

A LOCAL BIODIVERSITY ACTION PLAN FOR PEMBROKESHIRE

**Pembrokeshire Biodiversity Partnership
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CONTENTS

Section	Page no.
1 Setting the Scene	1
2 The Biodiversity of Pembrokeshire	5
3 Key Habitats and Species: evaluation/prioritisation of habitats and species	9
4 Action Plan	12

Appendices

1 Index of Habitat Action Plans(HAPs) Index of Species Action Plans (SAPs)	
2 Glossary of Terms	

A LOCAL BIODIVERSITY ACTION PLAN FOR PEMBROKESHIRE

1. SETTING THE SCENE

The Earth Summit: Rio, 1992

The United Kingdom is one of 150 Nations which committed themselves to the principles of sustainability and the conservation of biological diversity by signing the International Convention on the Conservation of Biological Diversity ("Biodiversity") following the 1992 Earth Summit in Rio. The "biodiversity convention" was one of two globally important outcomes from the Earth Summit: the other was sustainability in development through Agenda 21. Both reflect a world-wide concern that human activities are destroying or irreversibly changing natural ecosystems on an unprecedented scale, resulting in escalating losses of species and their natural habitats. Signatories recognised that action had to be taken to halt the losses, which have been occurring at local as well as global levels (over 100 species have become extinct in the UK alone this century). Signatories also recognised that each must develop national strategies, plans and programmes for the conservation and sustainable use of biological diversity.

What is "biodiversity": why is it important?

Biodiversity is, literally, life on earth. It is all living plants and animals (including human-kind), their genetic variation and the ecosystems on which they (and we) depend. Biodiversity is everywhere: in gardens, fields, hedgerows, mountains, cliffs and in the sea. Biodiversity represents quality of life. It gives us pleasure, interest and understanding of our environment. The value of biodiversity however, extends beyond our spiritual needs: wild species are of enormous economic importance, e.g. as new sources of food and medicines, as tropical rainforests continue to demonstrate. At a local level, biodiversity is a particularly important component of local distinctiveness. Pembrokeshire is justly famous for its magnificent coast, thronged with birds and in the spring, carpeted with wild flowers, quiet estuaries, steep wooded valleys and wide sweeps of heathland in the Preseli Hills. In between, are patchworks of fields and small copses bounded by earth-stone banks that are frequently of great antiquity. The sea and sea bed around the Pembrokeshire coast are rich in species, some of which are of considerable economic importance.

Biodiversity is fundamental to the physical, economic and spiritual well-being of all who live and work in Pembrokeshire.

The UK's response to Rio

In response to its international commitment to the conservation of biodiversity, the UK Government set up the UK Biodiversity Steering Group, which published the UK Biodiversity Action Plan (UKBAP) in 1994.

The overall aim stated in the UK BAP is:

"To conserve and enhance biological diversity within the UK, and to contribute to the conservation of global biodiversity through all appropriate mechanisms" (Biodiversity: The UK Steering Group Report 1995).

The UK BAP sets objectives and targets for the conservation of individual habitats and species and identifies actions that are required to meet those targets. It provides the strategic framework for local biodiversity action in the UK.

A Local Biodiversity Action Plan for Pembrokeshire

Local Biodiversity Action Plans (LBAPs) are the principle mechanism by which the national strategy can be put into effect, to deliver sustainability and conservation of biodiversity objectives that are at the heart of Agenda 21 and the "biodiversity convention". The Pembrokeshire LBAP 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 Pembrokeshire. It covers the area within the County of Pembrokeshire, including the Pembrokeshire Coast National Park, the inshore waters and seabed around the Pembrokeshire coast to 12 miles offshore.

The broad aim of the Pembrokeshire LBAP is :-

To co-ordinate existing, and initiate and co-ordinate new actions to conserve and enhance biodiversity in Pembrokeshire, taking account of local and national priorities.

Specific objectives for the LBAP are set out in Box 1. The LBAP will provide a basis on which effective local partnerships will be established, to ensure that biodiversity in the county is maintained in the long-term. Pembrokeshire is well served by numerous organisations and individuals that are already contributing to the conservation of the County's biodiversity. The LBAP will co-ordinate their activities to ensure that the common aim and objectives stated here are met.

