SOUTHERNDOWN COAST SITE OF SPECIAL SCIENTIFIC INTEREST

Photograph CCW: © Julian Woodman

YOUR SPECIAL SITE AND ITS FUTURE

Notification March 2008

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'Your Special Site and its Future' is part of our commitment to improve the way we work with SSSI owners and occupiers. In it, we try to explain what is special about the wildlife and geology on your site, and what care is needed to look after it into the future.

All SSSIs are considered to be of national importance and we recognise the crucial role that owners and occupiers play in their management and protection. We need you to share your views and knowledge of this site with us, to help safeguard it.

We hope that you will find 'Your Special Site and its Future' interesting and helpful. Please contact us if there is anything about the site and its management that you would like to discuss.

What is 'special' about the wildlife and geology at Southerndown Coast SSSI?
This beautiful stretch of coast has special features that are both geological and biological.

The geology of the site is special for three different features:

- **Fan and wadi deposits of the Triassic**
- **Mineral deposits**
- **Jurassic marine sediments**

The site is also special for the following habitats and species:

- **Inter-tidal habitats**
- **Woodland and scrub transition in Cwm Mawr**
- **Neutral, calcareous and coastal grasslands**
- **Rare and scarce plants**

Triassic desert sediments
About 250 million years ago, this part of Wales was at the edge of hills within a large desert. Torrential streams washed sediment down from mountains to the north, infilling gullies and forming 'fans' of debris, as in present-day deserts. These deposits are now preserved as rocks along a 1.2km length of coast at Ogmore-by-Sea. At low tide they can be seen extending for 300m out to sea.

Mineral deposits
The mineral interest may be found in a number of places along the coast. These are in two sections of cliff between the villages of Ogmore-by-Sea and Southerndown; a rocky headland between Bwlch-y-Ballring and Bwlch-y-Gro, and a cliff area south of Pant y Slade. These sections show minerals such as lead sulphide and barium sulphate, deposited in the limestone about 200 million years ago.

Jurassic marine sediments
A length of coast of nearly 3km, from Pant-y-Slade to Cwm-y-Buarth, beyond Trwyn-y-Witch, consists of 60m-high cliffs and rocky shore. At this unique British location, a variety of rock types are shown, sediments deposited from shore to deeper water, at the edge of the Jurassic Sea, around 200 million years ago. The near-shore deposits contain fossils of corals and molluscs, and in the deeper water deposits, molluscs and occasional bones of large marine reptiles.

Inter-tidal communities.
Southerndown Coast SSSI has extensive reefs of honeycomb worms. These marine worms build their tubes from sand surrounding the boulders and rocky platforms. At some exposed sites, such as Southerndown Coast, the honeycomb reef is formed as a crust on top of inter-tidal rocks, but also forms hummocks within Dunraven Bay. Red and brown seaweeds are found growing on and around the reefs with the lower shore edge of the reef covered in sand-encrusted sea squirts. In addition, Southerndown Coast has overhanging bedrock and caves with sponges, sea mats and sea squirts.

Woodland and scrub transition in Cwm Mawr
The gradual transition from low, wind-blown scrub to woodland is a dramatic example of the effect that the wind can have in coastal situations such as this.

The scrub is mostly blackthorn, with some gorse and other shrub species as well as scrambling bramble and wild madder. In the woodland, ash and sycamore are common.

Grasslands

Species-rich grassland at Southerndown is found in three separate areas, which lie close together. Two are steep-sided cwms, Cwm Mawr and Cwm Bach, whilst the third, Trwyn-y-Witch, is a coastal hill including part of an adjacent field. The position of the different grassland types depends, to a certain extent, on the slope of the land, the aspect to the sun, and the degree of exposure to wind and salt spray. The **neutral grassland** at Southerndown Coast SSSI includes some species more indicative of lime-rich soils and, on the north-facing slope of Cwm Mawr, is rich in mosses and liverworts. **Lowland calcareous grasslands** develop on thin soils, generally on limestone. They are now often found on distinct features such as escarpments or dry valley slopes, and sometimes on ancient earthworks. There has been a rapid decline in this habitat over the last 50 years, and it has a limited distribution in Wales. **Coastal grassland** is found where the air is salt-laden and soils are dry and thin.

