SEFTON COAST PARTNERSHIP
NATURE CONSERVATION STRATEGY

BACKGROUND INFORMATION FOR WORKING GROUP: HABITATS AND SPECIES

Introduction

The Sefton Coast is a particularly special area for wildlife. It owes this in part to the variety of habitats that can be found in a relatively small area, but also largely due to its geographical position which allows the overlap of 'northern' and 'southern' species and mild conditions for wintering birds.

The nature conservation strategy will cover the terrestrial habitats and species of the Sefton Coast. However, it will include the marine life of the intertidal foreshores and will support regional initiatives for the conservation of marine wildlife. Liverpool Bay is proposed as a marine Special Protection Area (SPA) for its important populations of seabirds. Regional biodiversity strategies are being prepared for cetaceans (whales, dolphins and porpoises) and seabirds.

The various site designations, lists of protected species, and terms such as 'priority habitats' can be confusing to the public. The scientific criteria under-pinning many of the legal instruments is also difficult to explain. Even the term 'biodiversity' has become rather over-used.

However, these criticisms aside, the Biodiversity Action Plan process is intended to encompass a breadth of interest, adding local species and habitats to those of national importance. Local biodiversity initiatives should be relevant to local communities, raising awareness and supporting grass-roots conservation efforts. The challenge on the Sefton Coast is to meet the international and national obligations for the protection of wildlife whilst retaining the support of local communities through provision of access and enjoyment of nature.

The nature of protected sites

The Sefton Coast is covered by a series of statutory conservation designations from international, European, national and local. Each of these is linked to different pieces of legislation including European nature Directives, UK Regulations (which transpose EU law), UK domestic legislation and local planning policies. Where there are 'obligations' towards wildlife, e.g. to protect internationally important numbers of birds or to maintain the dune habitats in 'favourable condition' the responsibilities are set down in UK legislation. It's a bit of myth that Brussels determines how we manage sites: the UK has one of the most advanced nature conservation systems of any country in Europe and, where targets are set, these are through national programmes driven by the Department of Environment, Food and Rural Affairs (DEFRA).

Designations are generally based on some assessment of 'quality' and 'importance' for nature and, as a consequence, they can be defended on scientific criteria. Designations use terms such as "for which this is the best example in the UK.." etc.

Dunes are rare features in the UK, and the Sefton Coast, as one of the largest sites (over 2000 ha), is important for the conservation of the specialised species of the

dunes, dune forming processes and dune landforms. About 20% of the total area of sand dunes in England is found on the Sefton Coast.

The Sefton Coast has the richest flora of any comparatively sized area in northern England. There are over 1000 vascular plants associated with the dunes. The richest habitats are those associated with bare ground, wetlands and fixed dunes. The dune system also supports about 40% of the UK population of the Natterjack Toad, a specific northern race of the Sand Lizard and many rare species of beetles, moths, bees and other invertebrates. Over 3,300 species of invertebrate have been listed.

Habitats –conservation and management

There are a wide range of habitats found on the Sefton Coast. There are sometimes lumped as in 'coastal sand dune' in the UK biodiversity action plan or divided into a few (EU Habitats Directive) or many (National Vegetation Classification) sub-types and vegetation communities. Habitats are generally defined by their plant communities.

The UK Biodiversity Action Plan lists the following habitats for the Sefton Coast (priority habitats are given in bold);

Coastal saltmarsh
Lowland broadleaved mixed woodland
Wet woodland
Coastal sand dune
Lowland heathland
Conifer woodland
Lowland dry acid grassland
Ponds
Reedbeds

'Coastal sand dune' is too broad a category to be of much value at site level. Detailed information on vegetation communities is provided through the National Vegetation Classification surveys (see below) –but this has to be condensed to interpret habitats at the scale of the Sefton Coast. The NVC information can be used to generate maps based on European vegetation categories such as embryo dunes, mobile dunes, fixed dunes, wet slacks and dune heath. A vegetation map of the coast was prepared as part of the Sefton Coast LIFE project.