Box 1 Objectives of the Pembrokeshire LBAP

To maintain locally-, nationally- and internationally-important habitats and maintain species in favourable condition, where 'favourable condition' means that:

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

i.e. 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. (U.K. common standards)

The Pembrokeshire Biodiversity Partnership has been formed to develop and implement a LBAP for Pembrokeshire. The partnership includes statutory agencies and local authorities, and non-statutory conservation, farming and land-owning organisations. Membership of the partnership is set out in Box 2.

Box 2: The Pembrokeshire Biodiversity Partnership

Country Landowners Association
Countryside Council for Wales
Environment Agency Wales
Farming and Rural Conservation Agency (National Assembly for Wales Agriculture Dept.)
Farmers Union of Wales
Forestry Commission
National Farmers Union – Wales
Pembrokeshire Coast National Park Authority
Pembrokeshire County Council
Royal Society for the Protection of Birds
The National Trust
South Wales Sea Fisheries Committee
Welsh Development Agency
Wildlife Trust - West Wales

Making it happen

The LBAP will build on existing partnership projects and initiatives, examples of which are contained in Box 3.

Box 3: Examples of current partnership projects and initiatives

- "Gwarchod y Godiroedd" - "Conserving the Coastal Slopes": PCNPA with partnership support and funding from EAGGF and PCC. Three year project
- "Gweundir Byw Sir Benfro" - "Pembrokeshire's Living Heathlands" - five year project funded by partners and the Heritage Lottery Fund
- Tir Gofal: CCW/FRCA /FC
- Chough Conservation Strategy – WTWW (Chough Study Group)
- Site based habitats and species management, e.g. WTWW and RSPB reserves; National Trust properties; National Nature Reserves and the Skomer Marine Nature Reserve (CCW); and other sites owned/managed by the partners.
- Capital projects e.g. St David's Airfield Heathland Restoration Project funded by the Welsh Development Agency
- Milford Haven Waterway Environmental Surveillance Group. Partnership includes the oil industry, Dwr Cymru/Welsh Water and members of the Pembrokeshire Biodiversity Partnership

These and other projects and initiatives are already making an important contribution to national biodiversity targets for a range of habitats and species in the county.

The LBAP will be delivered via individual Habitat Action Plans (HAPs) and Species Action Plans (SAPs). Lead organisations/individuals will be identified to implement the action plans set out in the individual HAPs and SAPs, the production of which has been prioritised according to criteria set out in detail in Section 3. A key part of the LBAP process will be monitoring and review of the LBAP as a whole and of individual HAPs and SAPs. The successful implementation of these will require a partnership with local communities, industry, commerce and individuals.

Links with other plans and strategies

Local Agenda 21 is the principle means by which sustainability objectives will be met at a local level, and the LBAP will be at the heart of Local Agenda 21 in Pembrokeshire. The two processes are inextricably linked.

There are a number of strategic plans and initiatives, which provide mechanisms for delivering LBAP objectives and targets on a county-wide basis. These include the Unitary Development Plan (PCC and PCNPA are the unitary development planning authorities for their respective areas and are jointly undertaking background plan work with a view to considering preparation of a joint UDP) and the National Park Management Plan. This is a statutory document in which the National Park Authority will set out its policies, objectives and action plans for management of the Park and its resources. The LBAP is fundamental to this process.

Mechanisms for ensuring similar integration with other plans and strategies include memoranda of understanding between partners, e.g. the Forestry Commission and the National Park Authority, and between CCW and the Ministry of Defence (MoD) and the MoD's Integrated Land Management Plans for its military training estate in Pembrokeshire. The Environment Agency Wales' Local Environment Agency Plans (LEAPs) are another mechanism by which the LBAP can be implemented.

2. THE BIODIVERSITY OF PEMBROKESHIRE

Physical context: geology and landform

Pembrokeshire's geology and landform are very varied, especially on the coast. The open, exposed coast is dominated by rugged cliffs that rise to 100m. These are interspersed by sheltered bays and inlets, sometimes with wide, sandy shores, backed by sand dunes. Estuaries such as the Nevern, and the sheltered ria (drowned river valley) that is the Milford Haven Waterway and Daugleddau Estuary provide a sharp contrast to the dramatic cliffs of the open coast. Away from the coast, the interior of Pembrokeshire is dominated by a gently undulating plateau that has been incised by numerous narrow steep-sided river valleys. The largest of these, the Nevern and Gwaun Valleys, are the result of erosion by glacial melt-water from the last ice age. The Preseli Hills dominate the north of the county: essentially two main ridges (highest point 480 m above sea level) separated by the Gwaun Valley. The northern slopes of Mynydd Carningli ridge sweep down to the coast between Fishguard and Newport whilst the northern slopes of Mynydd Preseli form the magnificent sweep of open heathland, bog and flushes that is Brynberian Moor.

