One of Europe's greatest riches is the diversity of the continent's landscapes. But despite this great diversity, few landscapes can be found that have not been touched by man. European landscapes are therefore in large part "cultural landscapes" – a product of the interaction between man and nature.

In many cases, the complexities of this interaction serve to enhance the value of a cultural landscape over and above its purely natural antecedent: landscapes may, for example, harbour high historic, economic, aesthetic or natural values. This latter characteristic of cultural landscapes – the conservation of biodiversity – has until recently received relatively little attention.

Traditionally, the predominant focus of nature conservation has been the protection of areas that host an exceptionally high level of natural value. But beyond the limited number of protected sites lie vast areas of cultural landscapes which, through a combination of their huge area and the intrinsic natural value of many of the areas, provide the greater proportion of the continent's biodiversity.

The way in which many cultural landscapes are managed is therefore crucial for the future of nature conservation in Europe. In order to address this issue, the study examines cultural landscapes, with a special focus on agricultural landscapes and their value for the conservation of biodiversity, in five countries – France, Germany, Great Britain, the Netherlands and Spain.

A comparative analysis reviews these national experiences and draws conclusions on the main lessons of conserving cultural landscapes in the five countries.
CULTURAL LANDSCAPES
The conservation challenge in a changing Europe

Edited by
Graham Bennett
The Institute for European Environmental Policy (IEEP) is a network of institutes dedicated to the independent analysis and advancement of environmental policies in Europe. The institutes undertake research on the European dimension of environmental protection with a major focus on the development, implementation and evaluation of the environmental policy of the European Union, international bodies and national governments.

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1 INTRODUCTION

One of Europe’s greatest riches is the diversity of the continent’s landscapes. Any systematic classification would encompass an exceptionally broad catalogue of landscape types – from boreal swamp to sandy desert, from mountain to polder, from forest to steppe, from intensively cultivated fertile valleys to wild arctic tundra.

But despite this great diversity, few landscapes can be found that have not been touched by man. Some have been artificially created, such as the polders reclaimed from the North Sea; others have been transformed and subsequently maintained by centuries-old management practices, such as the bocage mosaics; still others have moved through a variety of forms in response to a succession of land uses and management regimes, such as some river basins. Only in the least accessible or the most inhospitable regions, such as the northern forest tundra, do landscapes still retain much of their natural character. European landscapes are therefore in large part “cultural landscapes” – a product of the interaction between man and nature.

In many cases, the complexities of this interaction serve to enhance the value of a cultural landscape over and above its purely natural antecedent. Thus, a cultural landscape may serve an economic function through providing a natural resource to a community, as is the case in agriculture or forestry. Or a site may preserve the physical remains of man’s past, for example in the form of ancient field patterns. A cultural landscape may also be of high aesthetic value, such as the Alps. Finally, the practices that create and maintain a certain landscape may also sustain certain semi-natural systems that contribute to biodiversity, such as species-rich grassland.

This latter function of cultural landscapes – the conservation of biodiversity – has until now received relatively little attention. Traditionally, the predominant focus of nature conservation has been the protection of areas that host an exceptionally
high level of natural value. As a result, all countries in Europe have developed legal instruments and management arrangements that aim to secure the future of such sites. These measures have been supplemented with an array of international agreements, such as the Bern Convention, the Ramsar Convention and the EU Habitats Directive.

### International concepts of cultural landscape

The most important international agreement concerning cultural landscapes is the Convention for the Protection of the World Cultural and Natural Heritage, also known as the World Heritage Convention, that was adopted by UNESCO in 1972. This defines "cultural heritage sites" in Article 1 as representative of the "combined works of nature and of man". In order to guide the designation of World Heritage Sites under the Convention, the International Council on Monuments and Sites (ICOMOS) has elaborated different categories of cultural landscape. These comprise:

- **Garden and parkland landscapes**, which are designed and created by man for aesthetic reasons.

- **Organically evolved landscapes**, which result from an initial social, economic, administrative and/or religious imperative and develop their present form by association with and in response to the natural environment. They include relict or fossil landscapes and continuing landscapes.

- **Associative cultural landscapes**, which are essentially natural landscapes that harbour powerful religious, artistic or cultural associations.

The Mediterranean Landscape Charter, which was adopted by a resolution of the Third Conference of Mediterranean Regions on 5-7 April 1993, includes a definition of landscape that encompasses the cultural element. Article A.I(1) defines landscape as "the tangible expression of the spatial and temporal relationship between individuals and societies and their physical environment, shaped to varying degrees by social, economic and cultural factors".
Although no international convention relating specifically to landscapes has yet been adopted, a proposal for a European Landscape Convention has been drafted by a working group of the Council of Europe's Congress of Local and Regional Authorities of Europe. This proposal, drafted in 1995, defines "cultural landscape areas" as "specific topographically delimited parts of the landscape, formed by various combinations of human and natural agencies, which illustrate the evolution of human society, its settlement and character in time and space and which have acquired socially and culturally recognised values at various territorial levels, because of the presence of physical remains reflecting past and present land use and activities, skills or distinctive traditions, or depiction in literary and artistic works, or the fact that historic events took place there".

The European Environment Agency's *Europe's Environment: the Dobris Assessment* (Stanners & Bourdeau, 1995) distinguishes between natural and cultural landscapes. The assessment notes that "the term 'cultural landscapes' characterises this distinctive interrelationship between nature and people and encompasses a group of mostly rural landscapes. By prevailing over the remaining natural types of land-cover, cultural landscapes play a significant role for the state of Europe's environment".

However, important though these measures are, they safeguard but a small proportion of Europe's natural heritage. Beyond the limited number of protected sites lie vast areas of cultural landscapes which, through a combination of their huge area and the intrinsic natural value of many of the areas, provide the greater proportion of the continent's biodiversity. This is illustrated by the distribution of bird species of European importance. Only a relatively small percentage of the important bird areas identified by BirdLife International is to be found in protected areas; moreover, the larger part of most populations of bird species of European importance lie outside the important bird areas (Tucker, 1994).

Cultural landscapes are valuable in nature conservation terms in two ways. First, they can provide a semi-natural substitute
for many of the large-scale natural habitats that have almost totally disappeared from Europe and thereby provide a refuge for many species formally dependent on wilderness. For example, in Hungary about 500,000 hectares of unimproved grassland can still be found. These grasslands provide a valuable habitat for a third of the country’s protected plant and animal species (Beaufoy et al., 1994) and about 20 per cent of the total area has been classified as important bird areas (Grimmett and Jones, 1989). Second, certain cultural landscapes can create and maintain conditions that lead to a higher level of biodiversity than existed in the original natural habitats. The dehesas of Spain and the montados of southern Portugal hold one of the highest plant diversities ever recorded in Europe (Fernández Alés et al., 1993; Pineda et al., 1981). To an important extent, Europe’s natural diversity is closely related to the continent’s cultural diversity.

The rich heritage represented in cultural landscapes is highly prized by the peoples of Europe and continues to be a source of inspiration. Few would wish to lose such an inheritance. But the task of sustaining the wealth of European landscapes goes far beyond the need to preserve the physical architecture of the countryside: many of the landscapes that we have inherited were not designed as a scenic backdrop, they were formed as a means to serve the purposes of the communities that lived in them; they are the living artefact of dynamic social and economic processes.

The way in which many cultural landscapes are managed is therefore crucial for the future of nature conservation in Europe. However, across Europe many of the processes that have formed and maintained the landscape – particularly those associated with traditional or highly regionalised ways of life – are succumbing to the invasive character of modern industrialised society.

Traditional forms of low-intensity agriculture are being particularly affected. A special feature of many traditional agricultural systems of high natural value is their strong cultural component. A wide diversity of farming practices has arisen
across the continent, and many of these practices have been maintained over long periods of time through cultural adaptions. Examples include migratory or nomadic systems, such as transhumance – sheep and cattle husbandry in the Mediterranean region and reindeer husbandry in arctic Europe – and village orchards in Central and Eastern Europe. If lost, many of the habitats and features that have been maintained by long-established management practices would be extremely difficult or impossible to recreate, while some of the species that are dependent on these habitats are under threat in Europe or even globally.

This close link between cultural characteristics and landscape management has important implications for the conservation of biodiversity. Cultural landscapes cannot simply be preserved in a fossilised state as, for example, a Neolithic tool or a historic building: the most direct structural way of conserving the natural value of these landscapes is to ensure the continuance of the respective agricultural systems. But the question then arises of to what extent it can be expected that the associated cultural identities can survive the intrusion of powerful socio-economic forces and the ever-growing pervasiveness of mass communications. Is it realistic to try to preserve a diversity of cultural characteristics in a world in which cultural pluralism is fast declining through forces which are highly resistant to social or political intervention?

The dual issues of the nature conservation value of cultural landscapes and the scope for conserving this value lie at the heart of this study. In order to address the issues, the study specifically examines cultural landscapes, with a special focus on agricultural landscapes and their value for the conservation of biodiversity, in five countries – France, Germany, Great Britain, the Netherlands and Spain. Each national report discusses the perception of a "cultural landscape" (which may vary from region to region) and reviews historical and current changes to the landscapes, relevant management practices and the policies that contribute to the conservation of cultural landscapes. The chapters close with case studies of selected examples of cultural landscapes that are of high natural value.
A comparative analysis reviews these national experiences and draws conclusions on the main lessons of conserving cultural landscapes in the five countries.

**References**

2 FRANCE

Mark Tuddenham

Introduction

This chapter sets out the main developments in France concerning cultural landscape policy. The major focus is on the policy framework, the legal and economic instruments adopted to implement the policy and voluntary action undertaken to maintain, enhance and preserve cultural landscapes. The example of hedgerow landscapes has been selected for a case study. Lastly, lessons learned from past experience are briefly reviewed. Given the vast scope of the topic, the report cannot claim to be exhaustive, but rather it aims to highlight the important steps taken to date.

Definition and Concept

In France, cultural landscapes were officially defined by the Ministry of Environment’s Environment Terminology Commission on 28 October 1993 as "landscapes shaped by man and considered as having an intrinsic value". However, the terms "historic" or "traditional" landscapes are often used when referring to cultural landscapes. The concept of cultural landscapes is recent in France: it began to make headway among policy-makers following the 16th session of the World Heritage Committee in Santa Fe (USA) in December 1992. This is partly because the concept of landscape in general has been slow to emerge. Efforts have focused on cultural heritage (particularly historical monuments) and compared to several neighbouring countries, France is somewhat behind in developing a national landscape policy.

In recent years, however, policy-makers have come to recognise that landscapes constitute an important resource on three accounts:

- **Cultural.** Along with monuments and architecture of buildings, landscapes forge the identity of each region and, on a smaller scale, each local community. They reflect the originality and the diversity of French culture, history and knowledge.
Ecological. Biodiversity is extremely rich in France, reflecting the variety of geographical conditions present (granite or limestone substratum, exposure, altitude, lack or abundance of water etc.). These factors constitute the framework on which inhabitants have left their traces in the landscape development process (such as hedgerows, open fields, terraces and forests).

Economic. As a result of the diversity of geographic conditions and farming systems established, France has been able to develop a wide range of produce and meet her own vital needs. Beyond their productive function, however, rural landscapes also constitute an asset to be taken into account in local development policy:

- landscape identity contributes to the quality of life of the inhabitants and plays an important role in social dynamics of local development
- landscape quality is increasingly a major criterion for business or industry in choosing a location to set up new facilities
- tourism is no longer focusing solely on coastal or mountain areas that have been disfigured because of unchecked infrastructure development, but also on the countryside (such as the system of rural gîtes)
- landscapes play a vital part in projecting the image of a region; using labels that guarantee product origin, product quality can be enhanced.

On this latter point, it is interesting to note that a conscious effort has been made to link traditional economic activities in rural areas to landscapes for the purpose of marketing farm produce. Dairy produce, fruit and vegetables as well as wine have come to be identified with "the land" on which they are produced. The quality of such produce is defined – amongst other things – by identification with its "land" of origin. Clearly, the idea is not only to sell farm produce that tastes good, but also a way of life, a deeply rooted tradition set in a rural landscape. This implies that man has a significant influence on the rural landscape and promoting this concept helps to maintain certain forms of cultural landscapes.
In France, from the introduction of agriculture until the early nineteenth century, open landscapes were mainly farmlands. With the advent of industrialisation, the amount of developed land increased significantly. Today, this category of land accounts for 5.6 per cent of the total surface area of France, a strikingly low percentage compared with other European countries (such as the Netherlands and the United Kingdom). Over the last fifteen years, there has been a fall in the total agricultural land in use, mainly due to increasing urbanisation and large-scale infrastructures rather than forest areas being extended.

The overwhelming majority of French landscapes are cultural landscapes – they have been shaped by generations of inhabitants, farmers and foresters. Local traditional landscapes (such as hedgerows, grasslands, vineyards and cultivated terraces) were the result of a close relationship between small communities living off the land and the natural environment. For centuries they were characterised by a balance between the activities of these communities and the capacities of the natural environment.

There are two distinctive features of French landscapes: their size and their diversity. France has an extremely high proportion of cultivated land: 55.9 per cent of its total surface area (excluding forests). The diversity in traditional French rural landscapes can be illustrated by the fact that France produces more than 300 types of cheeses. This is a result mainly of geology and microclimates, but also of history causing further differentiating factors. The French agronomist Klatzmann has identified 480 micro-farming regions. In addition, the National Forest List has defined 309 forest regions, each one constituting "a territorial unit that generally has similar soil and climatic conditions for (forest) vegetation". The fact that this clearly defined differentiation in French landscapes has survived despite attempts under the Common Agricultural Policy to standardise production models is significant in itself and should be emphasised. The sheer size and wealth of cultural landscapes, together with the diversity linked to the traditional image of French products,
constitute a highly valuable aspect of France's national heritage.

**Landscape Policy**

Until recently, French policy was primarily geared towards the protection of natural areas and sites, drawing its inspiration from the approach adopted before the First World War towards cultural heritage (that is, historical monuments etc.). Although the late French President, François Mitterrand, declared during a visit to Mont-Saint-Michel in 1983 that "landscapes are the nation's common heritage and a matter for everyone", it was not until the early 1990s that the concern for landscapes as a distinctive element of rural areas emerged. The real turning point in French policy came in 1992 when landscape policy began to develop in earnest under the then Environment Minister Ségolène Royal. Faced with increasing rural decline and deteriorating landscape quality, she made it clear right from the start that protecting and "reconquering" (that is, restoring) landscapes was to be given high political priority. The main features of her new landscape policy included the introduction of the landscape labelling scheme in late 1992 (see below) and the drafting of a new Landscape Bill which was subsequently adopted as the Landscape Protection and Enhancement Act on 8 January 1993 (see below).

**Policy Instruments and Measures Adopted as Part of the New Landscape Policy**

In 1992, as part of the new landscape policy, the Ministry of Environment launched a series of operations aimed at protecting, restoring and enhancing landscapes. Supported by a budget of FF 14 million (increased to FF 40 million in 1993), the operations included:

- improving or redesigning the entry into certain towns and villages (such as Nîmes, Sainte-Marguerite, Niort and Rennes)
- restoring the landscape around rivers and canals (such as Dordogne, Canal du Nivernais, Saône, Meuse)
- restoring and relaying rural paths and tracks in association with the French Hiking Federation

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7 See Rapport Morin (1992), p. 3
8 Loi sur la protection et la mise en valeur des paysages
restoring parks and gardens (such as family and workers’ gardens in Ivry, Villejuif and Tulle, Jardin du Rayol)

restoring landscape structures (such as reconstituting a tree network in the Bassin de Sorgues to replace plane trees that were struck by disease).

The Landscape Labelling Scheme

An integral part of recent French landscape policy has been the landscape labelling scheme introduced with the purpose of restoring and maintaining landscapes. In February 1993, a hundred different landscapes were officially awarded the label "restored landscape" for a four-year period following a selection process by a seventeen-member jury. The sites were selected on the basis of two criteria: the outstanding value of the site in relation to its history and the fact that the site supports traditional economic activities.

Under the labelling scheme, there are no technical specifications or statutory protection requirements to be complied with. It is primarily intended as an incentive scheme and operates on a voluntary basis as a complementary tool to the existing legislation in force. It has a symbolic value and follows the logic of acknowledging man’s efforts made to preserve and enhance rural landscapes (as opposed to destroying them) by developing, maintaining or recreating traditional local economic activities (such as vineyards, cherry orchards, pasture lands), thereby improving both the quality of the products and the landscape. Clearly, cultural landscapes are considered as living, dynamic, active entities, not to be frozen in time merely for protection purposes.

The Ministry of Environment has provided financial aid up to FF 150,000 for each site to encourage efforts to strengthen the link between product quality and landscape quality. The restored landscapes selected for inclusion in the scheme bear witness to the diversity of landscapes in France. Each one selected is founded on local geographical and cultural features, linked to the activities and history of the area. The landscapes constitute an important asset for developing the local economy in harmony with the landscape. Some support
economic activities that have existed for centuries. For example, salt has been extracted for over a thousand years in Guérande; the vineyards in the Côte d’Or region were first planted in the Middle Ages. Others are more recent, such as the terraces of Beaumes de Venise. Typical examples of cultural landscapes included in the scheme involve:

- **Restoring former pear orchards and creating new ones in Domfrontais, Lower Normandy.** The standard pear trees are planted in grasslands bounded by hedgerows. This cultural landscape dates back to the end of the eighteenth century and supports the traditional activity of cider production.

- **Supporting sheep farmers in the Grands Causses de Lozère in Languedoc-Roussillon, southern France.** The work involves installing fences and water points, developing sylvo-pastoralism (pruning, planting hedges), restoring farm buildings and integrating modern sheep pens into the landscape, and, lastly, selling and promoting products derived from sheep farming. The wide-open, undulating lunar-like landscape is unique in Europe.

- **Supporting cherry and grape producers in the Val de Nesque (Provence) in their efforts to improve their cultivation methods and plant resources, by adopting new varieties of cherries that are suitable for the different altitudes and that cover the different production periods, irrigating the crops, thinning-out leaves and staking up the vines, as well as renewing the cherry orchards (6 per cent per year).** The relief of this landscape (slopes, combs, plateaus) was fashioned by man for cultivation purposes.

In short, each of the hundred examples constitutes historical and geographical landmarks indicating that the diversity of French cultural landscapes stems from this blend of cultures.

The Landscape Labelling Scheme has now officially ended after running since 1992. So far, there are no plans to renew it.
Policy Instruments Adopted or Amended Under the Landscape Protection and Enhancement Act 1993

The 1993 Landscape Protection and Enhancement Act established a broad framework for implementing the new landscape policy under which new instruments were created and existing ones amended to support the new policy. The main developments are as follows:

**Landscape Protection and Enhancement Directives**

Under the 1993 Act, an important instrument for landscape management was instituted: landscape protection and enhancement directives. In fact, this was the first instrument introduced that specifically dealt with landscapes. The Ministry of Environment may issue such a directive for outstanding landscapes on account of their unity and coherence, of their importance for heritage or as examples of a way of life, a habitat or industrial, craft, farming and forestry activities and traditions. The decision to implement such a directive lies with the Ministry but the initiative may come from local authorities. A document setting out guidelines and principles together with a set of recommendations form the basis of the directive. Before the instrument is adopted in the form of a decree, it is subject to an extensive consultation procedure involving all the actors concerned (representatives of the Ministry, local authorities, NGOs and professional bodies) with a view to reaching consensus.

The aim of landscape directives is neither systematically to protect the whole area concerned (as is the case with the classified site system), nor to aid decision-making in the planning process, but rather to selectively preserve and enhance the structures that constitute landscape quality: (i) elements that are part of a coherent system, that is, hedgerows, cultivated terraces, paths, rows of trees and low walls or (ii) isolated elements, such as trees or natural monuments.

10 **Directive de protection et de mise en valeur des paysages**

11 These guidelines and principles are binding in that they are directly applicable to local planning documents.

12 To date, however, only two directives have been adopted: for the Alpilles region (southern France) and the Côte de Meuse in Lorraine (eastern France).

**Planning Permission**

Under the 1993 Landscape Act, applications for planning permission must meet the requirements laid down in local land-use plans and include a section on landscape,
specifying (by means of graphical documents and photographs) how the proposed building(s) will fit in with the surrounding area and what its visual impact will be.

**Land-Use Plans**

Also under the 1993 Landscape Act, local land-use plans have to take into account landscape preservation and management. The plans have to identify the landscape elements to be monitored (such as hedgerows, terraces and surface water systems).

**Area Development Plans**

Again under the 1993 Landscape Act, area development plans are required to specify measures adopted to preserve landscape quality.

**Architectural, Urban and Landscape Heritage Protection Areas**

This instrument is particularly suited for rural areas. The 1993 Landscape Act extended the scope of this instrument to include landscapes. The initiative for the protection area comes from local authorities; it is established and its perimeter is defined by means of an order issued by the Regional Prefect in agreement with the local authorities. Accompanying regulations are also adopted, laying down requirements applicable within the area. The aim of this instrument is not only to identify and protect such areas, but also to enhance them. Specifically, it enables local authorities to identify what constitutes their heritage and landscapes over the whole of their territory (including landscapes and sites, scrubland, wooded areas and paths).

**Regional Nature Parks**

Under the 1993 Act, the role of Regional Nature Parks in landscape protection was strengthened. In France, there are currently 30 such parks whose main aims are to:

- protect the environment by suitable management of natural areas and landscapes
- contribute to economic, social and cultural development and to the quality of life in the area covered by the park
- educate and inform the public.

