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CEREDIGION

LOCAL BIODIVERSITY

ACTION PLAN

Ceredigion Biodiversity Partnership.



CEREDIGION

**LOCAL BIODIVERSITY
ACTION PLAN**

Produced on behalf of the
**Ceredigion Biodiversity
Partnership**

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A LOCAL BIODIVERSITY ACTION PLAN FOR CEREDIGION

Ceredigion is rich in habitats and wildlife; its biodiversity is an important component of the County's distinctiveness. 'Rhos' pastures (also the habitat of the rare Marsh Fritillary butterfly); estuaries and wetlands of international importance that support wildfowl and waders and oak woodland all contribute to the biodiversity of the County. Ceredigion is also a stronghold for the Red Kite and Chough. The coastline of Cardigan Bay is of importance for sea birds whilst its waters support Bottlenose Dolphin, Harbour Porpoise and Atlantic Grey Seal.

Conserving biodiversity is not just about rare or threatened species, it is about all living things. Protecting the variety of life around is increasingly important, not just for the intrinsic worth of plants and animals themselves, but for human needs.

The production of the Local Biodiversity Action Plan marks an important stage in sustaining Ceredigion's wildlife resource. It provides a foundation for the community to work together for the future well-being of the County's biodiversity. The Plan has been produced by the Ceredigion Biodiversity Partnership, which comprises a range of organisations with a responsibility for wildlife.

Planning for biodiversity in Ceredigion is a continuous process; the Biodiversity Action Plan (BAP) will evolve as knowledge increases and through the actions that will be taken to sustain a range of habitats and species in the County.

Alun Lloyd Jones,
Cllr Alun Lloyd-Jones
Chairman, Ceredigion Biodiversity Partnership
September 2002

This document is in two parts. Part 1 deals with the approach to biodiversity conservation and the role of the Local Biodiversity Action Plan. Part 2 contains the individual Habitat and Species Action Plans.

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PART 1

1. WHAT IS BIODIVERSITY?

Biodiversity is the variety of life. It covers everything from algae to oak trees, bacteria to blue whales. It includes all the genetic variation within species, the interactions between these species and their habitats and the differences between the great ecosystems of the world. Biodiversity is everywhere: it is in our gardens, fields, hedgerows, mountains, cliffs and in the sea. Biodiversity represents quality of life. It gives us pleasure, interest and understanding of our environment.

Ceredigion's wildlife is a vital part of our life support system. It is the web of life in which we live and on which we depend. Increasingly it is becoming clear that the wildlife around us reflects the state of the environment which we all share. A rich and thriving wildlife is a barometer of a healthy environment for people and a key test of sustainable development.

But wildlife is much more than a part of our ecology. It enriches all our lives every day in so many ways that we often take it for granted - the beauty of our native woodlands in spring, bird song on spring mornings, butterflies in our gardens; the trees and hedgerows that are such a vital element of our countryside.

So many of our basic needs - our food, clothing, shelter, medicines - are created from trees, plants, and animals. Many developments in science and engineering have been triggered by man observing and emulating his natural surroundings. Much of our cultural heritage - literature, music, even our language and the names we use - owe their origins to features of the natural world.

The quality of our lives and that of future generations is intimately bound up with conserving biodiversity. Biodiversity affects our quality of life in many ways; in short biodiversity ensures our survival.

Reasons for Conserving Biodiversity.

- Biodiversity supports life itself – most species have a precise role to play in the Earth's well being. Many plants and animals are dependent upon each other in a complex web of life, with each species relying on others for survival.
- Biodiversity provides essential goods – Plants and animals provide food, medicines, clothing and some of the raw materials for building and industry. It is vital to conserve biodiversity to maintain a wide range of species for future use.
- Biodiversity helps to maintain the environment – Natural processes assist with flood control, prevent soil erosion, help to filter wastewater, clean pollutants from the air, and mitigate noise and the visual intrusion of development. Biodiversity also acts as an indicator of the health of the environment and is a key test of sustainability.
- Biodiversity has aesthetic and spiritual value – People benefit greatly from contact with the natural world. Quality of life is intimately linked with the health of the environment. Many people value the very existence of species and habitats even if they have no direct contact with them.
- Biodiversity is valuable for recreation – Many people enjoy recreation in the countryside and urban nature areas. Attractive landscapes and wildlife are a focus for tourism and are very valuable to local economies.
- Biodiversity affects our quality of life in many ways; in short biodiversity ensures our survival.

2. FRAMEWORK FOR BIODIVERSITY CONSERVATION

The Earth Summit: Rio, 1992

Widespread concern for the plight of the global environment led to a historic meeting in 1992 of world leaders at the Earth Summit. This resulted in world-wide agreement to take action in four key areas:

- reduction in greenhouse gas emissions which are causing climate change
- sustainable management of the world's forests
- conservation of biological diversity (biodiversity)
- Agenda 21 - an action plan for sustainable development for the 21st century.

The Convention on Biological Diversity was signed by 153 countries, including the UK. The Convention requires each contracting country to:

'develop national strategies, plans or programmes for the conservation and sustainable use of biological resources'

This represented the first global commitment to conserving and sustaining biodiversity. The Earth Summit established new principles for how we view biodiversity and cater for its conservation.

Development and all human progress cannot be regarded as sustainable unless biodiversity and the whole environment are conserved. To conserve biodiversity, society needs to develop strategic plans that clarify and integrate conservation goals in the same manner as planning for any other aspect of human activity.

Biodiversity Conservation in the UK

The UK Government was one of the first governments to respond to the commitment of the Convention. The Government's overall goal is:

'to conserve and enhance biological diversity within the UK, and to contribute to the conservation of global biodiversity through all appropriate mechanisms'

A number of key reports have been produced that provide a strategic framework for biodiversity action. These are:

- a. Biodiversity: the UK Action Plan (1994);
comprised a programme of action spanning 59 broad objectives relating to biodiversity conservation in the UK over a 20 year period.
- b. Biodiversity: The UK Steering Group Report: 'Meeting the Rio Challenge' (1995); containing action plans and targets for key habitats and species. This report advocated four key elements to achieve biodiversity objectives:
 - *Development of action plans with costed targets for key species and habitats;*
 - *Improving the handling of information and data;*
 - *Raising awareness and involvement;*
 - *Production of Local Biodiversity Action Plans.*

In May 1996, the Government endorsed the Steering Group's Report. The UK Biodiversity Programme is now addressing each of these topics. The preparation of national action plans for habitats and species of particular conservation concern is central to this approach, and 45 national habitat action plans and 391 national species action plans have been produced over the past few years.

The UK Biodiversity Programme is being steered by the UK Biodiversity Group (UKBG) which replaced the former UK Steering Group. The various elements of the Programme are being overseen by a range of sub groups. Also reporting to the UK Biodiversity Group are groups for England, Wales, Scotland and Northern Ireland which help provide information and support biodiversity action within each country.

In Wales the objectives of the UK Biodiversity Programme are met by the Wales Biodiversity Group (WBG). The role of the Wales Biodiversity Group is to promote the implementation of the UK BAP, monitor progress and advise the National Assembly of Wales on the action necessary to maintain and enhance the biodiversity of Wales. Specifically, the WBG:

- Stimulates action and monitors progress on the implementation of Species and Habitat Actions Plans;
- Promotes good practice in the preparation and implementation of Local Biodiversity Action Plans, and monitors progress in the local delivery of biodiversity objectives;
- Promotes public awareness of, and involvement in biodiversity, and monitor progress;
- Maintains an overview of the range of the biodiversity action by different sectors in Wales and assess its overall contribution to maintaining and enhancing biodiversity;
- Considers how funding might be encouraged from key partners for biodiversity activities in Wales;
- Reports to the National Assembly on progress in implementing the UK BAP in Wales, identifying the key policy issues, and advise on the implications of future strategy for Wales;
- Liaises with the UKBG to report progress and future plans for Wales, and to co-ordinate approaches to common issues where appropriate.

3. A LOCAL BIODIVERSITY ACTION PLAN FOR CEREDIGION

The Ceredigion LBAP

The Government has taken a lead in setting the approach for biodiversity conservation, but in order to succeed action needs to be taken at all levels and in all sectors of the community. National objectives for biodiversity can be achieved only through concerted action at the local level: Local Biodiversity Action Plans (LBAPs) are the principle mechanism by which the national strategy can be put into effect. They help deliver sustainability and conservation of biodiversity objectives that are at the heart of Agenda 21 and the 'Biodiversity Convention'.

The Ceredigion LBAP covers the area within the County of Ceredigion, including the inshore waters and the seabed to 12 miles offshore around the Ceredigion coast. It provides the framework for local biodiversity action that will contribute to the delivery of national targets for key habitats and species, and the raising of awareness and understanding of the relevance of biodiversity to the people of Ceredigion. The broad functions of the Ceredigion LBAP are:

- To ensure that national action plans are translated into effective action at the local level;
- To establish targets and action for species and habitats characteristic of the County.
- To develop effective local partnerships to ensure that programmes for biodiversity are maintained in the long term.
- To raise awareness of and involvement in biodiversity conservation in the local context.
- To ensure that opportunities for conservation and enhancement of the whole biodiversity resource are fully considered.
- To identify the resources available for implementing the objectives of the Plan.
- To provide a basis for monitoring progress in biodiversity conservation, at both local and national level.

Ceredigion LBAP: Habitat and Species Action Plans

Part 2 of the Ceredigion LBAP contains the Habitat and Species Action Plan that have been produced to date. This will be expanded to include additional Action Plans as they become available. A list of species and habitats in Ceredigion is included in Appendices A and B: this list provides the Ceredigion Biodiversity Partnership with a basis for selecting habitats and species that will feature in future action plans. The species list comprises:

a. UK Priority Species

defined as those species that are globally threatened or are declining in the UK (by more than 50% in the last 25 years), and in need of species action plans. They comprise the species on the 'short list' in the *UK Steering Group Report (Volume 2) (1995)*, together with the 'middle list' as subsequently amended.

b. **Species of Conservation Concern**

defined as those species meeting one or more of four criteria (endemic, in rapid decline, internationally significant, and listed in international legislation), and originally published as the 'long list' in the *UK Steering Group Report* (1995).

Each Habitat and Species Action Plan is prepared by a partner organisation or individual with specialist knowledge. The plans provide an up-to-date review of the current status of these habitats and species, enabling effective and well-directed action. The action plans also establish targets for conservation action, seek to raise awareness and provide a framework for monitoring. The plans also identify a 'lead partner' to take a lead on the implementation and review of a particular action plan. In general, each Habitat or Species Action Plan has the following main elements:

- **Current Status:**
distribution and extent
trends
conservation status
- **Factors affecting the habitat or species**
- **Current Action:**
monitoring and survey
land management
advice / liaison
- **Targets (with dates)**
- **Outline Action Plan:**
policy and legislation
site safeguard and land management
research, monitoring and review
communication and publicity

The overall aim of each action plan is to enable successful conservation or restoration of priority habitats and species. Action Plans will seek to maintain locally, nationally, and internationally-important habitats and maintain habitats and species in '*favourable condition*'.

For a habitat to be in favourable condition, it must be stable or increasing in area, sustainable and its typical species also in favourable condition. For a species to be in favourable condition, the species' populations must be viable in the long-term, their ranges should not be contracting and sufficient habitat must exist to support the species in the long-term.

The conservation requirements and priorities outlined in the action plans will present challenges to the many organisations and sectors that are involved. Each plan will help individual organisations to identify their role; for example, whether site management, provision of grant aid, site protection, or perhaps influencing national policy. Plans present the extent and type of action that is required and where funds are needed for implementation. Education is a key element, and themes on raising awareness and training will be included in the plans.

Monitoring progress will be essential: circumstances and issues change over time and plans will need to be monitored and reviewed. Systems are currently being developed ('Biodiversity Action Reporting System') that will provide the means to measure progress in meeting targets and so that local and national information on biodiversity can be integrated.

Favourable Condition.

For habitats:

- the extent and distribution of the habitats identified are still stable or increasing
- the specific structure and functions which are necessary for their long-term maintenance exist for the foreseeable future
- the condition of their typical species is favourable

For species:

- population dynamics data on the identified species indicate that they are maintaining themselves on a long-term basis as a viable component of their natural habitats
- the natural ranges of the species are neither being reduced nor are likely to be reduced for the foreseeable future
- there is, and will probably continue to be, a sufficiently large habitat to maintain species' populations on a long-term basis

4. WORKING IN PARTNERSHIP

The development of effective partnerships is vital to the successful implementation of biodiversity targets. No one organisation or individual has the expertise or resources to implement the Biodiversity Action Plan by itself: however the LBAP provides a means by which activities can be encouraged and co-ordinated so that biodiversity aims and objectives can be met.

Ceredigion is well served by numerous organisations and individuals that are already contributing to the conservation of the County's biodiversity. A range of other plans and strategies are also helping to deliver biodiversity objectives. These range from the Unitary Development Plan, the Ceredigion Coast and Countryside Strategy, Local Environment Agency Plan and many others. Similarly, the LBAP will build on existing partnership projects and initiatives that are already making an important contribution to national biodiversity targets for a range of habitats and species in the County.

In June 2000, the Ceredigion Biodiversity Partnership was formed to produce and implement a LBAP for Ceredigion. Membership of the Partnership is as follows:

- ADAS (Pwllpeiran)
- Agriculture and Rural Affairs Department (Welsh Assembly Government)
- Ceredigion County Council
- Country Landowners Association
- Countryside Council for Wales
- Dwr Cymru / Welsh Water
- Environment Agency Wales
- Farmers Union of Wales
- Forestry Commission
- LA21, Ceredigion
- Nanteos Woodland Group
- National Farmers Union - Wales
- National Trust
- North Western and North Wales Sea Fisheries Committee
- Royal Society for the Protection of Birds
- Shared Earth Trust
- Tir Coed
- University of Wales, Aberystwyth
- University of Wales, Lampeter
- Urdd, Llangrannog
- Welsh Development Agency
- Wildlife Trust South and West Wales
- Woodland Trust
- Ymlaen Ceredigion

Examples of partnership projects and initiatives in Ceredigion

Cardigan Bay Forum

Ceredigion Marine Heritage Coast

Coed Cymru

Local Nature Reserves (Penglais LNR / Pendinas and Traeth Tanybwlech LNR)

Mynydd y Ffynnon Project

SAC Management (Cardigan Bay SAC / Penllyn & Sarnau SAC)

Teifi Estuary Management Plan

Ymlaen Ceredigion

5. BIODIVERSITY EDUCATION

Biodiversity cannot just be left to organisations involved in land management and nature conservation and the LBAP has a vital role in increasing both understanding and support among the wider community in Ceredigion.

Biodiversity education is therefore a fundamental part of the process. Public awareness and public guides ultimately dictate how and to what extent biodiversity is maintained and enhanced. This education needs to be carried out at a number of levels, equipping specialists, young people and the general public in both formal and informal ways. The aim of the LBAP in respect of biodiversity education are:

- To promote and encourage a greater understanding of biodiversity in Ceredigion.
- To promote the development of a co-ordinated programme of environmental education at all levels.
- To devise, encourage and support initiatives that provide information on the conservation and enhancement of Ceredigion's biodiversity.
- To encourage community involvement in biodiversity conservation and enhancement.