Conservation management action is often directed at ensuring a balance of habitats whilst maintaining representative examples of all habitat types. Dune scrub, for example, is recognised as an important habitat, but has to be controlled (e.g. through grazing) to ensure the conservation of the open fixed dune habitats.

The nature conservation strategy will include a 'biodiversity delivery plan' for the habitats and species highlighted in the North Merseyside Biodiversity Action Plan. This will be linked to the targets for the maintenance of habitat extent and quality and for the restoration and expansion of habitats in the North West Region (all these targets are national targets linked to the England Biodiversity Strategy).

Expansion targets for north-west England by 2010 are for the re-establishment of 150ha of open dune vegetation lost to other land uses and erosion, for the re-

establishment of 70ha of saltmarsh to replace part losses, for the re-establishment of 50ha of grazing marsh and for the re-establishment of 50ha of lowland heathland on suitable areas. ***The North Merseyside BAP has set a target for the restoration of 20ha of dune habitat by 2015.*** Where can such habitat be restored or re-created?

Vegetation community change

It is often very difficult to 'see' change, yet beaches, marshes and dunes are in a constant process of change; changes in geomorphology (the levels of beaches, height of dunes etc), soils (an unseen but significant process), water tables, vegetation communities and the distribution of individual species.

Fixed-point photographs can compare the same views every 5 years: they can show change but cannot analyse the reasons for change. More detailed surveys are carried out using the National Vegetation Classification. Maps of vegetation communities and lists of species are prepared. Surveys on the Sefton Coast have been carried out for the saltmarshes and dunes.

The dunes were first surveyed in 1988-1989 and the work repeated in 2003-2004. The results show broad-scale changes in vegetation community types over the 15 year period. Natural trends are expected. The results do show an increase in the 'older' communities of the coast and a decrease in the 'younger' communities. But the scale of the observed change was unexpected, hinting at what could be termed 'accelerated succession'.

The results will need further corroboration, analysis and discussion. The data show a reduction in the more mobile habitats of the dune system matched by a increase in 'semi-fixed' habitat. This appears to show trends towards stabilisation and loss of diversity.

Vegetation surveys can detect the impact of management: the coastwide control programme for the introduced Sea Buckthorn scrub has reduced the invasive scrub to more manageable levels and most of the cleared areas are returning to semi-fixed dune habitat. Management by grazing can also maintain the semi-fixed dunes in a more open state.

Description (and NVC category)	1989 (hectares)	2004 (hectares)	Change
Mobile dunes with Sea Lyme Grass (SD5)	19.3	5.4	-72%
Mobile dunes with Marram Grass (SD6)	123.6	95.1	-23%
Semi-fixed dunes with Marram and Red Fescue Grass (SD7)	339.6	465.6	+37%
Open dunes with small, low-growing annual plants, e.g. Sand Cat's Tail Grass (SD19)	39.3	3.1	-92%
Dune grassland with Lady's Bedstraw (SD8)	93.9	7.9	-92%
Blowouts with stabilising Sand Sedge (SD10)	4.1	41.8	+914%
Sea Buckthorn scrub (SD18) –following scrub control programme	39.3	3.1	-92%

The survey of the dune slack habitats shows a similar trend for the wetland habitats. There has been a marked reduction in the vegetation associated with young and semi-mature slacks matched by an increase in the older slacks dominated by Creeping Willow and grasses. The succession of slack habitats from bare sand to mature scrub is a natural process: what the survey appears to show is that new slacks are not forming naturally at a sufficient rate to replace older slacks.

There is some balance, however: the rapid accretion of new dune and wetland communities at Birkdale in recent years (mapped in the saltmarsh survey) is providing a large area of new habitat. Since 1985 the 'green beach' habitats at Birkdale have grown to 62 ha and the area continues to expand and increase in species-richness.

Description	1989 (hectares)	2004 (hectares)	Change
Edge vegetation of young slacks-good for Petalwort (SD13)	7.6	0.1	-98%
Semi-mature slacks (SD15)	54.8	34.6	-37%
Grassy slacks with Creeping Willow (SD16)	46.8	59.0	+26%

Nutrient deposition –a key problem

Ecologists are becoming increasingly concerned about the medium to long-term effects of nitrogen deposition on habitats and ecosystems. Atmospheric pollution arising from sources such as power stations and vehicle emissions is increasing the level of nutrients in rainfall. This can affect all habitats and there is evidence to show that the input of nitrogen to the dune habitats is now at a critical level.