A special Charter (drafted and subsequently approved by the regional authorities following consultation with the local
The Charter sets out the general protection, enhancement and development policy together with specific measures to be adopted to implement this policy. In particular, it establishes the fundamental principles for protecting landscape structures on the land within the park's boundaries. The different zones in which the policy and measures defined are to be implemented are demarcated in a map attached to the Charter.

As a result of the amendment introduced by the 1993 Act, local land-use plans now have to be compatible with the general policy and the measures set out in the 30 Regional Nature Park Charters.

The concept of land consolidation dates back in France to the eighteenth century, but it began in earnest during the First World War. The Napoleonic Code had made it compulsory for property to be split up among all heirs. In some regions, each field was divided and the resulting new property limits were demarcated with hedgerows. As Baudry and Burel have pointed out, this created an excessively fine-grained landscape with traditionally small fields and scattered rural properties, unsuitable for modern agriculture. Indeed, any two fields belonging to the same owner or used by the same farmer could be as much as five kilometres apart. This prompted new landscape planning.

The current land consolidation procedure stems from legislation passed in the 1940s with the aim of improving farmers' working conditions and promoting modern agriculture and the use of large machinery. Until recently, land consolidation was only carried out with the purpose of improving agricultural activities by creating farms operated by one owner or occupier and by grouping together the scattered strips of farmland. The direct consequence was an improvement of the field patterns and an increase in the area of cultivated land. Since 1950, almost fourteen million hectares of land have been consolidated, the annual average now being around 300,000 hectares. Amid growing public reaction
to declining landscape quality, criticism of this production-oriented policy rose significantly, particularly since non-agricultural elements in rural areas (particularly hedgerows, isolated trees, heathland and fallow land) have often been destroyed in the process.

Under the 1993 Landscape Act, the bodies that are responsible for land consolidation operations (the local land development commissions20), now have the power to decide, during such operations, that elements of interest for natural balances may be restored, created or recreated, planted or replanted and enhanced. These include hedgerows, rows of trees, embankments, ditches and banks. Consequently, some of the vital elements that structure landscapes are henceforth to be taken into account in land consolidation operations.

Other Relevant Policy Instruments and Measures Adopted
A number of other instruments concerning landscapes have been adopted but they do not fit into any pre-defined broad framework on landscape policy. Rather, they are isolated and essentially unrelated measures. However, as they aim to enhance or preserve landscape quality, it is considered appropriate to mention them here.

Landscape Plans
Landscape plans are concluded on a contractual basis21 and jointly implemented by the State and the local authorities concerned. Initiative has to come from the latter. Following a landscape assessment, a plan is drawn up (i) setting general protection and enhancement objectives for landscape and (ii) laying down a landscape action programme (comprising regulatory, operational and educational aspects). The action programme may be implemented in the form of a landscape contract (see below). The plan is intended as a reference document enabling the landscape dimension to be taken into account in the planning process, thereby improving landscape management. The approach is based on partnership: a consultation procedure involving the different actors concerned by the landscape in question is held with a view to obtaining consensus on the objectives and the contents of the plan. So far, four experimental landscape plans have been initiated by

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20 Commissions communales d’aménagement foncier, which are composed of landowners and farmers from the municipality, assisted by a planner.

the Ministry of Transport, Infrastructure and Tourism, such as for Decize-la-Machine along the river Loire and Belle-Ile-en-Mer.

**Landscape Contracts**

Again, landscape contracts are concluded on a contractual basis. Following a landscape assessment, a comprehensive project defining strategic guidelines and a short- and medium-term landscape action programme is drawn up. This project may be included as part of a landscape plan. Implementing a landscape contract requires accurate technical monitoring. In some cases, the Ministry of Environment provides financial aid to conduct preliminary research work prior to the contract being signed. It may also co-finance certain actions within the programme if they are of an innovative and exemplary nature. The measures defined by the landscape contract may be directed at actions such as restoring or enhancing rural architecture, vegetation and burying overhead powerlines.

**Sustainable Development Plans**

The concept of sustainable development plans was first introduced in 1992. They were devised as a kind of "accompanying measure" to be implemented on a voluntary basis, following the EU Common Agricultural Policy reform. Their aim is to organise production systems in such a way that the economic viability of farming activities, conservation of the natural environment and land management are compatible and coherent with one another. The plans were developed largely in response to changing social demands made on agriculture: increased interest in product quality (including organic produce), landscape quality, nature conservation, improved site management and maintenance and improved services in rural areas.

The plans are intended as a transitional tool allowing farmers to acquire and master skills required to refocus their activities towards less intensive and more environmentally sound farming practices, either within a purely agricultural perspective (a shift towards production with higher added value) or with a view to on-site economic diversification (farm visits, transforming products, tree-planting, direct sale, services etc.). In the plans, landscape quality is therefore to be taken into
account within the economic dynamics of the farm. The optimum duration of the plans is ten years.

This new approach is currently being put to the test through a nationwide feasibility study organised by the Ministry of Agriculture and involving 1,200 farmers in 59 different areas. The purpose of this experimental scheme\(^2\) is to explore possible ways of adapting farming systems to the requirements of sustainable development. The farming system as a whole is analysed in relation to its surrounding environment. The adaptation process proposed will be in accordance with the local opportunities and constraints of each site. Lastly, it is important to emphasise the triple function assigned to farmers in this approach: they are responsible not only for product quality (economic function), but also for proper land management and landscape quality (ecological function). Further, as the primary actors in rural areas, they are closely involved in the dynamics of developments at local level (social function). Initial results of the scheme are positive and the proportion of farmers having accepted to take part in the scheme is considerably higher than originally anticipated. When full evaluation of the results is completed, the scheme will be further extended.

**Economic Instruments**

A number of economic instruments have been adopted with regard to landscapes but, again, they are not part of any pre-defined policy framework. Rather, they are merely isolated measures. However, as their overall aim is to contribute to enhancing or preserving landscape quality, it was considered appropriate to mention them here.

Established in 1995, the Management Fund for Rural Areas\(^5\) is a new tool to provide financial support to public-interest schemes aimed at maintaining or restoring rural areas, such as abandoned agricultural land, natural elements of rural landscapes, particularly with the purpose of conserving biodiversity or landscape diversity in areas where inadequate upkeep is likely to bring about natural risks. The Fund may be used for a number of purposes such as:
to manage abandoned farmland

to manage sensitive areas or fragile ecosystems (such as wetlands), to restore and maintain hedgerow networks, to maintain natural elements that may help farm buildings fit into the surrounding landscape

to maintain natural elements of specific interest for rural landscapes that are not used for economic purposes (such as former traditional orchards)

to prevent fires by maintaining firebreaks by grazing

to replant vegetation cover (mainly grasslands) in areas prone to erosion.

Some 90 per cent of the Fund is distributed between the different départements of France, excluding the four comprising the Paris area. The Fund has been operational since mid-1995 and FF 350 million have been set aside for this purpose. It was created in response to a proposal made by farmers’ organisations. Farmers themselves are the main economic agents who benefit from the Fund. Financial aid is granted to farmers for schemes that are selected by the département agricultural authorities. An agreement is concluded between the farmer in charge of operating the scheme and the Prefect of the département concerned. An upper limit of 80 per cent of the total cost of the scheme has been set for the amount of financial aid granted.

This financial instrument, created in 1993, can be used to provide funding to plant hedgerows and build footpaths or restore sites.

Until 1995, State subsidies in the form of forest investment aid were restricted to forests. In 1995, the scope of this instrument was extended to apply to hedgerows, rows of trees and wooded corridors. In order to qualify for the direct aid, the area concerned must be covered by a Prefectoral Protection Order (that is, afforded legal protection) and amount to a minimum surface area of 500 square metres. The species must be standard, woody species and they must be suitable for the climate of the specific area concerned.
Two types of financial aid are available:

- aid to plant and maintain formations that comprise tree storeys
- aid to replant formations that have deteriorated.

In both cases, the aid granted amounts to 20–50 per cent of the total cost. The beneficiary must also undertake to monitor the plantation for a period of fifteen years.

Equally importantly, the 1995 legislation established an official, legal definition of hedgerows, rows of trees and wooded corridors for the first time. Previously, they had been considered as part of the whole area of land with no specific legal identity of their own. This important measure will facilitate the adoption of mechanisms at local level to maintain and protect these vital landscape elements.

Case Study: Hedgerows in Western France

Background
In France, hedgerow landscapes constitute a significant, widespread and, above all, valuable example of cultural landscape. Research has shown that differences in the structure of individual hedgerows as well as in the overall spatial pattern of hedgerow networks are striking in France.29 When they constitute part of a network, hedgerows offer a remarkable richness in pattern and consequent function. As elsewhere in western Europe, hedgerows originated primarily from human planting or as remnants of formerly forested land. The landscapes of certain parts of France (such as Brittany in western France) are characterised by hedgerows that may date as far back as prehistoric periods.30 It is thought that the majority of hedgerow landscapes began to emerge from the seventeenth century onwards.

Landscape history has been a succession of periods when hedgerows have been planted and removed. The main period during which hedgerows were established spanned from 1840 to 1914 as a result of the cultivation of common moorland. The hedgerow network reached its highest density at this time.

29 See Baudry & Burel (1984)
30 See Giot et al. (1979)
More recently, since the 1950s, more intensive farming practices (particularly the use of larger, more powerful machines and higher inputs of fertilisers and pesticides) and the enlargement of farms (mainly by conversion of permanent grassland into cultivated land) have resulted in sweeping changes in agricultural landscapes. Hedgerows (and, to a certain extent, woodlands) were considered useless or inconvenient by farmers seeking to use modern machinery. Furthermore, farmers believed that hedgerows tarnished their image as "modern" farmers since they were closely linked to "peasant farming". This led to their removal, either by individual farmers or within local land consolidation operations, primarily because these landscape elements no longer constituted property boundaries and in order to maximise the resulting area available for farming. The planners did not take hedgerows into account in landscapes affected by these land consolidation operations. The consequences of these drastic and rapid landscape changes were soil erosion, wind damage to crops and buildings, an increase in flooding and problems related to crop diseases.

Other factors having contributed to the decline of hedgerows and isolated trees are (i) the spread of diseases (such as in the 1970s when elm disease led to rapid destruction of this particular species, which has often been used for isolated plantations, to line farmyards, as rows of trees and as hedgerows) and (ii) inadequate training of farmers (and the lack of awareness of rural populations in general) with regard to the role that hedgerows play in landscape ecology and the importance of maintaining them. This situation has arisen partly owing to the fact that the traditional knowledge and expertise were not passed on from one generation to another in a rapidly changing farming context.

The following figures covering the period 1982 to 1990 illustrate the constant decline in the surface area covered by hedgerows and isolated trees at national level:
Decline in hedgerows and isolated trees
1982–1990 (in ha)

<table>
<thead>
<tr>
<th></th>
<th>1982</th>
<th>1986</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated trees</td>
<td>437,000</td>
<td>396,000</td>
<td>340,000</td>
</tr>
<tr>
<td>Hedgerows</td>
<td>376,000</td>
<td>371,000</td>
<td>359,000</td>
</tr>
</tbody>
</table>

Source: SCEES, Ministry of Agriculture

Today, in France as a whole, hedgerows, fallow land, heathland and rural paths account for 5.6 per cent of the total surface area. In Brittany, it is estimated that some 200,000 kilometres (that is, 300,000 hectares) of hedgerows have disappeared since 1945. In 1990, there remained around 170,000 hectares of hedgerows in the four départements making up this region. Some 40 per cent of hedgerows thus disappeared in the space of 45 years. As a result, hedgerows are now among the most threatened agricultural (and thus cultural) landscapes in France (and western Europe in general).

31 See Institut Français de l’Environnement (1994)
32 See Rapport Morin (1992)
The Ecological, Economic and Agronomic Role of Hedgerows

As early as 1964, information was published in Brittany on the ecological role of hedgerows, embankments and ditches. Prompted by the serious ecological consequences of large-scale hedgerow removal from landscapes coupled with growing public reaction to the changing face of landscape aesthetics, the Ministries of Agriculture and Environment joined forces in the 1970s to encourage the National Agronomic Research Institute, the National Scientific Research Centre, the ENSA and the University of Rennes to initiate an extensive, multidisciplinary research programme on the ecology, economy and history of hedgerow landscapes. The research was carried out, mainly at the site level, with only a few of the results being applicable at landscape level. In 1976, a symposium was held to review research work undertaken. The results were used as a basis to guide environmental impact assessments that, under a requirement subsequently introduced on 1 January 1978, were to be conducted by ecologists prior to each land consolidation operation. This measure provides planners (landscape designers) with a scientific basis to maintain and preserve certain existing landscape elements that fulfil vital ecological functions (including hedgerows). In addition, the Institute for Forestry Development developed a methodology for planting and managing hedgerows, mainly with a view to using them for windbreaks.

As Burel and Baudry have ascertained, the results of this early research identified three distinct ecological functions of hedgerows:

- **Control of soil erosion.** In Brittany, hedgerows and associated ditches play a major buffering role in water and soil protection, particularly in controlling water flow (that is, both by facilitating drainage of the strips of land and by conserving water). At the field level, they prevent or control fluxes and at the landscape level, the sets of connected elements control the flow by alternately concentrating and channelling the water all over the watersheds. Appropriate agricultural practices alone are insufficient to ensure soil protection and to prevent sheet erosion. This protection
must be part of the landscape planning process.

- **The windbreak effect and change in field microclimate.** The windbreak effect of a hedgerow (that is, reducing evapotranspiration of vegetation) extends a considerable distance downwind (8–10 times hedgerow height) and, in the case of small fields bounded by hedgerows, the microclimate is divided into different zones. Hedgerows have the effect of protecting the microclimate of the land. The spatial pattern of precipitation input is similar to that for windspeed.

- **A habitat for wildlife (flora and fauna).** In hedgerows there is a high diversity of fauna owing to micro-habitat heterogeneity (trunks, stones, ditches), complexity of vertical vegetation structure (number of layers, plant species present, pruning regimes) and the diversity of host plants that are characteristic of old hedgerows. Fauna and flora are not specific, but consist of a mixture of species derived from different environments, particularly forests. Thus, hedgerows play a significant role in controlling and enhancing the biodiversity of such landscapes.

For the various animal species that spend part or all of their life cycle in hedgerows, the hedgerow may be considered as fulfilling one of four functions: (i) a habitat for those that are restricted to it, (ii) temporary shelter for those that feed or spend part of their life in nearby fields, (iii) a complementary feeding area for many insects that usually feed on crops and whose fertility rate depends on nectar found on hedgerow flowers or (iv) a reservoir for propagules. Hedgerows influence the spatial distribution of insects in adjacent fields, both because they shelter diverse species and because they influence field microclimate. In addition, the hedgerow's ecological function as a temporary shelter for fauna may have indirect agronomic effects by helping to limit the need to apply pesticides for pest control.

Further in-depth research conducted in Brittany during the 1980s showed that hedgerows are important as corridors for...
the movement of species and species survival in agricultural landscapes. Especially important are parallel hedgerows bordering lanes where micro-climate conditions (such as humidity, shade and wind speed) are similar to those of forests. A connected network can enhance many ecological functions within a landscape. Lastly, hedgerows shield farm buildings, not only against the wind but also against the sun (shadow effect).

As an integral part of farming systems, hedgerows and hedge-row networks have fulfilled four major economic functions (and still do). They may constitute a source of considerable, additional income for farmers through:

- **Firewood production.** In many regions of France (particularly western France where there are few natural woodlands), hedgerows are a source of wood. In the past, trees were pruned to produce firewood used to heat houses. Firewood production from coppiced or pollarded trees is three to eight tonnes of dry weight for each hundred metres of hedgerow harvested every nine years. Today, this wood is chipped, used as fuel in central heating systems or sold for burning in fireplaces.

- **Fruit production.** Fruits can be harvested from some hedge-row species, such as nuts, chestnuts and sloe berries.

- **Production of stakes and posts.** Stakes and posts may be produced for fencing purposes.

- **Timber production.** The wooded part of a hedgerow may be composed of precious broad-leaved trees, such as walnut, ash, maple, wild cherry and beech.

Hedgerows also fulfil an important agronomic function: for a number of years, research has shown that the decline in yields caused by the loss of agricultural land in use, the shadows cast and the immediate root competition for space is more than compensated by an increase in yield, in particular due to reduced soil and wind erosion. This is true for the whole of the land bounded by the hedgerows (that is, several hundred metres).
Considerable historic and cultural values are attached to hedgerows, and their significant decline over the last 45 years or so is considered as a threat. The historic and cultural values are related to their diversity of structure resulting from past uses and legal constraints and from the mosaic of field and network patterns. As stated above, property rights have determined field patterns (the Napoleonic Code and changes in inheritance rights had dramatic effects on landscapes) and tree rights (such as branches for the tenant, trunk for the owner). At times, the farming systems and associated techniques led to hedgerows being planted (such as for land enclosure and property boundary purposes) and, at other times, to their being removed (land consolidation operations). Furthermore, research has shown that field and network patterns have also been determined by the different forms of land appropriation in the past. Large isolated farms are usually associated with large fields surrounded by hedgerows composed of timber trees. Small farms grouped into villages are often associated with small fields and hedgerows are made up of pollarded trees.

Finally, hedgerows fulfil a visual or aesthetic function but, to date, little research has been devoted to this important aspect despite the fact that it is undoubtedly the major source of public reaction to changing hedgerow landscapes. Aesthetic aspects, however, are rarely assessed in the planning process for land consolidation operations.

In the 1980s, the concept of landscape ecology emerged, which had the effect of reviving the problems concerning hedgerows and giving fresh impetus to research on the subject in France and elsewhere. Strong concern has developed among conservationists, landscape ecologists and the public to maintain hedgerows as a framework for landscape sustainability.

In July 1991, the Ministry of Environment and the Institute for Forestry Development organised a seminar to review existing knowledge and identify new directions in which to focus research. This led to an extensive new research programme
being launched on the contribution of hedgerows, rows of trees and wooded stream or river corridors to new forms of rural landscape planning. The results of the programme are to be used as a decision-making tool for planners and managers. In February 1993, nine research teams were selected to conduct an interdisciplinary research programme in two regions: the Armorique Massif (Brittany) and southeast France (Provence and the Alps) on the landscape, agricultural, ecological and social organisation of hedgerows, rows of trees and wooded stream or river corridors. The aim is not only to compare the structure of hedgerows, hedgerow landscapes and landscapes in general, but also to ascertain agronomic, ecological and social processes from observations made, mainly based on ecological data and management methods. The research has yielded some intermediate results, but the programme is still underway and final results are expected in late 1996.

**Lessons Learned from Experience Gained in Landscape Management**

Until the late 1980s, there were two distinct approaches to landscapes in France:

- On land used for agricultural purposes, the emphasis was on intensifying production – in line with the Common Agricultural Policy. In the 1960s and 1970s particularly, the underlying principle was "tabula rasa" on farmland, that is, to remove all traces from the past to optimise production.

- On land that was considered of outstanding ecological value, the policy was to protect it by means of legislative measures (such as national or regional parks).

In other words, landscapes were considered to fulfil one of two functions: either agriculture or nature conservation. There was no "in-between" approach. The conservation approach was suitable for some landscapes but could not realistically be applied to the vast majority of cultural landscapes. Meanwhile, for the previous three decades or so, agriculture had largely been focusing on intensifying production, with the concept of landscape quality rarely being taken into account. Consequently,
intensified farming was having serious, detrimental effects on landscape quality.

In the late 1980s, policy-makers, landscape planners and conservationists came to realise that cultural landscapes are living landscapes underpinned by dynamic processes and that landscape policy cannot be confined to protecting sensitive sites that constitute no more than fifteen per cent of France's total surface area. There was a definite shift from the conception of conserving natural monuments by "freezing" them in time towards a wider approach encompassing typical rural landscapes that carry a strong local identity (particularly terraces and hedgerows). Policy-makers understood that what was needed was dynamic and global management of landscapes. Ways began to be sought to reconcile landscape conservation with economic development in line with the principle of sustainability. In the early 1990s, as a result of the reform of the Common Agricultural Policy, landscape policy was given new impetus: the role of agriculture in landscape management was finally recognised. Given that farmers and foresters are the main actors involved in management of rural areas in France (over 90 per cent of France's total surface area), it was logical to extend their functions by directly involving them in maintaining, conserving and managing landscapes.

In addition, the global socio-economic context has changed and the hitherto prevailing logic of intensifying production is no longer valid. Rural landscapes are changing from an almost sole function of agricultural production towards multiple functions: nature conservation, environmental protection, amenities, "green" tourism, recreation, cultural interest (such as monuments) etc. The conservation and maintenance of landscape elements is therefore now of greater importance. Landscape quality and landscape diversity are key assets for economic development, particularly tourism in rural areas that are facing a decline in farming activities. Furthermore, the historic (that is, heritage) value of landscapes – largely overlooked during the 1960s and 1970s – also began to take on importance, particularly the vital role played by landscapes in forging man's cultural and architectural identity.
Conclusion

Although the concept of cultural landscapes is recent and by no means widespread in France, there have been a number of significant policy developments since 1992 that aim at improving landscape quality. Faced with the increasing deterioration of landscapes, the government developed a clearly defined landscape policy in 1992 that was based on a twofold approach: legislative and voluntary.