Biodiversity messages and initiatives can be geared to the particular interests of the various sectors in the community. For instance, much of the success of the biodiversity programme is dependent upon action by farmers – farm managers and the farming industry will be keen to know how to promote biodiversity without losing long-term profitability. In education, schools can develop opportunities for integrating biodiversity into the curriculum and finding ways to interest young people in the natural world.

There is also need to inform and persuade local authorities, statutory agencies and landowners about the need to incorporate biodiversity considerations in their work. In this way, biodiversity principles and land management techniques can be passed on to people who influence operations and individuals who carry out work at the ground level where changes in biodiversity actually occur.

6. CEREDIGION: ITS CHARACTER AND WILDLIFE

Geology and landscape

Ceredigion covers some 700 square miles. It is a County with a distinctive countryside; the upland spine of the Cambrian Mountains, a remote upland plateau dominated by Plynlimon (2468 feet / 752 metres in height); the river valleys of the Teifi, Aeron, Ysyrth, Rheidol and Dyfi and undulating countryside. Ceredigion is characterised by small farms and features moulded by agricultural practices over many generations - a dense field pattern with hedgerows and woodlands. On higher ground, the farmed landscape gives way to the open moorland and coniferous plantations to be found at Mynydd Bach and the Cambrian Mountains.

Ceredigion's coastline and the waters of Cardigan Bay are also special. Between the Dyfi and Teifi estuaries, the Cardigan Bay coastline includes a wide range of shoreline types, including the dune system at Ynyslas, storm beaches, sandy bays and high cliffs. A substantial proportion of the coast is undeveloped, four sections of which are designated as Heritage Coast. Two areas within Cardigan Bay have been selected as candidate Marine Special Areas of Conservation because of their importance for nature conservation.

Ceredigion's geology and geomorphology underpin the County's landscape. Beneath the surface, the rocks belong to the Silurian or Ordovician systems, laid down on the floor of a deep-sea basin in a period from 505 to 406 million years ago. These sedimentary rocks – inter-bedded mudstones, siltstones and sandstones – were uplifted and emerged above the sea during a mountain building period known as the Caledonian Orogeny (occurring towards the end of the Silurian period and the beginning of the Devonian). During this phase the sedimentary rocks were being uplifted, folded, laterally compressed and faulted, resulting in the distortion and displacement of the rocks. The rocks and their structures are best seen along the coast.

Over the past 800,000 years, Ceredigion has witnessed a number of glaciations. Ice cover was not continuous for there have been interglacial periods which were more or less ice free and relatively warm. This last glacial period (the Devensian) remained until about 15,000 years ago. During the last ice there were two glacier systems of special significance for Ceredigion. One was centred in mid Wales and included the Plynlimon area. Ice from this area flowed in a generally south-westerly direction over Ceredigion and glaciers were developed in the Dyfi, Rheidol and Teifi and other valleys. The other ice system known as the Irish Sea ice sheet moved down what is now recognised as the Irish Sea area and affected the southern part of the County.

The County ceased to be ice-covered during the period 14,000 to 18,000 years ago. The retreat of the Teifi Valley glacier gave rise to the formation of Cors Caron (formed behind a bank of glacial moraine) whilst below Llanybydder an alternative series of wide flood plains and narrow gorges were formed (the result of ponding up of glacial meltwater and glacial channels). Other features can be dated to the end of the last Ice Age, such as the 'pingos' found near Cwrtnewydd, Gorsgoch and Talgarreg.

Indeed, much of Ceredigion is covered by a veneer of glacial material that can be dated to the last Ice Age; sheets of boulder clay, mounds of sand and gravel, river terrace gravels and thick banks of debris beneath coastal cliffs.

The shore line of Ceredigion is faced for the greater part by rock cliffs, but in certain sectors the rock face occurs a short distance inland, hidden by glacial deposit; a mixture of stones, gravel sand and clay. Low boulder clay cliffs are found along the coast at Aberaeron and Llan-non whilst other sections at Morfa Bychan and north of Clarach this material forms cliffs of up to 45 metres in height.

Offshore, the 'sarnau' of Cardigan Bay also owe their existence to the last Ice Age. The sarns (also described as causeways) are an important feature of Cardigan Bay. They consist of morainic material from a glacier, probably deposited by a glacier of Welsh ice after the retreat of the Irish Sea glacier. There are five sarns in Cardigan Bay, three of which are anchored to the Ceredigion coast (Sarn Gynfelin, Sarn Dewi and Sarn Cadwgan). Sarn Gynfelin extends out to sea from Wallog beach for approximately 12 kilometres. This sarn has been the subject of local legend; the story of 'Cantref Gwaelod'.

As temperatures rose at the end of the Ice Age, the area was colonised rapidly by plants, animals and insects. Some 10,000 to 11,000 years ago a gradual warming favoured birch and later other tree species (such as oak and alder) that became widespread over both upland and lowland areas. Later, Bronze age peoples were to play a major part in the destruction of native forests in order to make way for arable or pastoral farming.

Mountain and Moor

The Cambrian Mountains form the eastern spine of Ceredigion. This remote upland plateau dominated by Pumlumon (2468 feet / 752 metres in height) comprises large areas of upland pasture and moorland - including substantial tracts of Common Land. The level of sheep grazing in the Cambrian Mountains is an important factor in determining the type and distribution of vegetation. The afforestation of large areas of upland in the latter part of the 20th century has been a major influence in the character of the area.

The distinctiveness of the area is due to the nature of the vegetation that it now supports, or has traditionally supported. Purple moor grass (*Molinia*) has a widespread distribution in both upland and lowland areas. It is the dominant plant in upland Ceredigion, especially around Pumlumon, flourishing on the peaty soils. Plants of the *Nardus* community (mat grass) are also a feature of this area. The most notable of these are heath rush (*Juncus squarrosus*) and to a lesser extent the wavy hair-grass (*Deschampsia flexuosa*).

The bilberry is also wide-spread although at a low density in most upland communities. Areas of heather are to be found on the higher ground between the Ystwyth and Rhuddnant near Cwmystwyth, this locality supporting a small population of red grouse.

The Cambrian Mountains support a characteristic bird community of largely northern species. The commonest breeding birds are meadow pipit and skylark. The wheatear is found where close-grazed turf and rocks are to be found. Small crags and isolated trees are the nesting places of crow, raven, kestrel or buzzard.

The EU assisted Mynydd y Ffynnon project sought to develop a sustainable approach to agriculture and management for upland Ceredigion. Against a backdrop of the problems facing agriculture and forestry, this pilot project has promoted the cultural landscape and biodiversity as a primary resource for the development of a sustainable environment and tourism in the Cwmystwth area. In particular, the project sought to enhance the ecological value of semi-natural rough grazing (dominated by *Molinia*) through grazing practices and to restore the ecological potential of raised bog.

Fields and Hedgerows

Agriculture has had a fundamental role in shaping the Ceredigion landscape. The pattern of small fields, hedgerows, woodlands and upland pastures in the County have been moulded by generations of farmers. Technical advances in agricultural practices, coupled with agricultural support, have expanded agricultural production over the last 50 years. Across Britain, the botanical content of fields has seen a marked change in this period.

The Tir Gofal scheme supports sustainable agricultural practices, including the management of existing habitats and options for the restoration or creation of certain habitats and features.

Hedgerows and hedgebanks are a highly attractive feature of the countryside. Whilst their primary function has always been the marking of boundaries and stock control, hedgerows also serve as valuable wildlife habitats and corridors. They represent within the landscape a very extensive system of sites, notable for the retention of possibly the richest diversity of flora and fauna to be found within the county.

Many hedgerows are remnants from the clearance of ancient woodlands rather than direct planting. Species in hedgerow such as wood anemone and bluebell are good indicators of a woodland origin.

The 18th and 19th centuries saw large areas of Ceredigion enclosed (through Acts of Parliament), becoming hedgerowed landscapes for the first time. As a result, many of the hedges we see today are man-made constructions planted with species such as gorse, hawthorn, whitethorn, blackthorn, sloe, hazel and beech. Laburnum was also used extensively in southern Ceredigion.

Woodlands.

Woodland covers approximately 16,000 ha of Ceredigion, or 9% of its total area. The greater proportion of existing woodland consists of large coniferous plantations concentrated in the Cambrian Mountains. About 24% of woodlands are categorised as 'Ancient Semi-Natural Woodland'. Ancient woodland sites in Ceredigion tend to be concentrated on the steep river valley sides of the Teifi, the Aeron Valley, Cwm Ystwyth and, in particular, Cwm Rheidol. The most typical woodlands are of sessile oak, although on some sites ash can be the dominant species. Woodland birdlife is rich, from the tiny wren and goldcrest to the larger predators like buzzard and the red kite.

Two ancient woodland sites in Ceredigion are managed as National Nature Reserves (Coedmor near Cardigan and Coed Rheidol near Devil's Bridge) whilst a number of other woodland sites have SSSI status. The sessile oak woodland of Coedmor blankets the valley sides above the Teifi. Beneath the shrub layer of

hazel, holly and spindle, the ground layer plants include great wood rush, blue bell, dos mercury and several species of ferns. The woodland is also rich in lichens. One of the larger and rarer species growing on the bark of trees is the lungwort, *Lobaria pulmonaria*, which is restricted to areas with a relatively unpolluted atmosphere. Birds typical of western oakwoods are present, including pied flycatcher and redstart.

Following the formation of the Forestry Commission in 1919, there was a large increase in the planting of conifers, principally in the Cambrian Mountains. The impact of large-scale forestry plantations has been a source of considerable debate on account of their environmental impact and their uniform structure and habitat. However, there has been a significant change in forestry practices in recent years with an emphasis on mixed planting. The coniferous woodland of the upper Tywi is the last refuge of the red squirrel in Ceredigion.

‘Cors and Rhos’

Ceredigion contains two areas of Cors (bog) that are of international importance for nature conservation; Cors Fochno, Borth and Cors Caron, near Tregaron. These areas are complex biological systems supporting a web of plant and animal life.

Cors Fochno is one of the largest lowland raised bogs in Britain. The formation of peat results in the surface rising: the depth of sphagnum peat in the central region of the bog is some five metres. Cors Fochno is of international importance; it is a ‘Ramsar’ site, a candidate Special Area of Conservation and a Biosphere Reserve (listed by UNESCO) as well as being a National Nature Reserve.

Plants of the bog are specifically adapted to life in waterlogged, nutrient poor and acidic conditions. Cors Fochno also provides a home for otter, reptiles, birds and rare invertebrates. Breeding birds include teal, curlew, redshank, warblers, whitethroat and winchat. In winter, hen harrier, barn owl and short-eared owl search for prey.

Cor Caron (also a Ramsar site, cSAC and NNR) consists of three raised bogs between Tregaron and Pontrhydfendigaid. At the centre, the bogs are hummocky, a sign that the bog is still growing upwards. The vegetation is dominated by bog mosses in the hollows whilst deer grass, sedges, hare’s tail, crowberry, bog rosemary, cranberries and sundews grow on the hummocks. Insects include the marsh fritillary, small pearl bordered fritillary and green hairstreak butterflies whilst over 40 species of bird breed on the reserve. At one time, Cors Caron was an important source of peat for fuel.

Rhos pasture is a special feature of west Wales. They are areas of marshy land with a wide range of plant species. They support an abundant and varied insect life. One rare species of butterfly, the marsh fritillary (*Euphydryas aurania*) is confined in Ceredigion to just a few areas of ‘rhos’ land such as Rhos Pilbach, Rhos Llawr Cwrt and Rhos Glyn yr Helyg.

Rhos Llawr Cwrt (a NNR and candidate SAC near Talgarreg) contains a patchwork of marshy grassland. In winter, the rhos is characterised by the muted browns of rushes and purple moor grass. In spring and summer, the rhos is transformed by flowers of a myriad of small herb species. As well as the marsh fritillary, Rhos Llawr Cwrt supports 15 species of dragon fly, including the uncommon small red damselfly. The traditional practice of low-intensity grazing is maintained at the site.

Rivers and Lakes

The Teifi, at 122km, is one of the longest rivers in Wales and one of its most productive salmon and sea trout fisheries. Its source is Llyn Teifi in the Cambrian Mountains, from where it descends steeply through moorland and forestry to Cors Caron on through its fertile valley and rocky, tree-lined gorges at Alltycafán, Henllan, and Cilgerran. The Afon Teifi, including ten of its tributaries, has been put forward as a candidate Special Area of Conservation for the three UK lamprey species, bullhead, otter, salmon, floating water plantain, water crowfoot communities and for upland lake communities. The other rivers in the County each have their own wildlife interest; for example, the river shingles of the Rheidol and the Ystwyth valleys provide a habitat for rare beetles.

There are some sixty lakes and reservoirs in Ceredigion, mostly in the northern part of the County. Llyn Eiddwen and Llyn Fanod, near Penwch, are 'mesotrophic lakes', an increasingly rare habitat in the Britain. The delicate balance of nutrients within these lakes means that they are very sensitive to environmental change. Mesotrophic lakes support a diverse range of aquatic plants, including rare and scarce species. Llyn Fanod is managed by the Wildlife Trust South and West Wales; it is also a National Nature Reserve

Coast and Estuary

The cliffs, sandy bays, storm beaches, dune systems and estuaries along the Ceredigion coast all have their distinctive wildlife.

Sea birds commonly seen along these areas include herring gulls, lesser black backed gulls, oyster-catchers and cormorants. At Bird Rock, one of the most important sea bird colonies in Wales, large numbers of guillemot, razorbill, kittiwakes, fulmars and shags nest each summer. Less common is the chough, the red-billed and red-legged member of the crow family of which there are now some 22 breeding pairs along the Ceredigion coast. Coastal cliffs are also the haunt of the peregrine which can also be found on some inland crags. There are also the winter visitors such as the purple sand-piper and the turnstone.

In summer, Ceredigion's coastline is characterised by a number of plants associated with cliff faces and slopes. Among the most common species are thrift (*Armeria maritime*), sea campion (*Silene uniflora*), common scurvy-grass (*Cochelearia officinalis*), sea mayweed (*Tripleurospernum maritimum*), vetch (*Vulneraria*) and the sea plantain (*Plantago maritime*).

At Borth, a shingle bank extends northwards from the cliffs towards the Dyfi estuary at Ynyslas. This shingle bank is composed mainly of pebbles and cobbles which have accumulated as a consequence of transport of such material along the shore by the process of 'long shore drift'. The sand-dunes that have developed behind the shingle ridge at Ynyslas are part of the Dyfi NNR. The succession of the dunes system gives rise to varied plantlife, from the colonising marram grass to the early marsh orchid of the damp dune slacks.

There are two main areas of salt marsh in Ceredigion. The largest lies along the southern shore of the Dyfi estuary. The salt marshes and adjacent mud flats are rich sources of food for a wide variety of bird species and especially for over-wintering migrants such as teal and wigeon. The RSPB reserve at Ynyshir includes this habitat. Within the Teifi estuary are two smaller areas, one lies between Pentod marsh and the river Teifi upstream from Cardigan and the other is at Nant y Ferwig.

