

CRAIGYFULFRAN & CLARACH SITE OF SPECIAL SCIENTIFIC INTEREST



YOUR SPECIAL SITE AND ITS FUTURE

‘Your Special Site and its Future’ is part of our commitment to improve the way we work with Site of Special Scientific Interest (SSSI) owners and occupiers. In it, we explain what is special about the geology on your site, and what care is needed to look after its geology 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 geology and geomorphology at Craigyfulfran & Clarach SSSI?

Craigyfulfran & Clarach SSSI has three special features:

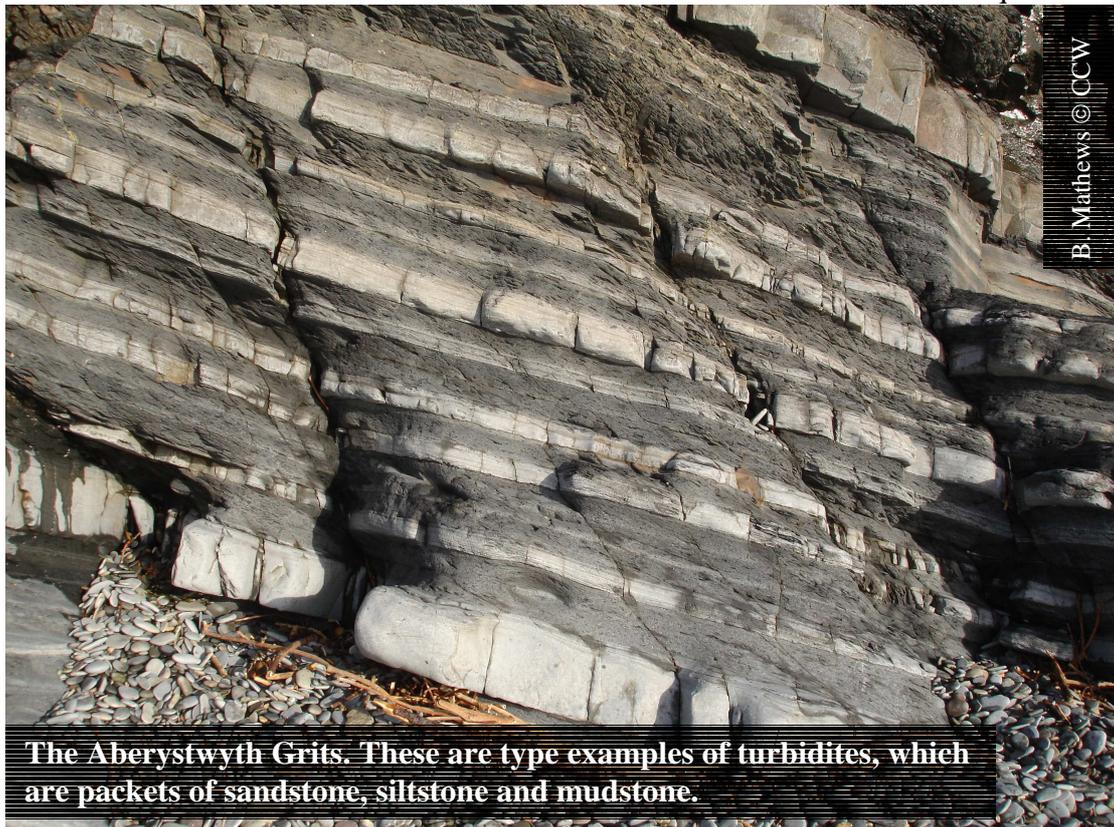
Geological features:

- Llandovery sedimentary rocks exposed in coastal cliffs and foreshore.
- Caledonian structures exposed in coastal cliffs and foreshore.

Geomorphological feature:

- Pleistocene/Quaternary sediments occurring beneath the surface.

Llandovery (Lower Silurian) sedimentary rocks exposed in the coastal cliffs and foreshore extending from just south of Clarach Bay to Aberystwyth are of both national and international importance because they represent one of the most classic sequences of a rock type known as a turbidite. The latter comprises a sequence of marine sandstones and mudstones that were the product of currents which carried vast amounts of sediment into the Welsh Basin from a source located farther to the south-west. The cliffs and foreshore also exhibit unusual folds that deform the sequence of



The Aberystwyth Grits. These are type examples of turbidites, which are packets of sandstone, siltstone and mudstone.

turbidites. These folds were formed both prior to and during the Caledonian phase of mountain building, approximately 400 million years ago, and as such are an important locality for current and future research. This coastal section is frequently visited by national and international specialists and is considered to be of exceptionally high conservation value.