After more than three decades of neglecting the importance of certain key elements that contribute to the diversity of French landscapes, action is now focusing on maintaining, enhancing and preserving them, such as the case of hedgerow landscapes. In addition, cultural landscapes supporting economic activities that take landscape quality into account are being promoted, thereby revitalising rural areas that might otherwise have fallen victim to decline. The strong link that typically exists in France between product quality and landscape quality facilitates this approach. Under the new legislation, the notion of landscape quality also has to be integrated into the planning process. Furthermore, efforts are being made to reconcile the need for viable farming activities, landscape conservation and land management – three activities that, in the past, more often than not came into considerable conflict with one another. The possibility now exists for farmers to play a greater role in landscape management and thus improving landscape quality.

Despite the fact that there are no formal, official policy documents on the subject of cultural landscapes, the concept has been familiar to scientists for a number of years. Extensive research has been undertaken on the importance of certain types of cultural landscapes, particularly hedgerows and the results have provided valuable information for shaping policy.

Looking ahead, the range of legal and financial instruments established since the advent of the new landscape policy in 1992 should have a beneficial effect in the medium term on cultural landscapes in general and, particularly, on hedgerows and their conservation. However, the somewhat incoherent and isolated nature of some of the measures may hinder rather than
enhance progress in landscape quality. Whatever the case, close monitoring of the impact of these measures on the ground is vital in order to assess whether they are suitable and effective or whether they need to be adapted further to meet local requirements. So far, no overall assessment of the new policy implemented has been conducted. It is therefore difficult and also too early to judge whether the recent measures are achieving the desired results and effects in the field, that is, providing a positive contribution to improving and enhancing landscape quality.

The challenge that now lies ahead for policy-makers, conservationists, landscape planners and farmers alike is to build on the foundations that have been laid for sustainable development of landscapes in order to ensure that the often irreparable damage of the past is not repeated.

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3 GERMANY

Introduction

The conservation of cultural landscapes has become a growing matter of public concern in Germany. Although the term "cultural landscape" is increasingly used in the debate on landscape issues such as agriculture, nature conservation, forestry, land-use planning, tourism and rural development, there is little consensus on the meaning of the term and on the characteristics of a cultural landscape.

The semantic roots of the term "cultural landscape" can be found in the Latin verb *colere* (to maintain carefully, to cultivate, to nurse, to venerate, to adorn), "land" and the Germanic verb *scapjan* (to work, to be busy, to do something creative), which became *saffen* in German and "to shape" in English (Haber, 1995). In contrast to the natural landscapes resulting from physical processes, cultural landscapes stress the significance of human activities and their interrelation with the natural environment for landscape development and preservation. The importance of this interrelationship has often been neglected in earlier conceptions of landscapes.

Cultural landscapes are subject to a dynamic process and are therefore in constant change. This process takes place at various rates. Protecting traditional cultural landscapes therefore includes the fundamental problem of the static character of conservation measures on the one hand, and the dynamic processes of landscape development or evolution on the other side (Haber, 1995).

Most often, cultural landscapes are perceived as "a thing of the past, something that we discover when it is too late, when we can barely decipher the last traces of what a part of countryside used to be like" (Burckhard, 1994). There is hardly any discussion on the future development of cultural landscapes.
The elements characterising historical cultural landscapes include, according to Gunzelmann (1987), a polymorphic appearance, an evolitional diversity, a multitude of functions of landscape elements and close regional socio-economic interrelations.

The former Federal Research Agency for Nature Conservation and Landscape Ecology defined the term "historic cultural landscapes" as "landscape which is characterised by elements and spatial structures which are still visible today and which reflect traditional farming activities" (Weber, 1992). In this definition, cultural landscapes are confined to agricultural landscapes.

In this chapter, the landscapes in Germany are roughly characterised and their changes in structure, environmental quality and farming structure as the main driving force are described. There then follows brief reviews of policy instruments and regional measures for landscape conservation and a case study on old orchards. Lastly, some conclusions are drawn for the conservation of German cultural landscapes.

Cultural Landscapes in Germany Germany's regions can be divided into four main naturally occurring units – the mid-European lowlands, the highlands, the south German Schichtstufenland and the alpine region (Figure 3.1). As a result of the extraordinary diversity of the geographical areas that occur especially in southwestern Germany over very short distances, a large variety of cultural landscape types has developed. In addition to the natural diversity, there also exists a striking contrast in farming structures, resulting mainly from historical influences or various forms of inheritance. In the mid-European lowlands of northern Germany, large farm holdings predominate and result in a corresponding division of the fields and a high level of specialisation, which in turn shapes the architecture of the landscape. Along the coastal regions of the north German lowlands and along the main river valleys, grazing lands predominate, featuring landscape elements such as hedges and pools. The region is characterised by milk-production and large
numbers of beef cattle and dairy cows. Regions with intensive arable farming, which have always consisted of more open landscapes, exist in the middle of Germany, for example in the region with fertile soils near Hildesheim and Magdeburg (*Bördelandschaften*). Between these two extremes are many regions of mixed farming in which tillage sometimes predominates and at other times pastureland.

Figure 3.1. *Formation and demarcation of German landscapes*

1-16 North German lowlands  
17-35 Central European highlands  
36-49 South German *Schichtstufenland*  
50-55 Alps and alpine forelands

Source: Jedicke & Jedicke (1992)
Both the highlands and the south German *Schichtstufenland* are characterised by a large variety of different small geographical units. Here one finds so-called favourable areas (such as Oberrhein-Untermain-Senke), which are dominated by the production of cereals, root crops, vegetables and wine – that is to say, intensive farming. Many less-favoured areas, especially higherlying grounds with an unfavourable climate, areas with a high percentage of steep slopes and soils with below average fertility are even to this day only extensively farmed (Eifel, Rhön, Schwarzwald, Thüringer Wald and Schiefergebirge). The highlands and the southern German *Schichtstufenland* are comprised of a mosaic of small cultivated areas resulting from the high diversity of natural conditions. For example, viticulture predominates on steep slopes with favourable climatic conditions, dry grasslands evolved through sheep grazing on steep slopes, plateaus were dominated by arable farming and hedgerow landscapes with various forms developed. These different forms of land use were subdivided by field margins of hedges, fences, ditches, walls or grassland strips and trees. In the Alps and the Alpine forelands, the abundance of permanent grassland is the most important factor in the shaping of the landscape. Whereas in the latter intensive milk production dominates (with year-round housing of the cattle and meadows cut three or more times a year and, in some cases, exceptionally high stocking densities), in the Alps a more extensive form of pastureland farming prevails.

**Changes in Cultural Landscapes**

Until the nineteenth century, technical limitations ensured that agricultural practices had to adapt to the conditions at hand (soils, climate, water availability etc.). It is in this adaptation of human activities to natural conditions that one sees the typical features of a particular landscape. However, since the beginning of this century, especially since the Second World War, technological advances have contributed to a far-reaching transformation of the landscape through efforts to maximise agricultural output. This has had a corresponding impact on the structure of the landscape, hydrological balances, *lebensraum*, flora, fauna and the appearance of the landscape.
Changes in Landscape Structure

Cultural landscapes are subjected to a dynamic process of continuous change. The rate of change, however, has speeded up over the past decades. Land consolidation, which was introduced by the state in the period 1945–1982 on two-thirds of all German agricultural land (Rat von Sachverständigen für Umweltfragen, 1992) and the enlargement of farms has led to an increase in the size of fields. The fundamental reorganisation of the land in response to higher levels of mechanisation has led to the removal of many field boundaries, hedgerows, shrubs and tree-lined and the loss of traditional cultural landscapes. In addition, the previous distinctions that existed between the different cultural landscapes have disappeared unnoticed and undocumented through, for example, the filling in of hollows and ponds.

Besides this, the so-called buffer zones do not exist in modern field structures, whereby the different semi-natural habitats have sharp boundaries: intensive pastureland borders direct on moorland; arable areas adjoin forests. The continuous gradients from one type of ecosystem to another, which is characteristic of traditional cultural landscapes, do not exist any more.

In many areas in the highlands and the Alps where the land was too wet, dry, steep or infertile, extensive farming methods created habitats which are of great interest for nature conservation today. These areas could often not be improved sufficiently to permit economically competitive agriculture, with the result that farming was abandoned and the areas have been turned over to forestry. Afforestation in these regions – where much woodland already existed – has led to a further loss in the diversity of the cultural landscape.

With regard to agricultural structures, small holdings are more predominant in the south of Germany. Accordingly, one finds here, in contrast to the northern states, a higher percentage of part-time farmers.
Farming as the Main Driving Force

Farming activities represent the main direct driving force for landscape change. Ganzert (1995) has analysed the traditional landscapes in regard to their farming systems. These are characterised by low material and energy input and by a high diversity in product output. Typically, nutrient flows show a high temporal and spatial diversity and land-use measures have adjusted, often in a very complex way, to the manifold needs of farming systems.

Over the past 40 years, farming structures have fundamentally changed (Priebe, 1988). Until the middle of the twentieth century, manpower and the tractive force of animals were the only energy sources used in farming (Ganzert & Pfadenhauer, 1994). As a result of mechanisation, the percentage of human and animal labour declined from a figure of 80 per cent in the 1930s to 4–5 per cent in the mid-1970s (Priebe, 1988). From 1950 to 1990 about one million holdings disappeared; only 38 per cent of the holdings from 1950 have survived (Thiede, 1992). The drastic reduction in manpower and at the same time the increase of the size of farm holdings has resulted in a disintegration and in the loss of the typical character of the landscape, since the labour-intensive operations closely adapted to local conditions were abandoned in favour of more mechanised and generally practised forms of agriculture (Seiffert et al., 1994). This led to a certain standardisation of land use and a greater separation of arable from livestock farming.

The maximisation of agricultural production was the overriding goal of these changes. Other objectives, such as preserving the functional capability and efficiency of ecosystems, the conservation of flora and fauna and maintaining the diversity, character and beauty of the landscape have been neglected.

Environmental Effects

The changes in the use of agricultural land together with the physical modifications have caused serious environmental problems in cultural landscapes. Interventions in the water balance (the canalisation of streams, large-scale drainage of
wetlands etc.) and changes affecting the nutrient balance through heavy applications of fertilisers have resulted in an increase in material and energy flows. Moreover, parts of the landscape, such as moorlands where water retention and accumulation occur naturally, became sources of transportable materials. The retentive capacity of these sources of natural materials (lakes, moors) as well as their capability of providing a natural buffer zone for material flows have been overstretched by the huge volume of transported materials. This has led to the eutrophication of soils, water and habitats. The disruption of the rural water balance has also caused an increase in the frequency and extent of flooding, which in recent years has caused extensive damage in Germany. In regions where there has been a very strong growth in livestock densities, high levels of nutrient emissions are contaminating groundwater and disrupting ecosystems.

The increasing uniformity of habitat conditions has resulted in a reduction of wildlife diversity. At the very top of the list of endangered species in Germany are those species that can only tolerate very limited changes in their environment. While these species are disappearing, those that are more capable of adapting to the new or dynamic conditions are thriving. The visible evidence of all these processes can be seen in the disintegration and the reduction in diversity of cultural landscapes.

Management and Protection of Cultural Landscapes

Holistic landscape issues have a long history in Germany, and can be traced back to the beginning of the nineteenth century. Then, however, the orientation of landscape development differed clearly from today. Associations for landscape improvement played a prominent role in landscape policy, stressing the design of landscapes by cultivation, gardening and colonisation as a contrast to the "uncultivated and unattractive wilderness". In the second half of the nineteenth century, by which time natural landscapes had been substantially changed, many associations for the preservation of landscapes were established. They were closely related to the nature conservation movement and also to associations for the preservation of regional traditions.
The first Nature Conservation Act was established in 1935, although the protection of landscapes inferred natural landscapes. Today, landscape management and protection is still closely related to the nature conservation movement. However, the main focus has shifted from natural to cultural landscapes.

The main means of conserving and managing landscapes are through the instruments of nature conservation legislation, complemented in recent years by management agreements and landscape-based rural initiatives for the protection of cultural landscapes, which are partly supported by rural development policies.

**Nature Conservation Legislation**

According to the German Nature Conservation Act "the diversity, the characteristics and the beauty of nature and landscape should be protected". In 1980 the Act was supplemented with the principle that "historical cultural landscapes, and parts which are of special character, have to be preserved". The Act offers a wide spectrum of protected areas to implement these objectives.

Nature reserves (Naturschutzgebiete) are intended to protect species and habitats endangered by extinction. They represent the highest protection category but usually cover only a very limited area. Larger areas meeting the criteria of nature reserves are often approved as national parks (Nationalparke). Landscape protected areas (Landschaftsschutzgebiete) are designated in order to preserve landscape scenery over much larger areas than nature reserves. They also provide a lower protection status. Building projects are generally restricted in these areas. Agricultural land use is not affected to any large extent. Nature parks (Naturparke) are large areas, often up to 2,000 square kilometres and more, which mainly serve recreational purposes.

About 15 per cent of the Germany territory is protected as nature parks, although human activities are hardly restricted in these areas. Natural monuments and protected landscape elements represent prominent landscape features such as old trees, rocks, springs, hedges, reedbeds and ponds. They are protected as individual elements against direct human impact.
However, the system of protected areas is of limited success for cultural landscape protection. The main reasons include:

- Protected areas cannot be physically separated from modern agriculture and industrial society or from their impacts.

- Traditional nature conservation measures focused on management practices to preserve single species or habitats and generally to the exclusion of the complex socio-economic processes which were instrumental in forming the landscape. However, this socio-economic basis will play a decisive role for future cultural landscape development.

- German law assigns land-use rights basically to persons operating the land. Nature conservation law contains so-called "agriculture clauses" providing that "orderly agriculture" corresponds with the aims of nature conservation and landscape protection. As a consequence almost any farming practice is regarded as compatible with conserving cultural landscapes and the environment.

Beside the protection of certain areas or landscape elements, land-use planning also offers opportunities for landscape conservation. In the planning process, landscape plans in which nature and landscape conservation objectives and implementing measures are elaborated at a regional level were coordinated with other demands on land use. Until today, however, no method for formulating the specific objectives for cultural landscape protection has been devised, and as a result these objectives are hardly considered on a regional level (Brink & Wöbse, 1991). The main problems of landscape planning arise in the implementation of the proposed measures.

**Management Agreements**

A second group of measures for cultural landscape protection includes management agreements on a voluntary basis. These measures reflect the fact that the valuable biotopes and habitats in agricultural landscapes have resulted from traditional forms of land use and that they can only be maintained
if some form of land management continues. Since the beginning of the 1980s, schemes for management agreements between government and farmers have been increasingly established. They are directed at conserving biotopes threatened by extinction and provide premiums to farmers for certain environmentally friendly practices, such as ending the use of fertilisers and pesticides and converting to organic farming. These schemes have become increasingly successful and it seemed that many of the conflicts between agriculture and nature conservation could be overcome in this way.

According to an analysis by the Federal Ministry of Agriculture (Jungehülsing & Lotz, 1995), a total of nearly 20 per cent of all permanent grassland (equivalent to more than one million hectares) and about four per cent of the arable area (that is, nearly 500,000 hectares) is now managed in an environmentally friendly manner under agri-environment schemes. Organic farming in Germany is practised on an additional 2.5 per cent of the total agricultural area.

However, there is a great variation in the significance of the management agreements between the German Länderr. Agri-environment schemes in the northern Länder such as Lower Saxony and Schleswig-Holstein have substantially lower budgets than those in the southern and southwestern Länder such as Bavaria and Baden-Württemberg (Höll & Meyer, 1996).

Management agreements contribute to cultural landscape protection by encouraging environmentally friendly farming practices and by stabilising agricultural structures, particularly in less-favoured areas where the acceptance of these measures is greater (Jungehülsing & Lotz, 1995). Problems include the high dependence on public funds and the vulnerability to budget cuts. As an example, in 1995 Hessen reduced the premiums for all schemes of extensive or organic farming by 20 per cent.

Integrated Rural Development for Cultural Landscape Protection
In recent years, numerous initiatives have been taken for the conservation of cultural landscapes in Germany (Ganzert &
Depner, 1996). These initiatives are concentrated in less-favoured areas and involve several societal groups concerned with landscape issues, including nature conservation groups, small-scale food-processing and distribution enterprises, restaurants, rural tourism agencies and municipalities and communes. These groups cooperate in achieving their common objectives through cultural landscape use and conservation. Examples of such initiatives include:

► **Neuland.** This is a label for quality meat production, established jointly by the Arbeitsgemeinschaft Bäuerliche Landwirtschaft (AbL), a group of young farmers opposing the agro-business orientation of the farmers' union, nature conservation organisations, animal welfare groups and traditionally working butchers. The label guarantees special production attributes such as animal husbandry that meets animal welfare rules, a renunciation of antibiotics as food additives, sourcing from smaller farms and short transport distances.

► **Producers' markets.** These are promoted by many German cities to assist farmers in directly marketing their products.

► **Landscape management associations (Landschaftspflegeverbände).** These associations have been established in more than 80 regions by farmers, nature conservation groups, municipalities and communes. They originally started as an institution to coordinate measures for maintaining the landscape, including habitat management. Whereas the funding for these measures is provided through existing nature conservation and agri-environmental programmes, the associations are funded by member municipalities, communes and the Länder. The associations are taking over both the planning and the administration of the measures, and in this way reduce the administration costs for the government. Recent development of some of these associations show that they also reinforce the user's interest in abandoned farmland by reintroducing livestock farming. They are also increasingly concerned about the marketing of the products from landscape management.
schemes, and in this way become partly independent from the public subsidies that are available for management purposes.

**Biosphere Reserve Rhön.** The Rhön reserve is located in central Germany on the borders of the three Länder Hesse, Bavaria and Thuringia. It comprises a hilly sub-mountainous region with wide and open cultural landscapes formed in the Middle Ages. In recent years the landscape has faced the threat of marginalisation and the regrowth of forests. The legal basis for protecting cultural landscapes has been the designation of nature reserves and landscape protected areas under to the nature conservation law of the three Länder. In order to provide for the future development of the landscapes on an economic basis, various strategies for agriculture, rural tourism, local handicrafts and small- to medium-sized enterprises were drawn up. The strategy for agriculture, which is of basic importance for all activities, provides for the support of environmentally friendly practices, including organic farming and landscape management agreements, the regional marketing of products to restaurants, shops, local foodstuffs producers and directly to the consumer by farm stores and producer markets and increasing the sources of income (such as through rural tourism and the "hay hotel").

These initiatives are often supported by a third group of policy measures for cultural landscape protection comprising the EU Structural Funds, in particular the programmes for Objective 5b areas, and the Leader programme. These funds, which are now directed at a "bottom-up" approach to rural development policies, also open new perspectives for the conservation of cultural landscape (Von Meyer, 1992). The example of Hesse shows that the experience gained through the Objective 5b programmes has been important in the improvement of rural development policies in general. One main characteristic of these adjustments is the shift from reinforcing production capacity in agriculture to the value-added potential of cultural landscape products, the strengthening of regional culture and identity, marketing activities (especially for the products of
Case Study: Old Orchards

Old orchards represent a typical cultural landscape element in Germany, especially in Baden-Württemberg. Large fruit trees grow in dense belts or are scattered around many villages and along the main roads. The trees occasionally cover entire valley slopes.

Orchard in Rathendorf, Thüringen (Kirsten Lott)

These orchards developed into a characteristic landscape feature during the past centuries. Their introduction was strongly supported by the emperors, who regarded fruit-farming as an important source of nutrition and income. For instance, binding instructions in the seventeenth and eighteenth centuries laid down the number of trees a resident had to plant, manage and replace on common land or along roads and pathways. Until the middle of the twentieth century, when households became less dependent on growing their own fruit and vegetables and
labour-intensive agricultural practices declined, orchards with standard trees dominated fruit-farming in southern Germany. Fruits were either directly used or processed to make juice, wine and brandy. The wood was also used as an energy source and the area under the trees was exploited for grazing, cereals, root crops, vegetables or fruit bushes.

By the 1950s this traditional form of land use had seriously declined, for various reasons. First, increases in household incomes had reduced the need for families to grow their own fruit. Second, the increased import of foreign fruit obliged fruit farmers to produce more cost-effectively by replacing the old orchards of standard trees with plantations which could be cultivated with modern machinery and employing less labour. Third, the state provided organisational and financial support for the modernisation of fruit farming and the clearing of the old fruit trees (Rösler, 1992), and large tracts of old orchards were also cleared under a programme introduced by the EU. Finally, land consolidation measures and urban sprawl led to a reduction in the area of traditional orchards.

Today, the old orchards that remain are mainly to be found in hilly regions where natural conditions have limited agricultural intensification. The area under the trees is normally used for grass production. The trees, however, are mostly overage and, as with the associated grassland, often badly managed or even abandoned, reflecting the low interest in their use. As a consequence of inadequate management, the variation in fruit yields is highly variable (Weller, 1996; see also Figure 3.2), reducing the interest for the farmer still further. A continuation of this trend will lead to a further decline of the quality of the trees over the next decades.

The fruit-growing sector today is characterised by two kinds of growers. Most common in economic terms are the full-time fruit farmers producing for the market and preferring uniform tree plantations that yielding significantly higher financial returns than the traditional orchards. Old orchards, by contrast, are mainly managed by part-time or hobby farmers producing for their own consumption. This pattern is still
producing the majority of domestically consumed fruit as depicted in Figure 3.2.

