

Bridgwater Bay Natural Area Profile

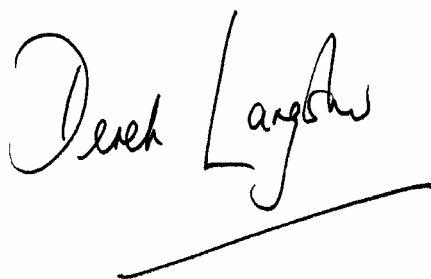
Foreword

One of the key components of English Nature's Strategy for the 1990s has been the Natural Areas approach. We examined the local distinctiveness of each part of England, to identify their characteristic wildlife and natural features, and used this to define a comprehensive series of Natural Areas. Their boundaries are based on the distribution of wildlife and natural features, and on the land use pattern and human history of each area, and thus offer a more effective framework for the planning and achievement of nature conservation objectives than do administrative boundaries. They are **not** designations.

Wildlife is not restricted to designated and protected sites such as nature reserves or SSSIs; it occurs throughout the countryside, coast and built up areas of England. No part of the country is without some wildlife interest. The Natural Areas approach gives us a way of determining priorities for nature conservation areas with ecological and landscape integrity, and to set objectives which reflect these priorities. Together, all Natural Areas provide a powerful vision for nature conservation right across England.

The achievement of the objectives described for each Natural Area will be a key part of our new strategy **Beyond 2000**. The objectives will guide our work over the coming years, and we hope Natural Areas will allow us to help others in achieving what is best for nature conservation locally.

This Natural Area profile is one of a series of 120, one for each Natural Area. In it we describe the wildlife and natural features of the area, and what makes it special and distinctive. Each Natural Area profile is different, since it describes and reflects the local distinctiveness of the area, and therefore includes nature conservation objectives which are particular to that area. The profiles have been written after a wide range of local consultations, both on the boundaries of the Natural Areas themselves and on these profiles.

A handwritten signature in black ink that reads "Derek Langslow". The signature is written in a cursive style and is positioned above a single horizontal line that underlines the name.

We hope you will find this document useful, and look forward to working with you to maintain and enhance the wildlife and natural features of England.

Dr Derek Langslow
Chief Executive

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1. Context: Natural Areas and the UK Biodiversity Action Plan

In June 1992 the Prime Minister and over 150 other Heads of State or Governments signed the Convention on Biological Diversity at Rio de Janeiro. They did so to express a shared belief that action must be taken to halt the world-wide loss of animal and plant species and genetic resources. At the same time they agreed to draw up national plans and programmes and to share resources to help implement them. This resulted in the first UK Biodiversity Action Plan published in 1994 (Box 1).

The Plan commits the Government to the objectives of the Convention but, just as its production required a wide ranging and vigorous contribution from people and organisations who care about our natural environment, so delivering it will require active participation. The Government can take a lead and establish a framework but whether, in the end, we and our children enjoy a country which is richer or poorer in species and habitats depends on all of us (Department of the Environment, 1994).

English Nature, as the Government's statutory advisors on nature conservation in England, have a key role to play in stimulating action. The development of the Natural Areas concept is an important part of that role (Box 2).

A Natural Area is not a designation, but an area of the countryside identified by its unique combination of physical attributes, wildlife, land use and culture. These features give a Natural Area a "sense of place" and a distinctive nature conservation character which we can seek to sustain (English Nature 1993¹). The concept is based on wide participation and enables us to "Think Globally, Act Locally".