Salt marshes possess a distinctive flora with a very marked zonation. The primary colonisers of bare-mud flats are species of glasswort (*Salicornia*). At a slightly higher level the common salt-marsh grass (*Puccinellia maritime*) characteristically begins to form a sward especially around the sides of salt marsh inlets.

Marine Life of Cardigan Bay

The coastal waters of Cardigan Bay are a haven for wildlife. Grey seals use secluded coves to haul out on rocks, seabirds breed on cliffs, and marine mammals such as the bottlenose dolphin and harbour porpoise are frequently seen close inshore. In addition, the Dyfi and Teifi estuaries are important nurseries for bass and mullet.

Cardigan Bay's population of bottlenose dolphins is estimated at 127 individuals. Whilst dolphins have been sighted throughout the Bay, most activity is believed to occur in the south. The dolphins and their Cardigan Bay habitat have been recognised of European conservation importance. This area has been identified as a candidate marine Special Area of Conservation (SAC) under the European Habitats Directive. More recently, additional features within the area have been added to the designation, including the sea caves, the atlantic grey seal and sea and river lamprey. The management of the Cardigan Bay SAC builds on the Marine Heritage Coast initiative, established in 1992 and covering the section of coast between New Quay and Tresaith.

To the north, a further area of the Bay is included within the Penllyn and Sarnau SAC. This area is of international importance because of special habitats, including its sarns and estuaries. Beneath the waves, the sarns support extensive sea-weed communities providing a home for many different marine species.

FURTHER INFORMATION:

- 'Biodiversity: the UK Action Plan', (1994)
- 'Biodiversity: the UK Steering Group Report. Volume 1 - Meeting the Rio Challenge'. (1995)
- 'Biodiversity: The UK Steering Group Report. Volume 2 - Action Plans' (1995)
- 'Tranche 2 Action Plans, Vols. 1 - 5', UK Biodiversity Group: (1998 & 1999)
- 'Sustaining the Variety of Life', UK Biodiversity Group (2001)
- 'Guidance for Local Biodiversity Action Plans', Wales Local Issues Advisory Group (1997)
- 'Action for Wildlife', Countryside Council for Wales (1997)
- 'Coast and Countryside Strategy', Ceredigion County Council (2000)
- 'Ceredigion, Its Natural History', David B James (2001).

WEB SITES:

- | | |
|--------------------------------|--|
| UK Biodiversity Web Site: | www.ukbap.org.uk |
| Countryside Council for Wales: | www.ccw.org.uk |
| Ceredigion County Council: | www.ceredigion.org.uk |

APPENDIX A

UK BAP Species in Ceredigion

Source: 'Biodiversity: Species Audit for Wales' RSPB *et al* (2000)

UK Priority Species

LATIN	WELSH	ENGLISH
<i>Triturus cristatus</i>	Madfall gribog	Great crested newt
<i>Bombus sylvarum</i>	Cardwenynen	Shrill carder bee
<i>Bombus distinguendus</i>	Cacwn	Great yellow bumble bee
<i>Bombus humilis</i>	Cardwenynen	Brown-banded carder bee
<i>Bombus ruderatus</i>	Cacwn	Large garden bumble bee
<i>Bidessus minutissimus</i>	Chwilen ddwr	A water beetle
<i>Cicindela maritima</i>	Not Available	A dune tiger beetle
<i>Hydroporus rufifrons</i>	Chwilen ddwr	A water beetle
<i>Lionychus quadrillum</i>	Not Available	A ground beetle
<i>Melanapion minimum</i>	Gwiddon	A weevil
<i>Perileptus areolatus</i>	Not Available	A ground beetle
<i>Thinobius newberyi</i>	Not Available	A rove beetle
<i>Acrocephalus paludicola</i>	Telwr y dwr	Aquatic warbler
<i>Alauda arvensis</i>	Ehedydd	Skylark
<i>Botaurus stellaris</i>	Aderyn y bwn	Bittern
<i>Caprimulgus europaeus</i>	Troellwr mawr	Nightjar
<i>Carduelis cannabina</i>	Llinos	Linnet
<i>Emberiza schoeniclus</i>	Bras y cyrs	Reed bunting
<i>Lullula arborea</i>	Ehedydd y coed	Woodlark
<i>Melanitta nigra</i>	Môr-hwyaden ddu	Common scoter
<i>Muscicapa striata</i>	Gwybedog mannog	Spotted flycatcher
<i>Passer montanus</i>	Golfan y mynydd	Tree sparrow
<i>Pyrrhula pyrrhula</i>	Coch y berllan	Bullfinch
<i>Tetrao tetrix</i>	Grugiar ddu	Black grouse
<i>Turdus philomelos</i>	Bronfraith	Song thrush
<i>Argynnis adippe</i>	Britheg frown	High brown fritillary
<i>Boloria euphrosyne</i>	Britheg berlog	Pearl-bordered fritillary
<i>Eurodryas aurinia</i>	Britheg y gors	Marsh fritillary
<i>Alosa alosa</i>	Herlyn	Allis shad
<i>Alosa fallax</i>	Gwangen	Twaite shad
<i>Hygrocybe calyptriformis</i>	Not available	Pink meadow cap
<i>Hygrocybe spadicea</i>	Not available	Date-coloured waxcap
<i>Microglossum olivaceum</i>	Not available	An earth-tongue
<i>Collema dichotomum</i>	Cen	River jelly lichen
<i>Graphina pauciloculata</i>	Cen	A lichen
<i>Pallavicinia lyellii</i>	Llysiâu'r afu	Veilwort
<i>Petalophyllum ralfsii</i>	Llysiâu'r afu	Petalwort
<i>Riccia huebeneriana</i>	Llysiâu'r afu	Violet crystalwort
<i>Hemaris tityus</i>	Gwalchwyfyn	Narrow-bordered bee hawk-moth
<i>Hydrelia sylvata</i>	Gwyfyn brith tonnog	Waved carpet

<i>Jodia croceago</i>	Uwchadain melyngoch	Orange upperwing
<i>Mythimna turca</i>	Not available	Double line
<i>Pechipogon strigilata</i>	Not available	Common fan-foot
<i>Polymixis xanthomista</i>	Not available	Black-banded
<i>Schrankia taenialis</i>	Not available	White-lined snout
<i>Xestia ashworthii</i>	Not available	Ashworth's rustic
<i>Arvicola terrestris</i>	Llygoden bengron y dwr	Water vole
<i>Lepus europaeus</i>	Ysgyfarnog	Brown hare
<i>Lutra lutra</i>	Dyfrgi	Otter
<i>Muscardinus avellanarius</i>	Pathew	Dormouse
<i>Pipistrellus pipistrellus</i>	Ystum lleiaf	Pipistrelle bat
<i>Rhinolophus ferrumequinum</i>	Ystum pedol mwyaf	Greater horseshoe bat
<i>Phocoena phocoena</i>	Llamhidydd	Harbour porpoise
<i>Odontoceti</i>	Morfild danheddog	Toothed whales
<i>Delphinidae</i>	Dolffiniaid bach	Small dolphins
<i>Cheloniidae</i>	Crwbanod mor	Marine turtles
<i>Cetorhinus maximus</i>	Heulgi	Basking shark
<i>Raja batis</i>	Morgath	Common skate
Teleosts	Pysgod mor sy'n cael eu pysgota	Commercial marine fish
<i>Margaritifera margaritifera</i>	Cragen las berlog	A freshwater pearl mussel
<i>Bryum calophyllum</i>	Mwsogl	A moss
<i>Bryum warneum</i>	Mwsogl	A moss
<i>Cryphaea lamyana</i>	Mwsogl	Multi-fruited river moss
<i>Ditrichum plumbicola</i>	Mwsogl	A moss
<i>Drepanocladus vernicosus</i>	Mwsogl	Slender green feather-moss
<i>Sphagnum balticum</i>	Mwsogl	Baltic bog moss
<i>Weissia rostellata</i>	Mwsogl	A moss
<i>Dianthus armeria</i>	Penigan y porfeydd	Deptford pink
<i>Limonium britannicum</i> ssp. <i>transcanalis</i>	Lafant Prydeinig	Rock sea-lavender
<i>Luronium natans</i>	Dwr-lyriad nofiadwy	Floating water plantain
<i>Pilularia globulifera</i>	Pelenllys	Pillwort
<i>Ranunculus tripartitus</i>	Crafanc trillob	Three-lobed water-crowfoot
<i>Scandix pecten-veneris</i>	Crib Gwener	Shepherd's needle
<i>Silene gallica</i>	Gludlys amryliw	Small-flowered catchfly
<i>Trichomanes speciosum</i>	Rhedynen wrychog	Killarney fern
<i>Baryphyma gowerense</i>	Corryn	A spider
<i>Maro lepidus</i>	Corryn	A spider
<i>Nitella gracilis</i>	Rhawn yr ebol	Slender stonewort
<i>Asilus crabroniformis</i>	Pryf lladd	Hornet robberfly
<i>Thereva lunulata</i>	Pry pigfain	A stiletto fly

UK Long List Species

LATIN	WELSH	ENGLISH
<i>Bufo bufo</i>	Llyffant dafadennog	Common toad
<i>Rana temporaria</i>	Llyffant melyn	Common frog
<i>Triturus helveticus</i>	Madfall ddwr balmwyddog	Palmate newt
<i>Triturus vulgaris</i>	Madfall ddwr gyffredin	Smooth newt
<i>Accipiter gentilis</i>	Gwalch marth	Goshawk
<i>Accipiter nisus</i>	Gwalch glas	Sparrowhawk
<i>Acrocephalus schoenobaenus</i>	Telor yr hesg	Sedge warbler
<i>Acrocephalus scirpaceus</i>	Telor y cyrs	Reed warbler
<i>Alca torda</i>	Gwalch y penwaig	Razorbill
<i>Alcedo atthis</i>	Glas y dorlan	Kingfisher
<i>Anas acuta</i>	Hwyaden lostfain	Pintail
<i>Anas clypeata</i>	Hwyaden lydanbig	Shoveler
<i>Anas crecca</i>	Corhwyaden	Teal
<i>Anas penelope</i>	Chwiwell	Wigeon
<i>Anas platyrhynchos</i>	Hwyaden wyllt	Mallard
<i>Anas querquedula</i>	Hwyaden addfain	Garganey
<i>Anser albifrons</i>	Gwydd dalcen-wen	White-fronted goose
<i>Anthus petrosus</i>	Corhedydd y graig	Rock pipit
<i>Anthus pratensis</i>	Corhedydd y waun	Meadow pipit
<i>Anthus trivialis</i>	Corhedydd y coed	Tree pipit
<i>Arenaria interpres</i>	Cwtiad y traeth	Turnstone
<i>Asio flammeus</i>	Tylluan glustiog	Short-eared owl
<i>Asio otus</i>	Tylluan gorniog	Long-eared owl
<i>Aythya ferina</i>	Hwyaden bengoch	Pochard
<i>Aythya fuligula</i>	Hwyaden gopog	Tufted duck
<i>Bucephala clangula</i>	Hwyaden lygad-aur	Goldeneye
<i>Buteo buteo</i>	Bwncath	Buzzard
<i>Calidris alba</i>	Pibydd y tywod	Sanderling
<i>Calidris alpina</i>	Pibydd y mawn	Dunlin
<i>Calidris maritima</i>	Pibydd du	Purple sandpiper
<i>Carduelis carduelis</i>	Nico	Goldfinch
<i>Carduelis chloris</i>	Llinos werdd	Greenfinch
<i>Carduelis flammea</i>	Llinos bengoch	Lesser redpoll
<i>Carduelis spinus</i>	Pila gwyrdd	Siskin
<i>Certhia familiaris</i>	Dringwr bach	Treecreeper
<i>Cettia cetti</i>	Telor Cetti	Cetti's warbler
<i>Charadrius dubius</i>	Cwtiad torchog bach	Little ringed plover
<i>Charadrius hiaticula</i>	Cwtiad torchog	Ringed plover
<i>Cinclus cinclus</i>	Bronwen-y-dwr	Dipper
<i>Circus aeruginosus</i>	Bod y gwerni	Marsh harrier
<i>Circus cyaneus</i>	Boda tinwyn	Hen harrier
<i>Coccothraustes coccothraustes</i>	Gylfinbraff	Hawfinch
<i>Coturnix coturnix</i>	Sofliar	Quail
<i>Cygnus columbianus</i>	Alarch Bewick	Bewick's swan
<i>Cygnus cygnus</i>	Alarch y gogledd	Whooper swan
<i>Cygnus olor</i>	Alarch dof	Mute swan
<i>Delichon urbica</i>	Gwennol y bondo	House martin
<i>Dendrocopos major</i>	Cnocell fraith fwyaf	Great spotted woodpecker
<i>Dendrocopos minor</i>	Cnocell fraith leiaf	Lesser spotted woodpecker

<i>Emberiza citrinella</i>	Melyn yr eithin	Yellowhammer
<i>Eudromius morinellus</i>	Hutan y mynydd	Dotterel
<i>Falco columbarius</i>	Cudyll bach	Merlin
<i>Falco peregrinus</i>	Hebog tramor	Peregrine
<i>Falco subbuteo</i>	Hebog yr ehedydd	Hobby
<i>Falco tinnunculus</i>	Cudyll coch	Kestrel
<i>Ficedula hypoleuca</i>	Gwybedog brith	Pied flycatcher
<i>Gallinago gallinago</i>	Giach gyffredin	Snipe
<i>Gavia stellata</i>	Trochydd gwddfgoch	Red-throated diver
<i>Hirundo rustica</i>	Gwennol	Swallow
<i>Lagopus lagopus</i>	Grugiar	Red grouse
<i>Larus argentatus</i>	Gwylan y penwaig	Herring gull
<i>Larus fuscus</i>	Gwylan gefnddu leiaf	Lesser black-backed gull
<i>Limosa lapponica</i>	Rhostog gynffonfrith	Bar-tailed godwit
<i>Locustella naevia</i>	Troellwr bach	Grasshopper warbler
<i>Loxia curvirostra</i>	Gylfin groes	Common crossbill
<i>Lymnocyptes minimus</i>	Giach fach	Jack snipe
<i>Mergus merganser</i>	Hwyaden ddanheddog	Goosander
<i>Mergus serrator</i>	Hwyaden frongoch	Red-breasted merganser
<i>Milvus milvus</i>	Barcud coch	Red kite
<i>Motacilla alba</i>	Siglen fraith	Pied wagtail
<i>Motacilla cinerea</i>	Siglen lwyd	Grey wagtail
<i>Numenius arquata</i>	Gylfinir	Curlew
<i>Numenius phaeopus</i>	Coeg-gylfinir	Whimbrel
<i>Oenanthe oenanthe</i>	Tinwen y garn	Wheatear
<i>Panurus biarmicus</i>	Titw barfog	Bearded tit
<i>Parus ater</i>	Titw penddu	Coal tit
<i>Parus caeruleus</i>	Titw tomos las	Blue tit
<i>Parus major</i>	Titw mawr	Great tit
<i>Parus montanus</i>	Titw'r helyg	Willow tit
<i>Parus palustris</i>	Titw'r wern	Marsh tit
<i>Phalacrocorax aristotelis</i>	Mulfran werdd	Shag
<i>Phalacrocorax carbo</i>	Mulfran	Cormorant
<i>Phoenicurus phoenicurus</i>	Tingoch	Redstart
<i>Phylloscopus collybita</i>	Siff-saff	Chiffchaff
<i>Phylloscopus sibilatrix</i>	Telw y coed	Wood warbler
<i>Picus viridis</i>	Cnocell werdd	Green woodpecker
<i>Pluvialis apricaria</i>	Cwtiad aur	Golden plover
<i>Pluvialis squatarola</i>	Cwtiad llwyd	Grey plover
<i>Porzana porzana</i>	Rhegen fraith	Spotted crane
<i>Prunella modularis</i>	Llwyd y gwrych	Dunnock
<i>Puffinus puffinus</i>	Aderyn-drycin Manaw	Manx shearwater
<i>Pyrhacorax pyrrhacorax</i>	Brân goesgoch	Chough
<i>Rallus aquaticus</i>	Rhegen y dwr	Water Rail
<i>Regulus regulus</i>	Dryw eurben	Goldcrest
<i>Riparia riparia</i>	Gwennol y glennydd	Sand martin
<i>Saxicola rubetra</i>	Crec yr eithin	Whinchat
<i>Saxicola torquata</i>	Clochdar y cerrig	Stonechat
<i>Scolopax rusticola</i>	Cyfflyg	Woodcock
<i>Sitta europaea</i>	Telw y cnau	Nuthatch
<i>Somateria mollissima</i>	Hwyaden fwythblu	Eider
<i>Strix aluco</i>	Tylluan frech	Tawny owl
<i>Sylvia atricapilla</i>	Telw penddu	Blackcap