![Figure 3.2. Apple production in Western Germany between 1980 and 1993](image)


These self-supplying farmers also expect other services and values from their traditional orchards besides fruit production. First of all, the orchards serve as an important habitat for wildlife. Some 70 to 80 plant species can be found in the meadows under the trees (Müller, 1988). The importance for animals is even greater, owing to traditional land use having created a large variety of small biotopes through the combination of grassy undergrowth and dispersed trees complemented by fences, embankments and ditches. Many endangered animal species are abundant in old orchards, such as the wryneck, the dormouse, various bats and the little owl. According to Tischler (1980), up to a thousand arthropod species are able to colonise old apple trees.
Second, old orchards serve as gene reservoirs for fruit crop varieties and are now receiving greater attention in biodiversity protection (Federal Agency for Nature Protection, 1995).

Third, the cultural and aesthetic value of orchards is also of importance (Weller, 1992), which is associated with high individuality and structural diversity, the form of the trees and the seasonal succession in appearance. This function is of special importance for hobby fruit farmers, who manage fruit trees mainly for leisure. Lastly, the orchards also have an effect on the microclimate (shade, wind protection, frost) and on soil and water (protecting against soil erosion and nutrient-leaching).

Traditional nature conservation instruments are of limited success to protect these old orchards in an effective way. Management costs often exceed those necessary for other comparable biotopes with high natural value, such as hedge-rows or rough grazings. Preservation and management concepts therefore have to be much more adapted to the modern needs of the land users. Therefore, orchard products (fruit, juice, wine, brandy, recreational and environmental services) have to be marketed in an efficient way in order to add value to these forms of land use. Consequently, private gardening societies, nature conservation organisations and special private initiatives have initiated various projects to protect old orchards. They not only organise the management of trees and grassland but, in order to make the traditional fruit-farming economically viable, they also set up marketing programmes at local level which offer the producers high and stable prices, therefore reinforcing a producer's interest in the management of old orchards. Advertising campaigns and consumer information services have been set up to show the relationship between land use, land development and the purchasing behaviour of the consumer.

In the meantime public programmes have been set up at the local, regional and Länder level to provide subsidies for the conservation and the replanting of the traditional fruit-tree varieties. The state of Baden-Württemberg also offers financial
support for the marketing of fruit products from these traditional cultural landscape elements.

**Conclusions**

Cultural landscapes represent the result of a continuous and long-evolved interrelation between man and the natural environment. In Germany, cultural landscapes are mainly perceived as historic landscapes associated with individual characters and regional distinctiveness that are easy to recognise once perceived.

Agricultural development can be seen as the main driving force for cultural landscape change. As in other European countries, the German cultural landscapes became less diverse over recent decades by processes that overstressed their production function. In this way, many characteristic landscape elements, such as hedges, ponds, tree-lined roads, hedges, ditches and other boundary biotopes were removed and field sizes enlarged.

Even where the characteristic traditional landscape elements are preserved, they are often in a poor functional condition owing to the marginalisation of their management and use. This effect indicates that the degradation of these landscape elements is much further advanced than the landscape structure alone would indicate.

The term "cultural landscape" may be regarded as a new concept in landscape perception and conservation, building on the experience in traditional nature conservation measures. The concept stresses the many functions cultural landscapes have for society, as well as the interwoven character between the different functions that make up the integrity of the cultural landscapes.

The conservation of cultural landscapes in future is faced with the fundamental dilemma that historical landscapes are regarded on the one hand as more and more valuable for their recreational and ecological functions, while on the other hand the social and economic basis from which these historical cultural landscapes developed have become less and less
attractive in modern industrial societies. The challenge of cultural landscape conservation lies in the harmonisation of the social, economic, ecological and aesthetic basis of landscape development.

Cultural landscapes cannot be effectively preserved by the more or less static traditional nature conservation measures, such as protected areas. The dynamic character of landscape development and the necessary integration of man's activities into this development generally favour positive incentives instead of simple restrictions on economic activities. An integration of economic and environmental aspects may open the way to new opportunities for cultural landscape development and diversification.

The multifunctional character of cultural landscapes can best be preserved by supporting intersectoral networking between various interests that are functionally relevant to landscape conservation and development. In this way the common aims of the different actors as well as the synergetic effects between the different measures will be strengthened. However, this participatory networking process demands flexible policy measures which meet the regionally specific social and environmental needs.

Management agreements represent a policy measure of increasing importance by providing incentives for cultural landscape preservation. Examples include the cultural landscape programmes of Bavaria, Baden-Württemberg and many other Länder. To make effective use of the funds available, the landscapes should be evaluated and prioritised with respect to their values and the potential for sustainable development. The problems associated with direct income payments can partly be reduced if the management criteria could be established at the regional level and applied in a more flexible way, thus taking into account the specific social and environmental needs of the region. The decentralisation of agri-environment measures may also help to reinforce the confidence of farmers in the future security of public subsidies to agriculture.
In periods of tight public budgets, market-led initiatives gain importance for the sustainable development of the cultural landscapes. In Germany, many such initiatives are currently being developed. They are concentrated in less favoured areas, where consumers, often with a high income, give priorities to regional food supply (Ganzert & Depner, 1996). Opinion polls generally show the high demand of German consumers for food produced in the near vicinity. However, this optimistic picture does not apply when the consumers' demand for regional food is assessed through surveys of their purchasing behaviour (Nienhaus, 1995). This discrepancy shows that there is a need to clarify the interrelationship between cultural landscape quality and purchasing behaviour. Nevertheless, the marketing of cultural landscapes would seem to be potentially one of the most important measures for ensuring the sustainable development of cultural landscapes in Germany.

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4 GREAT BRITAIN

Karen Mitchell
David Baldock
with Amanda Matthews

Introduction

A great variety of landscapes can be found within a relatively small area in Great Britain, a reflection of the complex geological history and geomorphology of the country, as well as human intervention. For example, many different soil types have resulted from the weathering of diverse sorts of rock, there are glaciated and unglaciated land forms influencing landscape, wildlife and the potential of different areas for agriculture and forestry. Varied climate conditions, a consequence of the considerable range in latitude (from 48 to 62 degrees), have also affected vegetation and land use.

However, the main influence on the landscape of today is that of human activity. There are virtually no landscapes in the country which have escaped the influence of humankind, whether directly or indirectly. The lack of true wilderness is one element explaining the British public’s preoccupation with more artificial landscapes and attachment to pastoral scenes. This concern has pronounced cultural roots, visible in art, literature and history as well as contemporary forms of expression, such as television programmes and food-marketing campaigns.

By any measure, visiting the countryside is one of the most popular forms of recreation in a predominantly urban society. Over the last 50 years, pleasure in the landscape has been accompanied by growing concern about the changes taking place and the means available for influencing them. The landscape has been increasingly accepted as a realm where government intervention is needed and a range of different policies have been utilised.

This report begins with a brief history of man’s influence on the British landscape, followed by a discussion of the percep-
Farmland and forest cover 80 per cent of Great Britain and today’s countryside is the product of several thousand years of land management. Of the many historical processes which left their mark, a number had a particularly profound effect on the development of the current landscape and their influence can be detected still. They include:

- Large-scale deforestation, begun by settlers in Neolithic times to make way for agriculture, resulted in the conversion within around 2,000 years of large areas of woodland to farmland. In some areas moor and heath were formed. Since then, continued cultivation of the land to produce raw materials for industry as well as food has characterised the countryside (Rackham, 1986).

- From the mid-eighteenth century, the Industrial Revolution and an increasing population requiring natural resources, particularly timber, and land for urban development.

- From the nineteenth century onwards, the development of an open market for agricultural products, which over time has led to increasing intensification (including land drainage begun in earnest at this time), consolidation and specialisation of farming systems in some areas and, more recently, creeping marginalisation, abandonment and commercial afforestation in others.

One of the most striking modern-day influences on the public’s perception of and concern for the landscape is urban growth, particularly road-building. Although the areas affected by these developments are smaller than the huge tracts of countryside shaped by agricultural practice, they provide a focus for media and public attention. The vociferous response to road schemes reflects the value placed on the wider countryside by the public.
The extent to which the history of present-day agricultural landscapes remains visible varies greatly. In some areas, relatively sudden and large-scale changes in land use have wiped out all evidence of previous practices, as in most of the arable areas of East Anglia. In others, evidence of the many successive changes in land management can still be seen, such as medieval ridge and furrow\(^1\) in Northamptonshire, whilst certain elements of centuries-old farming systems remain in use today, for example ancient hedgerows.

Some broad characteristics of agricultural landscapes can be identified. Agriculture in Britain is often considered to be mainly intensive and arable, although in reality grassland accounts for over 67 per cent of the total agricultural area of the country. It can be said that farming in the lowlands of England and southern Scotland is predominantly intensive with some small and fragmented areas of less-intensively managed land still surviving, such as grazing marshes, chalk grassland and isolated hay meadows and orchards. Drainage of low-lying areas and new agricultural technological developments such as advanced crop varieties, agrochemicals and machinery have encouraged simplified cropping rotations and contributed to a decline in mixed farming, which traditionally maintained a patchwork landscape of hay meadow, wet pasture and arable land.

The majority of the remaining low-intensity and more traditionally managed agricultural land appears to be concentrated in the upland regions of Great Britain, that is land at 240 metres altitude or more. The landscape is varied and often of high natural value, with large areas of blanket bog, heather moor, scrub and rough grassland on the hills and hay meadows and feed crops in valleys being typical of the "uplands". These predominantly open landscapes have been denuded of most of their original woodland cover but are now admired aesthetically as well as being used for recreation. Furthermore, the hills and uplands now contain the largest extent of semi-natural habitat remaining in Britain, mainly managed for livestock production dominated by sheep and beef cattle. Most farms in the hills have been enlarged; often they cover an area of several

\(^1\) Wave-like undulations in areas of pasture believed to result from ancient ploughing practices
hundred hectares and traditional systems have been modified substantially. However, there are areas where specialised large-scale livestock rearing has not become the dominant farming culture. For example, a form of traditional mixed farming and low-stocking densities has been retained on small-scale, part-time farms called crofts in the north of Scotland and the Inner Hebrides.

Since the Second World War, the rate of change in agricultural landscapes appears to have quickened appreciably. Of the ancient woods remaining in northwest Essex, a third were lost to agriculture and modern forestry between 1950 and 1973 (Rackham, 1986). More recently, a survey undertaken by the Institute for Terrestrial Ecology (Barr et al., 1990) identified a number of significant changes to the countryside which occurred between 1984 and 1990. Approximately 23 per cent of hedgerows in Great Britain were lost in this period, presumed to be due largely to changes in hedgerow management. Tilled land has shown a decline of four per cent of its area to 51,313 square kilometres in Great Britain in 1990, with shifts between crops occurring. For example, there was a large decline in the area sown to barley and increases in wheat, oil-seed rape and maize between 1984 and 1990. Managed grass also showed an overall reduction in area of two per cent to 65,672 square kilometres in 1990. Semi-natural vegetation such as heath, moor and bracken accounted for 27 per cent of land cover in 1990, little changed from the overall area in 1984.

Such rapid changes in the countryside have fuelled interest in the protection and management of landscapes for future generations. In the ensuing debate, nature conservation interests have played an important role. However, the concept of cultural landscapes has not entirely taken root in Britain, where there is still a tendency to regard landscape as a habitat, aesthetic commodity or backdrop for recreation.

The Concept of Cultural Landscapes

Although there is an active debate about the management of landscapes and several different authorities have developed relevant policy statements, the term "cultural landscape" is
not commonly used. In the Britain, the concept has begun to appear in the policy debate in recent years but it has been adopted by different interests with little consensus about its definition. Other terms tend to be used interchangeably, including "historic landscape".

In a recent government report, *Biodiversity: the UK Action Plan*, a definition of cultural landscapes is offered:

"countryside modified by human activities, where signs of traditional management practices are reflected in the features present" (Department of Environment, 1994).

This interpretation of the term has the advantage of being simple, but it is restricted principally to the evolving agricultural or wooded landscape; it does not acknowledge the importance of some landscapes for their association with people and events of historic interest, nor does it address historic landscapes designed primarily for aesthetic reasons. However, it does make the link between man's influence and the natural environment. It is this relationship which underpins the concept of a "cultural landscape" as acknowledged in Article 1 of the Convention for the Protection of the World Cultural and Natural Heritage adopted by UNESCO in 1972. This defines "cultural heritage sites" as representative of "the combined works of nature and of man".

Different categories of cultural landscapes, illustrating the diversity of interactions between humans and nature, have been developed by the International Council on Monuments and Sites (ICOMOS, 1993) as guidance for the designation of World Heritage Sites under the Convention. They comprise:

- **Designed landscapes**, designed and created intentionally by man, including parks and gardens.

- **Organically evolved landscapes**, arising from the interaction of a social, economic, administrative, and/or religious imperative and the natural environment. The process of evolution of such a landscape is visible in its form and
component features. Two sub-categories are distinguished: the *relict* or *fossil* landscape in which the evolutionary process ended abruptly or gradually at some time in the past. Its significant distinguishing features are, however, still visible in material form; and the *continuing* landscape which retains an active social role in contemporary society, closely associated with the traditional way of life and in which the evolutionary process is ongoing. At the same time it exhibits significant material evidence of its evolution over time.

- *Associative landscapes*, with powerful religious, artistic or cultural associations, such as parts of the Suffolk countryside represented in the paintings of Constable.

The definition in the biodiversity report is clearly confined to the second of these categories, and it is agricultural landscapes within this group which have received the most attention from the public and policy-makers in recent years. Designed and associative landscapes are the concern of agencies responsible for the national heritage and policies to protect them have tended to develop more slowly.

The term "historic landscape" has achieved greater currency in Britain than cultural landscape and some attempts have been made to define it. For example, the Countryside Commission, the agency responsible for the conservation, enhancement and enjoyment of the natural beauty of the countryside has proffered rather an elaborate working definition:

"the physical manifestation of social relationships between people in the past and of their interaction through time with the environment and the natural world; it is recognisable through archaeology and historic landscape features, which allows history and character to be read in the landscape, but issues of perception and association are also important" (Countryside Commission, 1994a).
This is a relatively broad definition, which can be interpreted to include the designed, evolving and associative landscapes distinguished by ICOMOS. The Countryside Commission views the historic landscape from two perspectives:

- The past historic landscape, a mainly archaeological approach to collecting information and evidence about the successive landscapes occurring in England over the last 10,000 years, with the aim of understanding and conserving the material remains.

- The present historic landscape, concerned with the contribution made to the character of the present landscape by the past, including features which may or may not be of value in a strictly archaeological sense, for example hedgerows, and less material values, such as ideological and religious significance.

The main aim of the Countryside Commission is to influence the future appearance of the countryside. The concept of the "present" historic landscape is most useful to the Countryside Commission in this respect and is reflected in the organisation's working definition.

The majority of cultural landscape types display physical evidence of human intervention through ground disturbance, vegetation management and land-use patterns. This is in contrast to the associative landscape, where the cultural associations of a place may not be manifest physically, but lie in the observer's perception and prior knowledge: for example, the cultural landscape value of the Lake District is due partly to its literary associations, as with the poetry of Wordsworth which grew out of a society that valued the picturesque quality of that agricultural landscape. In its widest sense, the term "cultural landscapes" refers to areas that have significance for past or present societies, so encompassing archaeological, historic and "relict" landscapes, designed landscapes, evolving agricultural landscapes, industrial landscapes and associative landscapes. The focus of this report is on agricultural landscapes.
Classification of Landscapes in Great Britain

At the crudest level, Great Britain has been classified as having three dominant cultural landscape types (former open fields, northern highlands and bocage) by Meeus et al. (1988) in an elementary typology of European landscapes which defines thirty different cultural landscapes. Although the typology serves to show the predominant differences in landscape across Europe, the great regional and local diversity of cultural landscapes is hidden, by necessity, of scale. A more detailed, quantitative description of European landscapes based on the Meeus typology and identifying 64 landscape classes is currently being developed by the Institute for Terrestrial Ecology for the European Environment Agency as a potential basis for future analysis of landscape priorities and concerns.

Dominant British Landscape Types

Source: Meeus et al. (1988)
European Environment Agency (1995)

Bocage
Gentle slopes and plateaus of loam on rocks. Vegetation composed of pastures and arable land surrounded by hedges, walls or trees. Broadly characterised as enclosed, heterogeneous and cultivated areas under threat from plot enlargement and hedge removal.

Northern highlands
Hills and mountains, lakes, bogs and fens influenced by extremely wet conditions where human occupation and farming opportunities are limited. Vegetation composed of heath, grass-land, rocks and relics of overgrazed woods. Broadly characterised by desolate, rough and very open landscapes under threat from abandonment and afforestation.

Former open fields
Undulating plains with loamy and clayey soils suitable for arable crops and used for the cultivation of cereals, root crops and grass. Formed as a result of the "enclosures" movement – the transformation of arable land to pasture mainly during the eighteenth century by the consolidation of strips of arable land into blocks of grassland. Grain is now the main crop. Characterised as intensively managed and open areas. The main trend is the removal of trees on plots.
A more refined system of land classification in Great Britain has been developed by the Institute for Terrestrial Ecology (ITE) progressively since 1977 with the aim of providing a sampling framework for field surveys (Bunce et al., 1994). It involves a map of 32 different land classes (see box for examples) defined on the combined basis of their broad environmental characteristics (including, for example, topography, human geography, geology, drift, climate and soils), land use and ecological attributes. The methodology assumes that the character of a landscape is determined by physical environmental factors, although these factors may have been modified by the influence of man. In a separate exercise, visual interpretations of the ITE land classes have been drawn (Figure 4.1) in order to convey an impression of the typical features of each land class and to provide an objective framework for describing the range of British landscapes (Benefield & Bunce, 1982).

**ITE Land Classification: examples of land classes**

Source: Bunce et al. (1994)

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Undulating country, varied agriculture, mainly grassland</td>
</tr>
<tr>
<td>2</td>
<td>Open, gentle slopes, often lowland, varied agriculture</td>
</tr>
<tr>
<td>3</td>
<td>Flat arable land, mainly cereals, little native vegetation</td>
</tr>
<tr>
<td>4</td>
<td>Flat, intensive agriculture, otherwise mainly built up</td>
</tr>
<tr>
<td>5</td>
<td>Lowland, somewhat enclosed land, varied agriculture and vegetation</td>
</tr>
<tr>
<td>6</td>
<td>Gently rolling enclosed country, mainly fertile pastures</td>
</tr>
<tr>
<td>7</td>
<td>Coastal with variable morphology and vegetation</td>
</tr>
<tr>
<td>8</td>
<td>Coastal, often estuarine, mainly pasture, otherwise built up</td>
</tr>
<tr>
<td>9</td>
<td>Fairly flat, open intensive agriculture, often built up</td>
</tr>
<tr>
<td>10</td>
<td>Flat plains with intensive farming, often arable/grass mixtures</td>
</tr>
<tr>
<td>11</td>
<td>Rich alluvial plains, mainly open with arable or pasture</td>
</tr>
<tr>
<td>12</td>
<td>Very fertile plains with very productive crops</td>
</tr>
<tr>
<td>13</td>
<td>Somewhat variable land forms, mainly flat, heterogeneous land use</td>
</tr>
<tr>
<td>14</td>
<td>Level coastal plains with arable, otherwise often urbanised</td>
</tr>
<tr>
<td>15</td>
<td>Valley bottoms with mixed agriculture, predominantly pastoral</td>
</tr>
</tbody>
</table>
More recently, two of England’s statutory countryside agencies have undertaken mapping initiatives to delineate distinct terrestrial areas in relation to land use, physical characteristics and other variables. English Nature launched its "Natural Areas" programme in 1993 with the aim of providing a framework for setting local nature conservation objectives. Rather than using administrative boundaries, such as counties, it seeks to define easily recognisable regions characterised by unique features and with which local communities identify. A total of 76 different areas were identified on the basis of land use and biological and physical characteristics. At the same time, the Countryside Commission began a pilot mapping programme in the southwest of England (Countryside Commission, 1994b) as a first stage in the development of a new map of England with the aim of defining discrete "regional character areas". The exercise drew on information about six key attributes of the countryside: geology and soils, ecological associations, land use, historical associations and population density. Thus, there is a cultural as well as a more scientific element in delineating regional character. Research was also undertaken to explore the public’s perceptions of the local landscape. In many cases, the identification of distinctive areas by the public largely
agreed with those identified by the Countryside Commission using "objective" assessment techniques.

English Nature and the Countryside Commission, with input from English Heritage, are now combining the Natural Areas and New Map concepts into a common Countryside Character Programme. A new map of landscape and nature conservation character viewed from a regional perspective and superseding both the Natural Areas map and New Map of England is to be produced in 1996. Each Regional Character Area will be accompanied by an analytical description of its landscape character, identification of the key landscape features of the area, a note of changes to the landscape particularly since the 1940s and their key causes, and an analysis of significant current trends likely to lead to future change. This database will be used to identify local priorities and in the development of a series of Regional Landscape Conservation Strategies.

The Countryside Character Programme is the most comprehensive attempt yet to record and define the landscapes of England taking into account historical and cultural influences from the local level up and is expected to provide a policy framework to strengthen growing public concern to conserve local distinctiveness.

