

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

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

GWYNEDD

AFON LLUGWY

Date of Notification: 7th September 2012

National Grid Reference: SH 76335783 (north-west)
SH 79255665 (south-east)

O.S. Maps: 1:50,000 Sheet number: 115
1:10,000 Sheet number: SH75NE

Site Area: 35.9ha

Description:

This site is of special interest for its geomorphology and its assemblage of moss and liverwort species.

Afon Llugwy SSSI consists of a 3.5km reach of the Afon Llugwy directly west of the town of Betws y Coed. The site is within the spectacular heavily wooded valley to the south of the Carneddau and east of the Glydeirau and Snowdon, and within the Snowdonia National Park. The Afon Llugwy is a tributary of the Afon Conwy, which has its source below Carnedd Llewelyn north-west of Capel Curig. This stretch of the river includes impressive waterfalls and associated ravines, at Swallow Falls, Miners Bridge and Pont y Pair. The bedrock comprises mudstones and siltstones of the Cwm Eigiau Formation. The site ranges from 30m-120m in altitude and the local region receives about 170-190 rain-days per year, which is relatively wet for the UK.

Afon Llugwy comprises an assemblage of fluvial features which are characteristic of upland rivers, including waterfalls, gorges and rock confined mountain torrents. These landforms are believed to be related to the rejuvenation of the Llugwy which was associated with the headward retreat of the Afon Conwy. This rejuvenation led to increased river erosion in an already glacially and glaciofluvially overdeepened valley and contributed to the development of spectacular gorge sections and waterfalls at Swallow Falls and Miners Bridge. These waterfalls, together with the falls at Pont y Pair in Betws y Coed, represent three major knick points on the Llugwy. Between the steeper sections more typical mountain torrent reaches are well-developed and upstream of Pont y Pair palaeochannels and fossil river cliffs can clearly be seen alongside the river, all of which add to the range of geomorphological interests that gives Afon Llugwy great potential for fluvial research.

The site supports an assemblage of oceanic and nationally scarce mosses and liverworts (bryophytes) which depend on the river flows and damp, shaded conditions along the river's edge. Examples of scarce species include *Grimmia lisae (retracta)* and *Racomitrium macounii*, which grow on rocks in the river where the fluctuating water level inundates them regularly;

Rhynchostegium (Platyhypnidium) lusitanicum, which is found in fast-flowing channels around cascades and is inundated for most of the year; and *Glyphomitrium daviesii*, which occurs on a rock face set above the river at one of only five known localities in Wales. The very diverse oceanic bryophyte flora includes both 'Atlantic' species and species that are concentrated in western Britain. These geographically restricted plants are particularly diverse in the deep, wooded gorges at Swallow Falls and Miners Bridge. These ravines are exceptionally well-suited to the growth of oceanic mosses and liverworts due to the high humidity levels provided by spray and mist from the waterfalls, along with the dense woodland canopy. The geographical location of the site also contributes to the moss and liverwort flora due to the Atlantic, temperate climate which ensures infrequent desiccation and frost, although the Afon Llugwy is notably far east in Wales for such a rich assemblage. Among the most unusual oceanic bryophytes here are the tiny liverworts *Aphanolejeunea microscopica*, *Drepanolejeunea hamatifolia*, *Harpalejeunea molleri* and *Plagiochila exigua*, all of which are more abundant here than at nearby sites.

Remarks:

This site is within the Snowdonia National Park. Part of the site is owned by the Forestry Commission.

The site is a revision to the former Nature Conservancy Council's Geological Conservation Review, a national survey and evaluation of sites of geological and geomorphological interest. The site is described in the GCR volume entitled *Fluvial Geomorphology of Great Britain* (Gregory, 1997).

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