<i>Sylvia borin</i>	Telor yr ardd	Garden warbler
<i>Sylvia curruca</i>	Llwydfron fach	Lesser whitethroat
<i>Sylvia communis</i>	Llwydfron	Whitethroat
<i>Tadorna tadorna</i>	Hwyaden yr eithin	Shelduck
<i>Tringa nebularia</i>	Pibydd coeswyrdd	Greenshank
<i>Tringa totanus</i>	Pibydd coesgoch	Redshank
<i>Turdus iliacus</i>	Coch dan-aden	Redwing
<i>Turdus pilaris</i>	Socan eira	Fieldfare
<i>Turdus torquata</i>	Mwyalchen y mynydd	Ring ouzel
<i>Tyto alba</i>	Tylluan wen	Barn owl
<i>Uria aalge</i>	Gwylog	Guillemot
<i>Vanellus vanellus</i>	Cornchwiglen	Lapwing
<i>Argynnis paphia</i>	Britheg arian	Silver-washed fritillary
<i>Boloria selene</i>	Britheg beriog fach	Small pearl-bordered fritillary
<i>Coenonympha tullia</i>	Gweundir mawr	The large heath
<i>Cupido minimus</i>	Glesyn bach	Small blue
<i>Thecla betulae</i>	Brithribin frown	Brown hairstreak
<i>Cottus gobio</i>	Penlletwad	Bullhead
<i>Lampetra fluviatilis</i>	Llysywen bendoll yr afon	River Lamprey
<i>Lampetra planeri</i>	Llysywen bendoll y nant	Brook Lamprey
<i>Petromyzon marinus</i>	Llysywen bendoll y môr	Sea lamprey
<i>Salmo salar</i>	Eog	Atlantic salmon
<i>Clavaria zollingeri</i>	Not available	Not available
<i>Cladonia fragilissima</i>	Cen	A lichen
<i>Leptogium burgessii</i>	Cen	A lichen
<i>Lobaria amplissima</i>	Cen	A lichen
<i>Lobaria virens</i>	Cen	A lichen
<i>Melaspilea interjecta</i>	Cen	A lichen
<i>Parmelia quercina</i>	Cen	A lichen
<i>Parmelia robusta</i>	Cen	A lichen
<i>Parmelia taylorensis</i>	Cen	A lichen
<i>Porina guaranitica (heterospora)</i>	Cen	A lichen
<i>Zamenhofia rosei</i>	Cen	Francis' blue-green lichen
<i>Plagiochila atlantica</i>	Llysiâu'r afu	A liverwort
<i>Adscita statices</i>	Coediwr	The forester
<i>Chesias rufata</i>	Not Available	Broom tip
<i>Cossus cossus</i>	Gafrawyfyfyn	Goat moth
<i>Cucullia asteris</i>	Not Available	Starwort
<i>Dyscia fagaria</i>	Not Available	Grey scalloped bar
<i>Capreolus capreolus</i>	Ewig	Roe deer
<i>Dama dama</i>	Danys	Fallow deer
<i>Erinaceus europaeus</i>	Draenog	Hedgehog
<i>Martes martes</i>	Bele	Pine marten
<i>Meles meles</i>	Mochyn daear	Badger
<i>Mustela erminea</i>	Carlwm	Stoat
<i>Mustela nivalis</i>	Gwenci	Weasel
<i>Mustela putorius</i>	Ffwlbart	Polecat
<i>Myotis brandtii</i>	Ystum Brandt	Brandt's bat
<i>Myotis daubentonii</i>	Ystum Daubenton	Daubenton's bat
<i>Myotis mystacinus</i>	Ystum barfog	Whiskered bat
<i>Myotis nattereri</i>	Ystum Natterer	Natterer's bat
<i>Neomys fodiens</i>	Llyg y dwr	Water shrew

<i>Nyctalus noctula</i>	Ystlum mawr	Noctule bat
<i>Plecotus auritus</i>	Ystlum hirglust	Brown long-eared bat
<i>Sorex araneus</i>	Llyg cyffredin	Common shrew
<i>Sorex minutus</i>	Llyg lleiaf	Pygmy shrew
<i>Sabellaria alveolata</i>	Riffiau	A honeycomb worm / Reefs
<i>Vertigo lilljeborgi</i>	Not available	A terrestrial snail
<i>Neobisium maritimum</i>	Not available	A pseudoscorpion
<i>Anguis fragilis</i>	Neidr ddefaid	Slow worm
<i>Lacerta vivipara</i>	Madfall gyffredin	Common lizard
<i>Natrix natrix</i>	Neidr y gwair	Grass snake
<i>Vipera berus</i>	Gwiber	Adder
<i>Diderma ochraceum</i>	y pridd llys nafedd	A slime mould
<i>Lycogala conicum</i>	y pridd llys nafedd	A slime mould
<i>Gonomyia bradleyi</i>	Pry teiliwr	A crane fly
<i>Limonia goritiensis</i>	Pry teiliwr	A crane fly

Note: the National Assembly for Wales will in due course be producing a list of species of principal importance in Wales (as required by Section 74, Countryside and Rights of Way Act 2000).

APPENDIX B

UK BAP AND OTHER HABITATS IN CEREDIGION

a. UK BAP Habitats

Upland oak woodland
Upland mixed ash woodland
Wet woodland
Lowland wood pasture and parkland
Ancient and/or species rich hedgerows
Coastal and floodplain grazing marsh
Cereal field margins
Lowland meadows
Lowland dry acid grassland
Purple moor and rush pasture
Lowland heathland
Upland heathland
Blanket Bog
Lowland raised bog
Fen
Eutrophic standing waters
Mesotrophic lakes
Coastal sand dunes
Maritime cliff and slope
Coastal vegetated shingle
Coastal saltmarsh
Mudflats
Sabellaria alveolata reefs
Sublittoral sand and gravels

b. Locally Important Habitats

Roadside verges
Metal mine spoil tips
River shingles

Note: the National Assembly for Wales will in due course be producing a list of habitats of principal importance in Wales (as required by Section 74, Countryside and Rights of Way Act 2000).

APPENDIX C

NATURE CONSERVATION – SITES IN CEREDIGION

1. INTERNATIONAL

Ramsar Sites:

Ramsar Sites are designated under the 1971 Ramsar Convention on Wetlands of International importance, of particular significance as waterfowl habitats. Protection is provided through SSSI designation.

County sites: Cors Caron; Cors Fochno and the Dyfi Estuary.

Biosphere Reserves:

Biosphere Reserves are established by the UK government under the UNESCO Man and the Biosphere Programme. The designation is to conserve examples of all major types of eco-systems and provide sites for integrated ecological research and environmental training. There is only one reserve in Wales.

County sites: Dyfi Estuary

Special Protection Areas (SPAs):

Special Protection Areas (SPAs) are designated by the Secretary of State for Wales in compliance with the EC Directive on the Conservation of Wild Birds (79/409 EEC), to conserve habitats of listed rare or vulnerable birds and regular migratory species. Protection is usually provided by SSSI designation.

County sites: Elenydd Mallaen SPA (part).

Special Areas of Conservation (SACs):

Candidate Special Areas of Conservation (SACs) are designated by the Secretary of State for Wales to comply with the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43 EEC), when implemented, to conserve habitats and listed rare or vulnerable species. Protection is usually provided by SSSI designation, and candidate SACs are to be treated as if they had already been confirmed by the EU.

County Sites:

Cardigan Bay Candidate marine SAC; Llyn Peninsula and the Sarnau marine SAC; Cors Caron SAC; Cors Fochno SAC; Elenydd SAC; Rheidol Woods & Gorge SAC; Rhos Llawr Cwrt SAC; Afon Teifi SAC; Rhos Talglas SAC; Coed Cwm Einion SAC; Grogwynion SAC; Elenydd SAC (part) and Cwm Doethi & Mynydd Mallaen SAC (part).

2. NATIONAL

National Nature Reserves (NNRs):

National Nature Reserves (NNRs) are areas which originated under the National Parks and Access to the Countryside Act 1949. They are declared by the

Countryside Council for Wales under Section 35 of the Wildlife and Countryside Act 1981, (as amended) to conserve the best national examples of a range of wildlife habitats and geological features. Sites are owned or leased by CCW, or subject to special agreement with the landowner / agency. Primary management objectives are the maintenance or enhancement of the scientific interest.

County Sites: Allt Rhyd y Groes (part); Coedmor; Coed Rheidol; Cors Caron; Dyfi; Rhos Llwr Cwrt; Llyn Eiddwen; Claerwen (part).

Sites of Special Scientific Interest (SSSIs):

Sites of Special Scientific Interest (SSSIs) are areas which originated under the National Parks and Access to the Countryside Act 1949. SSSI notification is now provided by CCW under Section 28 of the Wildlife and Countryside Act 1981, as amended, on sites by virtue of their flora, fauna, geological or physiographic features. There is a statutory obligation on landowners and occupiers to notify CCW if they intend to undertake operations or works which may damage the wildlife or geology of an SSSI. Ceredigion contains over 100 SSSIs, the most important also being protected as NNRs.

County sites: over 100 SSSIs in Ceredigion.

3. LOCAL

Local Nature Reserves (LNRs):

Local Nature Reserves (LNRs) may be designated by local authorities, with prior CCW approval, under Section 21 of the National Parks and Access to the Countryside Act 1949. Reserves are declared and managed for their local landscape and wildlife habitat, and provision of opportunity for public education and enjoyment of wildlife.

County sites: Parc Natur Penglais LNR; Pendinas & Traeth Tanybwllch LNR (both Aberystwyth)

Other Reserves:

There is also an RSPB Reserve at Ynys Hir whilst the Wildlife Trust South and West Wales manages 17 nature reserves in Ceredigion:

Allt Fedw Cutting	Cors Gorsgoch	Penderi
Cardigan Island	Llety Cybi	Rhos Fullbrook
Coed Cwm Cletwr	Llyn Eiddwen	Rhos Glyn-yr-Helyg
Coed Maidie	Llyn Fanod	Rhos Pil-Bach
Coed Penglanowen	Old Warren Hill	Rhos y Fforest
Coed Simdde Lwyd	Pant Da	

APPENDIX D

ABBREVIATIONS

ADAS	Agriculture Department Advisory Service
ARAD	Agriculture & Rural Affairs Department, Welsh Assembly Government
AT	Woodland Trust
CCC	Ceredigion County Council
CCW	Countryside Council for Wales
CLA	County Land and Business Association
DC/WW	Dwr Cymru / Welsh Water
EAW	Environment Agency Wales
EU	European Union
FCW	Forestry Commission Wales
FEW	Forest Enterprise Wales
FUW	Farmers Union of Wales
HAP	Habitat Action Plan
LA21	Local Agenda 21
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
NAW	National Assembly for Wales
NFU	National Farmers Union
NNR	National Nature Reserve
NT	The National Trust
NWNWSFC	North Western and North Wales Sea Fisheries Association
NWG	Nanteos Woodland Group
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SET	Shared Earth Trust
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TG	Tir Gofal
BG	UK Biodiversity Group
UCWA	University College of Wales, Aberystwyth
UCWL	University College of Wales, Lampeter
WBG	Wales Biodiversity Group
WDA	Welsh Development Agency
WTSWW	Wildlife Trust South and West Wales
YC	Ymlaen Ceredigion

CEREDIGION

**LOCAL BIODIVERSITY
ACTION PLAN**

Part 2

**Habitat and Species
Action Plans**

CONTENTS

Habitat Action Plans:

- Upland mixed ashwoods
- Upland oak wood
- Wet woodland
- Roadside verges

Species Action Plans:

- Black Grouse
- Brown Hare
- Chough
- Hornet Robberfy

Habitat Action Plan

UPLAND MIXED ASHWOODS

A. INTRODUCTION

Description of the habitat:

In Ceredigion Upland Mixed Ashwoods consist of woods on base rich soils, which have ash as the dominant species, although locally oak, birch, elm, small leaved lime or hazel may be the most abundant.

European / UK distribution:

Woodland related to Upland Mixed Ashwoods occurs throughout the western seaboard of Europe. The exact distribution is not clear, but the climatic requirements indicate that the habitat is restricted in range and that the UK has a significant international responsibility towards it. Within the UK, Upland Mixed Ashwoods occur mainly in southwest England, Wales, northern England and Scotland. The total area is uncertain, but the published estimate (UK action plan) is 67,500 hectares. Wales has an estimated 17,000 hectares, roughly 25% of the UK resource, and therefore a proportionally large responsibility towards the implementation of the plan. Upland Mixed Ashwoods are present throughout Wales and makes up about 20% of the total semi-natural woodland cover.

Distribution in Ceredigion:

Upland Mixed Ashwoods are the second most abundant type of woodland in Ceredigion, and are estimated at covering 1000 ha of the county. They are generally fragmentary in distribution, and often occur within mosaics of other woodland types where local soil conditions have allowed its development.

Trends:

Woodland covered approximately 30% of the county up to about 1600. More than 70% was subsequently lost to agriculture. During the last century, losses of Upland Mixed Ashwoods were primarily the result of conversion to conifers and some quarrying. Today, ancient semi-natural Upland Mixed Ashwoods account for only 0.5% of the land-area of Ceredigion. Fragmentation, decreases in size and a lack of management have all contributed to the decline in the extent and quality of Upland Mixed Ashwoods, as have inappropriate management (e.g. heavy grazing) and the introduction of invasive non-native species such as sycamore and rhododendron.

Conservation Status:

European: Listed in Annex 1 of the EC Habitats and Species Directive.

UK BAP Status:

High - A priority habitat for which a costed action plan has been prepared.