**General Approach to Management and Protection**

Many of the first conservation bodies to be formed in Britain, including the National Trust, were established in the nineteenth century. However, pressure for government measures to protect the landscape had relatively little effect until the period between the two World Wars when there was an active debate about establishing National Parks. A series of influential reports began with that of the National Parks’ Committee in 1931 (Addison, 1931). The result of this debate was the National Parks and Access to the Countryside Act of 1949, which not only provided powers to establish National Parks for the first time, but also set the frame for subsequent legislation. During this period, it was still widely believed that farmers were, by virtue of ordinary agricultural practice, guardians of the countryside. In effect, National Parks in Great Britain are
large areas of mainly farmed countryside in private ownership, with an emphasis on recreation and enjoyment of the landscape, as well as its conservation.

Since the 1940s, several new strands have been added to conservation policy and the number of individual measures is now large and the relationship between them more complex. Policy has become increasingly interventionist but there has been a continued commitment to private land ownership, rather than the purchase of key landscape areas by public authorities. The broad thrust of policy has been to encourage and persuade farmers and other landowners to manage the landscape in a sensitive way, to control built development through the land-use planning system, and to focus conservation concern in a number of protected or "designated" areas. Since the mid-1980s, economic incentives have been used on an increasing scale and these are now deployed widely outside protected areas, particularly in agricultural landscapes.

Protected Areas
As in most European countries, the system of protected areas plays an important part in the conservation of cultural landscapes. In England and Wales, the most important categories of protected landscape are the National Parks and Areas of Outstanding Natural Beauty (AONBs). In addition, some stretches of coastline have been designated as "Heritage Coasts" although this is a non-statutory, and therefore less significant, type of protected area. In all three cases, it is the landscape that is the prime concern, although other factors including nature conservation and the potential for recreation in the countryside are also significant objectives. There is a further set of protected areas where the primary objective has been nature conservation, rather than landscape. These include National Nature Reserves, Sites of Special Scientific Interest (SSSIs) and Local Nature Reserves.

There are ten National Parks in England and Wales with a total area of around 14,000 square kilometres (Poore & Poore, 1987). In addition, there are two special areas in lowland England, the Norfolk Broads and the New Forest, which have never been
designated as National Parks but have a rather similar status as special protected landscapes. Most of the National Parks are in the upland hills, with the majority of land under some form of agricultural management, usually extensive livestock grazing. In Scotland, there has been opposition to the creation of National Parks; instead there is a system of 20 "National Scenic Areas" which is a rather weaker form of designation.

Within the National Parks, the objective is to maintain and enhance the beauty of the landscape, while permitting the continuation of agriculture, forestry and other activities. For this reason, they fall into the IUCN category of "protected landscapes" rather than National Parks, which have more strictly conservation objectives. There is active encouragement of outdoor recreation and enjoyment of the countryside. Inappropriate development is controlled by the land-use planning system, as in other parts of the country, but with more emphasis on conservation than in the wider countryside. The National Parks have some resources to undertake initiatives of their own, including the encouragement and management of tourism, grants for environmental improvement, and payments for the management of particularly sensitive sites.

The AONBs are more numerous and cover a wider area of the country. Many are found in southern England in attractive areas of farmed countryside, usually without the large stretches of open grassland and moor found in many National Parks. The primary objective is the conservation of the landscape, but full regard must be given to the economic and social wellbeing of these areas and the overall level of protection is weaker than in National Parks. Both recreation and nature conservation objectives tend to be given less weight than in the National Parks and the resources available for the management of the areas are limited.

While the protected areas can be seen as a national inventory of some of the most important cultural landscapes and sites for nature conservation, there is no comparable system for historic landscapes. There is a register of gardens and parks of special historic interest, but this has not been extended to the
wider countryside. In 1990 the government invited the relevant authority, English Heritage, to prepare a register of historic landscapes (HMG, 1990). Preparatory work to develop a method of assessing the historic landscape has been carried out, but English Heritage is reluctant to delineate specific areas of historic landscape on the principle that the entire countryside is one continuous historic landscape. The more limited objective of publishing a register of battlefields has proved less contentious and a list has been drawn up. This is indicative of a more general tendency to give visually appealing landscapes and nature conservation priority over historical landscapes in rural areas.

**Land-Use Planning**

Within these protected landscapes, the land-use planning system is the primary mechanism for protecting the integrity of the countryside and some of the individual elements within it. Consent from the local authority, known as planning permission, is required before developments are carried out. The type of developments which are likely to be permitted or discouraged are laid down in development plans which authorities must be guided by in reaching decisions. The authorities have more latitude in interpreting plans than in some other European countries, but must take account of designations, such as AONBs, and also more general government guidance. The planning authorities can also try to influence landowners’ decisions by issuing guidance on the protection of landscape features or the design of farm buildings, but these do not have the same legal force as development plans. Some local authorities have drawn up countryside or rural strategies in cooperation with other interests but these do not provide additional powers to guide development. Similarly, some authorities have undertaken an assessment of landscape character within their area; such an exercise can help to guide the development control process but not to introduce mandatory controls (Department of the Environment/Welsh Office, 1992).

Local authorities have limited powers to control the management of farmland, even where this may have an important effect on the landscape and the character of an area. They can
control the construction of any sizeable new building but cannot, for example, prevent the amalgamation of holdings, conversion of grassland to arable land or removal of hedges. The farming community has strongly resisted the introduction of planning controls over land-use changes arising from agricultural practice, although the scope of the development control system has been expanded. The removal of hedges has been a particularly contentious issue, illustrating the limitations of the land-use planning system. After a long period of debate in Parliament, the government acquired powers to introduce regulations to protect important hedges in 1995, when the Environment Act was passed.

**Economic Instruments**

The third and most recent strand of policy is the payment of incentives to farmers and other landowners for managing landscapes and wildlife habitats. The general model is to offer farmers voluntary management agreements, typically extending over five or ten years. In return for respecting certain environmental rules specified in the agreement, farmers receive an annual payment. There is a variety of schemes of this kind, many combining landscape and nature conservation objectives. Farmers may be required to maintain and protect the existing features on their land, such as ditches, hedges, copses and ponds, to avoid damaging forms of intensification, such as land drainage or the ploughing of moorland and to use inputs such as inorganic fertilisers in limited quantities. Some agreements offer additional payments for recreating or enhancing landscapes, for example by converting arable land back to grassland, or reinstating drained salt marshes.

Such payments were first used on a significant scale in Exmoor, one of the National Parks, from about 1980 onwards. Within the Park, farmers were ploughing up moorland and heath and converting it to more intensively managed grassland. Farmers’ interests no longer coincided with those of the Park authority and the land-use planning system is not equipped to control change of this kind. Similar pressures in the Norfolk Broads in the mid-1980s, where grassland was converted to arable fields, led to a new generation of
schemes within what became known as the "Environmentally Sensitive Areas" (ESAs). In England, there are now 22 ESAs extending to some 1.1 million hectares, or about ten per cent of agricultural land. Some are within existing protected areas, but many are in stretches of country-side with no formal protection. They have been selected as parts of the country of high landscape, wildlife or historic value which are vulnerable to change in farming practice (Ministry of Agriculture, Fisheries and Food/Department of the Environment, 1995a). The management prescriptions vary from one scheme to another; some offer farmers a payment of around £20–60 a hectare for broadly maintaining existing patterns of production and avoiding intensification while protecting important landscape features. Several include a second tier in which the requirements are more demanding and the payments are higher. The proportion of farmers who enter agreements also varies; generally, it is more difficult to attract farmers who have adopted intensive practices or who intend to do so in future.

The range of incentive schemes has increased since the mid-1980s. While most are concerned, at least in part, with the protection of cultural landscapes, some have different environmental objectives, such as stabilisation or reduction in levels of nitrate pollution. A major scheme, known as Countryside Stewardship, was launched in England in 1991 by the Countryside Commission as a five-year pilot project, as was a parallel scheme in Wales, known as Tir Cymen. Further schemes were introduced in response to the EU agri-environment regulation 2078/92, including one aimed at the creation of habitats over a ten- to twenty-year period.

Countryside Stewardship, the largest of these schemes, is aimed at the conservation and enhancement of a set of key landscape types in England, including chalk and limestone grassland, historic landscapes, old meadow and pasture, uplands and waterside landscapes. The objective is to protect wildlife habitats, as well as landscapes, and to provide new or improved public access where appropriate. By 1995, approximately 92,000 hectares had been entered into this scheme and about
5,200 agreements were expected to be in place by March 1996 (Ministry of Agriculture, Fisheries and Food/Department of the Environment, 1995a). This scheme has been evaluated by independent consultants and, with some reservations, found to be an effective method of protecting important landscapes by targeting incentives at particular areas.

In future, it seems unlikely that the government will introduce new categories of protected area. Indeed, a clear statement to this effect was included in the recent policy paper, Rural England (Ministry of Agriculture, Fisheries and Food/Department of the Environment, 1995b). Nor is there likely to be a major extension of the land-use planning system into the agricultural domain. More likely is the continued use of incentive payments, possibly on a larger scale.

Case Study: Crofting in Scotland

Crofting is a form of small-scale farming now very rare in Great Britain and increasingly difficult to sustain without external support. The croft usually only provides part of a family’s income. It is a system found mainly on the island of Shetland, in the Western Isles and Inner Hebrides and along the far northern and western coasts of mainland Scotland, comprising approximately one-tenth of the total Scottish agricultural land area of 5.9 million hectares.

The crofting tradition dates back to the eighteenth and nineteenth centuries when large landowners cleared whole communities from their land to make way for sheep farming. Known as "The Clearances" this traumatic removal of people from their lands forced many to emigrate. Others were forced to move to the coastal areas of the Highlands and Islands where they were allocated small holdings to which they were eventually granted legal tenure by means of a series of Acts of Parliament. In 1955, further legislation established the Crofters Commission which acts to organise, develop and regulate crofting in Scotland. Croft land cannot be transferred from one tenant to another without the approval of the Commission. Typically, a croft consists of up to ten hectares of in-bye2 near to the house, on which traditionally hay and other fodder crops

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2 Enclosed land in valley bottoms and on lower slopes
would be grown during the summer and on which sheep and cattle would be grazed in the winter. Crofting was once a very mixed system, but recent economic pressures have now resulted in a heavy dependence on sheep production. In addition, the crofter will have a share of more extensive common hill or machair pasture. Machair is a dune system of exceptional nature conservation value based on calcium-rich coastal sand grasslands. These were traditionally managed for hay production, winter grazing and arable cropping on a limited scale but now are mainly dominated by sheep grazing throughout the year. Overall, the crofting areas comprise a small-scale patchwork of pasture, meadow and cultivated land with walls and scattered buildings.

The common hill area utilised by a crofter may cover several hundred hectares. Each crofter is entitled to graze a specified number of stock on the common land depending on the size and quality of the grazing and the number of shares held. Shareholders are legally required to appoint a Grazings Committee to oversee the management, maintenance and
improvement of the grazings, provision of equipment such as fences and the organisation of sheep gathering for dipping. Many of the farming activities are carried out collectively by the crofters.

A wide and important range of wildlife is supported by the low intensity crofting system. The most important breeding bird species in Britain have been shown to coincide with crofting areas (Austin, 1992). The Machair is an internationally important habitat supporting abundant wild flowers such as orchids. Where the Machair is cultivated, arable "weed" species are found which are virtually absent from more intensively farmed areas.

The crofting system is one which has created and maintained valuable wildlife habitats and landscapes. It is a low-intensity system, less reliant than more conventional systems on agro-chemical inputs and machinery. However, this traditional system is changing, with implications for the ecology and landscape of the areas. When first created, the crofts were deliberately intended to be too small to be economically viable to ensure a supply of cheap labour for the landowner for harvesting seaweed, which at that time was a valuable resource for industry. However, the demand for seaweed disappeared by the end of the nineteenth century. The lack of other sources of supplementary income available to crofters, rural depopulation, livestock marketing problems and the tendency for agricultural subsidies to encourage more intensive farming, for example of sheep, means that the cultural landscape is under threat. Small-scale cropping has declined and common grazings and the machair land have been apportioned into separate lots in some parts.

Moorland, upland scrub and woodland all require an appropriate Inappropriate grazing pressure, whether due to overstocking or inadequate livestock management may result in undergrazing in some areas and overgrazing in others resulting in reduced vegetation cover and soil erosion. For example, in-bye land is improved with fertilisers and grazed by sheep throughout the year, to the detriment of plants dependent on poor pasture. Increasing use of silage instead of
hay affects the populations of many grassland insect species and the birds which feed upon them. In some cases, areas of common land may be abandoned, leading to scrub encroachment and other visible changes to the landscape.

The nature conservation interest of many crofting areas is protected by a variety of national, European and international legislation. National Nature Reserves, SSSIs and National Scenic Areas provide protection for substantial areas of croft land, while Special Protection Areas under the EU Birds Directive and pro-posed Special Areas for Conservation under the EU Habitats Directive also include crofting areas. Designated wetlands of international importance are to be found on the islands of Coll and Islay.

Although the nature conservation interest of the crofting areas has been acknowledged for some time it is only relatively recently that the value of the crofting system, both environmentally and socio-economically has been recognised in policy terms. A few localised initiatives have been put in place, largely focused on the conservation of particular endangered species, for example a scheme run by the Royal Society for the Protection of Birds to provide management payments of up to £50 per hectare to any crofter or farmer with breeding corn-crakes (Crex crex) on their land. The scheme required land managers to delay cutting grass for hay or silage until after 1 August each year to allow the birds time to breed in the long grass. In 1993, the ESA scheme was extended to include the Shetland and the Argyll Islands, in addition to the machair lands of the Outer Hebrides that were designated in 1988.

Furthermore, as an Objective 1 area, EU co-funding is available for programmes to promote rural development. The provision of new employment opportunities to complement income from part-time crofting assists crofters to stay on the land and continue using traditional, low-intensity farming practices. Some crofting communities have even successfully collaborated to buy out their landowner, giving them greater security and thereby encouraging more investment in the maintenance of croft houses and other buildings.
The culture of the crofting areas is particularly strong; the first language of many crofters is Gaelic and some of the older members of the communities recount stories and songs inspired by The Clearances. Others remember skirmishes between crofting villagers attempting to reclaim land and troops acting on behalf of the landowners within this century. Crofting, therefore, carries strong historical associations for the Scottish Highlanders. Furthermore, the nature of the common grazings system requires that the crofters are highly dependent upon each other. Taken together, the preservation of the crofting tradition and hence the landscapes and wildlife which depend on the continuation of traditional practice requires a holistic approach which recognises the historical, cultural and social interactions which underpin crofting.

Case Study: the New Forest

The New Forest is a working landscape which is not only of high nature conservation value, but also a good and rare example of a cultural landscape where traditional management practices are still evident, and historical, literary and artistic associations are strong.

The Forest, in an area of gently undulating and flat land, includes 19,771 hectares of unenclosed common grazing land comprising 14,787 hectares of lowland heath and 4,720 hectares of woodland. The New Forest heathlands make up the largest single unit of continuous lowland heath in Europe and contain an enormous diversity of plant communities in a complex mosaic of species-rich acid grassland, heath, valley mires and woodland (Tubbs, 1994). These habitats do not occur on such a large scale or in combination anywhere else in Western Europe.

Agricultural land use within the New Forest dates possibly from the Bronze Age. Several of the heathlands were already formed by this time, and may have resulted from clearance of the wildwood for agriculture. Extensive field systems have been found which date from the Bronze Age or Iron Age and there are numerous tumuli and several hill forts. In the eleventh century the area was appropriated as a "Royal Forest" intended
to protect deer; subsequent Forest law prohibited the enclosure of land within a Royal Forest. It appears that some grubbing up of woods and encroachment on commons was undertaken by the crown itself in the New Forest, which was unusual among Royal Forests in that it was mainly owned by the crown.

The New Forest (Colin & Jenni Tubbs)

After the establishment of the New Forest, a complex system developed for the control of the unenclosed common lands, one which still persists today in a modified form. This commoning system is an integral part of the maintenance of the traditional landscape and has played an important part in the shaping of the New Forest, its life and culture. It is a rare example of a traditional agricultural system composed of small holdings of 2–25 hectares, the viability of which rests on rights held in common, active management of the open Forest, and the involvement of the community. Originally, the regulation of common land and commoners was the responsibility of the Steward of the Forest, a role succeeded today by the Verderers Court which is responsible for upholding the rights of the commoners, including pasture management, turf fuel and
bracken cutting, timber collection, pannage (the grazing of pigs on acorns or beechmast), fee and fine collection. Summer and winter grazing on the common is extensive, helping to maintain the rich diversity of heather and turf communities and prevent scrub invasion; enclosed pastures off the common are used to grow hay and other crops during the summer, and provide essential "back-up" grazing land in winter.

The New Forest is protected and managed under a wide and complex array of legislation. Approximately 27,000 hectares of the Forest is designated as an SSSI for its nature conservation value. The same area is also designated as a Special Protection Area under the EU Birds Directive and as a Wetland of International Importance under the Ramsar Convention. A similar area is proposed for designation as a Special Area for Conservation under the EU Habitats Directive. The "New Forest Heritage Area" has been established to cover an area wider than the New Forest, including the best of New Forest landscape character and land essential to support commoning. A ministerial mandate provides guidelines for the management of the Crown lands by the Forestry Commission. The Verderers' Court may veto physical development of the unenclosed Crown Lands. Common rights enshrined in British legislation exist across much of the Forest and are fiercely protected.

The maintenance of the traditional agricultural practices and socio-cultural traditions are essential to the conservation of the cultural landscape of the New Forest and to the ecological diversification which has resulted directly from the pastoral regime. However, there are a number of conflicts between the demands of the rural and nearby urban communities and the nature conservation and landscape interest of the area.

Farming and forestry are the major land uses of the area, but have a diminishing importance in the local economy. Within the New Forest Heritage Area, agricultural land has decreased by ten per cent in the last decade, and 2,500 hectares of grassland was lost. Heaths rapidly change to woodland and habitats disappear when grazing management lapses. Land prices are high and the back-up land is under pressure for housing.
intensive agriculture, and recreational activities such as horse-riding and camping. Increases in grazing density and longer periods of on-common grazing due to loss of back-up land is suppressing the small mammal population and thus their predators, and results in the loss of the species-rich ground flora within the ancient oak woodland enclosures. The number of part-time farmers has increased and holdings are becoming fragmented. Access to suitable back-up grazing land off-common often involves transporting animals long distances. Commoning is rarely viable as a full-time occupation; for many, family tradition and social aspects are the main reasons for continuing commoning. Only about one in a hundred of the 35,000 population of the New Forest are practising commoners, and this figure is likely to fall as young commoners are finding it increasingly difficult to carry on this way of life.

Government policies and financial incentives have positive and negative effects upon the agricultural tradition: the present regulations preclude the use of set-aside land as back-up grazing; diversification can help maintain the viability of holdings but may result in the further loss of back-up grazing land; and Environmentally Sensitive Area status is unlikely due to the large area of Crown land with common rights. However, the Habitat Improvement Scheme and the Countryside Stewardship scheme both offer opportunities to support and conserve the traditional land management practices of the New Forest.

The New Forest Committee – the forum that represents the principal local and central government agencies in the New Forest – has published a draft Strategy for the New Forest. The principal aims are:

"conserving and enhancing the natural beauty, flora, fauna and geological or physiographic features of the special interest of the area; maintaining the grazing and management regime that so contributes to the New Forest's character; promoting the quiet enjoyment and understanding of the area by the public, where appropriate" (New Forest Committee, 1995).
The New Forest Committee has stated that it will have regard to:

"the international importance of the nature conservation features of the New Forest; the national importance of the wider New Forest as an area of exceptional natural beauty which affords considerable opportunities for open-air recreation; and the needs of agriculture and forestry – with particular emphasis on the maintenance of the common grazing and the economic and social well-being of all those who live and work in the area" (New Forest Committee, 1995).

This strategy comprises an acknowledgement of the relationship between high nature conservation value and traditional farming practices, an analysis of the threats to the commoning system together with a proactive approach to preserving and fostering the socio-cultural traditions that underpin the whole cultural landscape of the New Forest. However, neither the New Forest Committee nor its Strategy have any force in law. There are recurrent conflicts between the conservation bodies on one side and the commoners and Verderers on the other who continue to press for increased heath burning, drainage of wetlands, scrub clearance and agricultural improvement of natural vegetation.

Conclusions

In Britain, almost the entire landscape has been modified by man’s intervention to a greater or lesser extent, from coastal marshes to the Scottish moors. Agriculture is a major factor in the appearance of the countryside, responsible for many elements that give an area its local or regional distinctiveness. Much of the Britain’s agricultural landscape can be considered as an organically evolving, dynamic environment.

Successive changes in farming practice have been responsible for the richness and variety of the countryside to date, as well as for the industrialisation of the landscape that has occurred in some area since the 1940s; each change reflects the values of the society that forms its context. Agricultural features may have specific archaeological or historical value, as the only "documentary" evidence of previous agricultural systems and
hence our ancestors' way of life. The countryside is also valued for its literary and artistic associations and the visual attributes of the countryside have become steadily more important as countryside tourism and recreation increases.

Preservation and maintenance of the cultural landscape depends on the continuation of appropriate land use practices, which are changing or are under threat as a result of technical, social and economic developments. Established land uses and traditional farming practices not only maintain links with the past but often are important for nature conservation – many semi-natural habitats are dependent upon the continuation of established forms of agricultural practice or something similar to them or specific types of agricultural methods. Examples include reed-bed management, water meadows and moorland grazing.

