

Treborth Botanic Garden Woodlands and SSSI Full Site Description

The woodlands at Treborth Botanic Garden cover approximately 16 hectares and occur at altitudes ranging from High Water Mark to 40 metres asl. The site is notable for the extent of shoreline (1.5k) which is directly fringed with high canopy forest, an uncommon landscape feature in Wales. Approximately one third of the botanic garden woodland is a Site of Special Scientific Interest (SSSI), of which just over one hectare is regarded as Ancient Woodland comprising mature, 30 metre high oak (*Quercus petraea*) and ash (*Fraxinus excelsior*) forming a distinct square block bounded by well defined banks and ditches several centuries old. This area of woodland appears on the first edition (1837) of the Ordnance Survey maps of the area and contains a moderately rich woodland flora including early purple orchid (*Orchis mascula*), wild spindle (*Euonymus europaeus*), primrose (*Primula vulgaris*), sweet woodruff (*Galium odoratum*), dog's mercury (*Mercurialis perennis*), large expanses of wood anemone (*Anemone vulgaris*), bluebell (*Hyacinthoides non-scripta*), great wood-rush (*Luzula sylvatica*) and soft shield fern (*Polystichum setiferum*.) Happily this woodland is also free of invasive alien species. In the past hazel (*Corylus avellana*) has been coppiced here but there has been no management for at least 50 years. The north-west section of the ancient woodland is dominated by a shrub layer of holly (*Ilex aquifolium*). A well defined path running parallel with the Strait forms its northern boundary - despite this and the lack of fencing there is little human impact and the only grazing is by natural small-scale herbivores. From a conservation point of view, this ancient woodland is without doubt the most natural and valuable woodland feature on the Treborth Botanic Garden site.

The remainder of the SSSI is situated in close proximity to the Menai Strait on steeply sloping ground with a generally northerly aspect. It is for the most part densely wooded, save where natural erosion and slumping of the seaward bank has caused mature trees to fall and create temporary gaps. These themselves are interesting features, allowing additional flora and fauna to succeed as well as revealing plant fossils of Carboniferous Age (325 mya). The canopy trees are diverse and include both native species, of which oak is most common, and introduced species predominated by beech (*Fagus sylvatica*) and turkey oak (*Quercus cerris*) with an age of approximately 120 years. Additional native species of interest include whitebeam (*Sorbus sp.*) several mature elm (*Ulmus glabra*) and further spindle. Notable planted trees include mature lime (*Tilia x.europaea*) and scots pine (*Pinus sylvestris*). Towards high tide level there are colonies of carnivorous butterwort (*Pinguicula vulgaris*) in less shaded spots while ferns abound throughout, especially soft shield fern. Bryophytes are abundant and include *Hookeria lucens* which is indicative of the shelter, shade and humidity associated with low lying forest areas in the west. At the far eastern end of the site there is a spectacular natural waterfall feature created by a huge multilayered slab of calcareous sandstone. Here flourishes the mat forming, sweet smelling liverwort, *Conocephalum conicum* encouraged by the super-humid conditions and shade surrounding the waterfall. Sadly much of this Strait-side woodland has been invaded by Rhododendron (*Rhododendron ponticum*) and Cherry Laurel (*Prunus laurocerasus*) now both growing to a height of 6-8 m. The steep nature of the woodland bank creates severe practical difficulties for their removal.

Beyond the boundary of the SSSI there are another 7 hectares of notable woodland all within the overall boundary of the botanic garden and representing at least 6 distinct plant communities.

The most southerly element and also the smallest in extent (0.25 hectare) is a distinct stand of mature ash growing on a limestone outcrop at the western end of the cultivated garden comprising mature trees several of which are estimated to be 175 years old. The multi-trunked nature of some of the specimens creates interesting crotches which accommodate a specialised invertebrate fauna including a notably scarce beetle, *Prionocyphon longicornis*. A number of trees are also showing varying degrees of decay and remedial pruning is in progress. The field layer here includes calcicoles such as dog's mercury, wood anemone and early purple orchid and there is also a valuable transplant population of herb paris (*Paris quadrifolia*) which forms part of the botanic garden's conservation collection.

Immediately north of the ash woodland is one of several small 50 year old plantations, this one composed of scots pine and ash the others, ranging in size from 0.1 to 0.75 hectare including larch (*Larix sp.*), douglas fir (*Pseudotsuga menziesii*), norway spruce (*Picea abies*), fir (*Abies sp.*), western red cedar (*Thuja plicata*) beech and occasional Monterey pine (*Pinus radiata*) as well as further stands of scots pine. The plantation areas are generally free of invasive alien shrubs but contain no native species of note.

The eastern end of Treborth's woodland is composed of oak mixed with ash and sycamore (*Acer pseudoplatanus*), with locally dominant wild privet (*Ligustrum vulgare*) in the shrub layer. Here, as elsewhere in the eastern half of the Treborth site introduced turkey oak is quite frequent, especially around the woodland perimeter and adjacent to the main track. At the very far end of the wooded area and forming the eastern boundary of the botanic garden is a fine stand of 25-35m. high beech and turkey oak with at least two notable mature specimens of lucombe oak (*Quercus x.crenata*). Yew (*Taxus baccata*) is scattered through the eastern half of the woodlands, some planted, some naturally regenerated, the exception being an area of very acid soils (pH 3.5) towards the central section of woodland. These acidic conditions favour birch (*Betula pubescens*) which forms a dense even aged stand of 0.5 hectare, the trees presumably having self established after a clear felling event some 50 -60 years ago. The field layer flora here is dominated by *Dryopteris* ferns but there has been considerable encroachment by cherry laurel and to a lesser extent rhododendron.

