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COUNTRYSIDE COUNCIL FOR WALES

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

MONMOUTHSHIRE/POWYS
HEREFORD AND WORCESTER/
GLOUCESTERSHIRE/

RIVER WYE (LOWER WYE)/
AFON GWY (GWY ISAF)

Date of Notification: 1978, 1996

National Grid References: SO230429 – ST544912

O.S. Maps: 1:50,000 Sheet number: 148, 149, 162
1:10,000 Sheet number: SO63SW, ST59SW,NW
SO51SW,NW,SE,NE
SO62NW, SO53SE,NE,NW
SO50SW,NW, SO61NW,
SO52SE,NE,NW,
SO44SE,SW, SO43NE,NW,
SO34SE,SW, SO24NE,NW,SW

Site Area in Wales: 245.2 ha

Description:

River Wye

Together, the River Wye (Lower Wye) and the River Wye (Upper Wye) SSSIs 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 sources to its confluence, the main channel is 250 kms long, drains a catchment of 4136 km^2 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 (Lower Wye) (Hay on Wye to Chepstow)

The River Wye (Lower Wye) is a rare example of a large western eutrophic river which, unlike many rivers of a similar type, has not been subject to many significant modifications from human activities. The river is of special interest for three main aquatic plant community types – rivers on sandstone, mudstone and hard limestone; clay rivers; and lowland rivers with minimal gradient, as well as for certain flowering plants and bryophytes.

The river shows a clear downstream succession in plant communities reflecting variations in geology, flow rate and landuse. In particular the river exhibits a natural increase in dissolved minerals as it flows over the underlying geology of Old Red Sandstone and Carboniferous Limestone. Localised differences in water chemistry are also created where major tributaries, such as the River Lugg, enter the main channel. In its tidal reaches the river becomes increasingly saline as it nears its confluence with the Severn Estuary.

The invertebrate fauna (molluscs; beetles; mayflies; caddis flies; trueflies and dragonflies) is characteristic of a large lowland river and is of special interest for species associated with riffles, river shingles, salt marsh, river deadwood and bankside vegetation. The fish fauna includes Atlantic salmon *Salmo salar*, twaite shad *Alosa fallax*, allis shad *Alosa alosa* and bullhead *Cottus gobio* as well as three species of lamprey *Petromyzon marinus, Lampetra planeri* and *Lampetra fluviatilis* which are all of European importance and are listed on Annex II of the EC Directive 92/43/EEC. The site is also of international importance for its Atlantic stream crayfish *Austropotamobius pallipes*, common otter *Lutra lutra* and beds of water crowfoot *Ranunculus spp*..

Whilst not a special feature of the site, there is a good range of breeding birds associated with riverine habitats.

The SSSI incorporates adjacent areas of riparian habitat including wet woodland, marshy grassland, reed beds and topographical features which directly support the special interest of the river.

Geology and Topography

The catchment of the River Wye (Lower Wye) is 2513 km^2 in area and is predominantly low lying, the Radnor Forest and Black Mountains being the most significant upland areas within it. The River Wye (Lower Wye) is thus lowland in character, meandering across a floodplain up to 2 km wide within a hilly terrain and falling from 72m AOD at Hay-on-Wye to sea level over a distance of 157 km. There are extensive glacial and glaciofluvial deposits downstream of Hay-on-Wye.

Between Hay-on-Wye and Goodrich the River Wye (Lower Wye) flows over a Lower Old Red Sandstone substrate composed of sandstones and marls with occasional limestone beds. The river bed comprises gravels, silt and occasional boulders. Below Goodrich it enters the Wye Valley Gorge. Here the river flows over Carboniferous Limestone outcrops cutting near-vertical cliffs within a restricted floodplain. Over millions of years land uplift has caused the channel to become incised, leaving distinct shelves of land like that at Livox Quarry. The floodplain widens where major tributaries such as the Trothy and Monnow join the main channel before the river re-enters the Wye Valley Gorge again with its vertical limestone cliffs and more gentle sandstone and mudstone slopes.

In the lower parts of the Wye Gorge the river becomes tidal and brackish and there is a gradual transition to estuarine conditions. Bedrock and boulders commonly constitute the bank and bed material but are usually overlain with silty alluvium. At Chepstow dramatic vertical cliffs have been cut through the limestone. Between Chepstow and the Severn Estuary the river flows over Triassic Mercia mudstones which eventually give way to the alluvium of the Severn coastal plain.