Box 1: UK Goals, principles and objectives

Overall goal

to conserve and enhance biological diversity (the variety of life) within the UK and to contribute to the conservation of global biodiversity through all appropriate mechanisms

Underlying principles

1. Where biological resources are used, such use should be sustainable
2. Wise use should be ensured for non-renewable resources
3. The conservation of biodiversity requires the care and involvement of individuals and communities as well as Governmental processes
4. Conservation of biodiversity should be an integral part of Government programmes, policy and action
5. Conservation practice and policy should be based upon a sound knowledge base
6. The precautionary principle should guide decisions

Objectives for conserving biodiversity

1. To conserve and where practicable enhance:
 - a) the overall populations and natural ranges of native species and the quality and range of wildlife habitats and ecosystems;
 - b) internationally important and threatened species, habitats and ecosystems;
 - c) species, habitats and natural and managed ecosystems that are characteristic of local areas;
 - d) the biodiversity of natural and semi-natural habitats where this has been diminished over recent past decades.
2. To increase public awareness of, and involvement in, conserving biodiversity.
3. To contribute to the conservation of biodiversity in a European and global scale.

Box 2: The Natural Areas concept

- A Natural Area is a tract of the countryside which can be identified by its physical, wildlife and land use features.
- Physical features are determined by the geology, landform, soils, climate and drainage.
- Wildlife features are determined by the habitats and species of flora and fauna.
- Land use features are derived from past and present management activities.

1.1 The Natural Area Boundary

The Bridgwater Bay Natural Area covers the Somerset coast from Minehead to Brean Down. The Natural Area includes the open sea out to the 12 mile limit together with the estuaries of the Parrett and Brue. It extends inland to include coastal cliffs, single ridges, sand dunes and elements of grazing marsh to a maximum of 1km from MHW.

Adjacent to it lie three Natural Areas: Exmoor and the Quantocks, The Vale of Taunton, and The Somerset Levels. To the north the Natural Area is contiguous with the Severn Estuary and has a significant overlap of interest.

2. Description

2.1 Physical features

The Natural Area forms part of the Outer Severn Estuary and has within it the sub-estuaries of the rivers Parrett and Brue. The adjacent land ranges from mean high water to 97 metres AOD at the highest point of Brean Down.

The Severn Estuary has the second highest tidal range in the world and is a very high energy environment. Much of the finer sediment remains in suspension while the rest forms substantial areas of sand and mud flats exposed at low tide.

A succession of limestones and shales of Triassic and Jurassic age form low cliffs from Blue Anchor to Hinkley Point while on the foreshore they form extensive rock platforms. To the north the hard Carboniferous Limestone of Brean Down forms extensive sheer cliffs.

Between Hinkley Point and Brean Down lie the Estuaries of the Parrett and Brue cutting through the low lying alluvium of the Somerset Levels.

To the west beyond Blue Anchor the River Avill enters the estuary across a similar but smaller area of alluvial deposits that comprise the Dunster and Minehead Marshes.

Much of the grazing marsh in the area is below high tide mark and is protected from tidal inundation by a combination of dune systems, shingle ridges and constructed earth banks.

The largest sand dune system in the Natural Area is Berrow Dunes but degraded examples are also present at Steart and Minehead.

2.2 Geological features, landforms and coastal processes

The coastline of the Natural Area is generally exposed but particularly affected by westerly and north-westerly gales. Marine erosion has resulted in the formation of cliff sections in the Carboniferous, Triassic, Jurassic and Quaternary sedimentary rocks. In addition, the intertidal rock shelves between Blue Anchor and Lilstock are a nationally important landform feature. There are six sites recognised as being of national importance in the Geological Conservation Review (GCR) and these are represented in two SSSIs.

Table 1 Geological and Landform SSSIs in the Bridgwater Bay NA

SSSI	Associated key features
Blue Anchor to Lilstock Coast	Sedimentary rocks, Pleistocene gravels Landform features
Brean Down	Pleistocene sediments

2.2.1 Rhaetic sediments (Triassic)

The Natural Area exhibits the complete Rhaetian succession from the Grey Marls to the Blue Lias. They are noteworthy for their fossils of fish, reptiles and an early mammal *Hypsoprymnopsis*.

