

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

CARMARTHENSHIRE

**ARFORDIR MARROS-PENTYWYN
MARROS-PENDINE COAST**

Date of Notification: 1998, 1989, 2002

National Grid Reference: SN 183073 – SN 233078

O.S. Maps: 1: 50,000 Sheet number: 158
1: 25,000 Sheet number: SN 10 NE, SN 20 NW

Site Area: 247.7 ha

Description:

The site is of special interest for its geology, semi-natural broadleaved woodland, maritime cliff with an associated nationally scarce fern and the intertidal habitats as well as various associated habitats.

The site is predominantly coastal lying between the villages of Amroth and Pendine on the northern side of Carmarthen Bay. Marros village is situated 1.5 km inland.

The geology of the area includes two contrasting rock formations – hard silicious and acidic quartzites and base-rich Carboniferous limestones. Resultant soils tend to be fertile and well drained on the steeply sloping ground which rises from sea level to 100m in the north.

Soils are mostly of acid brown earth type except on the limestone outcrop, where shallow organic-rich rendzinas are present on cliff tops. Podsoils are present in small areas on the gritstone outcrop and gleyed soils can be found around springs, in valley floors and in waterlogged areas behind cobble/boulder beaches.

Geology:

This site includes a wealth of geological interest, including exposures of rock and unconsolidated deposits in cliffs, coastal slopes and on the foreshore, together with a variety of landforms. From Pendine to Morfa Bychan vertical sea cliffs have been cut into Carboniferous Limestone, and sea caves often merge into relict karstic features such as the sink hole in the headland at Gilman Point. The Bear Cave, set high in the cliff near Pendine, has yielded animal bones and human artefacts.

Of special interest are the exposures of the Millstone Grit Series. The boundary between the Carboniferous Limestone and the overlying Millstone Grit Series, consisting of sandstones, siltstones and shales, is exposed in the cliffs on the eastern side of Ragwen Point. The Basal Grits Group of the Millstone Grit forms a prominent scarp feature with associated scree extending inland from Ragwen Point. The Middle Shales Group is exposed in the cliffs west of the extensive cobble/boulder ridge in the central part of Marros Sands. The Upper Sandstone Group is exposed along the top of the slopes behind Marros Mill, and the outcrop extends westwards into the cliffs at Telpyn Point, near the western limit of the site. In a few places these sandstones have been quarried as a local source of building stone.

The section seen at the two headlands of Ragwen and Telpyn Points provides a complete, and structurally the least complicated, Namurian sequence in the ‘Pembrokeshire’ coalfield. The excellence of the section has permitted a detailed sedimentological examination of its deltaic and pro-deltaic units, which has been vital in reconstructing the mid-Carboniferous palaeoenvironment in south Wales. This is a key stratigraphic and sedimentological locality.

Also of special interest are the exposures of Quaternary deposits, including the ‘raised beach’ near Ragwen Point, and the extensive peat deposits (‘submerged forest’) in the intertidal area at Marros Sands.

The coast near Marros displays a sequence of sediments of importance in the interpretation of Late Pleistocene events in south-west Wales. At Marros a well developed raised shore-platform is overlain by (i) raised beach and (ii) head and colluvial deposits. At Ragwen Point the sequence is (i) raised beach (ii) sandrock and (iii) head and colluvial deposits. The raised beach and sand rock have been tentatively correlated with horizons at the key interglacial site at Minchin Hole (Gower) and they may represent pronounced climatic and sea-level fluctuations during the Late Pleistocene. The head and colluvial deposits at Marros and Ragwen Point are derived from local shale and sandstone outcrops and show extensive frost-cracking. At Gilman Point, the head was derived from limestone and contains cemented horizons.

Biology:

The terrestrial habitats of special interest are largely found to the north of Morfa Bychan. Here there is a gradation through bracken and scrub to ash *Fraxinus excelsior* woodland. Woods on limestone dominated by ash are mainly confined in Europe to parts of north and west Britain. The scrub layer of these ashwoods north of Morfa Bychan is dominated by hazel *Corylus avellana*, but it also has a diverse range of other species, including spindle *Euonymus europaeus*, dogwood *Cornus sanguinea* and young growths of wych elm *Ulmus glabra*. Similarly, the ground flora is rich, with a colourful array of vernal species such as wood anemone *Anemone nemorosa*, primrose *Primula vulgaris*, ramsons *Allium ursinum*, dog’s mercury *Mercurialis perennis* and herb robert *Geranium robertianum*. The rather steep limestone slopes have given rise to a moss-covered rocky topography dominated by soft shield fern *Polystichum setiferum* and hart’s tongue *Phyllitis scolopendrium*, growing through a dense moss carpet in which is found the ‘ancient woodland indicator’ snail, *Acicula fusca*. Additional interest is provided by the contrasting past management experienced by the eastern and western sides of the wooded valley – the west holds many mature ash standards whilst the east has an ash-hazel coppice.