B. FACTORS AFFECTING THE HABITAT IN CEREDIGION

Loss and fragmentation of Upland Mixed Ashwoods:

There are few extensive (i.e. larger than 5 ha) areas of Upland Mixed Ashwoods left in Ceredigion. The majority of woods are small, and are unable to support a full range of structural and species diversity. Originally found on the richer soils they have been cleared for agriculture in the past and now often occur within oak woodland areas. Further losses and/or fragmentation of this woodland type would

be unacceptable. In addition to conserving surviving Ashwoods, every opportunity should be taken to restore them on ancient woodland sites (including those, which have been planted with conifers), and by extension, and creating new links between existing woodland habitats.

Inappropriate, or lack of woodland management:

During the last century, the quality of many of Ceredigion's Upland Mixed Ashwoods declined: species and structural diversity have been lost, however ash regeneration is occurring, particularly as a more regular component in oak woodland. This general decline is the result of inappropriate management such as heavy grazing, the preference for oak and clear felling resulting in even-aged trees, and / or a retreat of traditional woodland management such as coppicing.

The reintroduction of appropriate management of Upland Mixed Ashwoods is essential to ensure their long-term viability, and continued contribution to biodiversity.

Loss of genetic integrity:

Upland Mixed Ashwoods are vulnerable to losses of genetic integrity as a result of past restocking with non-local planting stock. Natural regeneration and the use of local provenance planting stock should be encouraged, in preference to the use of non-native stock.

Invasive alien species:

In the past, invasive alien 'weed' species such as laurel and rhododendron have been introduced to native Upland Mixed Ashwoods, often in association with game management. Some of the smaller Upland Mixed Ashwoods are becoming increasingly 'swamped' by these species, to the serious detriment of the ground and shrub layers, and ultimately to the woods themselves. Japanese knotweed is also present in some Upland Mixed Ashwoods, which poses a threat to their structure and species diversity. All invasive alien 'weed' species such as these should be controlled or eradicated in Upland Mixed Ashwoods, as and when appropriate.

Climate change:

The more frequent and severe storms that have been predicted as a result of climate change are likely to adversely affect woodlands characterised by a uniform age structure, which are already pre-disposed to storm damage. Re-introducing structural diversity and maintaining high genetic variation are crucial elements in ensuring that Upland Mixed Ashwoods can tolerate and adapt to long-term climatic change.

C. CURRENT ACTION

Site safeguard:

Achieved through statutory and non-statutory mechanisms, e.g. designation of SSSIs, use of woodland Tree Preservation Orders (TPOs) and the control of felling; liaison with and support for woodland owners via Coed Cymru, and Forestry Commission Wales's Woodland Grant Scheme, Woodland Improvement Grants and the Countryside Council for Wales's Tir Gofal agri-environment scheme.

Monitoring and survey:

Monitoring is carried out on all SSSIs where Upland Mixed Ashwoods are a feature, and on sites managed by individual partners. Forestry Commission Wales

monitors compliance with the conditions of a Felling Licence or a Woodland Grant Scheme.

Genetic integrity:

Pursued through the promotion of natural regeneration and the use of local provenance planting stock.

Habitat management:

Carried out on individual sites e.g. nature reserves by partners.

Habitat re-creation / restoration:

Promoted on appropriate sites, e.g. ancient woodland sites, and to create links between surviving Upland Mixed Ashwoods.

Advice and liaison:

Provided to woodland owners and farmers on all aspects of woodland management, and creating new or extending existing Upland Mixed Ashwoods.

D. OBJECTIVE AND TARGETS

Objective: to achieve favourable condition for Upland Mixed Ashwoods in Ceredigion, where the following targets are met:

- the current extent is maintained (e.g. 0.5% of surface area of the County);
- there is an expansion of a further 100 hectares (10% increase) by 2006;
- semi-natural Upland Mixed Ashwoods are restored to 100 hectares (10% restored) of ancient woodland sites by 2006;
- in sample sites:
 - i. the species composition of the canopy, understorey, scrub and ground flora is appropriate for Ceredigion Upland Mixed Ashwoods;
 - ii. the age structure of the woodlands is diverse, where a minimum of 10% of the total area of the woodland contains regeneration less than 20 years old, and 10% with mature trees and shrubs to be left to old age;
 - iii. dead wood will be present, comprising 20% by volume; non-native species (in particular beech and sycamore) are within acceptable limits (defined as between 5–10% of canopy cover);
 - iv. invasive, non-native 'weed' species (e.g. Japanese knotweed, laurel and rhododendron) are being controlled or are absent.

Current Condition:

**Upland Mixed Ashwoods in Ceredigion are considered to be
UNFAVOURABLE / DECLINING.**

E. OUTLINE ACTION PLAN - UPLAND MIXED ASHWOODS

Lead Partner: Forestry Commission Wales

	Action	Organisation
1	Policy and Legislation	
1.1	Ensure the protection and enhancement of the habitat through relevant strategic plans (e.g. the Unitary Development Plan).	FCW, CCC, CCW
1.2	Ensure forestry legislation, forestry standards and forestry guidelines are used to achieve LBAP objectives.	FCW
1.3	Ensure, where appropriate, woodland management meets standards for certification.	FCW
1.4	Support the development of initiatives that promote management through the end use of timber and markets for timber products.	FCW, CCW, CCC, WDA
2	Site Safeguard and Management	
2.1.	Promote the conversion of conifer plantations on Ancient Woodland Sites (AWS) to a native woodland character through grant aid where appropriate.	FCW, CCW, CCC, NFU, FUW, CLA, ARAD/CCW(TG)
2.2	Encourage and support the use of natural regeneration and / or the use of local provenance planting stock.	FCW, CCC, CCW, NFU, FUW, CLA, ARAD/CCW(TG)
2.3.	Extend positive management to all Upland Mixed Ashwoods including site survey and the production of a management plan via the FC Woodland Grant Scheme and Tir Gofal.	FCW, CCW, ARAD, ARAD/CCW(TG)
2.4.	Support woodland management through the development of markets for sustainable woodland products and Coed Cymru.	FCW, CCW, CCC
2.5.	Support FSC certification.	FCW, WTSWW, CCW, CCC
2.6.	Identify suitable areas for potential Upland Mixed Ashwoods re-creation and for creation of new woodlands around existing sites, securing partnerships to establish these as necessary, through the Tir Coed Initiative.	FCW, CCC, CCW
2.7.	Continue to provide support and advice on Upland Mixed Ashwoods to landowners/land managers and raise awareness and understanding of woodland issues.	FCW, CCC
2.8	Protect Upland Mixed Ashwoods through the making of Tree Preservation Orders where appropriate.	CCC
3	Research and Monitoring	
3.1.	Monitor the extent and quality of Upland Mixed Ashwoods including restored and new woodland areas to determine condition.	FCW, CCW, CCC
3.2.	Identify gaps in information and pursue further surveys as appropriate.	FCW, CCW, CCC

	Action	Organisation
4	Communication and Publicity	
4.1	Promote training and raise public awareness in native woodland management through seminars and workshops etc.	FCW, CCW, NFU, FUW, CLA.

F. RESOURCE REQUIREMENTS

Additional resources will be required in order to develop and / or initiate the following actions:

1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, and 3.2.

Date:

Action Plan prepared by FCW, February 2001.

Habitat Action Plan: UPLAND OAKWOOD

A. INTRODUCTION

Description of the habitat:

In Ceredigion Upland Oakwood is characterised by sessile oak, but birch is also common, together with an understorey of small trees and shrubs of hazel, rowan and holly. The composition of the ground flora varies in relation to a number of factors including soil fertility, drainage conditions and whether or not grazing is present. Bluebells, brambles and ferns tend to be most common where the soil is rich, with heather, bilberry and mosses becoming more prominent on soils which are acid and deficient of nutrients. Depending on soil conditions, a patchwork of other woodland types may also be present. For example, soils flushed with seeping water may support ash and hazel with a luxuriant ground flora including plants such as dog's-mercury and wild garlic, and alder is the dominant species on the wet soils of boggy hollows or spring lines. Animals are also well represented, including distinctive breeding birds such as the pied flycatcher, redstart and wood warbler.

European / UK distribution:

Upland Oakwoods (and related types) are restricted to the oceanic fringe of western Europe, occurring in UK and Ireland, and limited areas of Norway, France, Spain and Portugal. The UK and Ireland have the most extensive and best developed examples, and therefore have a significant international responsibility towards the habitat.

Within the UK, Upland Oakwoods occur mainly in southwest England, Wales, northern England (especially Cumbria) and Scotland. The total area is uncertain, due to incomplete inventories and complications over the limits of the definition, but is estimated to be in the order of 80,000 to 110,000 hectares. Wales has an estimated 39,000 hectares, some 40% of the UK resource. This is within the centre of the UK range and with examples at the habitat's easternmost limit. Wales therefore, has a substantial contribution to make to this action plan.

The habitat occurs throughout Wales and accounts for nearly 50% of the semi-natural woodland cover. The greatest abundance and diversity are found towards the west.

Distribution in Ceredigion:

Upland Oakwood is the most abundant type of woodland in Ceredigion, and covers 2% of the county. It is mostly confined to marginal agricultural land, such as steep valley sides and inaccessible boulder-strewn slopes.

Trends:

Woodland covered approximately 30% of the county up to about 1600. More than 70% was subsequently lost to agriculture. During the 20th century, losses of Upland Oakwood were primarily the result of conversion to conifers. Today, ancient semi-natural Upland Oakwood accounts for only 2% of the land-area of Ceredigion. Fragmentation, decreases in size and a lack of management have contributed to the decline in the extent and quality of Upland Oakwood, as have inappropriate management (e.g. overgrazing) and the introduction of invasive non-native species such as sycamore and, in localised instances, rhododendron.

Conservation Status:

European: Listed in Annex 1 of the EC Habitats and Species Directive.

UK BAP Status:

High - A priority habitat for which a costed action plan has been prepared.

B. FACTORS AFFECTING THE HABITAT IN CEREDIGION**Loss and fragmentation of Upland Oakwoods:**

There are few extensive (i.e. larger than 20 ha) areas of Upland Oakwood left in Ceredigion. The majority of woods are small, often surviving as narrow strips on steep valley sides that are unable to support a full range of structural and species diversity. Further losses and / or fragmentation of this woodland type would be unacceptable. In addition to conserving surviving Oakwoods, every opportunity should be taken to restore them on ancient woodland sites (including those, which have been planted with conifers), and by extension, and creating new links between existing woodland habitats.

Inappropriate, or lack of woodland management:

During the last century, the quality of many of Ceredigion's Upland Oakwoods declined: species and structural diversity have been lost, as has the ability of individual woodlands to regenerate. This general decline is the result of inappropriate management such as heavy grazing and clear felling resulting in even-aged trees, and/or a retreat of traditional woodland management such as coppicing.

The reintroduction of appropriate management of Upland Oakwoods is essential to ensure their long-term viability, and continued contribution to biodiversity.

Loss of genetic integrity:

Hybridisation between pedunculate and sessile oak has ensured that Ceredigion's Upland Oakwoods have a high genetic diversity. They are, however, vulnerable to losses of genetic integrity as a result of past restocking with non-local planting stock. Natural regeneration and the use of local provenance planting stock should be encouraged, in preference to the use of non-native stock.

Invasive alien species:

In the past, invasive alien 'weed' species such as laurel and rhododendron have been introduced to native Upland Oakwoods in certain instances, often in association with game management. Some of the smaller Upland Oakwoods are becoming increasingly 'swamped' by these species, to the serious detriment of the ground and shrub layers, and ultimately to the woods themselves. Japanese knotweed is also present in some Upland Oakwoods, which poses a threat to their structure and species diversity. All invasive alien 'weed' species such as these should be controlled or eradicated in Upland Oakwoods, as and when appropriate.

Climate change:

The more frequent and severe storms that have been predicted as a result of climate change are likely to adversely affect woodlands characterised by a uniform age structure, which are already pre-disposed to storm damage. Re-introducing structural diversity and maintaining high genetic variation are crucial elements in ensuring that Upland Oakwoods can tolerate and adapt to long-term climatic change.

C. CURRENT ACTION

Site safeguard:

Achieved through statutory and non-statutory mechanisms, e.g. designation of SSSIs, use of woodland Tree Preservation Orders (TPOs) and the control of felling; liaison with and support for woodland owners via Coed Cymru, and Forestry Commission Wales's Woodland Grant Scheme, Woodland Improvement Grants and the Countryside Council for Wales's Tir Gofal agri-environment scheme.

Monitoring and survey:

Monitoring is carried out on all SSSIs where Upland Oakwood is a feature, and on sites managed by individual partners. Forestry Commission Wales monitors compliance with the conditions of a Felling Licence or a Woodland Grant Scheme.

Genetic integrity:

Pursued through the promotion of natural regeneration and the use of local provenance planting stock.

Habitat management:

Carried out on individual sites e.g. nature reserves by partners.

Habitat re-creation / restoration:

Promoted on appropriate sites e.g. ancient woodland sites, and to create links between surviving Upland Oakwoods.

Advice and liaison:

Provided to woodland owners and farmers on all aspects of woodland management, and creating new or extending existing Upland Oakwoods.

D. OBJECTIVE AND TARGETS

Objective: to achieve favourable condition for Upland Oakwoods in Ceredigion, where the following targets are met:

- the current extent is maintained (i.e. 2% of surface area of the County);
- there is an expansion of a further 370 hectares (10% increase) by 2006;
- semi-natural Upland Oakwood is restored to 370 hectares (10% restored) of ancient woodland sites by 2006;
- in sample sites:
 - i the species composition of the canopy, understorey, scrub and ground flora is appropriate for Ceredigion Upland Oakwood;
 - ii the age structure of the woodlands is diverse, where a minimum of 10% of the total area of the woodland contains regeneration less than 20 years old, and 10% with mature trees and shrubs to be left to old age;
 - iii dead wood will be present, comprising 20% by volume; non-native species (in particular beech and sycamore) are within acceptable limits (defined as between 5-10% of canopy cover);
 - iv invasive, non-native 'weed' species (e.g. Japanese knotweed, laurel and rhododendron) are being controlled or are absent.