	Where is it?	Typical plants	Special plants
Neutral grassland	Trwyn-y-Witch Cwm Mawr Cwm Bach	Red fescue and other grasses Common knapweed Bird's-foot trefoil Betony	Cowslip Clustered bellflower Tuberous thistle Adder's-tongue fern
Calcareous grassland	Upper, South-facing slope of Trwyn-y-Witch Cwm Mawr Cwm Bach	Sheep's fescue Quaking grass Rockrose Wild thyme Salad burnet Lady's bedstraw	Clustered bellflower Yellow-wort
Coastal grassland	Areas most exposed to salt spray – the South-facing margins of Trwyn-y-Witch and both cwms	Red fescue Thrift Buck's-horn plantain Bird's-foot trefoil Glaucous sedge	Purple gromwell Sea carrot

Rare and Scarce Plants

Shore dock is very rare in Britain and Europe and so Dunraven Bay has the additional status of a Special Area of Conservation (SAC). The small group of plants of shore dock growing here on damp coastal limestone, where freshwater trickles down the cliff crevice, are the only remnant of the species' former Bristol Channel range. It was thought to be relatively secure on this steep, inaccessible site but recent rock falls have cut the population by half. Shore dock has disappeared from its other habitat of damp dune-slacks and shingle banks, from sites such as Merthyr Mawr, Kenfig, Braunton Burrows and Pennard.

Tuberous thistle is a nationally rare plant, associated with old species-rich grassland on lime-rich soils. It is widespread in France, and has a South Western distribution in Europe.

In Britain, tuberous thistle is declining within its two strongholds in the Vale of Glamorgan and Wiltshire, because of ploughing of habitats, coastal erosion and changes in land management. Unlike some other thistles it is not invasive and there is no danger of it becoming a problem.

Tuberous thistle *(Photo: CCW)*

Purple Gromwell: Photograph CCW: © Gill Barter.

Purple gromwell is a nationally scarce plant of woodland edges, found on areas of limestone. It is limited to a small number of sites in Wales and South West England. In the Vale of Glamorgan it occurs along the coast and represents an important population of the plant.

Southerndown Coast SSSI has other plants that are nationally scarce. These include **stinking hellebore**, **wild cabbage** and **maidenhair fern**. **Clustered bellflower** is rare in Wales, being found only on the South Coast.

In addition, Southerndown Coast SSSI has other notable habitats and species that are important and contribute to the diversity of the site. There is a calcareous stream in Cwm Mawr, with some limestone deposits known as tufa. The site is also important for insects, and birds such as ravens and jackdaws use the sea cliffs. Chough also feed on the grazed cliff top grasslands of Ogmore Common and of Trwyn-y-Witch. These feeding areas are very important for the breeding success of the local chough population. Unless specified below, management should also aim to look after these habitats and species.

What do we want Southerndown Coast to look like?

The following is a description of how we would like to see the future of Southerndown Coast SSSI:

The rock layers are exposed sufficiently for them to be examined, so that it is clear how each layer relates to the layers above and below in the sequence.
The rocks and mineral deposits are clean and accessible in key areas along the current coastline within the site, and this is sustainable in the long term.

The species-rich inter-tidal communities found along this stretch of coast include reefs of honeycomb worms. These form crusts on rocky platforms and between boulders in the sand, with a variety of mussels, barnacles, sand-binding red seaweeds, wracks and sand-encrusted sea squirts. Overhanging rock and crevices harbour a wide variety of small marine animals such as sponges, sea mats and sea squirts and crabs. Caves at the back of the shore provide a habitat for animals that are able to withstand considerable scour from waves and sand.

The inter-tidal zone remains a dynamic environment, subject to the influence of the sea, and is mainly undisturbed by human influence.

In Cwm Mawr, the dramatic effect of the wind can be seen in the transition from grassland and low, dense scrub near the sea to mature woodland further inland. Man, by contrast, has had little effect here.

Cwm Bach, Cwm Mawr and Trwyn-y-Witch support a patchwork of different types of grassland, all of it rich in grasses and colourful flowering plants. Areas with relatively deep soil and dense turf grade into others with shallow, drier soils, that are more influenced by the underlying limestone rock. Rockrose, wild thyme and salad burnet are common around rocky outcrops. In exposed places close to the shore, the salt spray has an effect on the range of plants that can be found in the turf. Such areas are associated with coastal herbs such as buck's horn plantain, thrift and sea carrot.

Species characteristic of disturbance, such as docks and creeping thistle, are hard to find in any of the grasslands. Grasses indicative of rich soils such as rye-grass may be present but never dominate. Most of the semi-improved grassland is reverting to its more unimproved form, with species typical of the surrounding species-rich neutral grassland.