2.2.2 Lower lias (Jurassic)

The Natural Area has an outstanding series of sections through the Lower Lias. The sequence and that of the Rhaetian beneath is repeated at intervals by faulting. In a British context this coast has the thickest sequence of Lower Lias. This makes it an internationally important section as the British Lias sequences are the best in NW Europe.

2.2.3 Pleistocene sediments

The Pleistocene sediments at Doniford include a fine example of alluvial sediments deposited in a river valley during the cold phase of a glaciation. From the deposit have been recovered stone implements of the Upper Old Stone Age and the bones of mammoth. The site is one of the best in the Country for periglacial features and cold stage river valley sediments.

2.2.4 Coastal geomorphology (landforms)

The coast between Blue Anchor and Lilstock demonstrates a particularly well-developed series of intertidal shore platforms varying in width from about 200 to 600 metres. They reflect the variable resistance to erosion of the Rhaetic and Lower Lias bedrock. A key feature of the platforms is their development in a macro-tidal environment and they are among the best examples of such coastal features in Britain.

2.2.5 Coastal processes

Sediment transport

The coast between Minehead and Brean Down is part of a coastal process cell centred on Bridgwater Bay. The dominant sediment transport direction is from east to west with wave action causing seasonal offshore and onshore movement.

Sand dunes

There is one active sand dune system on this coast - the Berrow Dunes. This is a hindshore system in which large volumes of sand are blown by the wind from the foreshore onto the land. Here it is deposited in a series of ridges which become stabilized by the growth of vegetation.

Shingle

Gravel transport generally occurs along the high tide line and in an easterly direction. Shingle ridges occur between Minehead and Dunster, and Stolford and Steart Point at the mouth of the Parrett. There used to be a series of excellent shingle fans east of Hinkley Point which have been badly damaged in recent years.

Coastal erosion

Coastal erosion is not particularly aggressive on this stretch of coast when compared to that in eastern England. The soft cliffs between Blue Anchor and Hinkley Point are, however, eroding although the rate is difficult to estimate. The southern part of the Berrow Dunes appears to be eroding rapidly due to a combination of high tides and storms although a substantial amount of sand is re-deposited during the summer period.

Reposition of sand is allowing the dunes to grow seawards further to the north.

2.3 Habitats

The Bridgwater Bay Natural Area has a number of important habitats which are listed below. These habitats are shared with the adjacent Severn Estuary and contribute to the European designations of SPA and SAC.

Table 2 List of habitat features of the Bridgwater Bay NA

Feature	Designation
1. Estuaries Estuary with extreme tidal range Freshwater input, salinity Estuarine communities of reduced species diversity and high productivity Populations of rare migratory fish Populations of nationally scarce vascular plants Saltmarsh Intertidal sand and mudflats <i>Sabellaria</i> sp subtidal reefs	pSAC
2. Atlantic salt meadows	pSAC
3. Intertidal mudflats and sandflats	pSAC
4. Internationally important populations of wintering wildfowl and waders	SPA
5. Internationally important numbers of six species of overwintering birds	SPA

2.3.1 Open sea

Status

The Bridgwater Bay Natural Area includes an area of open sea which forms part of the Bristol Channel. It extends from the shallow nearshore to deeper waters in the centre of the channel. This section of the profile describes the water column of the open sea and the species which inhabit it.

Within the Natural Area water depths increase gradually offshore to a maximum of 20 metres. Current speeds along the coastline increase to a maximum of around 4 knots during spring tides.

Characteristic wildlife

The range of species present is somewhat limited, affected by the turbid nature of the water. While a number of fish species are present there is no major commercial fishery. Plankton are present but their productivity is severely controlled by turbidity. Algal blooms occur most years in the Bristol Channel, largely as a result of eutrophication.

The presence and abundance of other planktonic species is affected by the salinity of the water column which varies considerably with the discharge of fresh water from the Severn Estuary.

Special species

Species of particular note are the fish, many of which are migratory.