Current Condition:

**Upland Oakwoods in Ceredigion are considered to be
UNFAVOURABLE / DECLINING.**

E. OUTLINE ACTION PLAN - UPLAND OAKWOOD

Lead Partner: Forestry Commission Wales

	Action	Organisation
1	Policy and Legislation	
1.1.	Ensure the protection and enhancement of the habitat through relevant strategic plans (e.g. the Unitary Development Plan).	FCW, CCC, CCW
1.2.	Ensure forestry legislation, forestry standards and forestry guidelines are used to achieve LBAP objectives.	FCW
1.3.	Ensure, where appropriate, woodland management meets standards for certification.	FCW
1.4.	Support the development of initiatives that promote management through the end use of timber and markets for timber products.	FCW, CCW, CCC, WDA
2	Site Safeguard and Management	
2.1.	Promote the conversion of conifer plantations on Ancient Woodland Sites (AWS) to a native woodland character through grant aid where appropriate.	FCW, CCW, CCC, NFU, FUW, CLA, ARAD/CCW(TG)
2.2	Encourage and support the use of natural regeneration and / or the use of local provenance planting stock.	FCW, CCC, CCW, NFU, FUW, CLA, ARAD/CCW(TG)
2.3.	Extend positive management to all Upland Oakwood including site survey and the production of a management plan via the FC Woodland Grant Scheme and Tir Gofal.	FCW, CCW, ARAD, ARAD/CCW(TG)
2.4.	Support woodland management through the development of markets for sustainable woodland products and Coed Cymru.	FCW, CCW, CCC
2.5.	Support FSC certification.	FCW, WTSWW, CCW, CCC
2.6.	Identify suitable areas for potential Upland Oakwood re-creation and for creation of new woodlands around existing sites, securing partnerships to establish these as necessary, through the Tir Coed Initiative.	FCW, CCC, CCW
2.7.	Continue to provide support and advice on Upland Oakwood to landowners / land managers and raise awareness and understanding of woodland issues.	FCW, CCC
2.8	Protect Upland Oakwoods through the making of Tree Preservation Orders where appropriate.	CCC

	Action	Organisation
3	Monitoring and Research	
3.1.	Monitor the extent and quality of Upland Oakwood including restored and new woodland areas to determine condition.	FCW, CCW, CCC
3.2.	Identify gaps in information and pursue further survey as appropriate.	FCW, CCW, CCC
4	Communication and Publicity	
4.1	Promote training and raise public awareness in native woodland management through seminars and workshops etc.	FCW, CCW, NFU, FUW, CLA.

F. RESOURCE REQUIREMENTS

Additional resources will be required in order to develop and / or initiate the following actions:

1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, and 3.2.

Date:

Action Plan prepared by FCW, February 2001.

Habitat Action Plan:

WET WOODLAND

A. INTRODUCTION

Description of the habitat:

In Ceredigion Wet woodland occurs on poorly drained or seasonally wet soils, usually with alder, birch and willows as the predominant tree species, but sometimes including ash and oak on the drier riparian areas. Wet woodlands are found on floodplains, as successional habitat on fens, mires and bogs, along streams and hillside flushes, and in clay lined hollows. These woodlands occur on a range of soils including nutrient-rich mineral, acidic peat, limestone and clay types.

European / UK distribution:

Wet woodlands occur throughout Europe, and many types are closely related to those found in the UK. Floodplain forests are fragmentary throughout most of Europe, but large examples remain by rivers such as the Rhone and Danube. Within the UK, Wet woodlands are widespread but different types are localised. Concentrations on fens are found in East Anglia, Shropshire and Cheshire, whilst hillside alder woods are largely restricted to Wales, Cumbria and Scotland. Bog woodlands are largely confined to Scotland. Floodplain forests are rare and highly fragmented throughout. The total area of Wet woodland in the UK is estimated between 50,000 and 70,000 hectares, of which around 10% are found in Wales. Wales has a particular responsibility for hillside alder wood types, oceanic variants of fen woodlands, and for the protection and recreation of floodplain woodlands wherever possible.

Distribution in Ceredigion:

Wet woodland is the third most abundant type of semi-natural woodland in Ceredigion, covering 0.2% of the county. Wet woodland tends to frequently occur in a mosaic with other woodland key habitat types.

Trends:

Woodland covered approximately 30% of the county up to about 1600. Gradually more than 70% of this has been lost mainly to agriculture. Uncontrolled felling had by 1790 led to a general shortage of timber. Only 7% of the land area is currently wooded. With less than 0.2% of this being Wet woodland. Further losses of Wet woodland this century have been predominantly through clearance and conversion to other land uses, cessation of management in formerly coppiced sites, the lowering of water tables through drainage or water abstraction and inappropriate grazing levels and poaching of the soil by sheep and cattle.

Conservation Status:

European: Listed in Annex 1 of the EC Habitats and Species Directive.

UK BAP Status:

Wet woodlands are a priority habitat in the UK BAP, for which a costed action plan has been prepared.

B. FACTORS AFFECTING THE HABITAT IN CEREDIGION

Loss and fragmentation of Wet woodlands:

Complete removal, drainage, partial clear felling and conversion to conifers was

widespread during the 20th Century. There are few extensive (e.g. larger than 5 ha) areas of wet woodland left in Ceredigion. The majority of woods are small, often surviving as narrow strips in valley bottoms that are unable to support a full range of structural and species diversity. Further losses and/or fragmentation of this woodland type would be unacceptable. In addition to conserving surviving Wet woodlands, every opportunity should be taken to restore them on ancient woodland sites (including those, which have been planted with conifers), and by extension, and creating new links between existing woodland habitats.

Inappropriate, or lack of woodland management:

During the last century, the quality of many of Ceredigion's Wet woodlands declined: species and structural diversity have been lost, as has the ability of individual woodlands to regenerate. This general decline is the result of inappropriate management such as the lowering of water tables, heavy grazing, complete removal and the retreat of coppicing.

Loss of genetic integrity:

Wet woodlands are vulnerable to losses of genetic integrity as a result of new planting with non-local planting stock. Natural regeneration and the use of local provenance planting stock should be encouraged, in preference to the use of non-native stock.

Drainage:

Drainage has resulted in the loss of Wet woodlands and where this has occurred prior to the planting of conifers it will limit the restoration of Wet woodland on some sites. Opportunities to reverse previous drainage and to recreate waterlogged conditions will be essential for the expansion and retention of Wet woodlands. Opportunities for this may arise in the management of floodplains to help alleviate the flooding problems experienced recently in Ceredigion.

Invasive alien species:

Indian balsam and Japanese knotweed are present in some Wet woodland, which poses a direct threat to their structure and species diversity. Some of these smaller Wet woodlands are becoming increasingly 'swamped' by these species, to the serious detriment of the ground and shrub layers, and ultimately to the woods themselves. All invasive alien 'weed' species such as these should be controlled or eradicated, as and when appropriate.

Climate change:

The more frequent and severe storms that have been predicted as a result of climate change are likely to adversely affect woodlands characterised by a uniform age structure, which are already pre-disposed to storm damage. Re-introducing structural diversity and maintaining high genetic variation are crucial elements in ensuring that Wet woodlands can tolerate and adapt to long-term climatic change. Management of flood plains for climate change may also offer increased opportunities for Wet woodland (see above).

Disease:

The root rotting disease *Phytophthora* is causing concern, and is a particular problem with Alder. It spreads easily along water courses and may affect the level of any future planting. It is present in Ceredigion and has been recorded in the Ystwyth Valley and elsewhere. Monitoring of the presence and spread of this disease and its long term effects will be essential to ascertain the long term viability of alders and to identify appropriate management of alder within Wet woodlands and elsewhere.

C. CURRENT ACTION

Site safeguard:

Achieved through statutory and non-statutory mechanisms, e.g. designation of SSSIs, use of woodland Tree Preservation Orders (TPOs) and the control of felling; liaison with and support for woodland owners via Coed Cymru, and Forestry Commission Wales's Woodland Grant Scheme, Woodland Improvement Grants and the Countryside Council for Wales's Tir Gofal agri-environment scheme.

Monitoring and survey:

Monitoring is carried out on all SSSIs where Wet woodland is a feature, and on sites managed by individual partners. Forestry Commission Wales monitors compliance with the conditions of a Felling Licence or a Woodland Grant Scheme.

Genetic integrity:

Pursued through the promotion of natural regeneration and the use of local provenance planting stock.

Habitat management:

Carried out on individual sites e.g. nature reserves by partners.

Habitat re-creation / restoration:

Promoted on appropriate sites, e.g. ancient woodland sites, and to create links between surviving Wet woodland.

Advice and liaison:

Provided to woodland owners and farmers on all aspects of woodland management, and creating new or extending existing Wet woodland.

D. OBJECTIVE AND TARGETS

Objective: to achieve favourable condition for wet woodland in Ceredigion, where the following targets are met:

- the current extent is maintained (e.g. 0.2% of surface area of the county);
- there is an expansion of a further 47 hectares (10% increase) by 2006;
- semi-natural Wet woodland are restored to 47 hectares (10% restored) of ancient woodland sites by 2006;
- in sample sites:
 - i the species composition of the canopy, understorey, scrub and ground flora is appropriate for Ceredigion Wet woodland;
 - ii the age structure of the woodlands is diverse, where a minimum of 10% of the total area of the woodland contains regeneration less than 20 years old, and 10% with mature trees and shrubs to be left to old age;
 - iii dead wood will be present, comprising 20% by volume; reduction of the increasing threat from the disease *Phytophthora* that effects alder species;
 - iv invasive, non-native 'weed' species (e.g. Indian balsam) are being controlled or are absent.

Current Condition:

**Wet woodlands in Ceredigion are considered to be
UNFAVOURABLE / DECLINING.**

E. OUTLINE ACTION PLAN – WET WOODLAND

Lead Partner: Forestry Commission Wales

Action Organisation

	Action	Organisation
1	Policy and Legislation	
1.1.	Ensure the protection and enhancement of the habitat through relevant strategic plans (e.g. the Unitary Development Plan).	FCW, CCC, CCW
1.2.	Ensure forestry legislation, forestry standards and forestry guidelines are used to achieve LBAP objectives.	FCW
1.3.	Ensure, where appropriate, woodland management meets standards for certification.	FCW
1.4.	Support the development of initiatives that promote management through the end use of timber and markets for timber products.	FCW, CCW, CCC, WDA
2	Site Safeguard and Management	
2.1.	Promote the conversion of conifer plantations on Ancient Woodland Sites (AWS) to a native woodland character through grant aid where appropriate.	FCW, CCW, CCC, NFU, FUW, CLA, ARAD/CCW(TG)
2.2	Encourage and support the use of natural regeneration and / or the use of local provenance planting stock.	FCW, CCC, CCW, NFU, FUW, CLA, ARAD/CCW(TG)
2.3.	Extend positive management to all Wet woodlands including site survey and the production of a management plan via the FC Woodland Grant Scheme and Tir Gofal.	FCW, CCW, ARAD, ARAD/CCW(TG)
2.4.	Support woodland management through the development of markets for sustainable woodland products and Coed Cymru.	FCW, CCW, CCC
2.5.	Support FSC certification.	FCW, WTSWW, CCW, CCC
2.6.	Identify suitable areas for potential Wet woodlands re-creation and for creation of new woodlands around existing sites, securing partnerships to establish these as necessary, through the Tir Coed Initiative.	FCW, CCC, CCW
2.7.	Continue to provide support and advice on Wet woodlands to landowners/land managers and raise awareness and understanding of woodland issues.	FCW, CCC
2.8.	Protect Wet woodland through the making of Tree Preservation Orders where appropriate.	CCC
3	Monitoring and Research	
3.1.	Monitor the extent and quality of Wet woodlands including restored and new woodland areas to determine condition.	FCW, CCW, CCC
3.2.	Identify gaps in information and pursue further survey as appropriate.	FCW, CCW, CCC
4	Communications and Publicity	
4.1	Promote training and raise public awareness in native woodland management through seminars and workshops etc.	FCW, CCW, NFU, FUW, CLA.

F. RESOURCE REQUIREMENTS

Additional resources will be required in order to develop and / or initiate the following actions:

1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, and 3.2.

Date:

Action Plan prepared by FCW, February 2001.

Habitat Action Plan: ROADSIDE VERGES

A. INTRODUCTION

Description of the habitat:

Within Ceredigion there are 2245 kilometres of road. Whilst the Highway Authorities has a statutory duty (Section 58, Highways Act 1980) to maintain the highway in a safe condition to ensure the safety of road users (drivers and pedestrians), the importance of the roadside verge estate for biodiversity is widely acknowledged. This importance comes about in three ways:

- As remnant habitat arising from the loss of 'natural' habitat due to the effect of changes in agricultural practices and development pressures. These areas may then become an important genetic pool.
- Corridor for movement between isolated habitats.
- Provision of a source of food and nutrients either directly or within a complex food chain.

The vegetation communities within the verges vary considerably. Many verges, especially those in the rural areas reflect a more natural assemblage of plants whereas in the semi-urban environment, more recent road construction has modified the floristic characteristics either by design through seeding mixtures and planting schemes, or incidentally by changes in soil chemistry. There is also recognition that the current management practices adopted by the Highways Authorities have a bearing on the species composition. In many cases, this has been beneficial however, along some stretches, invasive alien plants such as Japanese knotweed now dominate.

Species-rich verges can be an attractive feature eg. swathes of ox-eye daisies as occurs along some of the trunk roads, banks of bluebells, buttercups and orchids along country lanes, all add to the beauty and quality of the countryside. Such qualities are important to the image of Ceredigion as a demonstration and recognition of the role that sensitively managed verges play in attracting tourism to the county.

Distribution within Ceredigion

There are some 4490 kilometres of roadside verge within the County, comprising the following classification of highway:

	<i>Road length (Km)</i>	<i>Length of verge (Km)</i>
Trunk Roads	115	230
Class A	157	314
Class B & C	1172	2344
Unclassified	801	1602

Trends

New road schemes and improvements / upgrades to existing roads particularly along strategic routes provides an opportunity to create new roadside verges with the associated opportunities for ecological enhancement.

Conservation status:

Unless a stretch of roadside verge is notified as a Site of Special Scientific Interest, there are no statutory protection measures.

UK BAP Status:

Roadside verges are not a UK BAP priority habitat. They are considered to be of local importance.

The National Assembly for Wales has commissioned the production of an Action Plan for the Trunk Road Estate in Wales.

B. FACTORS AFFECTING THE HABITAT IN CEREDIGION**Inappropriate Management:**

Inappropriate grass cutting may arise as a result of:

- **Timing:**

Due to the lengths of road verge that are present in the county, and that the majority of roads are Class B, C or unclassified, the start the cutting season usually begins in early June. Cutting too early removes important nectar-rich sources as well as limiting seed formation and dispersal. In some cases, the physical process of cutting can directly impact on nesting birds and insects.

- **Frequency:**

Where cutting does take place relatively early in the season, such verges often require additional cuts, often more than two. No cutting or too little cutting leads to reduced sward diversity and increased scrub whilst too frequent cutting results in grasses dominated by dandelions and plantains and a lack of structure.

- **Arisings:**

Invariably arisings (ie: cut material) are left following cutting and these form a mulch, enriching the soils leading to a long term increase in abundance of tall and fast growing species.

Inappropriate use of herbicides:

The use of herbicides is a powerful and acceptable method for the control of vegetation including 'weed species'. Whilst COSHH regulations limit their use, indiscriminate delivery techniques such as boom spraying affects non-target species.

Invasive / alien species:

The presence of Japanese knotweed is now a serious problem although the exact extent is unclear and should be ascertained. Ordinarily, this plant, like Himalayan balsaam, is spread along watercourses. However, for various reasons, the plant is now present along many road verges, as well as on privately owned land, where the use of tractors and flails to mangle road side verges, may be contributing to its spread.

C. CURRENT ACTION**Land Management:**

Road side verge maintenance is primarily undertaken for safety considerations to prevent the obstruction of sight lines. The management of verges for nature conservation only takes place at specifically identified sensitive sites.

County Council activities are subject to review as part of the 'Best Value' process. As with all services, this process provides an opportunity for optimising management of roadside verges.

Advice / liaison:

Advice given by Countryside Council for Wales and Wildlife Trust West Wales during the consultation period where new road schemes are proposed.

Monitoring and survey:

Some survey work has been undertaken by local naturalists. There has also been limited identification of road side verge reserves.