The River Wye (Lower Wye) has remained relatively free from man-made straightening, widening or deepening schemes. The upper and middle sections of the river are active; migrating meanders depositing shingle point bars and islands, and cutting vertical faces into the banks. The pattern of meander loops along the entire length of the river is complex, steep outer slopes contrasting with shallow slip-off slopes.

In many places increased gradients expose extensive gravel substrates over which the river forms complex pool and riffle sections. Few examples of oxbow lakes and active back channels remain adjacent to the river.

Flora

In its upper and middle reaches the river channel is dominated by submerged flowering plants such as spiked water-milfoil *Myriophyllum spicatum* and beds of water crowfoot. Other common plants included rigid hornwort *Ceratophyllum demersum* and perfoliate pondweed *Potamogeton perfoliatus*. Rare aquatic species include whorled water-milfoil *Myriophyllum verticillatum*. In the lower reaches of the river through the Wye Gorge the calcium and nutrient content of the water increases. Here aquatic vegetation is mainly comprised of pondweed species such as fennel pondweed *Potamogeton pectinatus* and curled pondweed *P crispus*. Aquatic macrophytes disappear below the tidal limit at Brockweir and marginal vegetation is often absent or much reduced below this point due to tidal scour. However, some species thrive along the transition zone between brackish and freshwater conditions where large areas of mud are exposed at low tide.

Marginal vegetation often consists of reed canary-grass *Phalaris arundinacea* and branched bur-reed *Sparganium erectum*. Other marginal plants such as amphibious bistort *Persicaria amphibia*, brooklime *Veronica beccabunga*, yellow-cress *Rorippa spp* and water forget-me-not *Myosotis scorpioides* are widespread and frequent. (The nationally scarce horsetail *Equisetum x litorale* is found growing along the margins of the river in its upper section). Below Brockweir the upper mud banks of the river are colonised by salt-marsh species such as sea aster Aster tripolium, saltmarsh-grass *Puccinellia spp* and sea-milkwort *Glaux maritima*.

Characteristic bankside plants include stinging nettle *Urtica dioica*, great willowherb *Epilobium hirsutum* and reed canary-grass *Phalaris arundinacea*. Locally the river bank vegetation can be diverse containing species such as common knapweed *Centaurea nigra* and comfrey *Symphytum spp*. A number of rare and restricted species occur along the river banks including common meadow-rue *Thalictrum flavum*, meadow saxifrage *Saxifraga granulata* and chives *Allium schoenoprasum*. The latter species grows in deep crevices in riverside outcrops and bedrock. Along wooded brackish reaches of the river, the banks become almost entirely dominated by stands of couch grass *Elytrigia repens*.

The river banks is frequently tree lined. Willows *Salix spp* are common along the upper and middle sections, whilst alder *Alnus glutinosa* and ash *Fraxinus excelsior* become more frequent in the lower reaches. Sycamore *Acer pseudoplatanus* is widespread along the length of the river.

The adjacent landuse through the Herefordshire Plain is dominated by mixed farming with occasional oak *Quercus spp*., ash and sycamore woodland running down to the river. Below Goodrich the river enters the Wye Valley Gorge cutting through a landscape of permanent pasture and steep woodlands before flowing through the coastal grassland plain and entering the Severn Estuary.

Mammals

The common otter is widespread along the length of the river where appropriate bankside cover exists. The roots of mature bankside trees are often used as otter holts. Water voles *Arvicola terrestris* can be found along the middle sections of the river. The bankside tree cover provides valuable feeding and roosting habitats for several bat species including the greater horseshoe *Rhinolophus ferrumequinum* and Daubenton's bat *Myotis daubentonii*.

Invertebrates

The Lower River Wye's invertebrate community is characteristic of a large lowland river. Several invertebrate species associated with such conditions include the nationally rare mayfly *Potamanthus luteus* and the caddis fly *Hydroptila lotensis* together with the nationally scarce stonefly *Brachyptera putata* and the club-tailed dragonfly *Gomphus vulgatissimus*. Through the middle reaches of the river the black-tail skimmer *Orthetrum cancellatum* breeds on the north western edge of its distribution. The thick emergent fringes of vegetation on the banks provide cover and breeding habitat for the white-legged damselfly *Platycnemis pennipes*.

