

**County:** Isle of Wight      **Site Name:** Whitecliff Bay and Bembridge Ledges SSSI

**Local Planning Authority:** Isle of Wight County Council, South Wight Borough Council

**National Grid Reference:** SZ 657872

**Ordnance Survey Sheet 1:50,000:** 196      **1:25,000:** SZ 68

**Area:** 131.6 (ha) 325.2 (ac)

**Date Notified (Under 1949 Act):** 1955      **Date of Last Revision:** 1977

**Date Notified (Under 1981 Act):** 14 July 1986      **Date of Last Revision:** –

**Other Information:**

**Reasons for Notification:**

The Whitecliff Bay and Bembridge Ledges Site of Special Scientific Interest comprises extensive areas of intertidal sand, rock and shingle and includes a series of actively eroding cliffs. Collectively these features comprise the coastline of a broad heathland at the eastern extremity of the Isle of Wight.

This site is geologically important because of the famous and well-exposed rock sequence from the Chalk to the Bembridge Marls which is seen here, and also because of the important fossil mammal faunas and fossil plant floras which occur at certain horizons.

Whitecliff Bay provides probably the most continuous exposures of Palaeogene sediments in western Europe, with a near-complete series of Upper Palaeocene to Lower Oligocene strata exposed. The bay provides stratotype sections for certain parts of the Eocene succession and exposes rock sections of importance for comparative purposes throughout the Hampshire Basin. Whitecliff Bay is the best exposure of the dominantly marine facies of the Bracklesham Formation, which dominates the eastern portion of the Hampshire Basin; these rocks yield a fossil fauna that enables important stratigraphic correlations with the continent to be made. The entire section is of particular interest in that it clearly illustrates both the strongly cyclical nature of sedimentation in the Hampshire Basin and also the general change from dominantly marine to brackish and freshwater environments during the Eocene.

Within the Headon Hill Formation and the Bembridge Marls occur two important faunas of fossil mammals, from which 21 species have been identified. Only one other locality in Europe yields mammal faunas from rocks of this age, and has a much less diverse fauna than Whitecliff. This is therefore a key site for the study of mammal faunas at horizons close to the Eocene-Oligocene boundary.

Fossil plant material may be collected from several levels throughout the Sequence, of late Palaeocene to early Oligocene age, and a unique late Eocene lignite band occurs within the Bracklesham Group. An important series of charophyte (algal) floras occurs at several limits within the sequence, and are of great value in correlation. This site has great potential for future research in palaeobotany.

Ecologically the great diversity of intertidal habitats is reflected in an abundant and rich algal flora including many rare species. With the nearby St Helens Ledges Site of Special Scientific

Interest the diversity of the algal community is thought to be unique in Britain, whilst the ledges provide the best examples of a rock shore fauna on the south coast east of Poole Harbour.

The actively eroding cliffs support a variety of plant communities ranging from pioneers on freshly exposed cliff faces to woodland on the most mature cliff slumps. The most recent slumps are largely unvegetated except for scattered coltsfoot *Tussilago farfara*, bristly ox-tongue *Picris echioides* and grass species of which creeping bent *Agrostis stolonifera* is most common. As the cliff slump matures grass species tend to predominate with red fescue *Festuca rubra* being most abundant, with in association a variety of plants of calcareous soils such as yellow-wort *Blackstonia perfoliata*, restharrow *Ononis repens*, bird's-foot trefoil *Lotus corniculatus* and wild carrot *Daucus carota*. The rare yellow bartsia *Parentucellia viscosa* was also rediscovered in this habitat in 1984 after last having been recorded on the Isle of Wight from this location in 1860. In wetter areas giant horsetail *Equisetum telmateia*, pendulous sedge *Carex pendula* and common reed *Phragmites australis* occur. The grassy cliff faces in turn give way to dense scrub of blackthorn, hawthorn and bramble with gorse *Ulex europaeus* being common on the sandy soils around Whitecliff Bay and willow in wetter areas. The most mature slumps have developed into woodland dominated by pedunculate oak *Quercus robur*, occasionally with suckering English elm *Ulmus procera*. The ground flora is generally poor but includes stinking iris *Iris foetidissima*, primrose *Primula vulgaris*, hart's-tongue fern *Phyllitis scolopendrium* and male fern *Dryopteris filix-mas*. The presence of these successional vegetation types on these cliffs is of considerable scientific interest.

The intertidal seashore consists of a series of rocky, Bembridge Limestone platforms or ledges with intervening lagoons of sand and shingle. The ledges have eroded into a complex of roughly rectangular crevices characteristic of limestone pavements. The ledges on the upper shore are dominated by scattered bladder wrack *Fucus vesiculosus*. This gives way in the middle and lower shore to extensive mats of sea wrack *Fucus serratus*, punctuated by pools in the wider rock crevices, in which rare algal species such as *Padina pavonia* and *Gracilaria bursa-pastoris* occur. The rocky shore fauna includes many species in the easterly limit of their range such as the limpet *Patella aspera* and the snake-locks anemone *Anemonia sulcata*. The ten species of macro-crustacean recorded also include lobster *Homarus gammarus*, squat lobster *Galathea squamifera*, hermit crab *Eupagurus bernhardus*, edible crab *Cancer pagurus* and long clawed porcelain crab *Porcellaria longicornis*; many of these species being rare or uncommon on the south coast. The outer edge of the limestone ledges is fringed by a dense growth of oar-weed *Laminaria* species.

The sheltered lagoons support large beds of eelgrass *Zostera marina* and *Zostera angustifolia*. The *Z. marina* exhibits a wide range of morphological variation dependent on position in the tidal range and on water depth, and is also one of the largest beds of this species on the south coast. The lagoons also support dense, and probably competing, growths of Japanese seaweed *Sargassum muticum*, first recorded in Britain from this site in the early 1970s.

**Status:** Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981