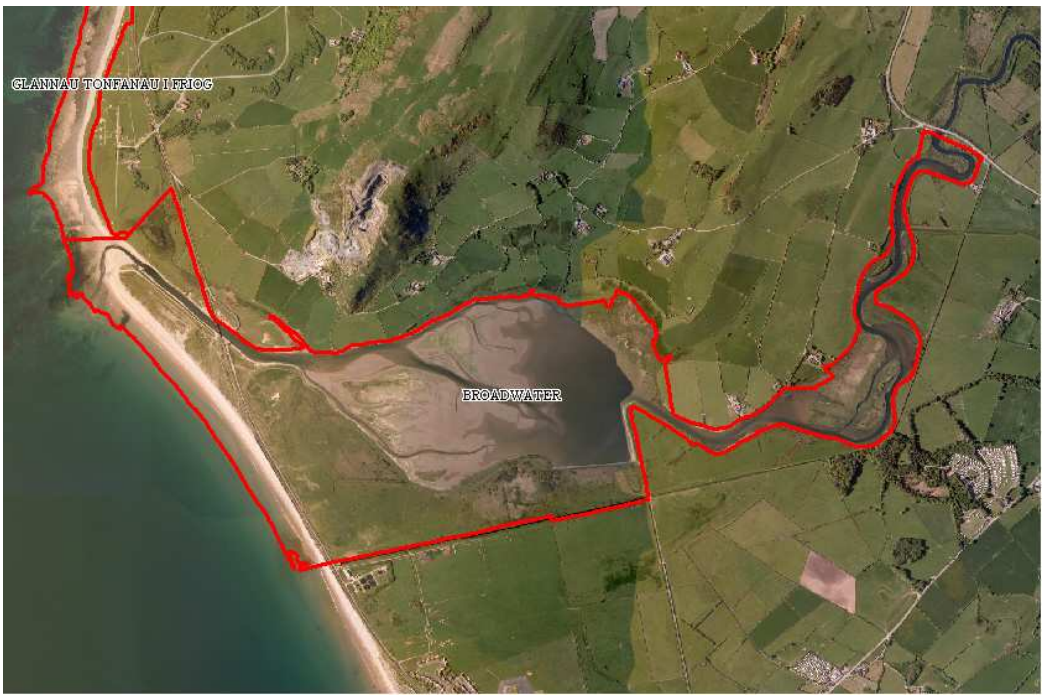
BROADWATER SITE OF SPECIAL SCIENTIFIC INTEREST

Site area: 263 ha



YOUR SPECIAL SITE AND ITS FUTURE

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

All SSSI 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 at Broadwater?
Broadwater lagoon, dunes and foreshore is of European importance and as such forms part of the Lleyn peninsular and the Sarnau Special Area of Conservation (SAC).

The recorded features of interest are:

Sand dune
Most of the site supports fixed dune grassland and vegetated shingle but there are small hummocks of mobile dune, with frequent marram grass, as well as marshy grassland and transitions through brackish marsh to salt marsh. To seaward of the railway the dune grassland is lime-rich and dominated by red fescue with frequent lady's bedstraw. To the east of the railway the vegetation is more acidic dune grassland with frequent sand sedge, sheep's fescue and common bent. Anthills are characteristic of this habitat and the flower called bird's foot is occasional in some areas.

Shingle
The shingle spit, although highly modified during the Second World War and subsequently, is one of only two vegetated shingle SSSI in Gwynedd and one of only 13 such areas in Wales. The shingle spit as well as supporting open shingle vegetation and species-rich dune grassland encloses a small lagoon. Sea beet, sea bindweed and samphire add interest to the sandy shingle habitat.

Lagoon
The small pool or lagoon to the west of the railway is the only example of an enclosed percolation lagoon in Wales, and is of European importance. It is isolated from any water input other than rainfall and seawater percolation through the shingle and so varies in size, shape and depth in response. Because of its small size and shallow depth the wind induced mixing results in even levels of saltiness through the water in the pool. As is typical of such a highly specialised habitat the lagoon is high on numbers of individuals of species but low on variety. Three important lagoonal specialist species occur here; *Conopeum seurati* , a bryozoan 'sea mat', a seaweed *Chaetomorpha linum* and a breeding population of the isopod Lekanesphaera hookeri which is reminiscent of a water 'wood louse'.