The nationally rare and scarce plants have population sizes and distributions that are large enough to ensure their continued survival into the future. Shore dock can be found where fresh water seepages occur on the lower parts of the cliffs at Dunraven. Scattered across the slopes of Trwyn-y-Witch, Cwm Mawr and on the ramparts of the hill fort above Cwm Bach are frequent clumps of tuberous thistle, with slender, spineless flower stems over low mats of spiny leaves. Purple gromwell flourishes in the low scrub and maritime grassland on the south-facing slopes of Cwm Mawr and Trwyn-y-Witch. Clustered bellflower occurs widely in the grasslands. Maidenhair fern grows in damp crevices on the cliff face.

What management is needed on Southerndown Coast SSSI and why?

Although Southerndown Coast is an excellent place for geological interests and wildlife, it will require some limited management to maintain the special features, particularly in respect to the wildlife habitats and for the rarer plant species. It is CCW's priority is to work with you to ensure that this management is carried out.

What does this mean in practice?

Access and visibility of geological features.
In managing geological SSSI, usually the most important issues are ensuring that the geological interests are visible, accessible and available for research by scientists, as well as teaching.

In most parts of the site the rocks are kept clean by wave action, but in some locations there tends to be a natural build-up of debris over the rocks, which is sometimes colonised by plants. If this affects the special rock features, debris may need to be cleared periodically.

If the colonising vegetation includes some of the rare and scarce plant species, a balance may need to be struck between the special features, although this is unlikely to be a problem as the special interests generally occur in different parts of the site.

Fossil collecting
Due to the limited resource, visitors should be discouraged from collecting any in-situ fossils or mineral specimens.

Sea defences and other structures.
The construction of any structure, including sea-defences, in this area would not be appropriate as the natural erosive processes are an important part of the geological interest.

Inter-tidal habitats and maritime processes

The extent, distribution and condition of these communities are controlled by natural environmental factors, in particular exposure to wind, waves and salt-spray deposition. As this habitat is self-maintaining, little active management will be required. Tidal movement is important in ensuring a wide variety of species and any works to the foreshore must ensure minimal impact on these natural processes. Sand availability is particularly important for the growth of Honeycomb worm reefs and any construction that may alter the sediment dynamics of the site should take this into consideration.

Marine pollution
Management of the wider environment of the Bristol Channel and South Wales coast, together with CCW's continuing participation in issues related to marine pollution and shipping at sea, including involvement in oil contingency planning, will contribute towards minimising the likelihood and impact of a pollution incident at sea.

Unimproved land at the cliff edge.
Ideally, a reserve of un-improved land at the cliff edge should be maintained, into which cliff-edge species can colonise as erosive processes take away their present habitats.

Grazing.
Grazing is required to retain an open, short and uneven grassland sward at ankle height or below, and to prevent encroachment by scrub, bracken, or coarser grassland communities. Light grazing, with cattle and sheep, would provide the best variation in the vegetation structure, due to their different grazing and trampling habits. However, for practical reasons Trwyn-y-Witch is currently grazed by sheep, and has benefited from their presence during the winter months only. The presence of rare and scarce species within the turf makes the timing and levels of grazing critical.

The grazing regime should be extended to the cwms and un-grazed sections of the cliffs, where practical. Grazing of the cwms would have happened in the past when the adjacent cliff-top fields were also grazed, but this is now more difficult as they are used to grow crops. In the absence of grazing, mowing is a worthwhile, but labour-intensive, alternative.

Natural processes control the distribution of some of the rare and scarce plant species.

The exposed conditions that exist here make these populations self-maintaining and they do not always require management. The instability of the cliffs may also have an impact on the shore dock that grows there, but little can be done to affect this.

Scrub management.
Coastal scrub should be seen as an integral part of the vegetation in exposed locations, and at Southerndown the transition from scrub to woodland is an important component of the wildlife features. However, in more sheltered spots, grazing alone may not be sufficient to prevent scrub gradually encroaching onto the grassland. Some scrub control may therefore be necessary at times.

Nutrient enrichment.
The use of modern fertilisers and other chemicals would be very harmful to the grassland. They would stimulate the growth of one or two grass species at the expense of the many different plants we are trying to encourage.

Finally

Our knowledge and understanding of geology wildlife is continually improving. It is possible that new issues may arise in the future, whilst other issues may disappear. This statement is written with the best information we have now, (March 2008) but may have to change in the future as our understanding improves. Any information you can provide on the wildlife of your site, its management and its conservation would be much appreciated.

If you would like to discuss any aspect of your SSSI, or have any concerns about your SSSI, please contact your local CCW office.

Your local office is:

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