They include:

<i>Salmo salar</i>	Salmon
<i>Salmo trutta</i>	Salmon trout
<i>Alosa alosa</i>	Allis shad
<i>Alosa fallax</i>	Twaite shad
<i>Lampetra fluviatilis</i>	River lamprey
<i>Petromyzon marinus</i>	Sea lamprey
<i>Anguilla anguilla</i>	Eel

Current factors affecting the open sea

- There is only a relatively minor commercial fishery but angling is practised in the NA both from the land and boats.
- Pollution. The Natural Area form the outer part of the Severn Estuary and is affected by the discharge of a number of pollutants including hydrocarbons and heavy metals.

- Sailing and boating. There appears to be a growing level of use of the NA for sailing and boating, but the estuary is not popular due to its extreme tidal range and restricted number of safe harbours.

Key nature conservation objectives

1. Maintain and where possible seek to enhance vulnerable populations of fish.
2. Ensure the impacts of any oil or mineral exploitation are minimised.
3. Reduce pollution and eutrophication from land-based sources and establish suitable water quality objectives for coastal waters.
4. Seek to ensure that if the recreational use of the Natural Area increases it does so without detriment to the natural environment.

2.3.2 The seabed

Status

The seabed ranges in character from rocky reef structures associated with the harder rocks fringing the coastline through cobble and boulder fields to finer sand and mud deposits. The species colonizing the substrates vary dependent upon depth, tidal currents, turbidity of the water column and the stability of the seabed.

Characteristic wildlife

Coarse sediments of gravel pebbles and cobbles tend to be dominated by the reef building worm *Sabellaria*. These *Sabellaria* reefs may cover extensive areas of the seabed where there are tide swept areas affected by turbid water. This feature is rarely found in other UK estuaries. The richest association of species in the NA is within these reefs. Sandy bottomed areas in shallower waters are characterised by a mixture of bivalves, worms and amphipods, but have a much lower species diversity than similar areas further to the west.

Special species

Within the NA the most important species of the seabed is the worm *Sabellaria alveolata* the reefs it constructs being the habitat of a wide range of other species.

Current factors affecting the seabed

- Water quality may affect reef communities, particularly close to sewage outfalls.
- Dredging for minerals may be introduced affecting the Natural Area.

Key nature conservation objectives

1. Maintain the current diversity of natural life growing on the seabed.
2. Maintain high water quality, ensuring that any discharges are of high quality and do not damage marine communities.
3. Ensure sustainable utilization of mineral resources, particularly with regard to any future aggregate exploitation.
4. Ensure that oil spill response plans have adequate regard to sensitive sites and species.

2.3.3 Intertidal sediments and beaches

Status

Intertidal sediments range from mobile coarse sand mobilized by wave action to more stable shingle, fine sand and muddy sediments.

Within the NA there are some 5,000 hectares of intertidal sand and mudflats. The communities associated with intertidal sediments are dominated by animals as the majority of such sediments are too mobile to support plantlife. These areas are particularly important in supporting a range of invertebrates which provide food for the large population of wildfowl and waders which use the estuary.

Characteristic wildlife

The sediments contain a varied community of burrowing animals, eg Bird spp. With increasing stability the diversity and density of species increases and can include worms and bivalve molluscs.

Current factors affecting intertidal sediments and beaches

- Recreational pressures can be particularly high on the sandy intertidal zone. Trampling can be acute on sandy beaches, such as Berrow and Brean. Other activities include fish trapping with fixed nets, sand yachting, parasailing, horse riding and the driving of motor vehicles.
- Shoreline management for coast protection can affect littoral habitats and communities.
- Oil pollution from both catastrophic events and longer term inputs can have direct effects on the ecosystem.

- Water quality has an overall effect on the communities present, particularly since some pollutants, eg heavy metals can be bound up in the sediments.
- Inappropriate mechanical beach clearing damages invertebrate populations by removing the strandline. Sand-hoppers are particularly vulnerable to this kind of management.

