

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

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

MONMOUTHSHIRE/POWYS

**RIVER USK (UPPER USK)/
AFON WYSG (AFON WYSG UCHAF)**

Date of Notification: 1972, 1983, 1997

National Grid References: SN 834285 - SO 292139

O.S. Maps: 1:50,000 Sheet numbers:160, 161
1:10,000 Sheet numbers:SO 21 SE SO 02 NE
SO 21 NE SO 02 NW
SO 21 NW SN 92 NE
SO 11 NE SN 92 NW
SO 12 SE SN 82 NE
SO 12 SW SN 82 NW
SO 12 NW SN 82 SW

Site Area: 307.7 ha

Description

River Usk

The River Usk comprises a large, linear ecosystem which acts as an important wildlife corridor, an essential migration route and key breeding area for many nationally and internationally important species. The Usk is of special interest as a fine example of a river running over sandstones and for its associated plant and animal communities. Its character spans a wide range of types from an upland base-poor stream to a large lowland river with extensive tidal reaches. Its overall diversity is a product of its geology, soil types, adjacent land-use and hydrology.

The River Usk is one of the largest rivers in Wales. From its source to its confluence, the main channel is over 120 km long, and drains a catchment of 1358 km². Rising at an altitude of 500 m on Mynydd Du on the Carmarthenshire/Powys border, the Usk flows eastwards below the northern scarp of the Brecon Beacons, turning south below Abergavenny and flows down through Monmouthshire to its confluence with the Severn Estuary below Newport.

River Usk (Upper Usk) (source to Abergavenny)

The River Usk (Upper Usk) is a fine example of an upland river flowing in part over hard sandstones, creating steeply graded sections with rocks, cascades, boulders and cliff-bound banks. In other areas, on a broad flood plain, it cuts through extensive deposits of fluvio-glacial and alluvial material, creating a complex and active system of meanders, cut-off and back channels which contribute to the biological interest and diversity of the site.

The course of the Usk lies on the Powys/Carmarthenshire border west of Treacastle, within the Mynydd Du SSSI. It feeds the Usk Reservoir, below which this SSSI commences. The Usk is soon joined by the Afon Hydfer, an important headwaters tributary, which is also included within this site.

The Upper Usk then flows eastwards through a narrow valley towards Brecon, cutting deeply into the sandstone bedrock in many places along the way. Below Brecon the river flows across a wider alluvial floodplain as far as Buckland where it enters the steep-sided Llangynidr gorge section. At Glanusk Park the Usk returns to an alluvial floodplain which extends as far as Abergavenny.

The Upper Usk is of special interest for three main river types: rivers on sandstone; mesotrophic rivers and oligo-mesotrophic rivers. The upper reaches in particular support communities characteristic of shaded upland rivers on rich geological strata and upland rivers with gravel and peat.

It is also of special interest for its mosses and lichens as well as for otter *Lutra lutra* and its fish populations.

There is a good range of breeding birds associated with riverine habitats, together with localised populations of the Atlantic stream crayfish *Austropotamobius pallipes* and the freshwater pearl mussel *Margaritifera margaritifera*, both of which are threatened in the UK. Several nationally rare and scarce species of flowering plant occur in the river and on its banks.

The SSSI incorporates adjacent areas of riparian habitat which directly support the special interest of the river. These include woodlands dominated by alder *Alnus glutinosa* and willows *Salix* spp., marshy grassland, stands of tall herb, swamp and fen vegetation. Shingle banks and gravel shoals below Brecon support a variety of species more normally considered to be arable weeds. Back channels contain marshes and pools supporting plant communities not found in the main channel. They also provide refuges for otters, waterfowl, invertebrates and small fish.

Geology and Topography

The catchment of the River Usk (Upper Usk) is predominantly upland in nature, the northern Brecon Beacons and southern part of the Eppynt being the most significant areas of high ground within it. The river is therefore upland in character, largely following a predetermined glacial valley and falling from 280 m at the base of the Usk reservoir to 100 m at Abergavenny over a distance of 69 km.

From its source on the Black Mountain, downstream, to Abergavenny, the river flows over sandstones and mudstones of the Old Red Sandstone Series. For the first kilometre or so sandstones are predominant over thinner mudstones in the Breconian Series. Before the Usk Reservoir, the river crosses the sandstone and mudstone sequence of the Dittonian and then descends onto the mudstone and thin sandstone sequence of the Pridoli Series. The river course remains within this sequence as far as Brecon, where it returns to the Dittonian. It then crosses into the Breconian again at Tal-y-bont, across which it then flows for the remainder of its course to Abergavenny.

Three zones of deformed rocks have been preferentially eroded by the river. From above Treacastle to Sennybridge the river follows along the line of the Carreg Cennen - Pontfaen Disturbance (an area of faulted and folded rocks). Around Brecon the river's course is effected by the Swansea Valley Disturbance, and from Llangynidr to Crickhowell the orientation of the river course is controlled by the Neath Disturbance.