In sharp contrast, at Ragwen Point the hard Namurian rocks outcrop, giving rise to several upstanding rock faces and a substantial area of block scree on which poor, nutrient-deficient mineral soils have developed. Here the vegetation comprises sparse western gorse *Ulex gallii* – heather *Calluna vulgaris* heath with scattered bracken *Pteridium aquilinum*. The very local lanceolate spleenwort *Asplenium obovatum* ssp. *lanceolatum* grows at the foot of Ragwen Point, here at its only known vice-county locality; this species is very sensitive to frosting. The related sea spleenwort *A. marinum* survives in fissures at the base of these slopes, while another notable fern, the royal fern *Osmunda regalis* grows in cliff top seepages. Active marine erosion of the soft cliffs has provided the open, bare sunny conditions required by the scarce hoverfly, *Eumerus sabulorum*, a small reddish species which mimics a low-flying solitary bee.

On the limestone cliffs that extend between Dolwen and Gilman Points, there occurs a rock-crevice community comprising plants such as rock sea-lavender *Limonium binervosum* agg., rock samphire

Crithmum maritimum and rock sea-spurrey *Spergularia rupicola*. Where sufficient pockets of soil have accumulated, tree-mallow *Lavatera arborea* adorns these cliffs and this species also normally requires some guano deposition. The cliff tops are, in part, covered in a thick sward of red fescue *Festuca rubra*, with scattered populations of sea carrot *Daucus carota* ssp. *gummifer*. The open areas of broken rocky slopes have abundant salad burnet *Sanguisorba minor* ssp. *minor* and Portland spurge *Euphorbia portlandica*, whilst associated scrubby vegetation of wild privet *Ligustrum vulgare* and bramble *Rubus fruticosus* agg. hold tangles of wild madder *Rubia peregrina*. Several of the above plants, such as rock sea-lavender, tree mallow, sea carrot and wild madder, are examples of temperature-sensitive species that are mainly confined to the milder south and south-west Britain. Similarly, the 'Lusitanian' woodlouse *Porcellionoides cingendus* is found here in deep litter amongst the cliff-top red fescue swards. Other noteworthy invertebrates at Dolwen Point are the warmth-loving operculate snail, *Pomatias elegans*, and the nationally declining *Helicella itala*. Fulmar, raven and rock pipit nest on these almost vertical limestone headlands.

The intertidal area is an extensive, sandy shallow shelving system forming part of Carmarthen Bay. The large expanse of intertidal sand supports burrowing amphipods, such as *Bathyporeia* sp. and *Haustorius arenarius*, and the isopod *Eurydice pulchra*, with polychaete worms such as *Nephtys* spp. and *Scoloplos armiger* in the finer sediments. The white piddock, *Barnea candida*, a boring bivalve mollusc, is part of the common mussel *Mytilus edulis* and red algal *Ceramium* sp. community which occurs in the exposed lower shore peatbeds and is of national importance. The lower shore near Pendine is particularly important for the bivalve molluscs *Donax vittatus*, *Angulus tenuis*, *Chamelea gallina*, *Lutraria lutraria*, *Ensis siliqua* and the sea potato *Echinocardium cordatum*. The steep bedrock cliffs around the headlands are important for their *Caloplaca* spp. and *Verucaria* spp. lichen communities. The many caves in this section support sponges and bryozoans but the rockpools are sand-scoured and are fairly species poor. However these quite extensive sand-scoured areas are heavily colonised by barnacles and limpets and the monodont *Osilinus lineatus*. The shallow waters of the bay are also important migratory areas for shad *Alosa* spp., river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* which spawn in the Taf and Tywi rivers but develop to maturity in estuarine waters.

Remarks:

Part of the site is owned by the National Trust.

The site is a component part of the Carmarthen Bay and Estuaries/Bae Caerfyrddin ac Aberoedd candidate Special Area of Conservation for the following features: Atlantic salt meadows, subtidal sandbanks, intertidal mudflats and sandflats, otter, allis and twaite shad and river and sea lampreys.

The allis shad is listed on Schedule 5 of the Wildlife and Countryside Act 1981 and Annex II of the EC Habitats Directive (Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna). The twaite shad is also listed on Annex II of the EC Habitats Directive, along with river lamprey and sea lamprey.

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