International definitions of cultural landscape stress the visibility of links between society, culture and the countryside. Policy in Great Britain has made more progress towards the protection of traditional landscapes, specific features and semi-natural habitats than towards considering landscapes from a broader socio-cultural perspective, as required in the crofting areas for example. Historic landscapes have received less attention than stretches of countryside prized for their aesthetic and recreational value.

A number of dilemmas arise when attempting to account for cultural landscape in the development of policy, largely due to the dynamic nature of the issue. How can the ever-increasing variety of cultural landscapes be protected? Can we attempt to conserve the full range of historical land-use developments? Can we prioritise?

Cultural landscapes may be threatened by sudden and profound changes in land use which effectively eradicate all evidence of previous traditional management practices. Can we identify these threats and respond to prevent the resulting loss of cultural landscapes? This response might include identifying alternative, contemporary land management practices or
resurrecting old methods which are economically viable without damaging the area's cultural heritage.

If the trend towards more intensive farming methods and the abandonment of traditional practices continues, leading to an impoverished landscape both aesthetically and in terms of biological and habitat diversity, it is likely that nature conservation concerns will have an increasing influence on landscape policy and consequently cultural landscapes. This increases the importance of evaluating the relationship between cultural landscapes and nature conservation. Management of land for nature conservation may conflict with or complement cultural landscape conservation but the former is likely to be given priority under the present policy framework.

**Recommendations**

- Conservation of cultural landscapes requires an understanding of their dynamic and complex character including analysis of the processes that shape the landscape, and an assessment of their specific cultural significance. The Countryside Character Programme is an important step in the evaluation of cultural landscapes.

- A national register of historic landscapes should be drawn up as proposed and agri-environment incentive schemes should be utilised to protect the sites identified, where appropriate.

- A bottom-up approach to policy-making is gathering momentum as interest groups seek consultation at regional and local level and emphasise the importance of both locally distinctive and nationally significant values. This is particularly appropriate for identifying cultural landscape priorities due to the close interrelationship between local communities and their surroundings. Regional differences need to be maintained.

- There is a need to establish practicable management techniques which serve to preserve the cultural heritage in the face of present-day conditions, allowing farming or
woodland management to continue in a modified form using contemporary techniques where available.

Current policy for the protection of landscapes relies mainly on fairly weak planning controls, designated areas and incentives, often specific to particular areas (such as ESAs) or landscape types (such as Countryside Stewardship). The wider countryside and the less distinct landscapes receive much less priority, although there is some detectable shift in policy to broaden the scope of policy instruments (schemes to protect hedgerows, for example, and expansion of the Countryside Stewardship scheme). There will continue to be a need for a national policy which is locally adaptable.

Cultural landscape types often cross administrative borders. Cooperation is required between regions to ensure that adequate measures are taken to protect and manage them.

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The Netherlands

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Introduction

Of the five countries included in this study, the Netherlands represents the most extreme example of the extent to which man has shaped the landscape. This is illustrated by one single statistic: without human intervention, about half of the Netherlands would be flooded permanently or periodically by the North Sea and the rivers Rhine, Meuse, Scheldt and Ems. The construction of an extensive system of sea defences and river dikes has reclaimed huge areas of former wetland and ended the periodic flooding of much adjoining lowland.

But if half of the Dutch landscape is almost entirely artificial, the other half has also been transformed by human activities. Intensive farming, urbanisation, industry and transport infrastructure have all radically reshaped the original landscape to the point where "natural" areas have virtually ceased to exist. More than in any other country in Europe, the Dutch landscape is a cultural landscape.

It is therefore not surprising that the perception of landscape in the Netherlands does not exclude the human dimension. Thus, the Ministry of Agriculture, Nature Management and Fisheries has defined landscape as "the perceptible part of the earth that is determined through the mutual cohesion and mutual influence of climate, relief, water, soil, flora and fauna, as well as human action" (Ministerie van Landbouw, Natuurbeheer en Visserij, 1992a). In addition, a specific definition of a cultural landscape has been formulated to apply to those landscapes that have been highly influenced by human activities: "a landscape of which the identity is determined mainly by patterns and structures that originate from human use" (Ministerie van Landbouw, Natuurbeheer en Visserij, 1992b).
Changing Landscapes

Although several main types of landscape can be found in the Netherlands, virtually all were formed predominantly by hydrological processes or by the human management of those processes. However, over the past few decades, the human impact on Dutch landscapes has increased substantially, mainly through urban, industrial and infrastructure development and, in agriculture, through a process of rationalisation in which larger plots and highly mechanised farming practices have become dominant. At the same time, some specialisation of agricultural production at the regional level has taken place: for example, intensive livestock farming is concentrated in the southern and eastern parts of the country, while horticulture is mainly located in the "Westland", a relatively small area between Rotterdam and The Hague.

However, despite this regional specialisation, many of the physical changes to the landscape have been the result of common trends in agricultural practices and have therefore led to a decrease in the variety of Dutch landscapes. Four main developments can be distinguished:

**Drainage**
Modern water management methods related to agriculture and flood protection continue to have a major impact on the Dutch landscape. For example, many farming systems require a further lowering of the water table; this not only leads to significant changes in vegetation but also to the need for irrigation during drier periods. As a result, agriculture suffers greater damage from drought and wet environments continue to disappear with an accompanying decline in biodiversity.

**Plantings**
The character of Dutch landscapes is largely determined by the type and placement of trees and hedges. These plants originally formed plot boundaries, acted as a source of firewood and timber, provided duck decoys, served as beacons along rivers, or could be exploited for raw materials, such as in basket-making. In this century, however, most of these functions have been met through other means. Moreover, trees and hedgerows are now often regarded by farmers as a nuisance since they form a physical obstruction to working the land with farm
machinery, while they also compete with crops for moisture, they create shadow and they can act as a source of weed species and disease. As a result, newly planted trees and hedgerows have virtually disappeared, decreasing the variety both within and between landscapes.

Open Spaces
The size and configuration of open spaces are a characteristic feature of Dutch landscapes. Before 1850 these open spaces took on many shapes and sizes. However, since then the size of open spaces has become more uniform. The greatest changes took place between 1850 and 1930, when the reclamation and reforestation of moorland took place as a result of the introduction of artificial fertiliser. This process has accelerated again in the period since 1960.

Shape and Size of Agricultural Plots
The shape and size of agricultural plots in the Netherlands has traditionally been determined by the agricultural practices associated with different landscapes. For example, areas cultivated during the early Middle Ages have S-shaped plots due to the demands of ploughing with horses or oxen (where it is necessary to make a wide turn at the end of each pass); in some areas of reclaimed bog, the landscape is characterised by long, narrow plots. These landscape features generally frustrate the modern farmer who prefers large, regularly shaped plots.

Policy Framework
Landscape policy first developed in the Netherlands during the late 1960s and early 1970s. The first policies were characterised mainly by a formalistic approach based on existing regulatory instruments, particularly land-use planning. By the 1990s, however, it had been recognised that this approach did not guarantee the conservation of landscapes. The command-and-control approach is often not acceptable to farmers, who may be dependent on a degree of structural modification of their land in order to continue to produce competitively. Moreover, it was concluded that the early policies were too general in their scope and did not take regional characteristics sufficiently into account.
Space is a scarce good in the Netherlands, where the high density of population and economic activities leads to intense competition for land. Land-use planning is therefore an essential and highly developed instrument of government policy. The current framework for land use in the Netherlands is presented in the most recent government structure plan for the Netherlands, the Fourth Policy Paper on Physical Planning, Extra (Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer, 1993). In framing the development of rural areas up to 2015, the Dutch countryside is divided into areas, each of which is to follow one of four distinct "tracks":

- the green track, where the development of natural values is given priority over the further development of intensive forms of agriculture, urbanisation and recreation
- the yellow track, where intensive agriculture is concentrated as far as possible in regional centres
- the blue track, where a more integrated form of rural development should take place, with an optimum inter-relationship and balance between agriculture, nature conservation, landscape management, recreation, tourism, water management and forestry
- the brown track, where arable and livestock farming is allowed to develop further in combination with other functions such as recreation and forestry.

Current government landscape conservation policy is laid down in the Landscape Paper. The main objective of the paper is "to promote conservation, restoration and development of a landscape that is of eminent quality, that is, a landscape in which identity and sustainability are central". In developing this approach, nine different types of characteristic Dutch landscapes are distinguished, each representing a specific history and relationship with human activities:

- hilly land
- areas of sandy soil
- fenland
- river systems
- reclaimed coastal areas
In developing priorities for action, the plan lays down three criteria by which the value of any landscape should be determined: it has to be valuable from an aesthetic point of view, it has to be ecologically valuable and it must provide a basis for sustainable economic functions for a variety of land uses.

Landscape planning then follows the following principles:

- functions that are dependent on long-term development processes, such as forestry and ecosystems, should be decoupled from more dynamic functions, such as agriculture
- flexible operating conditions should be provided as far as possible for the more dynamic functions
- stable conditions should be provided as far as possible for the less dynamic functions
- the location of each specific land use should be determined as far as possible by the system characteristics of the various landscape types.

Given its strategic nature, the paper provides an indicative framework for development rather than being prescriptive. Implementation is therefore foreseen through consultation and cooperation between the responsible public and private actors. Thus, for each of the nine landscape types, the plan has drawn up a list of considerations that should be taken into account by other parties in the interests of conserving and enhancing "landscape identity" when other plans and activities are undertaken.

A policy initiative that is complementary to the Landscape Paper is the Green Space Structure Plan (Ministerie van Landbouw, Natuurbeheer en Visserij, 1993a). This document develops a framework for the countryside within a broader rural development context. The Green Space Structure Plan incorporates the objectives of the Landscape Paper and further sets out the main lines for the sustainable development of agriculture, nature,
recreation, tourism, forestry and fishery in rural areas. However, in certain respects the plan further elaborates landscape policy, such as through the designation of ten specific "valuable cultural landscapes" located, for example, in southwest Friesland or the Veluwe. They are defined as "regions with important natural and landscape value and substantial cultural and geomorphological significance and which are attractive from a recreational and tourist point of view. Agriculture and, on occasion, forestry play an important role and the various functions are often strongly interwoven". They are selected on the basis of the following criteria:

- the respective landscape falls within the existing areas of landscape designated for conservation and enhancement and the areas designated for recreation and tourism, and also includes a relatively large element of the national ecological network
- agriculture and/or forestry have an important economic function and serve to manage the landscape
- the qualities of the respective landscape are under threat
- the landscape falls mainly within the areas designated in the Landscape Paper under the green and/or blue tracks.

One of these ten landscape types is Waterland, which forms the subject of the case study later in the chapter.

The policy goal for the valuable cultural landscapes is the development of a future perspective based on integrated, sustainable development. The provinces are requested to develop these perspectives, to initiate appropriate actions and, for each valuable cultural landscape, to set out these activities in a plan that includes concrete measures and projects. These might, for example, include support for projects aimed at promoting more extensive forms of agriculture or broadening the range of farm products and strengthening their regional character. The government is providing NFL 25 million a year during the period 1995-1998 for the joint funding of these activities, in principle allocated in equal amounts to the ten landscapes. This funding is regarded as seed money that will foster self-sustaining development processes.
In general, the current approach of the national government to landscape policy is less prescriptive than the policies developed during the 1970s and 1980s; instead of the traditional command-and-control approach, the main emphasis is now placed on building consensus and promoting cooperation between the various actors directly involved in landscape management and on coordinated and integrated action. However, it remains to be seen whether this approach will be able to overcome the serious obstacles presented by the conflicting interests of the various actors when action has to be taken on the ground.

Policy Instruments

Three specific instruments are being used to implement current landscape policies – land consolidation, land purchase and management agreements.

Land Consolidation

Until recently, land consolidation was used in the Netherlands primarily in order to increase productivity in agriculture. As a result, consolidation projects have often had a negative impact on the development of landscapes by disregarding the impact of changes to trees and hedges, open spaces and the shape and size of agricultural plots. Recognition of these negative effects led from the 1960s to a gradual broadening and reorientation of the objectives for land consolidation, and these were formalised into a "multifunctional" approach through a new Land Consolidation Act in 1985. Since then, landscape conservation objectives have been included in land consolidation projects.

This broader approach was further evaluated in the early 1990s. The work explicitly recognised the additional demands following from the higher priorities allocated to nature conservation, environmental protection and sustainable agriculture and culminated in the policy paper Land Consolidation in the 1990s (Ministerie van Landbouw, Natuurbeheer en Visserij, 1993b). The central aim of the revised policy is to ensure that land consolidation contributes to rural development in its broader sense. An improvement in landscape quality is specifically
mentioned as one of the functions of land consolidation. However, as in the past, implementation of these objectives is dependent to an important extent on the way in which the land consolidation commissions interpret their task, and improvements in agricultural efficiency remain the central concern of land consolidation. Moreover, it can be noted that the paper is not without some contradictions, such as the statement that land consolidation will in future be used more to achieve nature conservation and environmental objectives, but at the same time continue to respect agriculture’s specific interests.

**Land Purchase**

One direct way of ensuring that land management can contribute to landscape conservation is for an appropriate agency to purchase and manage valuable sites. This instrument has taken on increasing importance in the Netherlands since the publication of the *Relation Paper* in 1975, which provided for the creation of "reservation areas" in agricultural areas, and is now a key means of realising the national ecological network. However, following the *Landscape Paper*, additional funds are being made available by the government to facilitate the purchase and management of land in the interests of landscape conservation. The conservation of the key characteristic landscapes will be the focus for the allocation of these funds, with an emphasis on sites that are vulnerable, where sustainable management is particularly important and when management has to take place in a national context, that is, where it requires a scale of action and a degree of expertise that cannot be expected from the current owner.

**Management Agreements**

Management agreements were introduced by the government’s *Relation Paper*, which set out for the first time a broad policy concerning the relation between agriculture and the environment. This policy was later formalised in the Management Agreements Regulation of 1988. Management agreements in the Netherlands are intended to help support agriculture in problem areas, to assist in the management of farms that are situated in these areas and to encourage the conservation of nature and landscapes.
Management agreements are voluntary and can only be applied once an area has been the subject of a provincial management plan. Nine broad kinds of management agreement can be offered to farmers, one of which is aimed specifically at landscape management. Within each of the broad categories of agreements, a series of specific packages can be selected by the farmer in order to optimise the agreement to his specific needs and the local circumstances. More than 30,000 hectares are now covered by management agreements.

It can also be noted that the Landscape Paper initiated the provision of funds explicitly for landscape management. For example, a proportion of the funds currently reserved under the Forest and Landscape Development Contributions Regulation is now earmarked for financing landscape management projects.

**Case Study: Fenlands**

Fenland is the most characteristic of Dutch landscapes. The classic scene of flat, low-lying wet grasslands studded with Friesian cows is associated the world over with the Netherlands.

Fenlands cover about 200,000 hectares of the Dutch countryside. Peat is the predominant soil type, although this is sometimes covered by a layer of clay. The first serious efforts to clear the marshy forests and to farm these areas took place in the Middle Ages. In the lower parts, farms were built along and away from natural streams, resulting in a characteristic pattern of long, strip-shaped plots of constant size, separated by wide ditches and intersected by watercourses parallel to the main stream. In the higher parts, settlements were less dependent on stream patterns, which resulted in a less regular field arrangement.

In time, greater efforts were made to improve the conditions for agriculture by draining the land. However, these works caused the ground to dry out and shrink, thereby lowering ground levels and further reducing or even preventing natural drainage. This necessitated the construction of mills to pump away surplus water and dykes to carry the water away. The result was the characteristic polder landscape (Haarsten et al., 1989).
But polders, although created for agricultural purposes and, to some extent, flood protection, have developed a broader value over time. Today they also provide many important semi-natural habitats, they offer opportunities for recreation and tourism, and they have a very high landscape value. Recreation and tourism are attracted by the old town centres, the stretches of water, the tranquility and the wide, open landscape, while the populations of meadow birds are recognised to be of international importance.

The production conditions for agriculture in the polders are in many ways unfavourable, mainly due to the long, narrow plots, the difficulties caused by a high water table and the need to maintain extensive drainage systems, which are essential if modern forms of agriculture are to be economically viable. However, the advantages to agriculture of draining the land is counteracted by the resulting shrinkage of the soil if conditions become too dry, by the decline in aquatic ecosystems and by the deterioration in the value of the landscape. The paradox has therefore arisen of a landscape created in the interests of farmers, which has come to represent a high landscape value, but which is now under threat due to the pressures to adapt the physical conditions to the needs of modern agriculture.

The main goal of government policy relating to fenland is the "maintenance of the open, water-rich and interwoven character and the diversity of types of fenland landscape" (Ministerie van Landbouw, Natuurbeheer en Visserij, 1993b). This is to be realised by the development of a sustainable but competitive agriculture and the maintenance and enhancement of characteristic landscape elements.

Subsidies are available to farmers in order to improve production conditions in fenland areas. Farmers in a Less Favoured Area or in an area covered by Relation Paper measures covering four hectares or more may be eligible for a subsidy on the purchase of specially adapted machinery and the resurfacing of farmyards and paths. In areas subject to land consolidation schemes, the enlargement of plots may be supported by public funds. However, the lowering of the water table is not in
general subject to government subsidies, with the exception of farmland in areas where the designation does not include any natural value. Areas that are selected to fall within the Relation Paper schemes and which are not part of the national ecological network (about ten per cent of the total Relation Paper area) will be mainly fenlands.

The main lines of government policy concerning fenland areas is laid down in the Green Space Structure Plan. Three categories of fenland designation are distinguished – areas where the main function is agriculture, areas where the main function is a combination of agriculture and nature, and areas where the main function is nature.

In fenlands where agriculture is the main function (about 110,000 hectares, of which about 25 per cent lies within the ecological network) and where high cattle densities are found, natural values will be realised mainly through the purchase of agricultural land and providing for appropriate forms of management. However, the exact area to be purchased in this way has not been specified. Where cattle densities are less, the nature conservation objectives – mainly in the form of meadow-bird populations – will be realised through encouraging farmers to take appropriate measures through management agreements.

In those fenland areas where both agriculture and nature provide important functions (about 80,000 hectares, of which about 67 per cent lies within the ecological network) and where cattle densities are high, management agreements will focus on maintaining the less accessible and poorer drained areas. Where cattle densities are lower, greater emphasis will be placed on purchasing land and creating nature reservation areas (although these will also be farmed).

Fenland areas where nature is to be the predominant function (about 15,000 hectares, of which about 90 per cent lies within the ecological network) are generally characterised by poor production conditions, an underdeveloped marketing structure and low cattle densities. In general, large parts have already
Arenas. However, due to the low cattle densities and the poor production conditions, farmers are generally not interested in managing land which has been purchased as a nature reservation area. The management of these areas by farmers will therefore be made financially more attractive, for example by lowering farm rents. Nature conservation organisations will also be encouraged to invest in these areas with a view to facilitating extensive forms of agriculture. It is recognised, however, that this will be a relatively costly strategy.

An example of a fenland landscape is the area lying close to the northeastern suburbs of Amsterdam known as Waterland and covering 11,500 hectares. Waterland is an exceptionally valuable example of a traditional polder landscape: it is part of the national ecological network, whereby the area's natural value must as far as possible be conserved and enhanced, it falls under the "blue track" policy framework of the Landscape Paper, whereby planning should aim for an integrated form of rural development that respects the various functions of the land, and it is designated as a "valuable cultural landscape" under the Green Space Structure Plan, whereby the province is requested to draw up an integrated plan for the sustainable development of the area.
The plan for Waterland was published by the province of North Holland in 1995 (Provincie Noord-Holland, 1995). This "area perspective" recognises six threats to the agriculture, nature and landscape in the area. The main threats to the Waterland landscape are those that affect fenland landscapes throughout the Netherlands.

First, many dairy farmers have been forced to move to another area or to end their business for economic reasons or because of the difficulties caused by farming on fenland. The departure of a farmer also means the departure of the traditional manager of the polder landscape.

Second, even where farmers remain, the advantages to agricultural efficiency offered by lowering the water table and further intensification are having a negative impact on landscape quality and the characteristic flora and fauna, particularly on the meadow-bird populations. And although management agreements are available as compensation for accepting certain restrictions on agricultural practices, local farmers have recently been questioning the value of the agreements: doubts have arisen on the extent to which the payments will continue to cover their steadily increasing production costs and the specific management agreement conditions are often perceived as too restrictive.

Third, a large proportion of the Waterland region has been purchased by private nature conservation organisations. These organisations lease part of the grassland back to local farmers under the condition that it is managed through traditional forms of livestock farming. However, the willingness of farmers to lease the land is decreasing, and without agricultural use the costs to the organisations of managing the land themselves are very high. In addition, the management of reed beds used to be carried out in an extensive manner by the farmers, but is now primarily a task for the nature conservation organisations which find it difficult to organise a similar form of extensive management, again with negative impacts on the local fauna and flora.
Fourthly, due to the area's close proximity to Amsterdam, urbanisation is increasingly affecting the landscape. Although the pressure of urbanisation is clearly a permanent structural threat to Waterland, the capacity of the area to resist the pressure is currently inadequate due, on the one hand, to the weakness of the local dairy farming industry and, on the other, to the poorly developed potential for recreational activities and tourism.