D. OBJECTIVES AND TARGETS

Objective: to secure favourable management of all roadside verges, where the safety of road users is not compromised where the following target is met:

- To identify 20 key roadside verges and establish favourable management regimes by 2002.

Current Condition:

Roadside Verges in Ceredigion are considered to be in variable condition.

E. OUTLINE ACTION PLAN - ROADSIDE VERGES

Lead Partner: Ceredigion County Council

	Action	Organisation
1	Policy and Legislation	
1.1	Ensure the protection and enhancement of the habitat through relevant strategic plans (e.g. the Local Transport Plan, Unitary Development Plan).	CCC, All
1.2	Ensure that road side verge management protocols are sympathetic to general nature conservation requirements.	CCC
1.3	Ensure that new road schemes are positively designed to take into account features of ecological interest and landscape.	CCC, CCW, WTSWW
2	Site Safeguard and Management	
2.1	Establish a database of important road side verges in Ceredigion.	CCC, WTSWW, CCW
2.2	Develop a strategy to eradicate invasive alien species, in particular Japanese knotweed.	CCC
3	Monitoring and Research	
3.1	Develop and promote a Code of Best Practice.	CCC, NFU, FUW, CLA, WTWW
3.2	Survey and map invasive alien species.	CCC, WTSWW, CCW
4	Communications and Publicity	
4.1	Raise the awareness of the importance of roadside verges.	NFU, FUW, CLA, WTSWW, CCC.

F. RESOURCE REQUIREMENTS

Additional resources will be required in order to develop and / or initiate the following actions:

2.2, 3.1, 3.2.

Date:

Action Plan prepared by WTS&WW), November 2000.

Species Action Plan: BLACK GROUSE (*Tetrao tetrix*)

A. INTRODUCTION

Description of the species:

Male black grouse are distinctive large black gamebirds with a lyre-shaped tail and striking white wing bars, under tail coverts and shoulder patch. The smaller hens have a much less conspicuous barred brown and black plumage. Throughout most of the year, though particularly in the spring, groups of males gather in complex communal displays called leks. These are held mainly early in the morning or at dusk at traditional sites in order to attract females for mating. Lek sites tend to be on open ground with short vegetation such as peat bogs, open glades or the edges of forestry tracks.

In the UK they are associated mainly with woodland, which in Wales is often in the form of young conifer plantations, where it merges with heather or bilberry - dominated moorland. Wet flushes and areas of blanket bog are also very important, particularly as sources of invertebrates when they have chicks. Nests are concealed on the ground in long vegetation usually amongst trees in a dry site often adjacent to a wet flush or an area of blanket bog.

Their food consists mainly of plants, the species of which vary depending on availability through the year. Young plants of heather and bilberry are the main food plants but at certain times of the year they will also eat the buds of cotton grass, berries, or the buds of young trees eg. pine, larch, birch etc. For the first few weeks of their lives the chicks feed mainly on invertebrates.

European / UK distribution:

The distribution of Black grouse is widespread throughout the northern half of the Palearctic, although within western Europe the populations are generally fragmented and in decline. In Britain it breeds locally in northern England but is widespread in Scotland. In Wales there is a scattered distribution, mainly in the north. The species does not occur in Ireland. In the UK the population is threatened following a rapid decline, the population having dropped from an estimated 25,000 lekking males in 1987 down to an estimated 6500 by 1997.

Distribution in Ceredigion:

In Ceredigion the condition of the species can only be described as unfavourable / declining and is likely to become extinct unless urgent action is taken. The main area for the species in Ceredigion is the block of moorland and forestry between Cwm Einion and Nant y Moch.

Trends:

In Wales, after a decline in numbers during the early part of the last century, numbers recovered from the 1940's onwards, particularly in central and northern Wales, as it expanded into young conifer plantations. However numbers began to fall dramatically as many of the plantations matured during the 1980's and 1990's. The decline was dramatic in Ceredigion where by the late 1990's the species had become largely extinct from the southern forestry areas, with only a few birds remaining, mainly in the northern half of the county. The last county survey carried out in 1998 found only 6 males and 1 female at four leks.

Conservation Status:

International: MEDIUM.

In Europe, the Black Grouse is a Birdlife International Dispersed Species category 3 (provisional) ie. not concentrated in Europe but with an unfavourable conservation status.

UK: Included in Red Data Birds in Britain. Identified in the RSPB Bird Conservation Strategy as one of the 41 most threatened species in Britain.

Status - UK BAP:

UK: High priority species for which a National Action Plan has been prepared.

B. FACTORS AFFECTING THE SPECIES IN CEREDIGION.**Loss of habitat:**

The Black Grouse has been affected by a loss of habitat arising from:

- agricultural intensification has led to a reduction in available food-plants, particularly heather and bilberry (mainly through heavy sheep grazing and drainage of wet flushes).
- maturation of conifer plantations. Although afforestation in the uplands has helped black grouse these habitats have gradually become less suitable, with food plants and nesting areas becoming shaded out as trees have matured.
- lack of sympathetic forest and heather management. Black grouse favour a well-spaced forest edge with an abundance of food plants, particularly young heather. Forest edges are often an abrupt edge of dense trees together with small areas of unmanaged leggy heather.
- unsympathetic planting with associated drainage, particularly on flushes and blanket bog. This has reduced available feeding areas.

Predation:

High corvid numbers attracted by high sheep stocking densities combined with a thriving fox population utilising the conifer plantations have a detrimental affect on black grouse productivity.

Disturbance:

Disturbance, either accidental in the form of car rallies, bird-watchers or dog walkers etc, or shooting on land adjacent to leks, may have contributed to the species decline.

C. CURRENT ACTION**Monitoring and survey:**

National (Wales) surveys took place in 1986, 1992, 1995 and 1997. Additional lek counts were carried out in Ceredigion In 1996 and 1998 by local staff of the RSPB and Forest Enterprise. A further national survey is likely to be repeated in 2001.

Land management:

In Tarennig Forest, Forest Enterprise have carried out thinning of sitka spruce to widen rides. At Diliw, a failed planting of sitka spruce has been cleared from heath, mire and flush communities. Dense sitka spruce has also been cleared from areas of blanket bog within Cwm Einion at Bwlch y Garreg and Creigiau'r Llan.

As part of the Mynydd Y Ffynnon partnership, a joint moorland rehabilitation project with RSPB, CCW and ADAS, various work has been carried out for the benefit of black grouse on land between Pwll peiran and Myherin and Tarennig forests. This has included planting of broadleaves and larch on improved land, clearance of sitka spruce from Tynbryn bog, and management for heather restoration.

Advice and liaison:

RSPB comment on FE Forest Design Plans with regard to key bird species, in particular black grouse. In North Wales RSPB is currently involved in cooperative management of key black grouse sites as part of a Black Grouse Recovery Project. This involves private forestry, private landowners as well as FE staff. Management guidelines have been produced by Game Conservancy and RSPB for managing for black grouse.

D. OBJECTIVES AND TARGETS

Objective: to halt the current decline in numbers of Black Grouse in Ceredigion, where the following targets are met:

- to increase the current population to 12 males at lek sites by 2006, and 20 males by 2010.
- to increase its range and to re-establish a viable breeding population in the south of the county, formerly the best area for the species.

Current Condition:

The Black Grouse in Ceredigion is considered to be unfavourable / declining (and in danger of becoming extinct).

E. OUTLINE ACTION PLAN – BLACK GROUSE

Lead Partner: RSPB

	Action	Organisation
1	Policy and Legislation	
1.1	Ensure the protection and enhancement of the habitat through relevant strategic plans (e.g. the Unitary Development Plan).	CCC, All
1.2	Include habitat requirements of black grouse in prescriptions for Tir Gofal & other agri-environment schemes when reviewed.	CCW, RSPB, ARAD
1.3	Ensure habitat loss is minimised & opportunities sought for habitat restoration in all development issues, eg. wind-farms.	CCW, RSPB
2	Site Safeguard and Management	
2.1	Compile a register of Ceredigion Leks and then prioritise management within a 1.5km radius of leks with recent occupancy.	RSPB, FE

	Action	Organisation
2.2	Within current lek areas, introduce appropriate habitat management measures (to include reduction of grazing levels / heathland regeneration / additional wet flush / removal of conifers from wetland habitats / thinning of conifer edges / heather management).	CCW, ARAD, FE, FC, NFU, FUW, CLA.
2.3	Within current lek areas consider introducing crow and fox control to improve breeding success if evidence suggests predation is a problem.	FE, ADAS, NFU, FUW, CLA
2.4	Ensure that current lek areas are disturbance-free and that there is no shooting.	FE
2.5	Restore areas of suitable habitat within former range to encourage expansion of current population.	FE, FC, ADAS, CCW, NFU, FUW, CLA, ARAD/CCW(TG)
3	Monitoring and Research	
3.1	Monitor leks annually beginning in 2001.	FE, RSPB
3.2	Carry out annual chick counts in current lek areas to establish productivity.	FE
4	Communications and Publicity	
4.1	Publicise the serious decline in black grouse numbers & raise the public profile of the species.	RSPB, FE, NFU, FUW, CLA.
4.2	Ensure that a voluntary ban on black grouse is publicised and enforced	FE, NFU, FUW, CLA.

F. RESOURCE REQUIREMENTS

Additional resources will be required in order to develop and / or initiate the following actions:

2.2, 2.3, 2.5, 2.10, 3.2, 4.1.

Date:

Action Plan prepared by RSPB, November 2000.

Ensure that a voluntary ban on black grouse is publicised and enforced

Species Action Plan: BROWN HARE (*Lepus europaeus*)

A. INTRODUCTION

Description of the species:

The brown hare is one of the two species of hare resident in Great Britain (the other being the mountain hare *Lepus timidus*) and was probably introduced by the Romans. It is a fairly large animal (3-5kg), with long, tawny or rusty coloured fur and black ear tips. It is largely a nocturnal animal with feeding, courtship and mating all taking place in the dark. Much of the day is spent resting in 'forms', shallow depressions that give shelter and cover, such as patches of tussocky grass in non-stocked fields. Other time is spent out in the open country hence its need to be a fast runner, attaining speeds of up to 70 kmh.

Brown hares are considered to be a 'mosaic' species which needs to be able to utilise a variety of habitats exploiting available food sources. Generally it requires open country with scattered shrubs or hedges for cover. Wetlands, lightly grazed native woodlands, heather moorland and salt-marsh are also areas of occasional sightings of brown hare.

UK distribution:

Once regarded as an abundant game animal, the number of brown hares in Britain has declined dramatically since the early 1960s. There is a distinct east / west divide in densities across Britain with greater numbers in the east of the country. In Wales brown hares were thought to be widespread but decreasing throughout the country shortly after the Second World War.

Distribution in Ceredigion

Much of the data collected about brown hares in Ceredigion has been from sightings recorded by walkers and interested locals. Records held with the County Mammal Recorder suggest that hares are still seen in Ceredigion but are usually single sightings and over a fairly widespread area.

Trends:

The National Hare Survey for the winters of 1991/92 and 1992/93 give a pre-breeding adult population estimate of around 817,500 hares in Great Britain, including 58,000 in Wales. However, these figures were gathered just before the onset of the main culling season so these figures may be unreliable (culling is not particularly prevalent in Ceredigion). A second national survey was carried out in the winters of 1997/98 and 1998/99 to determine the current size of the population in Britain. The survey gave a pre-breeding adult population estimate of 752,608 brown hares. It suggested that there was no significant difference in the numbers of brown hares from the previous survey but showed decline in some arable areas.

In Ceredigion, anecdotal evidence would suggest that hares are not seen as frequently as 20 years ago. No county survey has been carried out from which to estimate a baseline population of brown hares.

Conservation Status:

The brown hare is a Red Data Book species but receives no legal protection other than some limits on hunting during the breeding season (1st March - 31st July) through the Ground Game Act (1880), and the Hare Protection Act (1911). It is a

UK species of conservation concern and is one of only nine species of mammal classified as 'vulnerable, or rapidly declining'.

UK BAP status:

The brown hare is a high priority species for which a national action plan has been prepared.

B. FACTORS AFFECTING THE SPECIES IN CEREDIGION

Agricultural practice:

The decline of brown hare numbers in Ceredigion is mainly supported by anecdotal evidence but, if it follows the general national trend, it would appear to coincide with changes in agricultural practices. However, the precise mechanism of the decline is not fully understood.

The following practices may have an impact on the brown hare in the County:

- the absence and / or decline of diverse arable landscapes and unimproved or semi-improved grassland in Ceredigion and the effect on suitable foraging areas.
- brown hares appear to fare worst in areas where sheep are present, probably because land managed for intensive lamb production has a reduced diversity of potential food sources.
- the availability of suitable diurnal lying-up sites can also have a large impact on hare populations. Livestock disturb the hares, increasing the possibility of predation.
- silage production rather than hay cropping may be responsible for many fatalities (particularly leverets) due to the manner and time of year of the cut.
- unploughed fields of stubble are a good habitat for brown hares and the practice of ploughing in stubble in winter reduces the availability of food.
- agricultural biocide spraying can also have a detrimental effect on the brown hare as it is carried out when the hares are at their least active. Linear features, such as hedgerows and treelines have been positively correlated with the presence of hares and the poor management of such features can lead to the loss of shelter and cover for the hares.

Human impacts:

Some rough shooting takes place in Ceredigion but it is not known to what extent or its possible effects on hare numbers.

Disease:

Viral Haemorrhagic Disease (VHD) of rabbits has been linked with a current viral disease of brown hares in other parts of Europe (*Flax & Chapman, 1991*). It is not known if disease has played a significant part in the decline of the brown hare in Ceredigion.

Chemicals:

Recent studies have begun to assess the impact of phyto-oestrogens in plants, particularly clovers and legumes, and their affect on hare fertility.

C. CURRENT ACTION

Monitoring and survey:

National Hare Surveys carried out in 1991-93 and 1997-99 (undertaken by the University of Bristol on behalf of the JNCC). As well as assessing brown hare

populations, the surveys also looked into the effect of land management policies (including agri-environmental schemes).

Populations are also monitored through numbers shot during hunting (Game Bag Record) or numbers counted during the spring. These may give over-inflated estimates of population sizes if areas are actively managed to increase population sizes prior to the hunting season.

Land Management:

Agri-environment schemes, such as Tir Gofal, provide opportunities to create or enhance habitats for the brown hare. Where possible, arable farming is re-introduced to former areas and the re-creation of semi-improved grassland is actively encouraged. Diversifying land use through certain arable options in the scheme can help provide suitable foraging areas for the brown hare, such as:

- retention of winter stubble in cereal, rape and linseed crops;
- spring sown cereals undersown with grasses and legumes;
- establishment of unsprayed root crops followed by winter grazing.

The scheme also gives payment for restoration and management of hedgerows. These provide shelter and cover for brown hares. Low sheep stocking densities are also positively correlated with brown hare presence because of reduced disturbance to lying-up sites.

D. OBJECTIVE AND TARGETS

Objective: to achieve favourable conservation condition where the following targets are met:

- to determine Brown Hare numbers and to at least maintain existing populations (timescale to be set at later date).
- to expand the population of brown hare (target to be set at later date).

Current Condition:

The condition of the brown hare in Ceredigion is unknown but probably unfavourable / declining.