Geologically, parts of Pembrokeshire are very old. Pre-Cambrian rocks underlie much of the county, and outcrop as intrusive granites and lavas (again, volcanic in origin) in the St David's area. The older rocks such as the Ordovician and Silurian shales are characteristic of north Pembrokeshire. Upwellings of igneous rock (volcanic in origin) formed the ridges of the Preseli Hills. The younger rocks of much of mid and south Pembrokeshire have eroded to produce the gently rolling plateau surface, which crosses Coal Measures, Old Red Sandstone of the Devonian period and, in the south, Carboniferous Limestone. The limestone cliffs of the south Pembrokeshire coast exhibit classic erosion features such as caves, stacks, arches and "blow holes".

The intertidal and seabed areas around the Pembrokeshire coast are equally varied. Shorelines below the sea cliffs vary from extensive rock platforms to cobble and shingle shores in remote coves. Below low water mark, extensive "plains" of shell gravel and sand are interspersed by submarine cliffs, islets, rocky reefs and stacks.

Biodiversity: Habitats and Species

Pembrokeshire is the most westerly county in Wales, jutting out into the south-western approaches, at the southern end of the Irish Sea. The strong influences of the sea, and the mild oceanic climate are reflected throughout the county in land use and farming as well as in habitats and species, many of which are globally restricted to western maritime areas.

The inshore waters support populations of species that are typical of both cold, northern waters and warmer Mediterranean and Atlantic waters. Much of the seabed is swept by fast tidal currents. The topography of the seabed is as varied as that on land. The colourful plant and animal communities on underwater cliffs and rocky reefs range from dense forests of brown kelp, through meadows of red seaweed to turfs of sponges, sea squirts and anemones, amongst which starfish, sea urchins and crabs graze and scavenge for food. Rocky reefs and cliffs give way to gently undulating plains of sand and shell gravel, inhabited by a variety of surface and burrowing animals.

Bottlenose dolphins, harbour porpoises and grey seals share the water column with many species of fish, and also, at the bottom of the food chain, plankton. Islands such as Skomer, Ramsey, Skokholm and Grassholm, together with parts of the mainland support many thousands of seabirds that nest on the cliffs or in burrows on the islands and feed in the coastal waters around Pembrokeshire.

Inlets and estuaries range in size from the large Milford Haven Waterway and Daugleddau Estuary, one of the finest rias in the UK, to small inlets such as Solva. The southern shores of the Teifi Estuary form part of the northern county boundary. The Milford Haven Waterway and Daugleddau Estuary has a particularly high biodiversity. Current swept underwater cliffs are characterised by diverse sponge communities, in contrast to sheltered estuarine muds that support many species of worms and molluscs, on which thousands of wintering waders and wildfowl feed. Intertidal and subtidal eel-grass beds occur in the Milford Haven Waterway and shallow, muddy bays such as Angle Bay. Saltmarsh has developed in estuaries such as the Gann, Nevern and some of the bays and tributary streams (pills) of the Milford Haven Waterway and Daugleddau Estuary. One of only four examples of coastal lagoons in Wales occurs at the Gann, Dale.

On the open coast, species diversity reflects the wide range of habitats, variation in aspect and degree of exposure to wind and salt, as well as the underlying geology. Habitats include sea cliff grasslands and heath on the more exposed coastal slopes and cliff tops, sand dunes and, in the coastal river valleys, freshwater marshes and fens.

Pembrokeshire's sea cliffs, coastal slopes, cliff tops and headland support some of the finest sea-cliff heath and grassland to be found in the UK. In spring, cliffs and headlands exposed to salt-laden winds are carpeted with familiar maritime species such as thrift, sea campion, sea plantain and spring squill. Other common "cliff-top" species include birds-foot trefoil, kidney vetch, wild thyme and common centaury. Grasses such as red fescue often form a soft, springy turf. On more sheltered coastal slopes with deeper soils, bracken is widespread, often functioning as a "woodland canopy", beneath which woodland species such as bluebells, primroses, red campion, violets and stitchworts thrive. On the bracken dominated treeless interior plateau of Skomer Island, masses of bluebells create a blue haze across the island in May. The spectacular cliffs are the haunt of choughs and peregrines.