The sediments that occur beneath the surface at Clarach are of national importance because they provide detailed information on the nature and timing of changes in the relative level of land and sea over the past 13,000 years. In this respect, the sediments contain the best record for this period in Wales. Cores recovered from the site consist



Honeycomb worm reef

mainly of organic sediments and forest beds, and the latter are known to extend beneath the modern-day beach where they are occasionally exposed following storms. Pollen and radiocarbon dating reveal that sea levels gradually rose to drown extensive areas of forest that had developed around the margins of Cardigan Bay.

As well as the features listed above, Craigyfulfran & Clarach has habitats and species of biological interest. Amongst the scree, scrub and grassland of the cliffs and on the beach at Clarach, there are a number of native plant species that are rare in the county, namely Fenugreek, Narrow-leaved Everlasting Pea, Yellow-juiced Poppy and Dwarf Mallow. Honeycomb worm reefs can be found along the rich shoreline and

there are a number of species of cliff-nesting birds. The field behind the beach at Clarach contains saltmarsh and species-rich ditches and bankside vegetation where water voles live.

Except where it is specified below, management of the site should aim to look after these habitats and species as well as the listed features of interest.

What do we want Craigyfulfran & Clarach SSSI to look like?

The following is a description of how we would like to see the features at Craigyfulfran & Clarach SSSI:

Our aim for the two geological features will be focussed on maintaining the current level and continuity of rock exposure throughout the site, thereby ensuring that the bedrock geology will continue to provide one of the best localities in Wales for the study of this important sequence of deformed Lower Silurian sedimentary rocks.

Our aims for the geomorphological feature will be focussed on maintaining access to, and the integrity of, the sediments, principally by seeking to prevent the introduction of permanent structures (e.g. houses) on the surface and minimizing any possible disturbance of the sub-surface (e.g. through the installation of underground pipes).

What management is needed on Craigyfulfran & Clarach SSSI and why?

Craigyfulfran & Clarach SSSI is an excellent place for the study of Silurian sedimentary rocks and the effects of the Caledonian mountain building episode as well as for studies of post-glacial environmental change. As a result, sites such as this are important for furthering our understanding of geological science and Wales' Earth heritage. However, it will only remain so if the necessary management continues and CCW's priority is to work with you to ensure that this management is carried out.

What does this mean in practice?

There are a number of different factors that could damage the special feature at Craigyfulfran & Clarach SSSI if they are not properly managed. These are the ones we regard as most important:

Geological features

- **Coast protection works**
Continuity of section is of vital importance at this site and, in this respect, we will wish to minimize coast defence works along the cliff frontage in order to maintain access to the sequence of sedimentary rocks. We are mindful that the rates of erosion along the cliff section south of Clarach Bay are extremely low, that cliff-line retreat along the frontage is minimal, and there are no capital assets (e.g. houses etc.) in the immediate vicinity of the site. We do not consider, therefore, that any defence works would be required in the long-term.
- **Maintaining natural coastal processes**
The continued operation of natural coastal processes, in particular wave-action and sediment transport that act to keep the stratigraphical profile clear of debris and accessible for study, are of vital importance along the cliff section south of Clarach Bay. We will want to ensure that these processes are not interrupted through, for example, the installation of groynes, or similar structures constructed offshore, designed to deflect wave energy.

Geomorphological feature

- **Accessibility**
Students and researchers need access to study the sediments concealed beneath the field situated east of the outflow of the Dyffryn Clarach. However, there are no public rights of way across this part of the site and access for study purposes is therefore entirely at the discretion of the landowner. Access for study purposes may also be required along the foreshore at Clarach Bay when the forest beds are re-exposed, for example following storms. However, we are mindful that coastal defences may be required in the future to protect capital assets and we will endeavour to ensure that any proposed works are carried out sympathetically with respect to the geomorphological feature by minimizing, where possible, any adverse impact or damage.
- **Land-use**
Current agricultural practices have little or no effect upon the feature of geomorphological interest since the latter lies beneath the ground surface.

However, we would not wish to see certain changes in land-use practice within the site, specifically the construction of permanent buildings, afforestation and major drainage schemes, all of which may both directly and indirectly affect the geomorphological feature by disturbing the upper levels of the stratigraphical profile and reducing access to the ground surface for coring purposes. The installation of temporary structures, for example mobile caravans, may be permitted so long as they do not require a permanent base. In addition, the survival of the saltmarsh, species-rich ditches and water voles is dependent upon sympathetic agricultural management and we will seek the landowner's co-operation for their conservation.

Finally

Our knowledge and understanding of geology 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, but may have to change in the future as our understanding improves. Any information you can provide on the geology 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.

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