Immediately to the west of the birch woodland lies 0.6 hectare of waterlogged ground with similarly aged birch and willow (*Salix cinerea*). The ground water is surprisingly calcareous due to its origins within a spring at the foot of the limestone exposure at the western end of the cultivated garden. As a result the shrub layer contains much wild privet with occasional guelder-rose (*Viburnum opulus*) and the field layer is notable for patches of devil's bit scabious (*Succisa pratensis*). Bryophytes dominate the ground layer including lush patches of the leafy liverwort *Plagiochila asplenioides* and robust lawns of *Rhytidiadelphus squarrosus*. Sphagnum moss forms one or two discrete patches, while Chara occurs sporadically in and around a small stream contributing to deposits of lime rich marl which are a notable feature of this site.

One of the most interesting areas of woodland occurs between the athletics track and the Strait which comprises roughly one hectare of damp, gently sloping ground with a heavy clay-loam soil. Until the 1950's this area provided rough grazing for a small number of donkeys and was bounded by fencing and a stone wall. Several mature oak, exceeding 400 years in age, mark the historical southern field boundary but are now situated within the woodland and provide an example of the influence of environment on growth form. After the demise of the donkeys, natural tree regeneration has rapidly created a substantial area of scrub woodland and in places high canopy woodland with a mix of birch, ash and willow.

Also included here is a distinctive 0.2 hectare stand of mature aspen (*Populus tremula*). The field layer is dominated in many places by ferns including hart's-tongue (*Phyllitis scolopendrium*) and fine 50 year old Dryopteris and soft shield ferns. The old donkey field is highly instructive as a demonstration of the power of natural regeneration.

In addition to the old woodland boundary features surrounding the ancient woodland described above, similar banks and ditches can be seen along the southern boundary of the central section of woodland although as already noted these areas of woodland have been much modified by tree felling in the past and more recently by encroachment by invasive shrubs. Nevertheless the presence of historic physical boundaries indicating the extent of the original much older woodland is a significant feature.

Also of historical importance is the presence of a 300metre line of mature, but coppiced lime running through the centre of Treborth's woodland and possibly attributable to the planting activities of Sir Joseph Paxton, a leading Victorian landscape designer. Paxton worked on the creation of some pleasure grounds to be known as Britannia Park. Other features which may also reflect Paxton's plans include the embellished waterfall at the eastern end of the woods as well as the main track running parallel with the Strait and drainage ditches forming herring-bone like patterns in the central woodland.

Over 200 species of macro fungi have been recorded in the woodlands including at least 10 locally scarce species. The presence of large amounts of dead timber is a great asset and the range of mycorrhizal host tree species is large.

Bird's-nest orchid (*Neottia nidus-avis*) has occurred historically in the woodland, but has not been recorded since 1980. The local diploid form of tufted hair grass (*Deschampsia cespitosa* ssp. *parviflora*), regarded as a reliable indicator of ancient woodland, is frequent.

Invertebrate interest is high within the woodland and contributes strongly to the list of over 400 species of moths recorded at Treborth, including well known indicators of old growth oak forest such as Brussels lace (*Cleorodes lichenaria*) and nationally scarce species such as blomer's rivulet (*Discoloxia blomeri*). The latter feeds solely on elm (*Ulmus glabra*), a tree species still scattered through Treborth woodlands and which also supports a tenuously small population of white-letter hairstreak butterfly (*Strymonidia w-album*). Purple hairstreak butterflies (*Quercusia quercus*) can be seen in the oak canopy during July and August and a rare picture wing fly (*Paraclusia tigrina*) occurs on rotting beech trunks – this insect is a Red Data Book species occurring in less than 10 sites in the UK. Two Nationally Notable (Category B) species of water beetles occur in a spring in the woodland 80m east of the Britannia Bridge

Up to 6 pairs of grey heron (*Ardea cinerea*) breed annually in Strait-side trees and shelduck (*Tadorna tadorna*) breed annually along the wooded bank of the Strait. The overall breeding bird list for the woodlands stands at 33 species.

Small mammals (mice, voles, shrews) are abundant and bats including noctule (*Nyctalus noctula*), brown long-eared (*Plecotus auritus*) and pipistrelle (*Pipistrellus* sp) are regular and breed. Larger mammals are distinctly scarce with surprisingly few records of fox (*Vulpes vulpes*) and no reliable records of badger (*Meles meles*). Polecat (*Putorius putorius*) has been recorded on several occasions, weasel (*Mustela nivalis*) and stoat (*Mustela erminea*) quite regularly occur mainly on the periphery and otter (*Lutra lutra*) has been sighted in coastal

waters with spraints on land suggesting regular use of the wooded shoreline. Indeed it is important to recognise the potential of the wooded northern Strait-side bank as an undisturbed habitat to accommodate further expansion of otter along the Strait.