The river is of high invertebrate interest for species associated with riffle, shingle and saltmarsh habitats. Of particular interest are the riffle beetles *Normandia nitens* and *Oulimnius major* and the shingle beetle *Neobisnius proxlixus*, all of which are nationally rare. Nine other nationally scarce beetles associated with these habitats have been recorded including *Chaetocnema sahlbergi* and *Pogonus littoralis* which are both found on saltmarsh.

Several nationally rare invertebrate species are associated with river dead wood such as the beetle *Macronychus quadrituberculatus* and the caddis flies *Oecetis notata*. Other nationally rare species are associated with sandy river banks such as the cranefly *Limonia omissinervis*.

Bankside trees and tall ruderal herbs provide ideal habitat for five nationally scarce species of moth including the waved carpet *Hydrelia sylvata* and the micro moth *Mompha langiella*.

All six British species of unionid mussels occur on the river, including the scarce depressed river mussel *Pseudanodonta complanata*. This is believed to be a unique assemblage in Britain. The nationally rare snail *Pseudamnicola confusa* is also present and is restricted to the saline reaches of the river.

Fish

The river has a wide range of migratory and non-migratory fish species. The most abundant coarse fish species include chub *Leuciscus cephalus*, dace *Leuciscus leuciscus* and pike *Esox lucius* which, together with roach *Rutilus rutilus* and perch *Perca fluviatilis*, are the most widely distributed fish along the river. Species such as tench *Tinca tinca* and ruffe *Gymnocephalus cernua* are restricted to the lower reaches.

Sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis*, twaite shad and the very rare allis shad all migrate into the river each year from the Severn Estuary and spawn at various localities along its length. Large numbers of elvers *Anguilla anguilla* migrate up the river with the spring high tides. The river also supports internationally important populations of brook lamprey *Lampetra planeri* and bullhead.

Several game fish species including grayling *Thymallus thymallus*, brown trout Salmo *trutta fario* and sea trout *Salmo trutta trutta* breed and migrate along the River Wye (Lower Wye). Important numbers of Atlantic salmon migrate up the main channel to reach spawning grounds in the headwaters of the Wye.

Birds

The River Wye (Lower Wye) supports a diverse assemblage of breeding birds associated with rivers. Several species including the mute swan *Cygnus olor* and coot *Fulica atra* are associated with its slow flowing reaches and breed along the length of the river. However, species associated with upland streams and rivers such as dipper *Cinclus cinclus* and grey wagtail *Motacillia cinerea* also breed along the faster flowing sections, especially where rapids occur. Sedge warbler *Acrocephalus schoenobaenus* and reed bunting *Emberiza schoeniclus* breed in riparian habitat along the river banks.

Extensive shingle shoals provide suitable breeding habitat for little ringed plover *Charadrius dubius* whilst vertical banks provide nesting sites for sand martin *Riparia riparia* and kingfisher *Alcedo atthis*. Goosanders *Mergus merganser* are present throughout most of the year. The tidal reaches of the river support breeding shelduck *Tadorna tadorna* and an established heronry *Ardea cinerea*.

Occasional low lying and wet areas adjacent to the river support breeding wader species including snipe *Gallinago gallinago* and lapwing *Vanellus vanellu* whilst common sandpiper *Actitis hypoleucos* is widely distributed along the length of the river.

Remarks

The site supports the following species and habitats covered by EC 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora:

Floating vegetation of *Ranunculus* of plain, 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
Twaite shad *Alosa fallax*	- Annex II and V
Allis shad *Alosa alosa*	- Annex II and V
Brook lamprey *Lampetra planeri*	- Annex II
Sea lamprey *Petromyzon marinus*	- Annex II
Grayling *Thymallus thymallus*	- Annex V
Freshwater pearl mussel *Margaritifera margaritifera*	- Annex II and V
River lamprey *Lampetra fluviatilis*	- Annex II and V

Common otter, Atlantic stream crayfish and freshwater pearl mussel are also listed under Schedule 5 of the Wildlife and Countryside Act 1981, as amended.

Part of the River Wye (Lower Wye) SSSI falls within the Wye Valley Area of Outstanding Natural Beauty (AONB).