



## South Wales RIGS Group Site Record

### RIGS Description

#### SECTION A

General	South Wales
<b>Site Name:</b> Ffrwdgrech Moraine	<b>File Number:</b> AH_08
<b>RIGS Number:</b> 728	<b>Surveyed by:</b> AJ Humpage / R Kendall
<b>Grid Reference:</b> SO 04210 27930	<b>Date of Visit:</b> 10 September 2010
<b>RIGS Category:</b> Scientific	<b>Date Registered:</b> Unknown
<b>Earth Science Category:</b> Geomorphological, Sedimentological	
<b>Site Nature:</b> Pasture farmland	<b>Documentation prepared by:</b> AJH
<b>Unitary Authority:</b> Powys CC	<b>Documentation last revised:</b> 6 November 2011
<b>OS 1:50,000</b> Sheet: 160	<b>Photographic Record:</b> See images attached to this report
<b>OS 1:25,000</b> Explorer Sheet: OL 12	
<b>BGS 1:50,000</b> Sheet: 213 (Brecon)	
<p><b>RIGS Statement of Interest:</b> This site forms part of a network of important scientific sites within the South Wales RIGS area associated with ice marginal deposition and possibly ice front stillstand and readvance in glaciated valleys.</p> <p>This site comprises a series of valley side morainic ridges parallel to the long axis of the Tarell valley. Although degraded by agricultural practises and from being bisected by the Brecon by-pass, the ridge forms can be traced at about 150 - 160m OD into the Usk valley. Here, along a byway to the south of the River Usk a small section exposes sediments probably typical of these marginal ridge forms – rounded cobbles and gravel in a silty sandy matrix, with greater evidence of sorting than is typical of till deposits elsewhere in the Usk valley. Above Ffrwdgrech, a meltwater channel flows towards the north-west.</p> <p>As a consequence, this RIGS is considered important as it preserves the remains of a lateral moraine complex associated with a tributary glacier (Tarell) merging into a main trunk glacier (Usk) along with a possible ice marginal drainage system</p>	

**Geological setting/context:**

The glacial evolution of the middle and lower Usk valley is not well understood, but as this area lies on the margin of the Devensian ice sheet, it is increasingly being recognised as an important area to research system responses to environmental change (Carr et al 2007).

Extensive glacial deposits have been mapped (Williams, 1968, Barclay et al. 2005, BGS 2005) and a series of cross-valley morainic features, indicating minor re-advances or stillstands of the ice front have been identified (Lewis and Thomas 2005), following on from work by Elis-Gruffydd (1972, 1977). However, without absolute dating, the exact correlation and chronology of deglaciation is still poorly understood.

Traditionally, the Usk valley glacier was assumed to reach its maximum extent c 20-22ka and to have disappeared, along with the Welsh ice cap by c.16ka (Thomas 1997). However, more recently, doubt has been cast on this model based on dating evidence from the uplands around Abergavenny, which suggests deglaciation may have been initiated earlier than traditionally thought. Coleman and Parker (2007) suggest ice free conditions may be prevailing in the uplands above Abergavenny as early as 19420+/-64 Cal BP, so the ice surfaces in the upstream valleys may have begun to lower by this time also.

The exact nature of the deglaciation of the middle Usk and the decoupling of the main and tributary glaciers in this system are not well understood. Features such as these at Ffrwdgrech may indicate that as the glacial system began to shrink, additional "space" was created between the ice and valley sides where sediments could accumulate, either as lateral moraines or as glacio-fluvial ice contact kame deposits. Whilst it is not currently possible to relate the ridges at his RIGS to cross-valley moraine forms, the sub-parallel ridges may reflect stages in the glacial down-wasting process.

## References:

Barclay, W.J., Davies, J.R., Humpage, A.J. Waters, R.A., Wilby, P.R., Williams, M. and Wilson, D. (2005). Geology of the Brecon district – a brief explanation of the geological map. *Sheet Explanation of the British Geological Survey*. 1:50,000 Sheet 213 Brecon (England and Wales).

British Geological Survey (2005). *Brecon. England and Wales Sheet 213. Bedrock and Superficial Deposits*. 1:50,000. British Geological Survey, Keyworth.

Carr, S.J., Coleman, C.G., Humpage, A.J. and Shakesby, R.A. (2007). *Quaternary of the Brecon Beacons: Field Guide*. Quaternary Research Association, London.







Elis-Gruffydd, I.D. (1972). *The Glacial Morphology of the Upper Usk Basin (South Wales) and its right-bank Tributaries*. Unpublished Ph.D. Thesis. University of London.

Elis-Gruffydd, I.D. (1977). Late Devensian glaciation in the Upper Usk Basin. *Cambria*. 4 46-55.

Lewis, C.A. and Thomas, G.S.P. (2005) The Upper Wye and Usk Regions. In: C.A. Lewis and A.E. Richards (Eds). *The Glaciations of Wales and Adjacent Regions*. Logaston Press, Logaston, Herefordshire.

Thomas, G.S.P. (1997). Geomorphology of the Middle Usk valley. In: S.G Lewis and D. Maddy (Eds). *The Quaternary of the South Midlands and Welsh Marches: Field Guide*. Quaternary Research Association, London.

**SECTION B**

<b>PRACTICAL CONSIDERATIONS:</b> Please score Accessibility and Safety Red Amber or Green			
<b>Accessibility:</b>			<b>X</b> 
Comment: Easily viewed from minor roads. Otherwise, permission will be required.			
<b>Safety:</b>			<b>X</b> 
<b>Conservation status:</b> The RIGS is adjacent to the River Usk and River Usk (Tributaries) SSSI's. The site is within the Brecon Beacons National Park, otherwise there are no other known conservation designations on this RIGS.			

<b>OWNERSHIP/PLANNING CONTROL:</b> <b>Owner/tenant:</b> Unknown / various <b>Planning Authority:</b> Brecon Beacons National Park Authority <b>Planning status/constraints/opportunities:</b> There are no known planning constraints or opportunities
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<b>CONDITION, USE &amp; MANAGEMENT:</b> <b>Present use:</b> Farmland <b>Site condition:</b> Good <b>Potential threats:</b> Possible redevelopment pressure for housing etc., particularly in areas north of the bypass. <b>Site Management:</b>
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<b>SITE DEVELOPMENT:</b> <b>Potential use (general):</b> detailed scientific research and geomorphological mapping, would benefit this site <b>Potential use (educational):</b> Good accessible site to view morainic deposits School nearby.
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<b>Other comments:</b>
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## Photographic Record



View looking south-east across Ffrwdgrech moraine with possible meltwater channel in foreground between morainic ridges



Exposure of possibly water sorted morainic material including rounded clasts exposed in minor road cutting on northern approach to bypass bridge at [SO 304211 227935]



Brecon bypass cutting cuts across morainic ridge feature – view from minor road bridge looking west