Away from the coast, much of inland, lowland Pembrokeshire is dominated by farmland. Traditional field boundaries, small copses and streams (often in narrow, steep-sided valleys that have cut into the plateau) provide vital corridors for plants and animals to move, linking larger areas of woodland and scrub, with fen and marsh on poorly drained valley bottoms. Additionally, the traditional Pembrokeshire earth stone banks and hedgerows provide valuable sheltered feeding habitats for small mammals such as bats.

Woodland tends to be confined to marginal agricultural land, reflecting the pattern of intensive farming in the county. Semi-natural broadleaved woodland is predominantly oak woodland. Some of the finest examples of oak woodlands occur in the Gwaun and Nevern valleys and in the upper Daugleddau Estuary. These support exceptionally rich lichen communities and populations of ferns e.g. hay-scented buckler fern. Pembrokeshire has important dormouse populations, and many of the woodlands have carpets of classic woodland flowers such as bluebell, wood anemone, wood sorrel and violets. Virtually all oak woodland in Pembrokeshire is lowland rather than upland in character, reflecting the mild oceanic climate. In the south of the county, pockets of ash woodland survive on base-rich soils overlying limestone. Wood pasture is scarce in the country, and is now confined to a

few areas in north Pembrokeshire. It was once much more widespread and is particularly associated with the old estates. Wood pasture is a distinctive habitat that is of particular value for lichens and invertebrates. Individual trees can be 300-400 years old, although trees as old as this are now scarce.

Lowland heathland occurs on coastal slopes and headlands, where it is locally extensive (e.g. St David's Head) as well as on the ridges, slopes and in wide valley bottoms in the Preseli Hills. Many of the inland commons in Pembrokeshire support dry and wet heath, often forming a mosaic with scrub, marshy grassland or fen. Pembrokeshire's heathlands typically comprise a mixture of bell heather, common heather (or ling) and western gorse, with tormentil, heath bedstraw and grasses such as red fescue, common bent or, in wet areas, purple moor grass, rushes and sedges. The slopes of the Preselis are characterised by naturally poor drainage leading to extensive linear flushes, frequently over base-rich boulder clays. These flushes support many rare plants and invertebrates such as western butterwort, bog orchid, marsh club moss and slender green feather moss. They are also important for a range of invertebrates, notably the southern damselfly, for which the Preseli Hills are the Welsh stronghold.

Pockets of species-rich neutral and calcareous grassland occur in parts of the county. The military ranges at Castlemartin have the most extensive flower-rich "meadows" in the county. These are typified by species such as crested dog's-tail, bird's-foot trefoil, yellow rattle, black knapweed and cat's-ear. Road-side verges and church yards are important "refuges" for herb-rich grassland. Wet marshy grassland dominated by purple moor grass and rushes is much more common. This is frequently species-rich, with sedges, yellow flags, marsh orchids, devil's-bit scabious and whorled caraway. Marshy grassland or "Rhos pasture" is important for the marsh fritillary butterfly, a declining species across Europe. On the slopes and ridges of the Preseli Hills, dry acidic grassland occurs, frequently forming a mosaic with heathland.

Pembrokeshire has one of the highest densities of small lowland wetlands in Wales. These typically include rich fen communities characterised by plants such as meadowsweet, greater tussock sedge, greater pond sedge, purple loosestrife and marsh marigold.

There are few large rivers in the county, although the Eastern and Western Cleddau combined have a significant catchment. Otters are found throughout the catchment, as well as on most of the smaller rivers and streams in the county (and increasingly on the open coast). The elusive water vole, immortalised in Kenneth Graham's "The Wind in the Willows" as "Ratty" is, however, rare in Pembrokeshire. Streams and rivers, sometimes frequented by dippers and grey wagtails, and their bankside and associated marshy and fen vegetation are vital wildlife corridors. Many watercourses support migratory fish such as sea trout and salmon as well as many species of aquatic invertebrates and flowering plants. Open water habitats have been considerably expanded over the past 30-40 years by agricultural irrigation reservoirs and new ponds. Some of the more mature reservoirs support a variety of emergent aquatic vegetation and breeding birds such as little grebe.

Irrigation reservoirs and ponds are integral features of many of Pembrokeshire's farms. Much of farming in the county (especially in the slightly warmer and drier coastal areas) is mixed; with arable root crops such as potatoes, as well as cereals and livestock. Cereal field margins can provide important habitats for a wide range of so-called arable "weeds", many of which are now uncommon. They also support invertebrate populations of value in their own right, but also as an important food source for birds, such as skylarks, linnets and

yellowhammers, during the breeding season. Winter stubbles provide valuable food sources for a range of finches, buntings, also skylarks and, on the coast, choughs.

