



South Wales RIGS Group Site Record

RIGS Description

SECTION A

General	South Wales
Site Name: Llywel & Twyn-y-felin	File Number: AH_16
RIGS Number: 732	Surveyed by: AJ Humpage
Grid Reference: SN 87280 30090	Date of Visit: 16 February 2011
RIGS Category: Scientific	Date Registered: Unknown
Earth Science Category: Stratigraphical, Sedimentological	
Site Nature: Exposure	Documentation prepared by: AJH
Unitary Authority: Powys CC	Documentation last revised: 19 August 2011
OS 1:50,000 Sheet: 160	Photographic Record: See images attached to this report
OS 1:25,000 Explorer Sheet: OL12	
BGS 1:50,000 Sheet: 213 (Brecon)	

RIGS Statement of Interest: This site forms part of a network of important scientific sites within the upper Usk valley that span the Late Glacial – Interglacial Transition.

Llywel is a small hamlet at [SN 870 300] in the valley of the Nant Gwydderig. It lies on the watershed between the Usk and Tywi catchments. The valley at this location is wide and flat-bottomed and mapping (BGS2005) suggested much of the valley floor was covered by Late Glacial and Holocene deposits. The depositional environment was greatly influenced by the formation of alluvial fans issuing from tributary valleys of Cwm Gwydderig and Cwm Bronnydd on the northern flank of the valley. The village of Llywel itself is built on one such feature, the low angle fan is quite distinct when viewed from the main A40 road. The impounded lake has infilled to form a bog.

At Twyn y felin [SN 873 301] a section exposes sand and gravel, with a distinct lower facies of reddish brown, medium- to coarse-grained bedded sand with some gravel overlain by a rubbly facies with distinctive pods of sediment. The upper part of the section is characterised by steeply dipping beds of sediment delineated by lenses of coarse gravel. This section is interpreted as an ice-marginal glaciofluvial ice contact deposit in its lower half, with saturated debris flowing off the valley sides possibly into a standing body of water. The upper half of the section is more indicative of a steep sided fan gravel deposit, and this may be suggestive of an earlier phase of fan aggradation prior to the formation of the large low angle fan upon which Llywel is built. The slope has been subsequently modified by mass movement processes, most probably solifluction under periglacial conditions.

Geological setting/context:

Much of the upper slopes of the valley are mantled by glacial Till, which is typically dominated by red clay and silt matrix derived from the Raglan Mudstone, which underlies much of this area. Clasts are predominantly Old Red Sandstone, but there is also some material derived from a probably central Wales source implying overtopping of the Epynt escarpment by mid-Wales ice to the north (Barclay et al. 2005).

The Twyn-y-felin section is interpreted as an ice-marginal glaciofluvial ice contact deposit in its lower half, with saturated debris flowing off the valley sides possibly into a standing body of water. The upper half of the section is more indicative of a steep sided fan gravel deposit, and this may be suggestive of an earlier phase of fan aggradation prior to the formation of the large low angle fan upon which Llywel is built. The slope has been subsequently modified by mass movement processes, most probably solifluction under periglacial conditions.

Multiple fan development phases is reinforced by the dissected fan surface in the north-eastern part of the RIGS area.

Between Trecastle and Llywel is a basin in which is situated the bog of Y Gors [SN 875 297]. Anecdotal evidence from the landowner suggested that Y Gors was a wet mire with standing bodies of water until well into the 1930's, but drainage was attempted to create improved grazing in the immediate post-war period. However, much of the area remains poorly drained and there is evidence of springs upwelling in the centre of the mire.

Preliminary investigation indicated that this area is a ponded alluvial basin, possibly dammed by the Llywel alluvial fan to the west, and subsequently filled with Holocene alluvium and alluvial fan deposits which are predominantly sand and gravel, overlain by up to 75cm of soft clay and a modern thick peaty vegetation mat.

This collection of sites highlight the transition from high sediment loads and water discharges at the end of the last ice age into organic rich sedimentation during the Holocene, with some dissection of earlier deposits as water courses adjusted to new base levels and discharge regimes.

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 Explantion of the British Geological Survey*. 1:50 000 Sheet 213 Brecon (England and Wales).

British Geological Survey (2005). *Brecon. England and Wales Sheet 213.Solid and Drift Geology*. 1:50,000. British Geological Survey, Keyworth, Nottingham.

Humpage, A.J. (2007). Llywel. In: S.J. Carr, C.G. Coleman, A.J. Humpage and R.A. Shakesby (Eds). *The Quaternary of the Brecon Beacons: Field Guide*. Quaternary Research Association, London. P.95-97.

SECTION B

PRACTICAL CONSIDERATIONS:

Please score Accessibility and Safety Red Amber or Green

Accessibility:



Comment: Private Property. The site is accessible with permission from the landowner

Safety:



Unconsolidated near vertical section at Twyn-y-felin may be prone to material falling. Y Gors is a bog with some deep areas.

Conservation status:

Part of Y Gors bog is scheduled as a SSSI, and the RIGS is partly within and partly beyond the boundary of the Brecon Beacons National Park.

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Private Property

Planning Authority: Powys County Council / BBNPA

Planning status/constraints/opportunities: There are no known planning constraints or opportunities

CONDITION, USE & MANAGEMENT:

Present use: Pastureland and rough grazing

Site condition: Generally good.

Potential threats: Section at Twyn y felin may be regarded for stability

Site Management: Section at Twyn y felin may require maintenance.

SITE DEVELOPMENT:

Potential use (general): An important in situ section showing ice contact deposits.

Potential use (educational): Good accessible site.

Other comments:

Photographic Record



Glacio-fluvial ice contact section at Twyn y felin



Section shows bedded sands and gravels which have then been disturbed by collapse structures and faulting. The upper part of the section shows evidence of mass movement processes



Pod of sediment from debris flow?

Faults