Key conservation objectives

1. Maintain populations of characteristic animals.
2. Produce and implement Shoreline Management Plans, ensuring they include nature conservation objectives.
3. Ensure that oil spill contingency plans are realistic and minimise the secondary effects of clean up operations on the marine environment.
4. Reduce pollution and eutrophication from land based sources and establish suitable water quality objectives for coastal waters.
5. Prevent damage to beach invertebrate communities by inappropriate mechanical clearing and promote sustainable methods of beach clearing.
6. Ensure that the recreational use of the beach does not affect the nature conservation interest.

2.3.4 Sand dunes

Status

The NA has one substantial sand dune system at Berrow, a much smaller one at Minehead and some relict dunes at Steart. The Berrow Dunes are associated with the extensive sandy beach adjacent. Such a substantial feature is not currently associated with the other dunes, although sand is starting to accrete at Wall Common and embryo dunes are forming.

Characteristic wildlife

The formation of a sand dune system is dependent upon a supply of sand and an onshore wind to move it above the high tide mark. Colonization by plants of the embryo dunes allows a further build up of sand and their gradual stabilization. The most important dune system in the Natural Area, Berrow Dunes is fronted by a wide sandy beach and extends from Burnham-on-Sea to Brean, a distance of some 6 kilometres but is only ½km wide at its greatest width. The main stabilizing influence on the dunes are grasses and in areas closest to the sea Lyme grass dominates. A matter of only a few metres inland, however, it is replaced

by Marram grass. Both grass species are able to respond rapidly to burial and are able to colonize mobile dunes. Further inland as the dunes become more stable Marram is replaced by finer grasses and a tighter sward becomes established.

The hollows between the dune ridges lie at or close to the water table and develop wet grassland communities which may become flooded at times of high rainfall to form ephemeral ponds. A number of excavated ponds and drainage ditches are present providing open water habitat.

Also within the Berrow Dunes is a large reedbed isolated from the sea by a narrow dune ridge, this is the largest natural reedbed in Somerset and has growing within it the very rare Somerset Rush.

The other dune systems in the NA at Minehead and Steart are heavily modified by recreational or agricultural use.

The main dune habitats in the NA are:

- Strandline and embryo dunes.
- Mobile and semi-fixed dune grassland dominated by Marram grass.
- Calcareous fixed dune grassland not currently grazed by domestic stock but by rabbits. The dunes generally have a short sward characterised by red fescue and creeping herbs such as lady's bedstraw, bird's-foot trefoil and rest harrow.
- Dune slacks - Herb-rich wet hollows in the dune system supporting such species as bog pimpernel, southern marsh orchid, marsh helleborine, marsh pennywort and a range of sedges.

Important species

Sand dunes in the NA support a number of rare and scarce plants and animals.

These include: Lizard Orchid, round-headed club rush, Somerset rush, variegated horsetail and great-crested newt.

Current factors affecting sand dunes

While in general sand dunes are not usually heavily modified by man the dunes in the NA are significantly affected by human activities.

- Recreational and residential developments and in particular golf courses have had a significant effect on the sand dunes at Berrow and Minehead; resulting in a loss of dune slack habitats which now form many of the fairways.

- Visitor pressure and subsequent erosion has caused significant damage to the Berrow Dunes.
- Myxomatosis and rabbit viral haemorrhagic disease may reduce or even wipe out rabbit populations and affect grazing.
- Drainage of adjacent land may have seriously affected the presence of open water in slacks on the Berrow Dunes.
- Rapid spread of alien sea buckthorn is affecting parts of Berrow Dunes.