An often overlooked biodiversity resource is artificial structures e.g. buildings of various sorts. In Pembrokeshire, almost the entire populations of bats of all species known to occur in the county use buildings, ranging from castles and stable blocks to modern houses, at some time during the year. Barn owls traditionally use barns and other out buildings. Old stone walls, especially those which have been constructed from limestone and lime-based mortar, frequently support a diverse wall flora, notably ferns, and add an important dimension to the county's flora. Closely associated with dwellings are gardens, which can also support a surprisingly rich biodiversity, from common garden birds to amphibians, dragonflies and damselflies associated with garden ponds.

Pembrokeshire's biodiversity in a national and international context.

Pembrokeshire is internationally important for many of its coastal, marine and lowland heathland habitats, and also of national importance for others, e.g. ancient semi-natural oak woodland. These habitats support numerous endemic species (i.e. species that occur only in Pembrokeshire), or species for which the county is one of only a handful of sites where they occur in the UK (or Europe). Some key species, for example greater horseshoe bat and barn owl, are not restricted to designated sites or key habitats and are closely associated with buildings and other man-made structures. Others, for example seabirds and choughs, contribute to the local distinctiveness of the county and many are good indicators of the general "health" of our environment. The national/international significance and importance of Pembrokeshire's biodiversity is reflected by the fact that circa 6% of the total land area is within Sites of Special Scientific Interest (SSSI). There are eight National Nature Reserves, wholly or partly within the county, together with Wales' only Marine Nature Reserve, one of only three to be designated in the UK. There are a number of Special Protection Areas (SPAs) designated under the EU Birds Directive, and candidate Special Areas of Conservation (cSAC) designated under the EU Habitats and Species Directive. These will form Pembrokeshire's, and part of the UK's, contribution to the European Natura 2000 network.

Whilst attention is inevitably focused on our rarer species, or on habitats that are covered by international or national designations for nature conservation, the more common species and habitats, and the potential of farmland and of urban spaces to contribute to biodiversity must not be overlooked. Our more familiar hedgerow flowers or garden birds are also indicators of the general health of the countryside, and losses of these should set biodiversity alarm bells ringing.....

3. KEY HABITATS AND SPECIES:
EVALUATION/PRIORITISATION OF HABITATS AND SPECIES

The individual HAPs and SAPs form the core of the Pembrokeshire LBAP. The preparation and implementation of HAPs and SAPs is an ongoing process, with individual plans being added to the LBAP document as they are prepared. To assist this process, the production of HAPs and SAPs has been prioritised using criteria based on those set out in Guidance Note 4, published by the Local Government Management Board and the UK Biodiversity Group UK Local Issues Advisory Group. The UK Biodiversity Group's habitat definitions have been used to "classify" Pembrokeshire's biodiversity resources in terms of the main habitats. In the UK, definitions are accompanied by broad descriptions of terrestrial habitats.

The evaluation was initially carried out by a small working group of representatives from PCC, CCW, PCNPA and WTWW, on behalf of the Pembrokeshire Biodiversity Partnership. Lists of habitats and species were drawn up based on an evaluation, using the criteria listed in Box 4. A phased approach is being taken whereby action plans for habitats and species that are considered to be a UK/Pembrokeshire priority are being produced in the first phase. The selected habitats and species are listed in Appendix 1. A representative sample of species and habitats action plans have been written, and are found in Annexes 1 and 2. The LBAP is a dynamic process, the remaining HAPs and SAPs will be added to the LBAP as and when they are produced.

Other habitats and species may be added to the list as appropriate.

<u>Box 4</u>		<u>Criteria used to evaluate/prioritise HAPs and SAPs</u>	
<u>Habitats</u> <ul style="list-style-type: none"> <input type="checkbox"/> UK priority habitats <input type="checkbox"/> Proportion of UK priority Habitat on LBAP area <input type="checkbox"/> International/national importance of LBAP area for the habitat <input type="checkbox"/> Local rarity <input type="checkbox"/> Local decline rate <input type="checkbox"/> Local threat <input type="checkbox"/> Degree of fragmentation/restoration potential <input type="checkbox"/> Number of key species dependent on the habitat <input type="checkbox"/> Minimum viable size <input type="checkbox"/> Local distinctiveness 		<u>Species</u> <ul style="list-style-type: none"> <input type="checkbox"/> UK priority species <input type="checkbox"/> International/national importance of LBAP for species <input type="checkbox"/> Position in geographical range <input type="checkbox"/> Local distinctiveness <input type="checkbox"/> Local rarity <input type="checkbox"/> Local threat 	

A matrix between the habitats and species shows a considerable overlap between key species and habitats. This is illustrated in Table 1.