The lagoon

Salt marsh

Salt marsh in close proximity and transition to other coastal habitats is of interest here. The shingle spit restricts the inflow of seawater and the outflow of fresh water as the estuary narrows to the river mouth. Where there is no significant embankment the salt marsh grades into sand dune grassland and brackish marsh. Such transitional habitat is often important for uncommon plants. The largest areas of salt marsh are located on 'islands' at the western end of Broadwater itself. Firm sandy salt marsh supports a grazed turf of red fescue and common salt marsh-grass lawns with common cord-grass and glassworts on the lower parts. Typical species include salt marsh rush, sea milkwort, sea aster, sea arrowgrass, sea plantain, greater sea spurrey and thrift. Brown patches of sea rush, with creeping bent and flowers such as parsley water-dropwort, pick out areas of upper salt marsh. Slender spike-rush is locally abundant in salt marsh transitional to dune slack and sand dune. Further upstream there are small areas of ungrazed salt marsh and swamp, which are comparatively species-rich and grade up into brackish marsh. Such stands support a variety of flowering plants including autumn hawkbit, ragged robin, and long-bracted sedge.

Swamp

Swamp dominated by common reed or grey club-rush extends over more than 5 ha of the upper salt marsh, river fringes and floodplain. This habitat is of particular value occurring as it does, in transition from other vegetation and within the drained and agriculturally improved landscape of the Dysynni valley.

Rare plants

Welsh mudwort, which enjoys special legal protection, occurs at several locations along the freshwater sections of the Dysynni river. This plant can occur in great abundance forming a carpet of green leaf rosettes and small white flowers, especially within the cattle poached muddy or silty river margins. The nationally scarce sharp rush is found in patches and as individual clumps through the marshy grassland/ salt marsh. Broadwater also supports a number of regionally rare plants within a range of habitats. Pyramidal orchid is abundant in the calcareous dunes and another uncommon orchid, autumn ladies' tresses is recorded flowering from the short grassland turf here in late summer. Hard-grass and chaff weed occur on the sparsely vegetated salt marsh fringes and wild celery grows in the brackish marsh. Rough clover and smooth cat's ear are recorded from short dune grassland and open sandy places and yellow horned-poppy adds a splash of colour to the shingle.

There are old records for other regionally rare plants many of which are likely still to be present. Nodding bur-marigold, bur-marigold and lesser water plantain may be refound in a pond, ditch or marsh. There is an old record for henbane, a plant introduced to Britain during the Bronze Age. The remaining old records for regionally rare plants which are, lesser centaury, upright chickweed, Ray's knotweed, allseed, knotted clover and spring vetch, are generally from open sandy habitats

Cormorants

The estuary supports nationally important numbers of wintering cormorant, including birds which nest on the nearby Craig yr Aderyn Special Protection Area (SPA).

As well as the features listed above, the site also encompasses marshy grassland, neutral grassland and scrub as well as the large open body of water of Broadwater itself and part of the Dysynni river, all of which are essential to the maintenance of the special wildlife interest. This

diversity of habitats similarly supports a wide range of species and these too are a key component of the special interest of the site

Broadwater is of local importance for its breeding birds and wintering wildfowl. Breeding birds include skylark, linnet reed bunting, reed warbler, shelduck and a small colony of sand martin. Waders such as ringed plover, redshank, oystercatcher and lapwing attempt to breed here. The rich feeding off the estuary mouth and Sarn y Bwlch helps to support a small flock of eider duck, red-throated diver, common scoter and red-breasted merganser. The estuary provides feeding and roosting places for duck including wigeon, where peak numbers can exceed 2000, and over-wintering/passage waders. The nationally scarce moss *Bryum donianum* is recorded from the northwest shore of the river. Otter regularly use the site and may well breed within or close to the SSSI.

Unless it is specified below, management of this site should aim to look after all these habitats and species as well as the listed features of interest that contribute to the special wildlife interest.

What do we want Broadwater to look like?