E. OUTLINE ACTION PLAN

Lead Partner: WTS&WW

	Action	Organisation
1	Policy and Legislation	
1.1	Ensure the protection and enhancement of the habitat through relevant strategic plans (e.g. the Unitary Development Plan).	CCC, All
1.2	Take into account the habitat requirements of the brown hare when assessing the management regime of land under Agri-Environment schemes.	CCW, ARAD.
1.3	Consider the need for increased legal protection for hares, especially with regards to poaching or hunting outside of the breeding season.	CCW, WTSWW.

	Action	Organisation
2	Site Safeguard and Management	
2.1	Promote methods of land management, where appropriate, that are sympathetic to brown hares.	FUW, NFU, CLA, CCW, ARAD.
2.2	Encourage participation in agri-environment schemes which may increase the areas of land suitable for brown hares.	FUW, NFU, CLA, CCW, ARAD, ARAD/CCW(TG)
2.3	Promote the restoration of suitable habitat near or within former ranges to expand the current population.	FUW, NFU, CLA, CCW, ARAD, ARAD/CCW(TG)
3	Monitoring and Research	
3.1	Encourage research into the effects of modern agricultural practices, disease and hunting pressure on brown hare populations.	CCW, WTSWW.
3.2	Determine distribution and population of Spring brown hare numbers in Ceredigion.	CCW, WTSWW.
3.3	Monitor known populations.	CCW, WTSWW.
4	Communications and Publicity	
4.1	Encourage awareness of the status of the brown hare and its habitat requirements among landowners and public bodies.	CCW, WTSWW, NFU, FUW, CLA.
4.2	Encourage sightings of brown hares to be reported to the Mammal Recorder to maintain population distribution records.	CCW, WTSWW, NFU, FUW, CLA.
4.3	Use the brown hare as an 'flagship species' to highlight the potential benefit of sensitive agricultural management.	CCW, WTSWW, NFU, FUW, CLA.

F. RESOURCE REQUIREMENTS

Additional resources will be required in order to develop and / or initiate the following actions:

2.1, 3.1, 3.2, 3.3.

Date:

Action Plan prepared by Lisa Connaire, November 2000.

Species Action Plan:

CHOUGH (*Pyrrhocorax pyrrhocorax*)

A. INTRODUCTION

Description of the species:

The chough is a medium-sized glossy black crow-like bird with a very distinctive long, thin, decurved red bill and conspicuously red legs. When in flight it is possible to see its broad, square wings with very pronounced fingering at the tips. It has a masterful acrobatic flight which includes regular diving, soaring and aerobatics. It is a very gregarious species often seen in flocks of sometimes up to 50 or more birds.

Choughs feed mainly on the larvae and adults of beetles, flies, ants, and craneflies. They obtain these from areas where they can easily access the soil, eg short-cropped grass produced by either grazing animals or by wind / salt spray, or soil / rock interfaces. Other food recorded in their diet has included grain, crustaceans, mollusca and moth larvae.

European / UK Distribution:

The species has a Palearctic and north east Ethiopian distribution. It extends from Palma in the Canary Isles right through southern Europe to central Asia and China.

In Britain, the population is coastal in distribution, although confined to west coast areas (usually in areas where low intensity livestock farming is widespread). Chough are found as far south as the Gower peninsula and extend up to the islands of Islay, Colonsay and Mull, their most northerly haunt in the Palearctic. In Wales Chough are found mainly on grassland which is grazed by sheep and cattle, maritime heathland or on cliff-faces. They also utilise 'clawddiau' (raised field boundaries), dune slacks and stubble-fields. Wales currently holds approximately 73% of the UK chough population.

Maximum Numbers of breeding pairs of Chough in U.K in 1998. (RSPB Cymru Conservation Strategy for Chough)

Wales	180	Pairs
Scotland	66	
Isle of Man	88	
Northern Ireland	2	
Total	336	

Distribution in Ceredigion:

In Ceredigion there has been a slow increase in the breeding population on the coast, associated with the provision of artificial nest-sites. Here its condition can be described as favourable / maintained (inland where there has been a rapid decline it can only be described as unfavourable / declining).

Trends:

In Britain there has been both a decline in numbers of breeding pairs and a range contraction since the mid 18th century. Since then populations have disappeared from the south coast of England, the Channel Islands, the coast of northern England, and from the Scottish mainland and the outer Hebrides. There is no

current information on the Republic of Ireland population, though the 1992 survey found 904 pairs. In recent years there has been a decline in the numbers breeding on Islay, formerly one of the species strongholds. The breeding population in Wales, currently at ca.170 pairs, is probably stable with declines in inland mid Wales being compensated for by increases in some coastal areas. In Ceredigion, this decline in inland breeders has been marked with at present only 1 remaining breeding pair. Approximately 22 pairs currently nest in Ceredigion, strongholds for the species being the areas of coast between Llanrhystud and Borth and between Newquay and Llangrannog.

Conservation Status:

International: In Europe it is included in Category 3 of the Birdlife International Dispersed Species Project ie. not concentrated in Europe but with an unfavourable conservation status.

UK: The chough is included in the Red Data Book. It is listed as an amber species in Birds of Conservation Concern.

Status in terms of UK BAP priorities:

Species of Conservation concern.

B. FACTORS AFFECTING THE SPECIES IN CEREDIGION.

Extent and quality of feeding habitat:

Intensification of agriculture in some areas combined with a cessation in grazing in others has led to a reduction in suitable feeding areas.

The availability of nest-sites.

Breeding choughs require suitable nesting sites close to suitable feeding areas. Large stretches of coast are composed of soft rock and are lacking in suitable nest-sites. Inland sites, usually old quarries or mine shafts have often become covered by vegetation, surrounded by dense forest, or capped for Health and Safety reasons. Some coastal pairs may be dependent on artificial sites which need to be maintained.

Climatic factors:

Extremely cold winters or dry summers can make feeding difficult and thus cause high mortalities, particularly in young birds.

Predation:

Predation by peregrines or other raptors has been suggested as a possible contributory factor in the decline of choughs. It might be a factor in the recent decline in inland breeders in Ceredigion and the abandonment of roosts.

Human Disturbance:

Many of the current breeding and roosting sites are subject to heavy and increasing public pressure, particularly by walkers and rock climbers, which may have contributed to the species decline in some areas.

Human persecution:

Choughs may become the victims of persecution, usually aimed at corvids generally rather than the chough. Although egg collecting still takes place in Wales there is no recent evidence that it is a problem in Ceredigion.

Stock treatment Chemicals:

The use of certain chemicals, in particular Avermectins, is potentially a real threat to choughs and many other birds because of a reduction in dung invertebrates.

Disease:

Gapeworm: *Syngamus trachea* infestation has been observed in both wild and captive choughs. Choughs are susceptible to this disease because the life-cycle of the gape-worm involves soil invertebrates, the main food of the chough.

C. CURRENT ACTION**Monitoring and survey:**

Data has been collected on numbers of breeding choughs since 1963 when 9 pairs nested on the coast. Information was then gathered for some years between 1969 (15 pairs) and 1983 (14 pairs on the coast with 4 inland). In 1991 a long-term colour-ringing project was begun to investigate juvenile dispersal and seasonal movements. In 1992 a programme of surveillance of breeding pairs was initiated by A. Cross and H. Roderick. In 1993 a survey was carried out on behalf of CCW of all potential nest-sites within the county. Winter roost counts have been carried out monthly or twice monthly from 1996 at 2 sites in the north of the county, at Wallog and Allt-wen.

Coastal transects were carried out in winter along various sections of coastline from 1994 to 1997 in order to map feeding areas. Additional twice yearly surveys, in September and February, were carried out from 1995 to 1997 to assess the winter population. This was reduced to an annual count in September from 1998 onwards.

Land management:

At Penygraig and Craig Cae'r Llan near Cwmtudu the National Trust have introduced pony grazing on coastal grassland. This has been carried out mainly to reduce sward heights for the benefit of feeding choughs.

Nestbox provision:

Approximately 25 artificial sites were erected at inland and coastal nest sites by A. Cross in 1992 and 1993. By 1996, 8 artificial sites were being used by choughs at coastal sites and it is likely that the Ceredigion breeding population could be further expanded by the provision of more artificial sites in suitable sites.

Advice and liaison:

RSPB has commented on applications into the Habitat Scheme where management of areas used by choughs is involved. RSPB is at the early stages of developing co-operative management of key chough areas as part of a Chough Habitat Restoration Project in Wales. Management guidelines have been produced by RSPB.

D. OBJECTIVES AND TARGETS

Objective: to maintain and expand the number of Chough, where the following targets are met:

- In the short term to maintain the current population and range.
- to increase the Ceredigion population to 30 pairs by 2010, with at least 2 pairs inland.

Current Condition:

The Chough in Ceredigion is considered to be favourable / maintained (in coastal areas).

E. OUTLINE ACTION PLAN

Lead Partner: RSPB

	Action	Organisation
1	Policy and Legislation	
1.1	Ensure the protection and enhancement of the coastal habitat through relevant strategic plans (e.g. the Unitary Development Plan).	CCC, All
1.2	Include habitat requirements of chough in prescriptions for Tir Gofal & other agri-environment schemes.	CCW, RSPB, ARAD
1.3	Ensure no significant loss of habitat & opportunities sought for habitat restoration in all development issues.	RSPB, CCW
2	Site Safeguard and Management	
2.1	Produce a list of 'Key Chough Areas' and important sites within these 'areas' in which to prioritise actions.	RSPB
2.2	Restore grassland and heathland as feeding areas.	RSPB, NT, WTSWW, NFU, FUW, CLA, ARAD/CCW(TG)
2.3	Maintain existing sites and consider the provision of additional artificial nest-sites.	RSPB, WTSWW
2.4	Ensure that prescriptions for choughs are included within coastal nature reserves management plans.	RSPB, NT, WT, NFU, FUW, CLA, ARAD/CCW(TG)
2.5	Encourage a reduction in the use of Avermectins and other chemicals on livestock grazed on coastal fields.	RSPB, CCW, NT, NFU, FUW, CLA.
2.6.	Promote the provision of winter cereal stubbles on appropriate coastal fields.	RSPB, CCW, NFU, FUW, CLA, ARAD/CCW(TG)
3	Monitoring and Research	
3.1	Encourage annual surveillance of productivity at all breeding sites.	RSPB
3.2	Encourage continuation of colour-ringing programme.	RSPB
3.3	Survey southern coastal areas to discover all roost sites.	RSPB, CCC
3.4	Carry out twice-yearly coastal transects to assess chough numbers & gather colour-ring data.	RSPB, CCC
3.5.	Establish regular roost counts at all main roost sites.	RSPB, CCC
4	Communications and Publicity	
4.1	Ensure that landowners are aware of choughs and their habitat requirements.	RSPB, CCW, WTSWW, CCC, NFU, FUW, CLA.
4.2	Raise the profile of Choughs in Ceredigion (including its use as a use as a 'flagship' species).	RSPB, CCW, WTSWW, CCC, NFU, FUW, CLA.

F. RESOURCE REQUIREMENTS

Additional resources will be required in order to develop and / or initiate the following actions:

2.2, 2.3, 2.5, 2.6, 3.1, 3.2, 3.3, 4.2.

Date:

Action Plan prepared by RSPB, November 2000.

Species Action Plan:

HORNET ROBBERFLY (*Asilus crabroniformis*)

A. INTRODUCTION

Description of the species:

The hornet robber fly is a large, yellow-abdomened predatory fly that inhabits unimproved grassland and heathland in southern England and Wales, feeding mostly on a variety of grasshoppers and dung beetles. It tends to utilise pastures that are grazed by cattle or horses, but not sheep. There is a strong association with the dried dung of cattle and horses however the reason for this behaviour is unclear. It is thought that the larvae of the hornet robberfly prey on the larvae of dung beetles and in particular the dor beetle.

UK distribution:

Since 1970 it has been recorded from only about forty 10km squares, in southern Britain. In Wales there are 23 post-1980 10km squares for the robberfly although only five have achieved adult counts in excess of 10.

Distribution in Ceredigion:

The hornet robber fly has been recorded in small numbers, less than 10 at each of only three sites in Ceredigion since 1995:

- at a SSSI near Newcastle Emlyn, which has been irregularly monitored by CCW between 1983 -1999 as many as 9 adults have been recorded.
- a more recently discovered site (1998) at Llanilar, is currently under sympathetic ownership.
- at Aberystwyth, a singleton was recorded in 1999, and is a candidate Wildlife Site.

Trends:

The hornet robberfly has suffered a marked decline in recent decades, principally through habitat loss and changes in animal husbandry. Two former populations (prior to 1995) in the south of the county are now thought to be extinct. Whilst undeniably rare, it is possibly under-recorded and may occur at other sites in the county.

Conservation Status:

The species is listed as a nationally Notable Species.

UK BAP status:

High: the hornet robberfly is a priority species, for which a national action plan has been prepared.

B. FACTORS AFFECTING THE SPECIES IN CEREDIGION

Use of pesticides

Use of avermectins or related treatments for livestock, which not only affects the dung beetle larvae, but also inhibits the breakdown of dung.

Changes in agricultural practices

Changes in stock management practices, such as conversion from cattle or horse grazing to sheep.

C. CURRENT ACTION

Monitoring and Survey:

Surveys of known sites undertaken by CCW staff or local naturalists, usually on an ad-hoc basis.

D. OBJECTIVE AND TARGETS

Objectives: to protect and enhance known hornet robberfly populations in Ceredigion, where the following target is met:

- to increase the range of the hornet robberfly in Ceredigion by doubling the number of sites by 2011.

Current Condition:

The status of the hornet robberfly is considered to be unfavourable / declining in Ceredigion.

E. OUTLINE ACTION PLAN

Lead Partner: Wildlife Trust West Wales

	Action	Organisation
1	Policy and Legislation	
1.1	Ensure the protection and enhancement of the habitat through relevant strategic plans (e.g. the Unitary Development Plan).	CCC, All
1.2	Encourage mechanisms that reduce the reliance on avermectins in animal husbandry.	CCW, CLA, FUW, NFU, WTSWW
2	Site Safeguard and Management	
2.1	Promote favourable management of all SSSIs where the species has been recorded.	CCW
2.2	Encourage appropriate management, particularly through Tir Gofal, of all other sites where the species has been recorded.	CCW, WTSWW, ARAD, ARAD/CCW(TG)
3	Monitoring and Research	
3.1	Carry out regular monitoring of known hornet robberfly sites.	CCW, WTSWW
3.2	Carry out further survey work:	CCW, WTSWW
3.3	In conjunction with national research, consider appropriate hornet robberfly conservation measures.	CCW, WTSWW
4	Communications and Publicity	
4.1	Provide advice to landowners/stock managers on alternative worming practices and stock management practices	NFU, FUW, CLA, CCW, WTSWW, ARAD.
4.2	Use the hornet robberfly to highlight the threats faced by all insects associated with domestic animal dung.	CCW, CLA, FUW, NFU, WTSWW

F. RESOURCE REQUIREMENTS

Additional resources will be required in order to develop and / or initiate the following actions:

2.1, 2.2, 3.1, 3.2.

Date:

Action Plan prepared by WTS&WW, December 2000.