All habitats have a 'nitrogen budget' with inputs from the atmosphere and groundwater, storage (pools) in soil and vegetation and losses by leaching and grazing activity. Dune grassland as a habitat naturally has significantly less nitrogen in its soil and vegetation than coarse grassland. So, if the amount of nitrogen begins to increase in the soil it will trigger a change in the type of grassland. We think that this process is now affecting the Sefton Coast.

On the Sefton Coast about 13 kilograms of Nitrogen are deposited on every hectare each year. Scientists have identified 'critical loads' of between 10 and 20 kg N/ha/year, above which vegetation change may occur, so we are now in this zone. The situation requires monitoring. Although the UK Government has reported significant reductions in Sulphur dioxide emissions (from the burning of fuel), and Nitrogen oxide emissions, levels are still above the EU National Emissions Ceiling Directive targets.

Trends in climate change, nutrient deposition and acidification need to be taken into consideration in long-term objectives. We can not guess the consequences of changing climates by only studying the Sefton Coast. In 2005 the Ainsdale Sand Dunes National Nature Reserve joined a national climate change study coordinated by English Nature and the Centre for Ecology and Hydrology (Modelling Natural Resource Responses to Climate Change).

Species conservation

Conservationists have differing views about species conservation. Some argue that all management should be at the broad biodiversity or habitat scale – get this right and the characteristic species will be sustained. However, the way European and national conservation policy has developed in recent decades has put considerable weight on lists of species (and placed these in different categories, e.g. priority, endangered etc.).

English Nature ran a Species Recovery Project in the 1990s and some species, Red Squirrel for example, can attract a considerable body of support. The organisations which champion species conservation on the Sefton Coast include Plantlife (especially lower plants), Herpetological Conservation Trust (Sand Lizard and Natterjack Toad) and Red Alert North West (Red Squirrel).

No single 'list' is comprehensive. For the UK we have species listed on the Wildlife and Countryside Act, the EU Habitats and Birds Directives (as transposed into UK law), Biodiversity Action Plans and the lists of various agencies and organisations.

Species listed in the North Merseyside BAP relevant to the coast are; Bats, Red Squirrel, Brown Hare, Water Vole, Skylark, Natterjack Toad, Sand Lizard, Petalwort and rare mosses, Sefton Coast Rare plants, Purple Ramping-fumitory, Stonechat, Lapwing, Common Lizard, Great Crested Newt, Northern Dune Tiger Beetle, Sandhill Rustic Moth, Vernal Colletes Mining Bee, Grayling butterfly, Dark-Green Fritillary butterfly, dragonflies and stoneworts.

Which of these species require their own 'plan' or strategy? Which are part of a national Species Action Plan? Which of these require only action at the habitat scale? Answers to these questions will help to advise the conservation objectives for the coast.

We now have reasonably good baseline data on diversity of some groups, e.g. vascular plants, breeding birds and several invertebrate groups. Can these data help to judge the success of conservation management in the future or be used to assess environmental change?

Perhaps in an ideal situation the extent, diversity and dynamic nature of habitats would ensure species survival, with monitoring being the main action required to assess the health of 'indicator species'.

We know, however, that for several species this is not enough. There is active management for Natterjack Toad (re-excavation of pools), Sand Lizards ('gardening' around known sites), Red Squirrel (a bias in woodland management towards conifers and supplementary feeding) etc. In all such exercises proper recording and monitoring are essential.

Species control, rather than conservation, can be a controversial issue. Control of Sea Buckthorn, other invasive plants, Common Toad, Grey Squirrel etc can be viewed as a necessary evil or interference with 'natural' processes. Some alien species can be beneficial, e.g. nectar sources for insects (Canadian Goldenrod etc), visual appeal (Evening-primroses etc). Better perhaps not to use the term 'alien' but rather 'problem species' whether native or not.