The variety of habitats should be maintained in favourable condition, and/or be restored, and their areas should be stable or increasing. The natural processes associated with the salt marsh, sand dune, shingle spit and lagoon should be allowed to continue and the lagoon should be free of contaminants or rubbish and physical disturbance. The salt marsh should include largely short turf lower marsh with some longer sward flower-rich areas. The vegetation should comprise typical plants as well as uncommon species, often where this habitat is in transition or adjacent to other habitats. Further up river the vegetation either side should grade from reed bed or grey club-rush fringe to marshy grassland with meadowsweet, hemlock water-dropwort, iris, sharp-flowered rush and greater bird's foot trefoil.

The dune grassland should comprise typical plants and rare plants. There should be a reduction in the bright green patches of perennial rye grass within the areas of grassland and ideally cock's foot grass would become less frequent. Anthills should continue to be locally frequent where they are still present and they should be encouraged to increase. Anthills add value in their own right as well as providing a good habitat for flowering plants and being indicative of less agriculturally modified grassland.

Broadwater should continue to support nationally important numbers of wintering cormorant and the current breeding birds, including lapwing and redshank. Over-wintering birds should be maintained in number and species diversity and preferably be increasing. The area should continue to be used by otters for feeding, lying up and hopefully breeding without significant disturbance.

What management is needed on Broadwater and why?

Although Broadwater is an excellent place for wildlife it will only remain so if the necessary management continues. CCW's priority is to work with you to achieve this. We place a great importance on our relationships with owners and occupiers, because without your help, it will be impossible to safeguard the special interest on your land.

What does this mean in practice?

Some management is essential to conserve the special features, while other management actions could damage the special interest within a very short time. 43ha or 16% of Broadwater SSSI is

currently managed under the terms of management agreements with three owners and two Tir Gofal agreements.

Coastal/flood protection, including works to the Cambrian Coast railway frontage and the mouth of the Afon Dysynni, have the potential to impact directly on the shingle ridge, lagoon and sand dune and to affect the physical processes, such as shingle movement and wave exposure, which maintain these habitats. Any proposals should have a neutral or positive effect on the movement of sediment/shingle or include appropriate beach feed to restore sediment as part of the plan if there is a shortfall. Any coastal scheme, which goes ahead, would need to be monitored so that adjustments can be made, if the unexpected happens, or there are longer-term negative trends. Particular care needs to be taken assessing the impact where defences end, as this is often where problems occur along the undefended parts of the coastline. Effort should also be made to ensure any coastal defences have a benign or even positive impacts on the coastal landscape which so many of us come to visit and enjoy.

Sea level rise is something, which the scientific community agree will happen but have differing opinions as to the rate of rise. A recent update of UKCIP UK estimates of regional sea level changes for Wales gave an increase of 74 cm by the 2080s. DEFRA have recently configured their estimates for sea level rise rather differently so that their previous estimate of 5mm per year has changed to 3.5mm per year in the short term rising to 14.5 mm a year after 2086. Increases in sea level, whatever figures are used, will have a knock on effect on freshwater groundwater levels as well as greatly increasing the risk of saltwater inundation on low-lying coastal sites like Broadwater. Long-term management planning will need to include adaptation to the changing conditions that a rising sea level will bring. This will include making decisions about whether it is cost effective to continue to maintain flood banks at all in some places, or to whether to move them back.

Drainage works can damage parts of the SSSI that are naturally wet such as the marshy grassland and reed swamp. It may be appropriate to carry out small-scale clearance of accumulated silt and vegetation only, without deepening, where such clearance would benefit improved land outside the site, and where no damage to the wetland habitat is likely. It is important to check for water vole before carrying out drainage work as if present this may affect the way work is done and the timing.

Extensive reclamation work in the Dysynni valley in 18^{th}-19^{th} centuries resulted in the drainage of marshlands upstream. The current drainage pattern is the result of capital improvements and high levels of maintenance carried out over the last 170years. The basic pattern of upland and lowland carriers together with much under drainage was installed in the 1860s. The Afon Dysynni is essentially a flood-banked carrier of upland water through the valley bottom. Major flood alleviation work took place in the 1950s and in the early 1980s a new flapped outfall and storage capacity was installed at the sea outfall. A new and lower culvert was installed when the A493 road bridge was reconstructed at the eastern or landward end of the site. The main lowland system is the responsibility of the Dysynni Internal Drainage District (IDD), which ensures that annual or biennial maintenance takes place. As part of this scheme the Environment Agency (EA) maintain embankments along the southern bank of the entire length of the (main) river upstream of Broadwater and extensive lengths of adopted ditches. The EA also maintain an embankment at the southwest corner of Broadwater itself and have maintained an embankment at the southeast corner, including spreading dredgings over parts of the site, as part of flood defence measures to protect Tywyn.

