



## South Wales RIGS Group Site Record

### RIGS Description

**SECTION A**

General	South Wales
<b>Site Name:</b> River Edw, Aberedw	<b>File Number:</b> RAW_JRD_15
<b>RIGS Number:</b> 708	<b>Surveyed by:</b> R A Waters and J R Davies
<b>Grid Reference:</b> SO 0806 4730	<b>Date of Visit:</b> 11 <sup>th</sup> October 2010
<b>RIGS Category:</b> scientific, educational	<b>Date Registered:</b>  <b>Owner:</b> Unknown <b>Planning Authority:</b> Powys County Council
<b>Earth Science Category:</b> stratigraphical, sedimentological, palaeontological, structural	
<b>Site Nature:</b> Riverside crags	<b>Documentation prepared by:</b> R A Waters
<b>Unitary Authority:</b> Powys County Council	<b>Documentation last revised:</b> 31 <sup>st</sup> January 2011
<b>OS 1:50,000 Sheet:</b> 147	<b>Photographic Record:</b> Attached
<b>OS 1:25,000 Explorer Sheet:</b> 188	
<b>BGS 1:50,000 Sheet:</b> E196	

**RIGS Statement of Interest:**

The River Edw section at Aberedw is part of a network of sites demonstrating the evolution of the south-east margin of the Lower Palaeozoic Welsh Basin during the mid to late Silurian. It has been proposed as a RIGS as it provides an accessible section in the early Ludlow, Cwm Graig ddu Formation that has a distinctive fossil fauna of inarticulate brachiopods and graptolites.

The section is well known from the geological literature for its fauna and provides an important data point when describing the geological history, sedimentology and palaeontology of the Late Silurian in mid Wales. It shows a range of mudstone rocks with numerous sedimentary structures that provide information on their environment of deposition.

It provides an excellent section for those interested in scientific research into the stratigraphy, palaeontology and sedimentology of the late Silurian, It also provides a good section for students to study mudstones and various fossil groups, including burrows.

### Geological setting/context:

The River Edw section at Aberedw comprises natural cliff and crags in the deeply incised Edw valley near Builth Wells. It provides a very accessible section in the early Ludlow, Cwm Graig ddu Formation. The section is well known for its distinctive macrofauna. The section was first described by Wood (1900) and later in more detail by Straw (1937), who erected a stratigraphy based on a mixture of lithology and fauna. More recently the section has been described in a field guide by Cherns (1993) who has also detailed the paleoecology of the deepwater lingulid fauna associated with graptolites (Cherns 1979; 1988). Since then, the area has been remapped by the British Geological Survey (2005) and a revised lithostratigraphy published (Schofield et al. 2004).

The section is situated in the upper part of the Cwm Graig ddu Formation (the *Lingula lata* Beds of Straw 1937) and exposes c. 5 m of thinly flaggy very silty mudstones with abundant laminae and thin beds of siltstone and sandstone up to 5 mm and locally up to 3 cm in thickness. The sand and silt content is c. 75%. Streaky, parallel and cross-lamination are present in the sands and silts. Scattered small burrows are best seen as dimples on bedding planes and disruption of the sandy laminae in cross-section.

Macrofauna is rare but dominated by brachiopods. Also present is the inarticulate brachiopod *Lingula lata*, a lingulid thought to be a deep water benthonic form as opposed to the normally shallow water species (Cherns 1979; 1988). Both Wood (1900) and Straw (1937) record the graptolite *Saetograptus leintwardinensis* as occurring in abundance on widely spaced bedding planes, but this has not been replicated by later workers including the British Geological Survey (Schofield et al. 2004). The locality may therefore belong to the *leintwardinensis* graptolite Biozone but this needs confirmation.

The Cwm Graig ddu Formation records deposition in a distal shelf environment. The siltstones and sandstones were deposited by low-concentration turbidites and storm-generated event beds. The presence of burrowing confirms oxic bottom conditions but the lack of abundant shelly benthos suggests conditions were somewhat dysaerobic. The presence of abundant graptolites on widely spaced bedding planes suggests the presence of sparse laminated hemipelagites and periodic anoxic bottom conditions. Cherns (1999) has called this biofacies the *L. lata*- *S. leintwardinensis* Association.

An anticlinal flexure is seen on the west side of the footpath leading to the river. Northward directed movement along the axial plane can be observed.

## References:

British Geological Survey. 2005. *Builth Wells. England and Wales Sheet 196, Solid geology, 1: 50 000*. British Geological Survey: Nottingham.

CHERNS, L. 1979. The environmental significance of *Lingula* in the Ludlow Series of the Welsh Borderland and Wales. *Lethaia*, Vol. 12, 35-46.

CHERNS, L. 1988. Faunal and facies dynamics in the Upper Silurian of the Anglo-Welsh basin. *Palaeontology*, Vol. 31, 451-502.

CHERNS, L. 1993. The Silurian of the Wye Valley, south of Builth. 301-310 in *Geological Excursions in Powys*. WOODCOCK, N H and BASSETT, M G. (editors) (Cardiff: University of Wales Press, National Museum of Wales).

CHERNS, L. 1999. Faunal associations of the Lower Leintwardine Formation of the Anglo-Welsh Basin. In: BOUCOT, A J and LAWSON, J D (eds), *Paleocommunities – a case study from the Silurian and early Devonian*. Cambridge University Press, Cambridge, 373-379.

SCHOFIELD, D I, DAVIES, J R, WATERS, R A, WILBY, P R, WILLIAMS, M and WILSON, D. 2004. Geology of the Builth Wells District – a brief explanation of the geological map. *Sheet Explanation of the British Geological Survey. 1:50 000 Sheet 196 Builth Wells*

STRAW, S.H.1937. The higher Ludlovian rocks of the Builth district. *Quarterly Journal of the Geological Society, London*. Vol. 93, 406-56

WOOD, E M R. 1900. The Lower Ludlow Formation and its graptolite fauna. *Quarterly Journal of the Geological Society, London*, Vol. 56, 415-92.

**SECTION B**

<b>PRACTICAL CONSIDERATIONS:</b> Please score Accessibility and Safety Red Amber or Green			
<b>Accessibility:</b>			X
Comment: public footpath leads from Council road to river.			
<b>Safety:</b>		X	
Comment: Bedding planes when wet are slippery and care is needed.			
<b>Conservation status:</b> There are no known conservation designations of this RIGS			

<b>OWNERSHIP/PLANNING CONTROL:</b> <b>Owner/tenant:</b> Not known  <b>Planning Authority:</b> Powys County Council <b>Planning status/constraints/opportunities:</b> Not known
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<b>CONDITION, USE &amp; MANAGEMENT:</b> <b>Present use:</b> None known, but fishing rights should be checked. Otherwise a natural river gorge. <b>Site condition:</b> Natural river gorge with crags on banks, locally partly obscured by saplings, bushes and mosses/ferns. <b>Potential threats:</b> Footpath could be diverted; currently there is no ford or bridge for users to cross the river to the path on the opposite bank. Encroaching vegetation may get worse. <b>Site Management:</b> vegetation should be cleared periodically from selected areas.
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<b>SITE DEVELOPMENT:</b> <b>Potential use (general):</b> <b>Potential use (educational):</b> It is a key section for those interested in scientific research into the stratigraphy, palaeontology and sedimentology of the late Silurian. It also provides a good section for students to study mudstones and various fossil groups.
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<b>Other comments:</b>
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## Photographic Record



General view of river section.



Anticlinal flexure in silt- and sand-striped mudstones.