

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

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

**GWYNEDD**

**TIROEDD A GLANNAU RHWNG  
CRICIETH AC AFON GLASLYN**

<b><u>Date of Notification:</u></b>	1957, 1988, 2002
<b><u>National Grid Reference:</u></b>	SH 505381 to SH 545348
<b><u>OS Maps:</u></b>	1:50,000 Sheet number: 124 1:10,000 Sheet numbers: SH 53 NW & NE
<b><u>Site Area:</u></b>	575.5 ha

**Description:**

This site is of special interest for its geological, botanical and marine biological features. The site extends from east of Criccieth beach to the north bank of the mouth of the Afon Glaslyn, covering approximately 5 km of coastline. It comprises an extensive south-west-facing, moderately exposed sandy beach backed by a shingle ridge between Criccieth and Graig Ddu, and by the dunes of Morfa Bychan to the south. North of Graig Ddu, the floodplain valley of Llyn Ystumllyn extends about 2 km inland.

**GEOLOGICAL INTEREST**

A 250m-long section of coastal cliffs which extends eastwards from Criccieth beach provides an important exposure through a sequence of Pleistocene deposits on eastern Pen Llŷn. The sequence comprises: (i) a lower, blue-grey argillaceous till of Welsh origin with an upper surface that is weathered and contains features interpreted as frost cracks; (ii) an upper gravelly till also of Welsh origin; and (iii) a cryoturbated deposit characterised by angular fragments of shale. Evidence from the site has been used to underpin the concept that the area was glaciated by ice from the Welsh highlands on at least two separate occasions. The lower till (Criccieth Till) has been equated with the oldest known glacial advance on Pen Llŷn, whilst the upper till (Llanystumdwy Till) has been interpreted as the result of a later advance of Welsh ice. The chronology of events at the site, however, remains debatable, and a more recent interpretation is that both tills could be the product of a single glaciation. The sections are amongst the finest on Pen Llŷn that expose till units of local Welsh provenance and are important for interpreting late Pleistocene events in the region.

**WETLAND INTEREST**

Llyn Ystumllyn is of special interest for its reedswamp, grazing marsh and fen meadow together with an area of fen woodland. Llyn Ystumllyn supports a significant area of low-lying grazing marsh with a range of damp grassland, fen meadow and mire vegetation types. Good examples of the transition from fen to open water are shown, through a range of swamp and aquatic communities. Coastal and grassland communities also grade into the fen vegetation. Of particular

interest are several stands of reedswamp dominated by common reed *Phragmites australis* and reed-grass *Phalaris arundinacea*. Llyn Ystumlyn also supports an extensive area of soft rush *Juncus effusus* and marsh bedstraw *Galium palustre* rush pasture which, in places, can become mildly brackish. In addition, the site also supports a rare wet woodland community, characterised by grey willow *Salix cinerea*, birch *Betula pubescens*, common reed *Phragmites australis* and *Sphagnum* moss.

## **DUNE INTEREST**

The dune habitats at Morfa Bychan are of special interest because of their botanical communities. The dune system is complementary to the larger system at Morfa Harlech. Adjacent to the shore, pioneer dunes are developing on the strandline, supporting sand couch *Elytrigia juncea* and prickly saltwort *Salsola kali*. Inland of these are actively forming dunes, dominated by marram grass *Ammophila arenaria* with sea spurge *Euphorbia paralias* and sea holly *Eryngium maritimum*. The nationally scarce dune fescue *Vulpia fasciculata*, a plant inhabiting open areas of mobile sand, has been found on the site.

Areas of mature, fixed dune support plants including burnet rose *Rosa pimpinellifolia*, sand sedge *Carex arenaria* and restharrow *Ononis repens*. Wet dune slacks, best seen in the western part of the site behind the dune ridges, support characteristic plants such as the nationally scarce plants variegated horsetail *Equisetum variegatum* and sharp rush *Juncus acutus*, as well as the common purple loosestrife *Lythrum salicaria*. In the eastern section, the wet slacks have been divided into small fields, with some being grazed whilst others develop into dense willow carr, dominated by willow *Salix*.