Around its source on the Black Mountain the sandstones are masked by peat deposits but the upper stretches are characterised by rapids, coarse beds and stepped waterfalls over the sandstones. Below Treacastle, in places the river has become incised, creating steep valley sides while its bed is characterised by glides, rapids and waterfalls and, in places, has cut down to bedrock to form a deep channel between marginal rock shelves.

Near Brecon the valley broadens out and the river begins to meander across a flood plain developing gravel shoals and earth cliffs with localised areas of braided channels, backwaters and oxbows, which are reconnected to the main river during spate flows.

At Llangynidr the river has cut south through the Black Mountains scarp, exploiting a major fault line, to form a steep-sided gorge. The river channel in this gorge section is characterised by boulders, exposed rock platforms and deep channels and pools.

Between Llangatwg and Abergavenny the Usk Valley broadens out the river again starts to meander across a flood plain, creating gravel shoals, earth cliffs and backwaters and oxbows which significantly enhance the biological diversity of the site. Fluvio-glacial sand and gravels constrain the river's lateral movement to the immediate west of Abergavenny.

The Upper Usk has remained relatively free from human straightening, widening or deepening schemes. The section of the river at Pencelli, to the south of Brecon, is particularly complex and active, with rapidly eroding, steep river banks on the outer sides of the meanders contrasting with shallow slip-off slopes with shingle spits on the inner sides. Oxbows and backwaters are a feature of this area.

Flora

The headwaters of the Usk and Afon Hydfer have fairly acidic water, supporting characteristic upland aquatic species, including bulbous rush *Juncus bulbosus*, alternate water-milfoil *Myriophyllum alterniflorum*, floating sweet-grass *Glyceria fluitans*, and filamentous algae. Marginal plants include purple moor-grass *Molinia caerulea*, marsh marigold *Caltha palustris*, meadowsweet *Filipendula ulmaria*, lesser spearwort *Ranunculus flammula*, rushes *Juncus* spp. and a range of characteristic mosses and liverworts, such as *Racomitrium aciculare*, *Hygrohypnum ochraceum*, *Rhynchostegium riparioides*, *Pellia epiphylla* and *Scapania undulata*.

As the water becomes less acidic, the channel is largely shaded by alder and rusty willow *Salix cineria* spp. *oleifolia*. Here the banks support a flora more typical of shaded conditions, including lady fern *Athyrium filix-femina*, remote sedge *Carex remota*, the mosses *Amblystegium fluviatile*, *Schistidium alpicola* and *Thamnobryum alopecurum* and the liverworts *Pellia epiphylla*, *Conocephalum conicum* and *Chiloscyphus polyanthos*. Aquatic species are scarce

here, but alternate water-milfoil and the red alga *Hildenbrandia rivularis* occur sparingly in the channel.

As the river becomes larger the channel is less shaded, although bankside trees are still prominent. Aquatic species become more frequent, including the mosses *Fontinalis antipyretica* and *Cinclidotus fontinaloides*, the liverwort *Porella cordaeana*, the lichens *Dermatocarpon luridum* and *D. meiophyllizum* and the algae *Lemanea fluviatile*, and *Hildenbrandia rivularis*. The nationally scarce mosses *Fissidens rivularis* and *F. rufulus* have been frequently reported on sandstone rocks rarely exposed above water level from these reaches. Characteristic marginal plants include reed canary-grass *Phalaris arundinacea*, hemlock water-dropwort *Oenanthe crocata*, bittersweet *Solanum dulcamara*, the mosses *Homalia tricholmanoides*, and *Scleropodium cespitosum* and the liverworts *Conocephalum conicum*, *Pellia endiviifolia* and *Lunularia cruciata*.

The silt-encrusted tree bases support a notable community of specialised riparian mosses including *Leskea polycarpa*, *Tortula latifolia*, *Orthotricum rivulare* and the nationally scarce *O. sprucei*.

River banks are kept free of dense woody growth by regular flooding, and steep slopes or rock outcrops support a range of notable plants. Two nationally scarce hawkweeds, *Hieracium stenstroemii* and *H. cinderella* occur on rock outcrops around Llangynidr. Also in this area are found the nationally rare dandelions *Taraxacum breconense* and *T. vechelii*. The nationally scarce bramble *Rubus iscanus*, named after the R. Usk, is found at the confluence with the Afon Crawnnon. Another nationally rare dandelion *T. degelii* occurs on rocks upstream around Fenni-fach.

Locally uncommon higher plant species of riverside rocks and banks include the globe flower *Trollius europaeus* and wild onion *Allium vineale*. A number of probably native black poplar trees *Populus nigra* ssp. *betulifolia* occur beside the Usk, with particularly large and well-grown examples being visible from the bridge at Crickhowell. Well-lit riverside rocks which are regularly flooded at Sennybridge, and in several places between Llanhamlach and Crickhowell, support the nationally endangered lichen *Endocarpon adscendens*.

Cliff woodland around Llangynidr is notable for its abundance of beech, here probably native, and at the north western edge of its British range. Other species of south eastern Britain which occur in abundance include the toothwort, *Lathraea squamaria* and early dog-violet *Viola reichenbachiana*. Small-leaved lime *Tilia cordata* is also frequent in this woodland and is there colonised by mistletoe *Viscum album*. Wild service-tree *Sorbus torminalis* is a rare associate.

