guy Beaufoy (Spain), Begoña Peco (UAM), Luis Pinto de Andrade (ESA-CB) and Gerard Choplin, Isabel Bermejo and Jesús Garzón (CPE). The project meetings enabled us to consider and discuss the future of pastoral systems with many colleagues drawn from our own institutes and elsewhere throughout Europe, and we offer our thanks to them for their useful contributions towards the development of many of the views presented here.