Common cord-grass (*Spartina anglica)* is present on the site and may negatively impact on the lagoon if encroachment occurs.

Grazing is important here because it can prevent coastal grassland becoming rank, maintain it as a species-rich sward and help to prevent the encroachment of scrub. Cattle and sheep graze the dune grassland east of the railway and rabbits alone graze the shingle spit. The present grazing level on the main area of Morfa Gwyllt is 300 ewes mid March to end of January and 75 cows from 1 October to the end of April. Elsewhere cattle or pony grazing can maintain species–rich areas of marshy grassland, river edge and swamp by keeping other species such as reed and scrub in check. It may be desirable to have periods of no grazing where reed swamp requires this to be maintained as a habitat in its own right.

Agricultural improvements, in particular enrichment through dunging around supplementary feeding stations, and the application of fertilizers, would damage this site. Supplementary feeding has caused localised enrichment to an area of dune grassland making it less diverse. Further spreading of this enrichment should not occur and some of the enriched grassland should be allowed to revert to a more natural state. Dumping and spreading manure are undesirable and will make the grassland more grass dominated and less diverse.

Litter is a problem within and around the lagoon, which apart from being unsightly, may alter the site water chemistry and affect the wildlife. Pollution in lagoons often persists because of the reduced water exchange and hence lack of opportunity to be diluted and washed away.

Motor vehicles, (unauthorised use) including scramble bikes, pose a threat to the site, especially to the plants, including orchids, by widening paths, which then become bare of vegetation. Bikes can also affect the lagoon, causing encroachment of shingle at the northern end in particular, reducing the lagoon area. Pollution from vehicles, including abandoned/burnt out cars, into the lagoon or elsewhere can affect the wildlife interest and would be undesirable anywhere with more problems resulting the longer they are left on site. Vehicles can also cause rutting, bird disturbance, vegetation loss and compaction, as well as reducing the quality of quiet public enjoyment. Measures to stop cars driving along the spit by driving under the railway bridge, introduced by Gwynedd Council, following complaints by the public, have been successful and should be maintained.

Hedges and tree planting proposals need to be carefully assessed as coastal and marshy grassland habitats are often better for wildlife, including breeding waders, wintering wildfowl and plants, if they are maintained as open as possible without shade and shelter or perching places for predators.

Gorse can be important for wildlife but some consented clearance takes place, after checking for otter activity and usage, along the flood banks.

Dumping, such as rubble dumping to create hard standing or as riverbank ‘protection’ and/or storage of materials, is likely to cause damage.

Recreation including dog walking, bird watching, wildfowling, angling, canoeing and kayaking (including a launch site) is very important here for the local and visiting public. Most recreational usage does not significantly affect the wildlife and is of value in its own right to the local and wider community. However sometimes activities do have an affect if not managed and

it is important therefore to continually review their impact and to try to avoid or reduce the negative effects. Some recreational activities such as scramble bikes mentioned above and jet skies are totally inappropriate within Broadwater SSSI. There have been complaints about such activities as well as rough camping over the years. There have been unsuccessful proposals in the past to develop the adjacent old army camp at Tonfannau as a holiday chalet complex. Such development proposals, likely to increase the recreational pressure and pattern of usage of Broadwater and the foreshore, would need to be carefully assessed.

Information boards may help to explain the interest and the reasons why we should look after the site. Consultation and liaison between relevant parties and good practise guidelines or codes of conduct can also help. Nutrient enrichment from dogs is an issue along the well-used paths where it causes an increase in less desirable plants such as cock's foot. Dogs may also impact on the lagoon, which because of its small size, especially after drought, is vulnerable to disturbance and digging. Encouraging dog owners to clean up after their pets and to be responsible around the lagoon area should help the issues identified.

Finally
Our knowledge of wildlife is far from complete. 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, in particular, of the possible/probable impact of climate change. 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.

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