Key nature conservation objectives

1. Maintain natural coastal processes sediment supply and sand dune development through the production and implementation of Shoreline Management Plans.
2. Maintain extent of sand dune systems avoiding 'coastal squeeze' by inappropriate development on or adjacent to the dune system.
3. Ensure that tourism and recreational activities are carried out in a sustainable way, avoiding erosion and damage to sand dune habitats.
4. Increase public appreciation and understanding of sand dune habitats through appropriate education and interpretation.
5. Monitor, maintain and where necessary restore water levels to ensure dune slacks and their associated plants are not lost through drying out.
6. Monitor, maintain and where appropriate enhance and restore populations of rare plants and animals including round headed club rush, lizard orchid and bearded tit.
7. Control alien species, particularly sea buckthorn.

2.3.5 Sea cliffs and cliff tops

Status

There are two areas of extensive sea cliffs in the Bridgwater Bay Natural Area. These are the cliffs in the Liassic and Triassic rocks from Blue Anchor to Hinkley Point and the Carboniferous Limestone cliffs of Brean Down.

The two areas of cliffs are essentially different in character. The limestone shales and marls from Blue Anchor to Hinkley Point are less resistant to erosion and are receding quite rapidly in some sections. The Carboniferous Limestone cliffs of Brean Down are much more resistant to erosion and are not receding significantly.

Characteristic wildlife

The sea cliffs of this section of coast vary considerably in the nature of their vegetation.

The Carboniferous Limestone cliffs of Brean Down are stable and support a distinctive limestone grassland in which grow a number of rare species.

There is a gradual transition between the cliff vegetation which includes sea campion, thrift and samphire and the limestone grassland at the top of the cliff.

The Triassic and Liassic cliffs are generally unstable with a pattern of regular cliff falls and slumps of less well consolidated material.

Many of the cliffs are poorly vegetated, although some of the older slumped areas support typical limestone grassland species. Along this stretch of the coastline there is a tendency for intensive agriculture to be practised within a few metres of the cliff edge.

Important species

A number of plant species of restricted distribution occur on the cliffs of Brean Down. These include white rock-rose, Somerset grass, honewort and goldilocks aster.

Breeding birds are few but the NA supports a number of pairs of peregrine falcon and ravens breed on Brean Down.

Current factors affecting sea cliffs and cliff tops

Cliffs and sea cliffs in particular are among the least modified of terrestrial habitats. Cliff tops, however, have been substantially modified by man and this has resulted in a considerable loss of habitat.

- Agricultural intensification of cliff top grasslands and even conversion to arable has led to a sharp boundary between intensively farmed land and the semi-natural habitats of the cliff top.
- Areas of grassland associated with cliff tops are often poorly grazed which leads to scrub invasion and loss of lower growing species.
- There is an increase in visitors using the coastal paths in the NA which can lead to localized damaged to cliff top vegetation.

Key nature conservation objectives

1. Maintain at least the current extent of natural cliff and cliff top vegetation and where possible restore natural vegetation to a buffer zone adjoining the cliff top.
2. Maintain grazing where it occurs (Brean Down) and introduce it to any buffer zone.
3. Maintain and where possible increase populations of rare and uncommon plants.
4. Ensure that visitor pressure does not exceed sustainable levels avoiding erosion of maritime habitats. Minimise damage to vegetation at sensitive sites.
5. Increase public appreciation and understanding of native habitats and key species in the Natural Area through appropriate education and interpretation.

2.3.6 Saltmarshes

Status

In the Natural Area saltmarshes are concentrated between Hinkley Point and Burnham-on-Sea, extending into the estuaries of the rivers Parrett and Brue. There are distinct lower and upper zones in the marsh, often separated by a distinct step. The upper saltmarsh is dominated by a mixture of red fescue and saltmarsh grass, while the lower is occupied by cord grass, an introduced pioneering species.

Cord grass was planted extensively in the NA in order to stabilize areas of mudflat, promote sedimentation and reduce erosion of the foreshore. Within the NA there are some 481 ha of saltmarsh, a substantial proportion of which is cord grass dominated.

There is strong evidence to suggest that in the past there was a greater area of saltmarsh present in the Bay, but that it has been reduced by reclamation to agriculture and is now grazing marsh or even arable.