The table highlights the need to ensure integration between individual HAPs and SAPs.

Format of HAPs and SAPs

The format that each HAP and SAP will follow is intended to be succinct: text will be limited to main headings and the most important issues and actions required. The format and contents are based on guidance from the Local Government Management Board (Guidance Note 4), and summarised in Box 5.

Box 5: Format of HAPs and SAPs

1. Introduction
2. Factors affecting the habitat/species in Pembrokeshire
3. Current action
4. Objective and targets
5. Rationale
6. Outline Action Plan
7. Resource requirements

4. ACTION PLAN

Implementation of the LBAP will be subject to the availability of adequate funding and other resources to the partners, and external grant sources, e.g. European funds and Heritage Lottery Funding.

Key actions that form the basis of the LBAP for Pembrokeshire are summarised below.

□ Production of HAPs and SAPs.

Action plans will be prepared on a rolling programme. Further habitats and species will be added as appropriate.

The production of HAPs and SAPs will be co-ordinated by the working group on behalf of the Pembrokeshire Biodiversity Partnership.

□ Monitoring and review of the LBAP

LBAP: The LBAP will be reviewed by the PBP every six years. Progress made by the PBP and its wider partnership in implementing the LBAP will be monitored on a continuous basis.

HAPs and SAPs: These will include measurable targets on which monitoring will be based. Each HAP and SAP will be reviewed every six years, in line with the review of the main LBAP document. Monitoring of HAPs and SAPs will enable the PBP to report on the conservation status of each habitat and species to the Wales and UK BAP Groups, as well as providing the means by which the effectiveness of the LBAP process at a local level can be evaluated.

□ Biodiversity data-base: The partnership will seek to establish a biodiversity data-base for Pembrokeshire. Data included in the data-base will be specifically linked to the measurable targets included in HAPs and SAPs.

Data required for monitoring and reporting purposes are likely to fall into the following "generic" categories: -

Habitats:	Extent	Species:	Distribution
	Quality		Population size(s)
			Productivity

□ Reporting procedures: reporting procedures will be established (on the status of individual habitats and species for which HAPs and SAPs will be prepared) to the Wales and UK Biodiversity Groups, within twelve months of the publication of this plan.

□ Communications and raising awareness: The partnership will: -

- seek to ensure that the LBAP continues to form a core part of Local Agenda 21.

- seek to develop partnerships with local business and industry, and to explore opportunities for funding e.g. through local "champions" for individual habitats or species.

-

- seek to ensure that the policies in the UDP will address the key factors affecting species and habitats in Pembrokeshire

- Seek to raise public awareness and involvement in the LBAP process by:

- Holding a public launch in Autumn 2000.
- Including regular items in the local press, about biodiversity action.
- Providing information to local communities, e.g. via local Community Councils and schools.
- Promoting active participation e.g. volunteers to help with monitoring, habitat and species management on reserves, action for biodiversity within local communities.
- Promoting awareness of biodiversity in Pembrokeshire among visitors e.g. provision of information at Tourist Information Centres/National Park Information Centres.

Other means of raising awareness that will be explored by the PBP include workshops and seminars, and a Pembrokeshire Biodiversity web site.

A projected time-table for the actions outlined above is set out in Box 6.

<u>Box 6: Timetable for implementing the key actions of the LBAP</u>	
<u>Action</u>	<u>Time-scale</u>
Production of 1st HAPs and SAPs	By October 2000
Monitoring of the LBAP	On-going
Review of the LBAP	1st review: 2006; thereafter every six years
Review of HAPs and SAPs	Every six years
Establishment and maintenance biodiversity data-base	Ongoing
Establish reporting procedures (to Wales & UK Steering Groups)	By March 2001
Public awareness/community involvement	From launch, as part of Local Agenda 21 process
Launch	Summer 2000
Publicity	On-going
Develop partnerships with business & industry	On-going