Wide meandering of the river in the vicinity of Pencelli has produced a range of wildlife habitats, including old river channels and shingle banks exhibiting various stages of plant colonisation. The old channels contain both marsh and open water, supporting a number of characteristic plant communities, dominated variously by floating sweet-grass, amphibious bistort *Persicaria amphibia*, broad-leave pondweed *Potamogeton natans* and Canadian waterweed *Flodea canadensis*. A wide variety of aquatic and emergent species are present in these areas including local rarities such as greater spearwort *Ranunculus lingua*, pink water-speedwell *Veronica catenata*, lesser marshwort *Apium inundatum* and wood club-rush *Scirpus sylvaticus*. Adjacent areas of seasonally flooded grassland are characterised by creeping bent *Agrostis stolonifera* and

marsh foxtail *Alopecurus geniculatus*, which provide important feeding areas for migrating wildfowl and waders. At Pencelli, and elsewhere, there are extensive deposits of alluvial gravel. Some are sparsely vegetated with species such as water-pepper *Persicaria hydropiper*, redshank *P. maculosa* and silverweed *Potentilla anserina*. More stable areas support communities dominated by common nettle *Urtica dioica*, creeping thistle *Cirsium arvense*, Indian balsam *Impatiens glandulifera* and other tall herbs such as mugwort *Artemisia vulgaris* and hemlock *Conium maculatum*. Thickets of willow *Salix* spp. scrub have developed locally along backwaters and on islands. At Pencelli these thickets are dominated by a particularly diverse range of willow species, including crack willow *Salix fragilis*, osier *S. viminalis* and the locally scarce almond willow *S. triandra*. The ground beneath is dominated by common nettle and other tall herbs, such as Indian balsam, bittersweet and cleavers *Galium aparine*.

Mammals

The upper Usk supports a strong population of otters. 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* and the rare lesser horseshoe bat *Rhinolophus hipposideros*. Below Brecon there is a thriving population of water vole *Arvicola terrestris*, a species that has undergone a recent marked decline in the UK.

Invertebrates

The invertebrate fauna of the upper Usk has not been well studied but the river supports populations of the Atlantic stream crayfish and the freshwater pearl mussel, both declining species that are specially protected.

The hornet *Vespa crabro* is regularly recorded in Llangynidr Gorge, probably nesting in the dry, sheltered cliff woodland.

Breeding Birds

The upper Usk supports a wide range of breeding bird species that are associated with riparian habitats, including common sandpiper *Actitis hypoleucos*, grey wagtail *Motacilla cinerea*, dipper *Cinclus cinclus*, goosander *Mergus merganser*, and little grebe *Tachybaptus ruficollis*, and a number of species which are scarce in this part of mid-Wales, such as yellow wagtail *Motacilla flava* and little ringed-plover *Charadrius dubius*. Kingfisher *Alcedo atthis* and sand martin *Riparia riparia* nest in earth cliffs and banks produced by the actively eroding river throughout the whole length of the Usk, but particularly on the alluvial plains below Brecon.

Flooded fields in the vicinity of Pencelli attract a wide variety of birds in winter and on passage including wigeon *Anas penelope*, curlew *Numenius arquata*, lapwing *Vanellus vanellus*, jack snipe *Lymocryptes minimum* and green sandpiper *Tringa ochropus*.

Fish

A wide range of fish species occurs in the upper Usk. The upland sections contain native

populations of brown trout *Salmo trutta fario* and provide important spawning areas for Atlantic salmon *Salmo salar*, sea trout *Salmo trutta trutta* and brook lamprey *Lampetra planeri*. Below Sennybridge, species such as chub *Leuciscus cephalus* can be found and minnow *Phoxinus phoxinus*, stone loach *Noemacheilus barbatulus* and bullhead *Cottus gobio* are abundant. A number of rare and scarce migratory species breed in the upper Usk, including sea lamprey *Petromyzon marinus*, which spawn between Abergavenny and Crickhowell and twaite shad *Alosa fallax* and allis shad *A. alosa*, which are believed to spawn in the vicinity of Abergavenny. River lamprey *Lampetra fluviatilis* spawns in the upper reaches, the larvae moving downstream to occupy silt banks in the middle reaches.

Remarks:

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

Atlantic stream crayfish *Austropotamobius pallipes* - Annex II and V
Common otter *Lutra lutra* - Annex II and IV
Atlantic salmon *Salmo salar* - Annex II and IV
Bullhead *Cottus gobio* - Annex II
Twaite shad *Alosa fallax* - Annex II and V
Allis shad *Alosa alosa* - Annex II and V
River lamprey *Lampetra fluviatilis* - Annex II and V
Brook lamprey *Lampetra planeri* - Annex II
Sea lamprey *Petromyzon marinus* - Annex II
Freshwater pearl mussel *Margaritifera margaritifera* - Annex II and V

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

Most of the River Usk (Upper Usk) lies within the Brecon Beacons National Park.

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