Species conservation attracts 'champions' and special funding opportunities. It is important to 'play the game' here, but without sacrificing the principles of working at an ecosystem level or working with natural processes.

The consequences of fragmentation

The fragmentation of habitats, and isolation of species, is a particular threat to the nature of the Sefton Coast. Some small areas are left as outliers to the main dune system. Problems of scrub development, vulnerability of isolated populations, recreation pressure and tipping of garden waste are threats to these sites.

The former uninterrupted expanse of dunes has become fragmented over the centuries by roads, railways, pine plantations and housing development. There is also fragmentation at the more local scale where, for example, colonies of Sand Lizards are divided.

There may be opportunities to reduce the impacts of fragmentation –ideas should be explored through the nature conservation strategy.

Habitat management

Conservation management practice can be considered at two levels. First is what could be termed 'continuity' – year-on-year management practices which are designed to maintain the habitats and species. Some flexibility can be included but any necessary work would be part of the annual work programme. The other type could be considered 'restoration' where a problem or an opportunity is identified and the aim is to create a certain habitat type. This could be habitat creation from a poor initial state, (e.g. a brownfield site), the repair of damaged sites (e.g. trampled dunes) or the replacement of one habitat type with another (e.g. scrub removal to restore grassland). It is the third category here which tends to be the most contentious.

Continuity and management of semi-natural habitats

Many habitats have a long history of human interaction: open dunes, heaths, meadows etc. The value of these habitats for wildlife usually depends on the continuity of management. Here, knowledge about past uses (e.g. on the heaths) is often valuable in advising present-day management and in offering some pointers for the future. Because many semi-natural habitats are given full statutory protection there is an onus on land managers to maintain their value –but there will be some degree of flexibility.

Photographs of Freshfield Dune Heath in the 1960s show it devoid of any tree cover or scrub. When Lancashire Wildlife Trust acquired the same site in 2004 it was becoming covered by gorse scrub and self sown trees. Management proposals were developed after local consultation; these will retain some of the woodland and scrub and control vegetation growth through grazing. In this way a site which was part of the local area can be returned to good condition with the support of the local community whilst meeting national conservation targets. The important element is continuity of management.

Grazing with domestic stock has been introduced or re-introduced to a number of sites on the coast and this management practice could be extended. Although there is some concern about the visual impact of fencing, the livestock add to local character and the grazing programmes will reduce the need for future scrub control projects. It is potentially a cheap and sustainable form of land management.

A proportion of scrub on heaths, dunes and woodland edges will add diversity –but too much will reduce diversity.

Restoration actions

Restoration implies change. Understandably there is some concern within local communities about the motivation for such work. A reasonable question is "restoration to what…?". There are different scales of restoration activity. Some projects, such as a programme excavating and maintaining pools for the Natterjack Toad are long-running and necessary where new breeding pools are not being formed naturally.

In the 1980s there was a large scale programme of dune restoration (or perhaps more correctly 'dune repair'). The results of this work can still be seen: in some cases a rather poor habitat has developed but the dunes are stable (the desired outcome) whereas in other areas where a degree of mobility was retained there appears to be a more varied range of habitats and species.

The clearance of scrub and woodland to restore wet slacks, heaths and dunes has been more controversial. English Nature's dune restoration project at Ainsdale Sand Dunes National Nature Reserve has shown that such projects have to be seen in the context of the dune system as a whole. Equally, there is a need to assess the ecological effects of the extensive tree-planting along the coast in recent years (Altcar Rifle Range, Ravenmeols, by Formby Hall etc).

Restoration projects tend to be outside the annual work programmes of the land managers and may require specialist contractors, permissions, studies and consultation.

Recreation and eco-tourism

The impact of recreation and eco-tourism on habitats and species should be considered. In moderation, recreation is often beneficial –maintenance of short, species-rich swards, open / disturbed ground for annuals and invertebrates etc. But can easily become harmful – excessive remobilisation of frontal dunes, disturbance to ground-nesting birds, shore-bird roosts, eutrophication by dog faeces etc.

The interlinks between activities will be addressed through the Sefton Coast Partnership and will be a key area of work for the new national agency Natural England.