Much of the saltmarsh in the NA is grazed by cattle or sheep.

Characteristic wildlife

Grazed saltmarshes are dominated by grass species, particularly cord grass, red fescue and saltmarsh grass. There are, however, a number of herb species, including sea aster, sea lavender and sea wormwood.

In addition to their botanical interest the saltmarshes provide feeding and roosting areas for many of the estuary's waders and wildfowl.

Key factors affecting saltmarshes

- Increasing area due to cord grass colonization.
- Sea level rise has a potential to reduce the area of saltmarsh in the NA due to enhanced erosion.
- Grazing or lack of grazing in respect of feeding wildfowl. Most wildfowl and waders prefer to use tightly grazed upper saltmarsh.
- Loss of upper saltmarsh to land claim in the past.
- Potential catastrophic effects from oil pollution.

Key nature conservation objectives

1. Maintain grazing where it is traditional practice but do not extend to previously ungrazed areas.
2. Prevent further loss of saltmarshes due to reclamation.
3. Identify opportunities to recreate saltmarshes to compensate for past and future losses due to erosion, coastal defence works and reclamation.
4. Ensure that areas of saltmarsh are identified in oil pollution contingency plans.
5. Ensure that the conservation and creation of saltmarshes is emphasized in any solutions proposed in the Shoreline Management Plan and promote the establishment of saltmarsh as a part of flood defence scheme.

2.3.7 Grazing marsh

Status

Coastal grazing marsh is a distinct habitat of low lying grasslands landward of coastal defences or natural barriers. It is drained by a series of ditches which may contain brackish or fresh water dependent upon their proximity to the sea and intrusion of sea water through tidal flaps.

There is a small area of grazing marsh to the east of Minehead but the majority is concentrated between Hinkley Point and Burnham-on-Sea and beside the Parrett estuary.

Grazing marsh has usually been created by draining and enclosing former saltmarsh now landward of sea walls. The nature conservation interest of these areas is maintained by a system of summer grazing with cattle.

Of particular note are the commons between Steart and Hinkley Point and the Pawlett Hams.

Characteristic wildlife

While the majority of the grassland is species poor due to agricultural improvement the network of ditches can be species rich with a range of aquatic plants, including frogbit, flowering rush, sea clubrush, water fern and parsley water-dropwort.

The ditches also support assemblage of invertebrates, including a number of nationally rare beetles and flies.

The grassland also provides roosting and feeding areas for many of the winter resident wildfowl and wader species.

Current factors affecting grazing marsh

The nature conservation interest of grazing marshes has developed as a result of traditional agricultural practices.

Significant areas have now been subject to agricultural improvement by drainage, ploughing, reseeding and fertilizer applications.

- Agricultural improvement and intensification;
- Pollution of watercourses arising from the run-off of fertilizer and agricultural chemicals;
- Improved drainage of ditch systems and drying of ponds.

Key nature conservation objectives

1. Maintain and where possible enhance and increase the extent of grazing marsh (for wintering migratory and breeding birds) by reversion of arable areas.
2. Maintain and enhance the diversity of plants and invertebrates by encouraging traditional farming practices of summer grazing with sheep and cattle.
3. Maintain and enhance the condition of ditches and ponds. Promote regular maintenance of these features.

2.3.8 Vegetated shingle structures

Status

The Natural Area has within it one major and a number of minor shingle structure. The major complex lies in Bridgwater Bay National Nature Reserve to the east and west of the village of Steart.

Characteristic wildlife

In the lee slope of the ridge on Catsford Common there is a community dominated by blackthorn with bramble, ivy, burnet rose and bittersweet. On the more stable parts of the ridge a community dominated by red fescue with buck's-horn plantain, spear-leaved orache and greater sea spurry is present.

Yellow horned poppy often occurs as a pioneer species on more recently deposited shingle, with sea mayweed, sea beet and curled dock.