Fifth, the impact of pollution control policies on the area is to some extent having a negative effect on nature conservation and landscape quality. The two main pollution problems concern the contamination of soils and surface and groundwater by nutrients emanating from manure and the emissions of ammonia from intensive livestock operations. To combat these problems, livestock farmers are prohibited from applying fertilisers or manure in the winter months and are required to inject manure direct into the soil and to install sealed manure storage units with a minimum capacity of six months. These policies have imposed substantial costs on farmers and have created further operational restrictions on their practices. One effect of the measures has been to encourage farmers to cultivate arable crops such as maize for use as animal feed and as a "sink" for the disposal of excess manure. However, this is an undesirable development with respect to the interests of landscape and the meadow-bird populations.

Despite these threats, opportunities to strengthen the characteristic Waterland landscape also exist. Although agriculture in the area has increased in both physical scale and intensity, it remains relatively extensive compared with usual Dutch practices. The basis therefore exists for a form of farming that meets both agricultural and landscape conservation objectives. The special qualities of the Waterland landscape are also widely appreciated, as has been demonstrated in the past when new urban development schemes met intense public opposition. Latent support for landscape conservation initiatives therefore exists, and this could be strengthened in combination with the further development of recreational and tourist opportunities. Finally, the close proximity of Amsterdam can be seen as a marketing opportunity for regional products, although this
would require a degree of product diversification by local farmers and a well-organised consumer-awareness campaign.

On the basis of this analysis, the plan for Waterland identifies five focal points for initiatives to strengthen the landscape. These provided a sufficiently developed framework to allow the special management commission (under the chairmanship of the province and with representation from agriculture, nature conservation, recreation, water management, municipalities and central government) to approve an action programme for 1995 that included 45 projects. A budget of NFl 5.2 million was made available, including a contribution of NFl 2.3 million from central government. Because of the primary role of agriculture in forming and maintaining the landscape in Waterland, this will remain the most important function; 60 per cent of the budget available will be used for projects and investments to improve the conditions for agricultural production.

The first focus of the plan is to broaden the range of agricultural products in order to improve the income basis for farmers. Possible products which could benefit from this approach include farm cheese, cultured diary products (such as yoghurt) and meat. Secondly, actions are necessary to improve the production conditions for agriculture or to promote the adoption of technologies that can better cope with the existing conditions, such as the provision of subsidies for lightweight farm machinery or the funding of research into alternative agricultural practices. The third focus is on innovative ways of stimulating sustainable environmental and landscape management. Current projects cover research on alternative ways of storing manure, a system for financially rewarding farmers for increasing the natural value of their holdings and the development of indicators of the natural value of a farm. The fourth focus is on ways of strengthening the recreation and tourism sector, for example through the stimulation of hiking, canoeing and, in the winter months, skating. Finally, information and awareness-raising is seen as an essential means of increasing the commitment of local inhabitants to the conservation of the area, such as by informing livestock farmers of the various support schemes for environmentally friendly farming.
The dynamics of economic development, agricultural modernisation and water management have had a major impact on Dutch landscapes since the mid-nineteenth century, and particularly over the past 50 years. But it was only in the 1970s that explicit policies were first developed as a response to what was seen as a general decline in landscape quality. The thrust of these policies was to adapt existing mechanisms such as land-use planning and land consolidation programmes with the aim of limiting the physical transformation of the countryside.

However, it came to be recognised that such an approach does not adequately take into account the dynamics of the many human activities and natural processes that shape and maintain landscapes. Indeed, the measures often led to unresolvable conflicts with land users, particularly farmers whose main concern was economic survival in an increasingly competitive environment. The recognition of the limitations posed by formalistic measures encouraged policy-makers to reassess the approach to landscape conservation. This resulted in the early 1990s in a series of policy papers which to a greater or lesser extent redefined the framework for landscape conservation – the Landscape Paper, the Green Space Structure Plan, the Fourth Policy Paper on Physical Planning and Land Consolidation in the 1990s. These papers were characterised by three key elements: the recognition of landscape as a multidimensional concept, placing landscape conservation within the broader context of rural development and striving for the integration of a range of sectoral objectives, such as landscape, agriculture, nature conservation and tourism.

Out of this process emerged a classification of nine characteristic types of Dutch landscape, the identification of ten specific valuable landscapes and a broad policy framework aimed at their conservation and enhancement through measures directed at the main actors involved in landscape management. The policy framework relies on the competent authorities and other relevant organisations to elaborate specific actions through a broad process of consultation, both vertically – from central down to local authorities – and horizontally across the many interested parties. It relies for success in the main on...
stimulatory instruments such as joint funding and the creation of broad consultative and decision-making procedures.

It remains to be seen to what extent this approach will prove successful in practice. Integration, stimulation and consultation certainly offer new perspectives for the management of landscape conservation, but they do nothing to change the fact that the interests involved in the activities that shape landscapes are often in conflict. Their potential lies in the scope for facilitating and supporting actions that further mutual objectives and limiting single-sector developments that cause undue damage to other interests.

References

The first in Spain to evaluate the landscape as heritage were geologists in the early years of this century. Amongst these, Eduardo Hernández Pacheco and Hugo Obermeyer stand out. They had a marked influence on the establishment in 1918 of the first two Spanish National Parks, Covadonga Mountain and the Valley of Ordesa. Despite the fact that a natural landscape was the object of these cases, there was a certain tendency to consider cultural aspects as well. A sentence in a speech by King Alfonso XIII in the National Park of Covadonga in 1918 sums up the philosophy underlying its creation:

"We are going to create something that is unique in the world: uniting the art of Nature to Religion and to History at the place where a nation was born".

Some time afterwards, in 1927, the Royal Decree on Places and Natural Monuments of National Interest was passed. This established protection for those "elements of the landscape that are extremely picturesque or extraordinarily beautiful, and especially if their value is increased by association with legend, tradition or history". Both the King's speech and the Royal Decree underline the idea of associating the natural landscape with cultural or historical elements. The later may therefore be regarded as the first step taken towards the concept of a "cultural landscape" by Spanish legislation.

More than 50 years ago, Dantín Cereceda (1942) developed a classification of Spain on the basis of natural features. Later, Lautensach (1965), using the German concept of a cultural landscape, devised a land classification system using cultural criteria in relation to the Iberian peninsula's humid and dry climatic regions (Figure 6.1). Nevertheless, these and other attempts at moving towards a definition and classification of cultural landscapes had little effect on conservation work.
In 1970, Vila Valenti and Capel spoke of an agricultural landscape as the formation of an area by agricultural activities. Given that Spain has been and continues to be an eminently agricultural nation, defining landscape in this way offered an attractive perspective on defining cultural landscapes. Drain (1979) also spoke of cultural landscapes in the sense of agricultural landscapes, while Solé Sabarís (1987) used the term to refer to geographical regions, arguing that the latter result from the actions of man on natural landscapes or regions. Solé Sabarís refers to "agricultural areas" as being the true units into which the cultural landscape is divided". They are defined as "territorial units having well-defined features and characterised by a certain homogeneity in the natural landscape and forms of life".
Thus, tacitly but nevertheless comprehensibly, cultural landscapes in Spain are perceived within the context of the agricultural landscape. It is, however, important to distinguish between the modern concept of a cultural landscape and "historical landscapes". The former may be defined as a landscape that has been brought about in a relatively short period of time, usually as the result of the intensification of agricultural techniques. The latter type of landscape has its origins in long-term historical processes which are generally linked to extensive usage of the land. As well as their cultural value, historical landscapes therefore also tend to be of high environmental value.

The agricultural division of Spain undertaken by the Ministry of Agriculture (Ministerio de Agricultura, 1978a, 1978b) created territorial units that grouped municipal boundaries sharing common natural, economic and social characteristics. In practice, this forms an approach to what could be called "territorial units of cultural landscapes". This division was carried out on the basis of land-use indicators that quantified information on the physical environment, since agriculture tends to be mainly extensive and highly dependent on this. The areas defined by these indicators therefore give an idea of both human use of the land and the potential uses made possible by the natural environment. It is due to this that the landscapes defined in this classification are very close in conceptual terms to those regarded as cultural landscapes. Landscapes studies today are therefore based on this division.

In 1989, the Conservation of Natural Areas and Wild Flora and Fauna Act defined landscape in a broad sense. It did so through the concept of a "protected landscape", defining this as "those places in the natural environment which, due to their aesthetic and cultural values, deserve special protection".

However, although there remains no generally agreed definition of a cultural landscape at either the national or regional level, the concept of a cultural landscape is currently the subject of increasing interest. Two recent events in particular have helped to make cultural landscapes an topical issue. First, in 1992,
the regions of Andalusia, Languedoc-Rosellón and Véneto adopted the Mediterranean Landscape Charter. This defines landscape as:

"the tangible expression of the spatial and temporal relationship between individuals and societies and their physical environment, shaped to varying degrees by social, economic and cultural factors. The landscape is therefore the result of a combination of natural, cultural, historic, functional and visual elements".

Second, the Fifth Meeting of the IUCN Working Group for the Conservation of Landscape took place in Mallorca in 1994. In this meeting, a draft list of threatened cultural landscapes in the Balearic Islands was presented. This list included eight specific types of cultural landscape in the region.

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**Draft list of threatened cultural landscapes in the Balearic Islands**

Source: Morey (1995)

- **Irrigations in Pla de Sant Jordi (Mallorca)**. Lowland irrigation area of 2,500 ha. Water pumped by 1,200 windmills, many abandoned.

- **Traditional dry crops (Mallorca)**. Cereal crops with fruit-trees. Occupies the main part of the island and is threatened by tourist development.

- **Terraces (Mallorca)**. Stone terraces occupying one-third of the Tramuntana range, mainly in deep slopes. Main crops are cereals and fruit (almonds, olives etc.), but due to the lack of profitability many holdings are being abandoned, leading to erosion and the deterioration of the terraces.

- **"Possessions" (Mallorca)**. Estates of about 100 ha, including crops and wild areas and with a main farmhouse. Until recently these were self-sufficient management units, but are now being abandoned and used for rural recreation.

- **"Llocs" (Menorca)**. These are also self-sufficient management units, but their architecture, management practices and land use differ to the "Possessions".

- **Semi-natural pastureland (Menorca)**. These are one the main land uses in Menorca. The strong winds and the British influence in the eighteenth century encouraged the development of pastureland for cattle, which today is under threat from the effects of the EU Common Agricultural Policy.
Rural areas of Ibiza. Unlike the rest of the Balearic Islands, the population of Ibiza occupies a large number of small holdings, each with its own crops and fruit trees. The increase in tourism is negatively affecting traditional architecture and the maintenance of agriculture.

Landscape of Formentera. The entire island of Formentera has been included as a threatened cultural landscape because it remains largely beyond the influence of mass tourism.

The History of Spanish Landscapes

The first effects on the landscapes of the Iberian peninsula date back to the period 3000–500 BC with the first cultivation of grain. Agriculture developed strongly throughout this period along the Mediterranean coasts and on the Balearic Islands, where Greek, Etruscan, Phoenician and Carthaginian colonies prospered. The vine and the olive were already cultivated by 1,200 BC and mining operations transformed the landscape in some areas.

During the period 500 BC–500 AD, the development of extensive infrastructure projects (reservoirs, roads, aqueducts) took place together with further agricultural development by the Romans. The Roman plough was introduced and irrigation was extended; the most abundant livestock were sheep and pigs. Mining had a great impact on the landscape, which can still be seen to this day. Later, tribes from central Europe arrived, developing agriculture still further and dividing up the lands. Some estimates conclude that forests were reduced by 50 per cent during this period (Bauer, 1992).

The Middle Ages were characterised by Arab domination, especially in southern Spain (711–1492). They developed agriculture and introduced new crop species (cotton, citric fruits, cane sugar, aubergine) and cultivation techniques (such as terraces), and also built large-scale irrigation works. Another characteristic of the Middle Ages were the wars of reconquest, which destroyed great areas of forest. The peoples from the conquered lands came under the rule of the nobility, and it was in this way that the prevailing demographic pattern of the
south arose, with a widely distributed rural population living in isolated villages under aristocratic rule. During this long period of war, sheep farming was of great importance, because it permitted mobility and could exploit natural resources without the need for permanent settlements.

It was then, in 1273, that the Mesta was created, a livestock association with great power which to a great extent determined the evolution of Iberian landscapes. Little by little, pastureland was created in both the plains and the mountain areas, both areas being linked by an extensive network of stock routes called cañadas. In this way, a transhumant system arose whereby the livestock grazed the pastures of the plains the winter and, in the hot, dry summer months, mountain pastures. Permanent agriculture thereby became less important, and at the same time the forest area declined considerably.

In the period 1500–1800, the discovery of America led to the introduction of new crops (potato, corn, tomato). Also, because of the expansion of the navy, the demand for timber caused a further decline in the area of forest. It is estimated that in 1585 the merchant navy, fishing and war needs used 3 million tonnes of timber, which is equivalent to about 120,000 hectares of forest (Bauer, 1991).

In 1826, the Mesta was discharged and in 1827 a policy of disentailment began through which about 7 million hectares of land was transferred to private hands. From then on, further destruction of forests took place through expanding the area of permanent agricultural land: in the period up to 1939, the area farmed increased by 6 million hectares.

Until the 1960s, farming was mainly extensive and animal traction was dominant. Since then, however, the structure and environment of the countryside has radically changed. In the regions with the least favourable productive conditions, there was an exodus of rural populations to the city, and many provinces suffered serious depopulation. At the same time, the widespread introduction of butane gas accelerated the aban-
Abandonment of woodland for the production of firewood, which allowed some regeneration of forests in many areas. However, in the most suitable areas agriculture was intensified together with the increased use of modern farm machinery, the replacement of traditional crop varieties by more productive varieties, the abandonment of the rotatory fallow system, the break up of grazing land and transforming thousands of hectares by irrigation.

Together, these developments combined to cause a substantial loss of Spain’s cultural and landscape heritage. This process is still continuing and is even accelerating through the impact of more recent factors, such as rural tourism which in many areas is leading to further agricultural abandonment in favour of a service economy.

Changes in the Landscape

Although landscapes have always been subject to a constant process of transformation, the rate of change speeded up considerably in the 1950s with the widespread introduction of agricultural mechanisation and the exodus of rural populations from the countryside.

Abandonment of the Countryside

Over the past twenty years, the active agricultural population of Spain has fallen by 70 per cent over and above the losses that occurred since the 1950s (UPA, 1994). Although agricultural, grazing and forest land make up 80 per cent of Spain’s territory today, only 30 per cent of the population live in these areas (MAPA, 1996).

This migration, together with the ageing of the rural population, is not only resulting in the abandonment of thousands of hectares of agricultural land, it is also leading to a loss of traditional agricultural knowledge and practices. In these areas, traditional infrastructure such as stone walls, paths, terraces and irrigation channels are degrading, together with traditional forms of resource management (transhumance, tree-pruning etc.). The natural vegetation is tending to evolve towards forest, while some areas are now being used for cultivating
fast-growing species, such as pine and eucalyptus. As a result, valuable cultural landscapes are being abandoned and are deteriorating. It is to be expected that this loss of cultural landscape will continue over the coming years.

Agricultural Intensification
From the 1970s, the mechanisation of farming has increased by 280 per cent (MAPA, 1993). There are now more than 3.4 million hectares of land under irrigation (MAPA, 1995), 5.4 million hectares have suffered the effects of land consolidation (MEH, 1994), and hundreds of kilometres of rivers have been canalised. Also the introduction of new crops and afforestation have had a significant impact on the landscape, not only as a result of changes in land use, but also because farmers have had to abandon their traditional farming practices.

This tendency towards the disappearance of historical cultural landscapes continues. For example, by 2005 it is planned to bring more than 157,000 hectares under irrigation (MAPA, 1995a), while 352,135 hectares are hoped to be the subject of land consolidation schemes (MEH, 1994). The EU Common Agricultural Policy is also promoting further intensification and land-use changes.

Tourism
Tourism has increased substantially over the last four decades (Barrero, 1995). While this has been concentrated primarily in coastal or in mountainous areas, rural tourism is also increasing. Tourism usually has two main effects on the landscape: on the one hand, the land is abandoned as agriculture gives way to service industries, while on the other there is the construction of infrastructure for the tourist industry, such as roads, winter resorts and hotels. The policy of this important economic sector is to continue growing, with the inevitable result that pressure on the landscape will increase in the near future.

Infrastructure
There are currently more than 1,000 large water reservoirs in Spain, and the National Hydrological Plan calls for the construction of a further 272 (MOPTMA, 1993). From 1980 to 1993,
an average of 440 kilometres of high-capacity road were built each year (MOPTMA, 1994), and hotel accommodation increased by 23 per cent between 1980 and 1990. The number of apartments increased by 38 per cent over the same period, while camp sites increased in number by 110 per cent (Barrero, 1995). In spite of the fact that most of this infrastructure fell under the control of national plans, it lacked strategic planning that took account of the synergic and accumulative effects of these developments. The result has been a notable deterioration of the environment and the landscape.

Hydrology
The use of groundwater for irrigation and agricultural intensification has resulted in the drainage of 60 per cent of Spanish wetlands in recent years. Eighteen aquifers, covering 13,023 square kilometres, are overexploited (MOPTMA-MINER, 1994). The effects of the recent drought and deforestation in some areas have also had an important impact, causing serious biological losses and further simplification of the landscape.

Landscape Protection
Spanish administrative competences for landscape protection are allocated between national, regional and local government and a diversity of legislation exists. However, certain competences are in the process of transference from central to regional government, and not all regions have the same powers of landscape protection. Legislation therefore differs between the regions.

The first national legislation on the landscape was passed in the form of a Royal Decree in 1927 (see above). This offered the possibility of protecting certain areas due to their landscape, and especially if they had valuable historical associations.

Other national legislation relating to the protection of landscapes include:

- Royal Decree 2994/1982 on the restoration of natural areas affected by mining activities (this Decree has been modified in some regions)
Law 16/1985 on the Spanish historical heritage
Law 25/1982 on mountain agriculture
Royal Decree 1131/88 on environmental impact assessment.

However, nowhere in this legislation is the meaning of landscape, the criteria for its valuation or the instruments for its protection defined.

Mention should also be made of the Soil Act of 1992 which set up the possibility of protecting the soil against urban development on the basis of its landscape values. This power is the competence of local governments and is exercised through the land-use planning system. Again, however, there is no mention of a landscape definition or of instruments to implement the policy.

A legal definition of a "protected landscape" does, however, exist. Law 4/1989 on the conservation of natural areas and wild flora and fauna defined protected landscapes as being those sites within the natural environment that, due to their aesthetic and cultural value, deserve special protection. Several regional governments (Murcia, Castilla-Leon, Catalonia and Asturias) have also adopted legislation that alludes to the concept of a protected landscape. Although this definition includes cultural landscapes, the lack of a clear definition for this term has meant in turn that it also lacks legal status.

Of the 466 protected areas in Spain, only five are protected landscapes, while nine are natural areas of national interest (Fernández, 1995). All of these areas are defined on the basis of their natural landscape (mainly geological values), with the single exception of San Juan de la Peña which was selected for its historical value. The total area covered by these zones constitutes no more than 0.2 per cent of all the protected areas within the country. In general, this form of protection is very rarely used.

Although the Mediterranean Landscape Charter contains a declaration of intent for the conservation of these landscapes, to date no effective action has been taken to this end.
It is clear that interest in cultural landscapes is still very much a minority concern which is not seen as being of much importance, probably because there are still huge areas of cultural landscapes in Spain. Even in national strategies, landscape protection is not taken into account, as for example in the National Strategy for the Conservation and Sustainable Use of Biological Diversity (MOPTMA, 1995) and the ENCINA strategy, which constitutes the sectoral elaboration by the Ministry of Agriculture of a strategy for sustainable development integrated into rural development (Tió & Troya, 1996; MAPA, 1996).

The ENCINA strategy


The ENCINA strategy is to guide the Ministry of Agriculture's actions towards sustainable development. It provides for the setting-up of programmes focusing on promoting the conservation of the natural environment by means of a balanced and dynamic development of rural areas, bringing together production, social and ecological functions. For this purpose five goals have been defined, each accompanied by a set of objectives.

These goals are:

- Adapt the exploitation of resources to their natural recovery rate
- Improve the transformation and production processes and increase product quality.
- Reach and maintain a biodiversity conservation status in which all its elements are viable
- Involve producers and consumers in ensuring the success of the above objectives
- Develop a system of environmental indicators in order to evaluate the status of natural resources and the efficiency of natural processes.

No explicit policy relating to cultural landscapes therefore exists. Indeed, cultural landscapes as such are excluded from the main Spanish conservation policies. Nevertheless, agricultural policy may be able to contribute to the conservation of cultural landscapes through the maintenance of extensive farming methods. This could be achieved through the implemen-
tation of the agri-environment measures of the EU Common Agricultural Policy (Regulation 2078/92). To date, most of the plans drawn up under the Regulation have been designed for the conservation of animal species and natural areas. However, by focusing on the survival of extensive agricultural systems, they also serve to conserve cultural landscapes. In this case, the policy instruments employed are mainly economic in nature. Due to the huge areas of cultural landscapes in Spain and to the nature of the processes affecting the landscapes, financial support measures only offer a short-term solution that is limited to relatively small areas.