APPENDIX 1

List of Habitat Action Plans and Species Action Plans

HABITAT ACTION PLANS

Inlets and enclosed bays
Intertidal: open coast
Boulders/rock: (supralittoral zone)
Coastal flood plain & grazing marsh
Seagrass beds
Maritime cliff and slope
Coastal sand dune
Coastal saltmarsh
Aquifer fed water bodies
Rivers and streams
Reedbed
Fen
Lowland heathland
Lowland meadow
Purple moor grass
Calcareous grassland
Soligenous mire
Oak woodland
Mixed ash woodland
Wet woodland
Cereal field margins
Inland rock outcrops
Traditional field boundaries
Intertidal: mudflat
Saline lagoon
Coastal vegetated shingle
Mesotrophic lakes
Eutrophic standing water
Coastal strandline
Raised bog
Arable land
Improved grassland
Mixed woodland
Scrub
Gardens and community spaces
Buildings and other artificial structures
Lowland wood pasture and parkland
Offshore seabed
Open sea: water column
Dry acid grassland
Roadside verge

2. SPECIES ACTION PLANS

Common Name

Scientific Name

Water vole	<i>Arvicola terrestris</i>
European otter	<i>Lutra lutra</i>
Dormouse	<i>Muscardinus avellanarius</i>
Skomer vole	<i>Clethrionomys glareolus</i> race
Barbastelle	<i>Barbastella barbastellus</i>
Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>
Common Pipistrelle bat	<i>Pipistrellus pipistrellus</i>
Soprano Pipistrelle bat	<i>Pipistrellus pigmaeus</i>
Brown hare	<i>Lepus europaeus</i>
Dolphin species	
Harbour porpoise	<i>Phocoena phocoena</i>
Grey seal	<i>Halichoerus gryphus</i>
Commercial Fish Species	
Freshwater white clawed crayfish	<i>Austropotamobius pallipes</i>
Native oyster	<i>Ostrea edulis</i>
Common scoter	<i>Melanitta nigra</i>
Manx shearwater	<i>Puffinus puffinus</i>
Storm petrel	<i>Hydrobates pelagicus</i>
Gannet	<i>Sula bassana</i>
Puffin	<i>Fratercula arctica</i>
Chough	<i>Pyrrhocorax pyrrhocorax</i>
Barn owl	<i>Tyto alba</i>
Lapwing	<i>Vanellus vanellus</i>
Skylark	<i>Alauda arvensis</i>
Song thrush	<i>Turdus philomelos</i>
Tree Sparrow	<i>Passer hispaniolus</i>
Kestrel	<i>Falco tinnunculus</i>
Kittiwake	<i>Rissa tridactyla</i>
Reed Bunting	<i>Emberiza schoenicus</i>
Linnet	<i>Carduelis cannabina</i>
Spotted flycatcher	<i>Muscicapa striata</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Stonechat	<i>Saxicola torquata</i>
Whinchat	<i>Saxicola rubetra</i>
Yellowhammer	<i>Emberiza citrinella</i>
Peregrine falcon	<i>Falco peregrinus</i>
Lesser black-backed gull	<i>Larus fuscus</i>
Razorbill	<i>Alca torda</i>
Guillemot	<i>Uria aalge</i>
Short-eared owl	<i>Asio flammeus</i>
Green woodpecker	<i>Picus viridus</i>
Curlew	<i>Numenius arquata</i>
Corncrake	<i>Crex crex</i>
Water Rail	<i>Rallus aquaticus</i>
Cetti's warbler	<i>Cettia cetti</i>
Nightjar	<i>Caprimulgus europaeus</i>