Current factors affecting vegetated shingle structures

- Reworking to provide sea defences. A major problem between Stolford and Steart.
- Grazing. Can affect colonizing plants.
- Marine erosion. The shingle ridges on Catsford Common appear to be thinning and rapidly eroding.

Key nature conservation objectives

1. Maintain and enhance the shingle features in the NA.
2. Reduce or eliminate mechanical disturbance to shingle ridges.
3. Allow erosive processes, which supply material to the ridges, to continue

3. Key species for conservation attention

3.1 The selection of key species

The Bridgwater Bay Natural Area contains a number of species which are highly valued, whether by wildlife conservation bodies or by the general public. Limitations on human and financial resources mean we are unlikely to be able to focus conservation action on them all but we must identify those which are priorities for action, by virtue of the criteria listed below. However, we can rely on habitat conservation measures to conserve the great majority of the remaining species.

Table 1 lists over 20 species that may be regarded as key species for the area which are a priority for action, even if that is only monitoring numbers to confirm they are remaining stable.

Selection criteria for key species

- a. Species that are endemic to the UK, or which are threatened on a global or European scale, and which have significant populations in the Bridgwater Bay Natural Area. (Protected by the European Habitats Directive, Birds Directive, Berne or Bonn Convention, or are listed on CITES).
- b. Species which are rapidly declining throughout the UK. (Protected by the Wildlife & Countryside Act).
- c. Species which are threatened in Great Britain, being listed in the relevant Red Data Book.
- d. Species which are highly characteristic of the Bridgwater Bay NA.

Some account has also been taken of ensuring that all the important taxa in the Natural Area are represented, and that the species selected are spread across the key habitats present.

A list of all the species which are either globally threatened or rapidly declining in the UK is given in Appendix 2, following the information given in *Biodiversity: The UK Steering Group Report* (December 1995).

Table 1 Key species for conservation attention in the Bridgwater Bay Natural Area.

Common name	Scientific name	Reason for selection	Primary habitat in NA
Birds			
Peregrine	<i>Falco peregrinus</i>	d	Sea cliffs
Dunlin	<i>Calidris alpina</i>	a	Intertidal
Curlew	<i>Numenius arquata</i>	a	Intertidal
Redshank	<i>Tringa totanus</i>	a	Intertidal
Wigeon	<i>Anas penelope</i>	d	Saltmarsh
Teal	<i>Anas cracca</i>	d	Saltmarsh
Shelduck	<i>Tadorna tadorna</i>	a	Intertidal
Amphibians			
Great crested newt	<i>Triturus cristatus</i>	a	Dune slacks
Fish			
Twaite shad	<i>Alosa fallax</i>	a	Estuary
Allis Shad	<i>Alosa alosa</i>	a	Estuary
Atlantic salmon	<i>Salmo salar</i>	a	Estuary
Salmon trout	<i>Salmo trutta</i>	a	Estuary
Eel	<i>Anguilla anguilla</i>	a	Estuary
River lamprey	<i>Lampetra fluviatilis</i>	a	Estuary
Sea lamprey	<i>Petromyzon marinus</i>	a	Estuary
Worm			
Honeycombe worm	<i>Sabellaria alveolata</i>	a	Subtidal
Plants			
Petalwort	<i>Petalophyllum ralfsii</i>	a	Sand dunes
Lizard orchid	<i>Himantoglossum hircynum</i>	b	Sand dunes
Round-headed rush	<i>Scirpoides holoschoenus</i>	c	Sand dunes
Somerset rush	<i>Juncus subulatus</i>	c	Sand dunes
White rock-rose	<i>Helianthemum appeninum</i>	c	Sea cliffs & Cliff tops
Goldilocks aster	<i>Aster linosyris</i>	c	Sea cliffs & Cliff tops
Honewort	<i>Trinia glauca</i>	c	Sea cliffs & Cliff tops
Somerset grass	<i>Koeleria vallesiana</i>	c	Sea cliffs & Cliff tops