

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

**SITE OF SPECIAL SCIENTIFIC INTEREST CITATION**

**POWYS**

**RIVER WYE (TRIBUTARIES)  
AFON GWY (ISAFONYDD)**

**Date of Notification:**

1997

**National Grid References:**

SO071562 - SO021530  
SO125577 - SO081473  
SO023439 - SO085425  
SO043393 - SO114414

**O.S. Maps:**

1:50,000 Sheet number: 147, 148  
1:10,000 Sheet number: SO 05 NW, NE, SW, SE  
SO 04 NE, SW, SE  
SO 14 NW, SW  
SO 15 NW, SW  
SO 03 NW, NE

**Site area:**

47.9 ha

**Description:**

**River Wye**

Together, the River Wye (Lower Wye) and the River Wye (Upper Wye) SSSI and several of their tributaries represent a large, linear ecosystem which acts as an important wildlife corridor, an essential migration route and a key breeding area for many nationally and internationally important species. The Wye is of special interest for its associated plant and animal communities. Its character spans a range of types from an upland base-poor stream to an estuarine, silty lowland river. The river's overall diversity is a product of its underlying geology, soil type, adjacent land use and fluvio-geomorphological regime.

The River Wye forms one of the longest rivers in England and Wales. From its source to its confluence the main channel is 250 kms long, drains a catchment of 4136km<sup>2</sup> and has the fourth largest flow of any river in England and Wales. Rising at an altitude of 680m on Pumlumon Fawr in Powys, the Wye meanders down through Wales, Herefordshire and Gloucestershire, finally entering the Severn Estuary at Chepstow.

**River Wye (Tributaries)**

The River Wye (Tributaries) comprises the River Edw and a number of smaller tributaries, which flow into the Wye between Builth Road and Llyswen. Together they form a representative series of small water courses draining a catchment composed of base-rich sandstones, shales and volcanic rocks. This catchment is dominated by semi-natural vegetation and permanent pasture.

The Dulas and Colwyn Brooks rise close together at an altitude of 240 m AOD in the Carneddau Hills close to Builth Wells. The Dulas Brook flows south west to join the River Wye at Builth Road and the Colwyn Brook flows eastwards to join the River Edw at Hundred House. The Edw flows south and then west to join the Wye at Aberedw. The Nant yr Offeiriad rises on the Mynydd Eppynt at 410 m AOD and the Clettwr Brook rises at 380 m AOD one mile to the southeast. Both flow eastwards and join together before entering the Wye at Erwood. The Sgithwen Brook rises at 350 m AOD in Llaneglwys Wood north of Brecon. It is joined by two small tributaries as it flows eastwards to join the Wye below Llanstephan Bridge.

The tributaries are of special interest for two main aquatic plant community types - rivers on sandstone, mudstone and hard limestone and mesotrophic rivers downstream from oligotrophic catchments.

The fish fauna is of special interest and the tributaries also support internationally important populations of Atlantic stream crayfish *Austropotamobius pallipes* and common otter *Lutra lutra*.

Extensive areas of semi-natural riparian habitats can still be found next to the tributaries. These include woodlands, dominated by alder *Alnus glutinosa*, willows *Salix spp.*, ash *Fraxinus excelsior* and oak *Quercus spp.*, grassland dominated by rushes *Juncus spp.*, and stands of tall fen and marsh vegetation. Gravel banks and silty shoals support a variety of plant communities characterised by species more normally considered to be arable weeds. Back channels and oxbows support still-water plant communities not found in the main channel, and these are frequented by otters and waterfowl and provide valuable refuges for small fish and invertebrates in times of flood.

### **Geology and Topography**

The catchment of the Upper Wye is 1623 km<sup>2</sup> in area and is predominantly upland in nature. The Carneddau Range, South East Radnorshire Hills and Mynydd Eppynt being the most significant upland areas forming this part of the catchment.

The Dulas Brook rises in a peat-filled valley beneath lofty crags, and for the first half kilometre, flows over Llanvirn (Ordovician) volcanic ashes, and ashy shales, which are generally sulphur rich. Near Maesgwyn the stream flows onto black sulphurous shales of the Llandeilo series (Ordovician) for another half kilometre. Here the countryside is much more open with fields and woods. The landscape is locally masked by glacial till. It then flows over soft, slightly more calcareous, shales of the Wenlock series (Silurian) to its confluence with the River Wye. There is little obvious difference between the topography of the Llandeilo (Ordovician) shales and the Wenlock (Silurian) shales, but the latter tend to be better drained.

The uniform Wenlock shales of this area historically provided the principal sections for the stratigraphical subdivision of the Wenlock series and a section of the stream coarse at Brynsadwrn Bridge is of special interest and forms a nationally important graptolite locality in the generally accepted Builth "type area" for the British Wenlock graptolite zonation. It exposes strata falling within the *C.ellesae* Zone, and it is one of the two key localities originally used by Elles for the definition of that zone, in a classical biostratigraphic study which established the framework for our modern graptolite zonation. A key fossil site vital to future revisions of Wenlock biostratigraphy. Locally, these deposits are covered by a generally thin coverage of

glacial till.