Broad sea fan	<i>Eunicella verrucosa</i>
Cushion star	<i>Asterina phylactica</i>
High brown fritillary	<i>Argynnis adippe</i>
Pearl-bordered fritillary	<i>Boloria euphrosyne</i>
Marsh fritillary	<i>Eurodryas aurina</i>
Silver-studded blue	<i>Plebejus argus</i>
Small blue	<i>Cupido minimus</i>
Brown hairstreak	<i>Thecla betulae</i>
Thrift clearwing	<i>Bembecia muscaeformis</i>
Southern damselfly	<i>Coenagrion mercuriale</i>
Small red damselfly	<i>Ceriagrion tenellum</i>
Hairy dragonfly	<i>Brachytron pratense</i>
Scarce blue-tailed damselfly	<i>Ischnura pumilio</i>
Scaly cricket	<i>Pseudomogoplistes squamiger</i>
Strandline beetle	<i>Nebria complanata</i>
Hornet robberfly	<i>Asilus crabroniformis</i>
Mason bee	<i>Osmia parietina</i>
Shrill carder bee	<i>Bombus sylvarum</i>
Brown carder bee	<i>Bombus humilis</i>
Purse web spider	<i>Atypus affinis</i>
Hairy green snail	<i>Ponentina subvirescens</i>
Freshwater pearl mussel	<i>Margaritifera margaritifera</i>
Tentacled lagoon worm	<i>Alkmaria romijni</i>
Medicinal leech	<i>Hirudo medicinalis</i>
A snail	<i>Paludinella littorina</i>
Petalwort	<i>Petalophylum ralfsii</i>
Veilwort	<i>Pallavicinia lyelii</i>
Slender green feather moss	<i>Hamatocaulis vernicosus</i>
Lichen	<i>Bacidia incompta</i>
Lichen	<i>Cladonia peziziformis</i>
Scrambled egg lichen	<i>Fulgensia fulgens</i>
Golden hair lichen	<i>Telochistes flavicans</i>
Lungwort	<i>Lobaria pulmonaria</i>
A lichen	<i>Ramalina polymorpha</i>
Pink wax cap	<i>Hygrocybe calyptriformis</i>
Wild asparagus	<i>Asparagus officinalis</i> ssp <i>prostratus</i>
Early gentian	<i>Gentianella anglica</i>
Dune gentian	<i>Gentianella uliginosa</i>
Pillwort	<i>Pilularia globulifera</i>
Floating water plantain	<i>Luronium natans</i>
Rock sea lavender (endemic taxa)	<i>Limonium binervosum</i> – endemic taxa
Pale butterwort	<i>Pinguicula lusitanica</i>
Purple broomrape	<i>Orobanche purpurea</i>
Newport centuary	<i>Centaureum scilloides</i>
Pillwort	<i>Pilularia globulifera</i>
Bastard balm	<i>Melittis melissophyllum</i>
Three-lobed water crowfoot	<i>Ranunculus tripartitus</i>
Prostrate broom	<i>Cytisus scoparius</i> ssp <i>maritimus</i>

Slender yellow centuary
Goldilocks aster
Small restharrow
Pale Heath Violet
Hairy greenweed
Green winged orchid
Spiked speedwell
Fiddle dock
Wild chamomile
Glasswort
Stoneworts
Wilson's filmy fern
Tunbridge filmy fern
Southern polypody
Juniper

Cicendia filiformis
Aster lynosiris
Ononis reclinata
Viola lactea
Genista pilosa
Orchis morio
Veronica spicata
Rumex pulcher
Chamaemelum nobile
Salicornia pusilla
Chara species
Hymenophyllum wilsonii
Hymenophyllum tunbrigense
Polypodium australe 'cambrican'
Juniperus communis

APPENDIX 3

Glossary of terms

BAP	Biodiversity Action Plan
BC	Butterfly Conservation
cSAC	Candidate Special Area of Conservation
CAP	Common Agricultural Policy
CCW	Countryside Council for Wales
CLA	Country Landowners Association
Conspecific	applied to individuals that belong to the same species

DCWW	Dwr Cymru Welsh Water
EAGGF	European Agricultural Guidance and Guarantee Fund
EA-W	Environment Agency Wales
ESA	Environmentally Sensitive Area
EU	European Union

FC	Forestry Commission
FRCA	Farming and Rural Conservation Agency
FUW	Farmers Union of Wales
HAP	Habitat Action Plan
HLF	Heritage Lottery Fund
ILMP(s)	Integrated Land Management Plan(s)
LBAP	Local Biodiversity Action Plan
LEAP	Local Environment Agency Plan
LGMB	Local Government Management Board
LU	Livestock Unit (one cow or equivalent)

Metapopulation a group of conspecific populations that exist at the same time, but in different places

MHWESG	Milford Haven Waterway Environmental Surveillance Group
MoD	Ministry of Defence
NAWAD	National Assembly of Wales Agricultural Department
NNR	National Nature Reserve
NFU	National Farmers Union
NT	The National Trust

PBP	Pembrokeshire Biodiversity Partnership
PCC	Pembrokeshire County Council
PCNPA	Pembrokeshire Coast National Park Authority
RSPB	Royal Society for the Protection of Birds
SAP	Species Action Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

UDP	Unitary Development Plan
UK	United Kingdom
WDA	Welsh Development Agency
WTWW	Wildlife Trust West Wales