In contrast to the dune system at Morfa Harlech, the landward side of Morfa Bychan retains remnants of the heath vegetation developed on long-stabilised sand. These areas, dominated by heather *Calluna vulgaris*, bell heather *Erica cinerea* and gorse *Ulex europaeus*, remain as 'roughs' on the golf course, intermixed with the intensively managed greens and fairways. The scarce fern lanceolate spleenwort *Asplenium obovatum subsp. lanceolatum* occurs on the cliff north of Ffynnon Ochr-Cefn and at Gareg Wen Bach. The dune fauna includes common lizard *Lacerta vivipara* and adder *Vipera berus*.

## **MARINE BIOLOGICAL INTEREST**

The shore is of special interest for the presence of diverse rockpool and seagrass communities, extensive sandy-shore community zonation patterns and for the presence of two communities of restricted distribution nationally. The shore is the most extensive stretch of moderately exposed sand within Cardigan Bay, at almost 5 km long.

Rocky community zonation is seen on the vertical cliffs of Graig Ddu. Lichens dominate rock above the high water mark, with the barnacles *Chthamalus montagui* and *Semibalanus balanoides* and limpets *Patella sp.* dominating the zone below. The common mussel *Mytilus edulis* occurs just above the sand-scoured rock at the base. Highly diverse rockpools are found in horizontal areas of bedrock and are dominated by encrusting coralline seaweeds and coral weed *Corallina officinalis*. Intertidal caves are found at Graig Ddu and tend to be covered towards the back with the red seaweed *Rhodothamniella* and the lichen *Verrucaria mucosa*, with barnacles, limpets and beadlet anemone *Actinia equina* towards their entrances. Reefs of the honeycomb worm *Sabellaria alveolata* are found around the seaward end of Graig Ddu, but more extensive

colonies are found on lower shore boulders near Criccieth. The distribution of this community is restricted nationally, as is that of the cave community with *Rhodothamniella* seaweed. A scarce community within Cardigan Bay is also found at Graig Ddu, where overhanging or shaded rocks can be overgrown by the red seaweed *Catanella caespitosa*.

Between Criccieth and Graig Ddu a barren shingle ridge backs the shore. Below this ridge the shore is composed of fine sand supporting high numbers of banded wedge shell *Donax vittatus* and thin tellin *Angulus tenuis*, as well as striped venus *Chamelea gallina*, necklace shell *Polinices catenus*, *Scolelepis squamata*, species of catworm *Nephtys*, other polychaetes and amphipods.

Clearly defined sand community zonation patterns are found on the wider intertidal area between Graig Ddu and the Afon Glaslyn. Barren sand backs the shore and the strandline is characterised by sandhopper populations. In a narrow band immediately below this, burrowing amphipods are found. Between this and the mid-shore, the fine sand supports lugworm *Arenicola marina*, catworm and a limited burrowing amphipod community. Banded wedge shell and thin tellin dominate the community within the mid to lower-shore region.

The fine sands around the extreme low water mark support a rich infaunal community dominated by banded wedge shell and sea potato *Echinocardium cordatum* with striped venus, razor shell *Ensis siliqua*, sand mason *Lanice conchilega*, rayed trough shell *Macra stultorum* and polychaete worms. This community has its southern boundary where a small stream crosses the shore (south of Morfa Bychan), with the coarser, more mobile sands to the south containing an amphipod community dominated by the amphipod *Eurydice*. The nationally scarce narrow-leaved eelgrass *Zostera angustifolia* is found at extreme low water between Criccieth and Graig Ddu and extends up into the mid-shore midway between the two. Eelgrass beds are a scarce community within Cardigan Bay, the most extensive example of which is found on this shore. They are also important as they provide a valuable habitat for a wide range of species such as molluscs, worms and juvenile fish.

### **Remarks:**

1. Areas of the site below mean high water form part of the Pen Llŷn a'r Sarnau/Lleyn Peninsula and the Sarnau Special Area of Conservation, under the EC Habitats Directive (Directive 92/43EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992). The site supports the following habitats listed on Annex I of the Directive: reefs, shallow inlets and bays and intertidal mudflats and sandflats.
2. This site supports nine Biodiversity Action Plan habitats: coastal sand dunes; honeycomb worm *Sabellaria alveolata* reefs; coastal floodplain and grazing marsh; fen; coastal vegetated shingle; purple moor grass and rush pasture; lowland dry acid grassland, wet woodland, seagrass beds and mudflats. Four Biodiversity Action Plan species are also found at the site: otter *Lutra lutra*, water vole *Arvicola terrestris*, brown hare *Lepus europaeus* and reed bunting *Emberiza schoeniclus*.

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