The Colwyn Brook rises, and for 1.3 km flows over black sulphurous shales of the Llanvirn series (Ordovician). Its course then crosses a fault onto Llanvirn (Ordovician), volcanic ashes and ashy shales, which are generally sulphur rich. A second fault brings black Llanvirn shales back again, but immediately the stream cuts through a body of dolerite, which had been injected, molten, into the shales, before solidifying in place. The dolerite is iron and magnesium rich and tends to be slightly calcareous. The stream continues for 200m across the shales before crossing another fault onto volcanic ashes and ashy shales. These volcanic rocks are associated with soda-rich lavas, and are overlain by an ashy sandstone.

The surrounding country is steep with rocky crags which, occasionally are wooded. The landscape demonstrates evidence of glacial polishing, and there is a thin layer of glacial till deposited locally. After a distance of 2km from its source, the stream flows onto Wenlock shales of the Silurian. It flows over these soft, slightly more calcareous, shales to its confluence with the River Edw.

For the first part of its course the River Edw flows over black sulphurous shales of the Silurian series (Ordovician). Half a kilometre up stream from Bettws, the river flows over bands of volcanic ashes, but for the remaining 2 km, to south of Frank's Bridge, it continues to flow over black Llanvirn shales. The country is generally open, but the ash bands form a line of crags on the east side of the river. The Edw then flows onto soft, slightly more calcareous, shales of the Wenlock beyond its confluence with the Colwyn Brook near Hundred House. Wenlock shales produce characteristically open, low country.

The Wenlock shales dip southwards and the river flows over younger and younger Wenlock strata in that direction, before crossing onto Ludlow (Silurian) siltstones approximately 1 km southeast of Hundred House. The Edw continues to flow over these rocks and tumbles through a short rocky gorge section to join the Wye at Aberedw. The Ludlow siltstones are harder than the Wenlock and give rise to loftier hills, and cause the valley to become much narrower.

The Nant yr Offeiriad, rises and then flows for 6km in a sequence of alternating red sandstones and mudstones (Old Red Sandstone) of the Pridoli series (Silurian). This is an upland moorland area and the valley sides are steep. Approximately 1 km above its confluence with the Cletwr, the stream descends onto Ludlow siltstones of the Silurian. At this point, the valley opens out slightly.

The Cletwr Brook also rises in the Old Red Sandstone, and within 1km of the confluence also descends onto the Ludlow siltstones. The remainder of the Cletwr course is developed in Ludlow shales as far as its confluence with the River Wye.

Most of the river valleys are cut into strata which dip gently southwards, but in the vicinity of the confluence of the two streams, the strata begin to dip towards the north-west. For the last 1.2 km, the Cletwr turns to flow through a wooded gorge with rocks which are much folded and faulted, within the Church Stretton - Carreg Cennen Disturbance. These structures have resulted in the sections of the stream valley which are aligned NE-SW.

Almost the whole length of the Sgithwen Brook is cut into disturbed rocks of the Church Stretton - Carreg Cennen Disturbance. The sequence which includes Ludlow siltstones of the Silurian and

alternating Pridoli (Silurian) (Old Red Sandstone) is much folded and faulted. The structure has resulted in the major part of the stream valley being aligned NE-SW and a series of small falls have been created. In such rocky sections the streams are characterised by rapids and plunge pools with numerous large boulders. Elsewhere, where bedrock is buried below alluvial and glacial deposits, there are easily eroded earth and gravel cliffs, shingle bars and pool/riffle systems over a coarse bed. There are some gravel shoals with areas of braided channels. Backwaters and oxbows, which are reconnected to the main river during peak floods, indicate the former positions of the river channel as it meandered over the flood plain.

## **Flora**

The upper reaches of the Edw and Dulas Brook, and shaded gorge section of Clettwr above Erwood support particularly diverse communities of lower plants. Aquatic higher plants and algae are scarce, but the moss *Fontinalis antipyretica* is locally abundant. Rocks and boulders support a range of characteristic species including the mosses *Amblystegium fluviatile*, *Brachythecium plumosum*, *B. rivulare*, *Cinclidotus fontinaloides*, *Rhyncostegium riparoides* and *Thamnobryum alopecurum*, the liverworts *Conocephalum conicum* and *Chiloscyphus polyanthus* and lichens *Verucaria spp.*. The moist river banks support shade tolerant plants such as remote sedge *Carex remota*, soft rush *Juncus effusus*, hemlock water dropwort *Oenanthe crocata* and ferns. These stretches are bordered by extensive areas of woodland, dominated by alder, ash and oak.