It must be emphasised in this respect that the zonal plan for the cereal steppes of Castilla-Leon covers 1.2 million hectares, within which eleven Important Bird Areas are located. At least 685,522 hectares should be subject to specific support measures, but by 1995, when the programme had been running for two years, only 49,983 hectares (4.1 per cent of the whole area) had been included in the scheme (MAPA, 1995b).

Financial support measures may also be dangerous in the long term if they are not accompanied by other policies focusing on appropriate sustainable forms of indigenous development and market-based solutions. In this respect, the ENCINA strategy, adopted by the Ministry of Agriculture, represents an interesting approach that could be taken up and further developed by other sectoral authorities.

### Examples of Cultural Landscapes

**Dehesas**

The dehesa is a highly stable agro-silvipastoral exploitation system that developed under conditions of low rainfall and high summer temperatures. It produces a savanna-like landscape with a combination of open and wooded habitat types. The average size of a dehesa is about 500 hectares and includes tree species, principally oaks (mainly *Quercus ilex*, but also *Quercus suber* and *Quercus faginea*) at densities of from 10 to 66 per cent (Montoya, 1988) and Mediterranean scrub. Dehesas are found on undulating land, with soils that are not very productive, and in areas of low population density.
The most important produce of dehesas is livestock, mainly traditional breeds of cattle, sheep and pigs. Agriculture is also important for the production of cattle feed and forest products, such as cork and firewood. In traditionally managed dehesas, tree management is adapted for the production of acorns, which constitute an important source of food for pigs. In some areas, mainly those with some Mediterranean scrub, game is also an important source of income, particularly red deer (*Cervus elaphus*) and wild boar (*Sus scrofa*).

Traditionally, livestock was moved to mountain pastureland during the summer, when the grass dries out, but today livestock is often kept in the dehesas for the whole year and fed with the cereal produced on the estate. The dehesa is therefore an extremely complex system extending over a very large area; each type of production is closely related to all the others and this in turn requires specialised kinds of management.

From 1950 to 1970 dehesas underwent a serious crisis due to a combination of several factors. The Iberian pig, which is a basic element within the productive network of dehesas, suffered a drastic reduction in numbers due to the appearance of porcine plague in 1959, which in turn led to a grave deterioration in these lands. The response was an increase in the spread of intensive agriculture and, as a result of this, thousands of hectares were ploughed up or cleared. This coincided with the increasing mechanisation of the Spanish countryside, which further encouraged the use of intensive production techniques. New livestock breeds were introduced at higher stocking densities, and cattle often replaced sheep.

This was also a time during which thousands of hectares were brought under irrigation, including many former dehesas (such as the Badajoz Plan irrigation scheme). Simultaneously, traditional practices, such as transhumance, were abandoned while others became rarer, such as traditional rotations and the exploitation of woodland for firewood and acorns. As a result, it is estimated that between 1951 and 1981 37–49 per cent of the dehesas were lost (Campos, 1984).
Dehesas currently cover about 5.8 million hectares (Campos, 1992), mainly in the southwest quarter of the peninsula. Porcine plague has been eradicated and pigs have recovered in number, while in some areas woodland is increasingly being managed to produce charcoal or firewood. Some of the traditional breeds of livestock have again prospered, such as merina sheep and retinta cattle. Nevertheless, the most important product of dehesas – livestock – is dependent on Common Agricultural Policy support measures, so that cattle densities, breeds and the way they are managed are determined by these measures. This in turn is a major factor in shaping cultural landscapes.

Dehesas, together with the adjacent areas of Mediterranean forest, have a high conservation value due to their structure and management practices. Dehesas support very diverse bird populations, with 46 bird species depending partially or totally on this habitat. Of these, 29 are in decline in Europe (Tucker & Heath, 1994), including important populations of the Spanish imperial eagle (Aquila adalberti), the black vulture (Aegypius monachus) and the black stork (Ciconia nigra). Dehesas are also very important for wintering bird populations because of the warm climate during winter and the high winter productivity (Tellería, 1988); they provide the most important overwintering areas for the common crane (Grus grus) – 60,000–70,000 every winter – and are also important for mammals, including the lynx (Lynx pardina) and the mongoose (Herpestes ichneumon).

**Extensive Cereal Crops**

Extensive cereal crop landscapes are characterised by a mixed usage of farming and grazing, based of cereals, leguminous crops and sheep. This kind of landscape is dominant in the central part of the country with a flat topography, low rainfall (250–800 millimetres a year), hot summers and cold winters. There are almost no trees, woodland being restricted to the river banks. The total area of this landscape is estimated at thirteen million hectares, of which four million are left each year as fallow (MAPA, 1994).
Soils are so poor that they have traditionally been cultivated in a rotation of once every three years, and the landscape is therefore dominated by a mixture of crops and fallow and grazing areas. Winter stubbles are extensively grazed by sheep. This practice keeps down scrub and increases fertilisation; in the summer sheep are traditionally moved to mountain pastures.

Extensive cereal crops are important for the conservation of steppe bird populations, with five species unique to the EU and very important populations of vulnerable or globally threatened species such as the great bustard (*Otis tarda*), the lesser kestrel (*Falco naumanni*) and the little bustard (*Tetrax tetrax*) (Tucker & Heath, 1994).

According to a comparative study of three areas of extensive non-irrigated farming, from the end of the 1950s to the end of the 1980s changes took place in land use which affected from 30 to 45 per cent of all land, the main cause being the decline in agriculture (Gutierrez et al., 1993). The changes which took place in these zones may be extrapolated to most Spanish non-irrigated arable land.

Given that abandonment is a gradual process, it is very common to find landscapes that are similar to traditional ones but in
which cultivated fields are intermixed with those left fallow and other fields containing communities of plants at different stages in their succession, depending on grazing patterns. These new landscapes are often of great importance for biodiversity, especially in terms of bird life.

The main pattern of change is for these landscapes to be abandoned along their marginal areas, while their most productive areas are liable to be brought under an intensified form of agriculture. The Common Agricultural Policy has had an enormous influence on this process, together with the EU Structural Funds. Thousands of hectares have lost part of their cultural value due to land consolidation and irrigated projects. Although a revitalisation of these areas has to some extent taken place during recent years through the effects of EU agri-environment measures, other Common Agricultural Policy measures are limiting this process by working in a counter-productive way.

**Drovers’ Roads**

The marked seasonal differences in rainfall and temperature and the extensive mountainous zones in many parts of Spain have acted as an important factor in livestock management practices. These factors have forced the development of a livestock system based on seasonal movements, from the lowland pasture areas in winter to the mountain pastures in summer. The system is known as transhumance and was developed to make optimum use of natural resources.

In 1273 the Concejo de la Mesta was created, an aggregation of livestock associations with the purpose of defending the rights of livestock, including transhumance. An extensive network of cattle tracks was developed to channel these movements; known as drovers’ roads, they cross almost the entire country, running from north to south. The network of drovers’ roads in Spain extends to 125,000 kilometres and has a surface area of 425,000 hectares (FEPMA, 1991). The entire system was equipped with drinking places, resting places and other facilities.

The network of drovers’ roads is therefore an important part of the landscape; it has a very special identity, and also links
different cultural identities that are found around the country. Transhumance also resulted in the formation of habitats of ecological value and incorporates many ecologically important management techniques that are not found in sedentary livestock production.

However, as a result of agricultural intensification and modern transport systems, transhumance is being abandoned, and the intrusion onto drover’s roads by infrastructure works and purchase by private land owners constitute serious threats. However, some initiatives are now being taken to conserve the system. For example, the 2001 Project, co-financed by the EU Life programme, is an NGO initiative aiming to draw attention to the cultural and ecological value of transhumance. Every year since 1993, a herd of 2,500 sheep are moved from their winter dehesas to the northern mountain pastureland along the drovers’ roads. During their journey south, the sheep are herded through Madrid city along the roads that have been part of the route for centuries (Garzón, 1976).
Conclusions

Several conclusions can be drawn from the Spanish experience on cultural landscapes:

- Spain possesses a very diverse range of cultural landscapes, many covering very large areas. A rigorous classification of these landscapes has not yet been drawn up.

- Several factors threaten the cultural landscapes of Spain. The most important of these are the progressive abandonment of the countryside in some areas, the spread of intensive farming in others, large-scale infrastructure developments and the growing pressure from the tourism sector. The EU Common Agricultural Policy, together with the Structural and Cohesion Funds, are exerting a major influence in this respect.

- There is little concern in Spain about cultural landscapes, probably because they are still a common resource.

- As a result, there is no specific policy covering these landscapes, nor are they taken into account by the most recent strategic plans drawn up by the Ministry of Public Works and the Environment, or the Ministry of Agriculture.

- There is no agreement on the definition of "cultural landscape", although it is generally understood to unite natural and cultural values. For historical reasons cultural values are closely associated with agricultural landscapes.

- The concept of a "protected landscape" is included in legislation, and this specifically includes cultural landscapes. Nevertheless, the fact that this definition has been so rarely applied (and always in relation to natural landscapes) means that it has little legal significance.

- Nevertheless, the agri-environment measures taken under the Common Agricultural Policy present an opportunity for the conservation of cultural landscapes, mainly because they have drawn the attention of policy-makers to the urgent need to promote rural development and conserve nature.
In this sense, the ENCINA strategy of the Ministry of Agriculture is a positive initiative, although it does not take into account the conservation of landscapes.

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CONCLUSIONS

The concept of a cultural landscape is somewhat of a paradox. On the one hand, as the five national studies show, the way in which historical, aesthetic, economic, social and natural values can amalgamate into the single entity of a cultural landscape is both an intuitive and a broadly appreciated notion. This is particularly illustrated by the way in which a diversity of distinctive regional identities associated with characteristic landscapes are recognised, such as the open landscape of the Grands Causses de Lozère or the orchards of Baden-Württemberg.

On the other hand, only in the past few years has the multi-dimensional concept of a cultural landscape been explicitly recognised in the five countries. The concept is generally understood and applied in its broad sense and without detailed elaboration, that is to say to landscapes that show some evidence of interaction between human activities and natural processes over a relatively long period. It therefore remains in large part a descriptive concept rather than an operationalised instrument for landscape classification, valuation and conservation.

Until recently valuable landscapes were usually assigned single and specific attributes, such as historic or aesthetic, and these formed the basis for any formal actions aimed at their conservation. Indeed, the concept of a "historic landscape" is long-established in France, Germany, Great Britain and Spain, while aesthetic considerations as a basis for landscape conservation have also been an important factor in the latter two countries. Surprisingly, the primary role of many traditional forms of agriculture in shaping and maintaining landscapes has received relatively little attention in developing conservation strategies, although in Spain the concept of a cultural landscape is often used to refer to a particular type of agricultural landscape. However, the economic function of agriculture in sustaining certain communities, for example through a local cider industry in a bocage landscape or milk production on permanently drained polder grassland, has been recognised, particularly in
France and the Netherlands. In all five countries, the conservation of biodiversity has been the least appreciated of the many values attributable to cultural landscapes.

A number of approaches have been developed in response to the need for classification and evaluation methodologies as a guide to conservation action. However, it has proved difficult to devise a generally applicable system for cultural landscapes: not only is it necessary to overcome major methodological problems in order to analyse the synthesis of cultural and natural values, but any such system that elaborates or indicates priorities for conservation has far-reaching political implications by inferring the need for action. The best-developed methodologies, such as those developed by the Institute for Terrestrial Ecology, focus on the descriptive classification of landscape types; assessment and evaluation methodologies that incorporate the cultural component of landscapes are generally less well developed. An interesting exception is the Dutch government's Landscape Paper in which policy priorities are elaborated by evaluating nine characteristic landscape types on the basis of aesthetic value, ecological significance and sustainable economic functions.

The primary interest in the historical and aesthetic values of cultural landscapes was probably instrumental in the limited approach of most efforts to date to conserve cultural landscapes. In the first place, only two countries – France and the Netherlands – can be said to have developed a broad policy framework for landscape conservation. In France this was elaborated in the 1993 Landscape Protection Act, covering the protection of outstanding landscapes, the role of land-use planning, the designation of heritage protection areas, the strengthening of regional nature parks and new criteria for land consolidation programmes. In the Netherlands, the 1992 Landscape Paper laid down the objectives of and the criteria for landscape conservation, specific priorities for the nine characteristic Dutch landscapes and the way in which actions should be taken in consultation with the wide range of actors involved in landscape management.
Germany, Great Britain and Spain have also developed a range of landscape conservation measures, but not as part of a broad and consistent strategy. This is to an important extent, certainly in Germany and Spain, a consequence of the federal (Germany) or regionalised (Spain) administrative structure, whereby the majority of the competences relating to landscape management lie with the regional authorities. Landscape conservation policies can therefore differ substantially from region to region. A similar devolution of competences applies in Great Britain with respect to England, Wales and Scotland (although identical administrative arrangements apply to England and Wales).

Despite these administrative and environmental differences, the principal elements of landscape policy are common to all five countries: the designation of those landscapes of exceptional value – be it aesthetic, historical or natural – and the development of instruments aimed at restricting actions that would directly cause undesirable changes to the physical landscape. However, both the status of and the basis for landscape designation differ substantially between the countries and in some cases between regions within the same country. First, a variety of criteria are applied to designate valuable landscapes. These may reflect a range of different values – aesthetic, historical, economic or natural; they may be applied individually to landscapes or in combination; and the specific values may be interpreted very differently from country to country or from region to region. Most of the countries continue to designate distinct kinds of landscape, such as outstandingly beautiful or historical, which do not as such reflect the broader function of many cultural landscapes. Only in the Netherlands are three different criteria systematically applied in landscape conservation policy as a broader indicator of the need for conservation.

But designation does not necessarily infer protection. Indeed, many forms of designation that are applied in the five countries do not carry any formal obligation to ensure protection, such as Heritage Coasts in Great Britain or the former landscape labelling scheme in France. The only forms of designation that have a binding or near-binding character are those relating to
certain sites of high nature conservation value, particularly those that require protection under the EU Birds and Habitats Directives.

The most common consequence of designation is a requirement for land-use planning authorities to take designations into account when preparing development plans or granting planning permission. More recently, an interesting development in policy terms has been the greater emphasis placed on integrating landscape conservation objectives into other policy sectors, such as agriculture and transportation. Agricultural support measures, for example, may be adapted to promote practices that contribute to the management of certain landscape types. France (through sustainable development plans), Germany (through various integrated rural development initiatives), Great Britain (through the Countryside Stewardship scheme), the Netherlands (with respect to the integration of environmental objectives into other policy sectors) and Spain (through the implementation of the EU Agri-Environment Regulation and the use of the Cohesion Fund) are currently active in developing this approach to the conservation of cultural landscapes. It is also of note that the European Commission has recently shown interest in developing an integrated rural development policy that would simultaneously meet a range of economic, social and environmental objectives through mutually compatible support measures and could contribute to the conservation of cultural landscapes.

These examples illustrate the wide range of instruments that are applied in the five countries in order to achieve landscape conservation objectives. Four main types can be distinguished. First, authorities may take direct action to manage valuable landscapes. The purchase of land by public agencies is a well-established means of securing a desired form of management, and in some countries, such as Great Britain and the Netherlands, private conservation bodies also own and manage large numbers of sites. Government bodies may also initiate their own projects, such as the landscape restoration works in the Dordogne river valley.
Second, valuable sites or certain landscape elements may be legally protected. As noted above, formal site protection arrangements are mainly related to valuable natural habitats. The more limited objective of protecting specific landscape features, such as hedgerows in England and Wales under the Environment Act, is more common.

Third, the broad instrument of land-use planning can play an important role, both in controlling changes in the use of land where the change would affect valuable landscapes and in imposing restrictive conditions on certain forms of land use, such as forestry, where certain management practices would impair landscape quality. Land-use planning is the primary mechanism for countryside conservation in Great Britain, although the extent to which it is actively used as a means to conserve valuable landscapes is to some extent left to the discretion of each individual planning authority.

Fourth, a variety of economic instruments are applied in the five countries as a means of promoting landscape conservation. Management agreements, in which farmers are compensated for adapting their normal practices to meet certain environmental goals, are well-established in most countries, although their role in landscape conservation is less developed. The Agri-Environment Regulation 2078/92 offers scope for using EU funds in this way, for example by providing support to maintain extensive agricultural systems in Spain. Several recent French initiatives – the Management Fund for Rural Areas, the Daily Life Improvement Fund, the revised arrangements for forest investment aid and landscape contracts (which can provide for the funding of innovative actions) – are interesting examples of economic instruments, although it is too early to be able to assess their effectiveness.

But other instruments are also applied. These include special marketing arrangements for products with a strong regional identity, which are particularly well-developed in France and, more recently, in Germany. These arrangements are often associated with a labelling system with the aim of facilitating consumer choice and promoting consumer confidence. But
labels need not be limited to the products themselves, as the French landscape labelling scheme demonstrates. The growing interest in recent years in these kinds of schemes has encouraged initiatives by farmers, local commercial interests, environmentalists and municipalities to set up regional organisations with the aim of promoting their interests. An interesting example is provided by the German landscape management associations, of which more than 80 have now been established. Finally, it can be noted that the practice of land consolidation, which in some countries has for decades been applied solely with the aim of improving agricultural efficiency, has in recent years been adapted to take other objectives into account, including landscape conservation. This is particularly the case in France and the Netherlands.

What can be concluded from this broad range of experience in the five countries? The most striking finding is that the concept of landscape conservation, after remaining virtually unchanged for over a hundred years, has recently entered a renaissance. For more than a century, landscapes were appreciated almost exclusively for their historical or aesthetic values. The role of local or regional economic and social structures and processes in shaping the landscape and the development of semi-natural ecosystems that were created and maintained through the various management practices was poorly appreciated outside of specialist circles.

This focus on the morphology of the landscape had important consequences for the kinds of action that have been taken to conserve landscapes. In all five countries, conservation measures have focused primarily on preserving the physical architecture of landscapes, rather as if the intention was to maintain the shell of a historic building. This is reflected in the emphasis given to various arrangements for legally protecting landscapes, for imposing restrictive conditions through land-use planning systems on the extent to which modifying characteristic landscape elements is authorised, and for the purchase and direct management of valuable sites by a public agency or private organisation.
However, the preservation of the shell of a historic building is a second-best solution compared with the continuation of an appropriate use and occupation: it requires a management agency, a maintenance system and the provision of dedicated funds, and it has the effect of turning the building into a museum. Precisely the same arguments apply to cultural landscapes, although at a far larger scale and to a far more complex artefact. In principle it is preferable to apply structural measures that will support the local or regional economic systems and prevent the disintegration of the social structures on which the management regimes that created and maintained the landscapes are dependent.

A series of developments during the past few years indicate that a recognition of the need for structural measures as a means to conserve valuable landscapes is rapidly gaining ground. For example, the integral concept of a cultural landscape is becoming more widely accepted. This recognition has yet to be elaborated into a reasonably precise definition or a systematic classification and evaluation methodology for the various types of cultural landscape. The development of a generally applicable (but not overly restrictive) methodology would considerably stimulate and strengthen actions to conserve cultural landscapes. Also, the traditional emphasis on static protection regimes is shifting to a concern to integrate landscape conservation into economic, agriculture and social policies. Directing conservation policies towards the optimisation of various sectoral objectives not only offers the promise of dealing with the structural causes of landscape degradation, it increases the scope for broadening the range of management instruments, involving a wider group of actors in conservation actions and developing more innovative approaches to strengthening local and regional communities. Further, in the field of nature conservation, it is notable that the value of semi-natural ecosystems is becoming increasingly recognised as an important element within the broader framework of conserving biodiversity.

International developments, such as the Dobris Assessment and the Pan-European Biological and Landscape Diversity
Strategy, are playing an important role in this respect by emphasising the European significance of cultural landscapes. Further, by providing a broader frame of reference, a European perspective highlights both the rich diversity of cultural landscapes and the close relation between cultural diversity and the continent's biological diversity. In that respect the cultural landscape debate is helping to reintroduce a certain balance into our perception of man's relation with the environment. At a time when our activities are regarded almost exclusively as a destructive force against which the environment should be defended, the cultural landscape issue reminds us that man's interaction with the environment can also result in a positive symbiosis. A better understanding of this symbiosis and the ways in which the positive interactions can be strengthened would serve to advance both the conservation of our cultural heritage and the cause of environmental sustainability.
CULTURAL LANDSCAPES
The conservation challenge in a changing Europe

One of Europe's greatest riches is the diversity of the continent's landscapes. But despite this great diversity, few landscapes can be found that have not been touched by man. European landscapes are therefore in large part "cultural landscapes" – a product of the interaction between man and nature.

In many cases, the complexities of this interaction serve to enhance the value of a cultural landscape over and above its purely natural antecedent: landscapes may, for example, harbour high historic, economic, aesthetic or natural values. This latter characteristic of cultural landscapes – the conservation of biodiversity – has until recently received relatively little attention.

Traditionally, the predominant focus of nature conservation has been the protection of areas that host an exceptionally high level of natural value. But beyond the limited number of protected sites lie vast areas of cultural landscapes which, through a combination of their huge area and the intrinsic natural value of many of the areas, provide the greater proportion of the continent's biodiversity.

The way in which many cultural landscapes are managed is therefore crucial for the future of nature conservation in Europe. In order to address this issue, the study examines cultural landscapes, with a special focus on agricultural landscapes and their value for the conservation of biodiversity, in five countries – France, Germany, Great Britain, the Netherlands and Spain. A comparative analysis reviews these national experiences and draws conclusions on the main lessons of conserving cultural landscapes in the five countries.