In its middle reaches the Edw is broader, although the banks are still well wooded. The bed comprises mainly pebbles and coarse gravel. Lower plants remain prominent in the channel and on the banks. Additional species found here include the mosses *Calliargon cuspidatum*, *Racomitrium aciculare* and *Schistidium rivulare*, the liverworts *Pellia epiphylla*, *Plagiochila porelloides* and *Scapania undulata* and the nationally rare river jelly lichen *Collema dichotomum*. Aquatic and emergent plants are rather more varied here and species such as fool's watercress *Apium nodiflorum*, floating sweet grass *Glyceria fluitans*, reed canary grass *Phalaris arundinacea*, lesser spearwort *Ranunculus flammula*, wood club-rush *Scirpus sylvaticus*, brooklime *Veronica beccabunga* and the algae *Llemaneia fluviatile* are locally prominent. The Colwyn Brook, middle section of the Dulas Brook and much of the Sgithwen Brook support similar plant communities.

In its upper reaches the Nant yr Offeiriad flows through moorland, but the underlying rock is base-rich sandstone. Characteristic plants found here include fool's watercress, water starworts *Callitriche spp.*, rushes *Juncus spp.*, alternate water minfoil *Myriophyllum alterniflorum*, watercress *Nasturtium officinale*, procumbent pearlwort *Sagina procumbens*, the mosses *Blindia acuta*, *Brachythecium rivulare*, *Calliargon cuspidatum*, *Fontinalis antipyretica*, *Philonotis fontana*, *Polytrichum formosum* and *Rhyncostegium ripariodes* and the liverworts *Chiloscyphus polyanthus*, *Marchantia polymorpha* and *Pellia epiphylla*.

The middle sections of the Nant yr Offeiriad and Clettwr Brook flow over the same base-rich rocks, but the banks are shaded by woodland. Aquatic and emergent species are less prominent here, but there is a greater variety of lower plants, including the mosses *Amblystegium fluviatile*, *Brachythecium plumosum*, *Racomitrium aciculare* and *Schistidium rivulare*, the liverworts *Conocephalum conicum* and *Plagiochila porelloides* and lichen *Verrucaria spp.*

The lower reaches of the Edw, Dulas and Sgithwen Brooks are characterised by gentle gradients

and shaded banks of alluvial material. These sections contain deep pools and gravel shoals and are essentially lowland in character. The banks are shaded by alder and ash woodland. Aquatic plants include the moss *Fontinalis antipyretica* and the algae *Lemanea fluviatile*, *Hildenbrandia rivularis* and *Cladophora glomerata*. Rocks within the river channel support extensive bryophyte and lichen communities including *Amblystegium fluviatile*, *Cinclidotus fontinalioides*, *Rhyncostegium ripariodes*, *Conocephalum conicum*, *Verrucarria praetermissa* and nationally rare and scarce species such as *Collema dichotomum* and *Fissidens rivularis*, which are found in the Edw near its confluence with the Wye. The bankside flora is rich and varied. Species that are locally prominent include lady fern *Athyrium filix-femina*, marsh marigold *Caltha palustris*, great willowherb *Epilobium hirsutum*, meadowsweet *Filipendula ulmaria*, hemlock water-dropwort *Oenanthe crocata*, butterbur *Petasites hybridus*, bittersweet *Solanum dulcamara* and stinging nettle *Urtica dioica*.

### **Mammals**

The upper Wye and its tributaries support one of the strongest populations of otters in England and Wales. This species is threatened by habitat destruction, disturbance and pollution throughout its European range and is specially protected. Otters rely on woodland, scrub and tall bankside vegetation for cover. Breeding holts may often be found amongst the roots of large trees at the water's edge. The river and bankside trees support large populations of flying insects which provide an important food source for bats, including Daubenton's bat *Myotis daubentonii*.

### **Invertebrates**

All the tributaries support important populations of the Atlantic stream crayfish, a species which has declined in the UK and is now specially protected.

### **Breeding Birds**

The tributaries support a range of breeding bird species that are associated with riparian habitats, including common sandpiper *Actitis hypoleucos*, grey wagtail *Motacilla cinerea*, dipper *Cinclus cinclus* and kingfisher *Alcedo atthis*.

### **Fish**

A range of fish species occurs in the tributaries. The Cletwr and Sgithwen Brooks support isolated native populations of brown trout *Salmo trutta fario* and the River Edw provides important spawning areas for Atlantic salmon *Salmo salar*. Brook lamprey *Lampetra planeri* and river lamprey *Lampetra fluviatile* are present and may also spawn in the tributaries. Minnows *Phoxinus phoxinus*, stone loach *Noemacheilus barbatulus* and bullhead *Cottus gobio* are abundant everywhere.

### **Remarks**

The site supports the following habitats and species covered by EC Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna:

Floating vegetation of *Ranunculus* of plane, submountainous rivers - Annex I  
Atlantic stream crayfish *Austropotamobius pallipes* - Annex II and V

Common otter *Lutra lutra* - Annex II and IV  
Atlantic salmon *Salmo salar* - Annex II and V  
Bullhead *Cottus gobio* - Annex II  
River lamprey *Lampetra fluviatilis* - Annex II and V  
Brook lamprey *Lampetra planeri* - Annex II

Otter and Atlantic stream crayfish are also listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

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