



South Wales RIGS Group Site Record

RIGS Description

SECTION A

General	South Wales
Site Name: Sychnant	File Number: AH_10
RIGS Number: 730	Surveyed by: A J Humpage
Grid Reference: SN 9905 4186	Date of Visit: 16 th February 2011
RIGS Category: Scientific	Date Registered:
Earth Science Category: Stratigraphical, Sedimentological	Owner: MOD Defence Estates Planning Authority: Powys County Council
Site Nature: Exposure	Documentation prepared by: Adrian Humpage
Unitary Authority: Powys County Council	Documentation last revised: 19 th August 2011
OS 1:50,000 Sheet: 147	Photographic Record: Attached
OS 1:25,000 Explorer Sheet: 188	
BGS 1:50,000 Sheet: E196	
<p>RIGS Statement of Interest: This site forms part of a network of important scientific sites within the South Wales RIGS area defining the stratigraphy of the Old Red Sandstone.</p> <p>This is the only location where the Bishop's Frome Limestone member (formerly termed the <i>Psammosteus</i> Limestone) is readily accessible and in situ (blocks are also present at Groesffordd east of Brecon displaced from a road cutting). The RIGS comprises two small outcrops either side of a fenceline adjacent to the Epynt Way, a permissive bridlepath created by MOD Defence Estates, together with a distinct slope feature which denotes the crop of the limestone Member.</p> <p>Despite its name, the Bishop's Frome Limestone is not a true sedimentary limestone but is a calcrete, formed by soil processes. It is formed as a result of climatic fluctuations in arid and semiarid regions. Calcite is dissolved in groundwater and, under drying conditions, is re-precipitated as the water evaporates at the surface. Rainwater saturated with carbon dioxide acts as an acid and also dissolves calcite and then redeposits it as a precipitate on the surfaces of the soil particles; as the interstitial soil spaces are filled, an impermeable crust is formed a few metres below the surface.</p>	

Geological setting/context:

The Bishops Frome Limestone Member defines the top of the Upper Silurian (Pridoli) Raglan Mudstone Formation. The Raglan Mudstone Formation is a red bed sequence deposited on a broad mud-dominated alluvial plain on the coastal margins of Laurussia, the Old Red Sandstone Continent, formed following the closure of the deep water Welsh Basin with the collision between the micro-continent of Avalonia/Baltica and Laurentia.

The collision resulted in the Caledonian/Appalachian mountain chain to the north, and these mountains supplied the sediment to the coastal plain, which was in a semi-arid environment approximately 30 degrees south of the equator.

The development of the calcrete, which is approximately 3m in thickness, indicates a long period of surface stability c.419 Million years ago, without the migration of river systems to either erode the calcrete or deposit younger sediments which would have resulted in the upward migration of the soil profile.

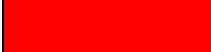





The name "*Psammosteus* Limestone" is derived from the *Psammosteidae* – a family of flattened, sea-floor dwelling, jawless fish that lived in shallow marine and estuarine environments in Europe, Russia and North America. This rock unit was named after this family of fish because their fossils are absent in the older rocks below, but are much more abundant in the overlying younger rocks, so the calcrete is an important geological "marker". The *Psammosteidae* evolved in the early Devonian and were covered with hard bony scales. The earliest (and best known) genus was called *Drepanaspis* and was about 50cm long, but some of the Late Devonian genera, such as *Psammolepis* grew to be at least two metres in length. The *Psammosteidae* all died out in an extinction event at the very end of the Devonian. It is very rare to find intact fossils, but individual scales can be found in the rocks of the Epynt.

References:

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

SCHOFIELD, D I. DAVIES, J R, WATERS, R A , 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 (England and Wales)*.

SECTION B

PRACTICAL CONSIDERATIONS: Please score Accessibility and Safety Red Amber or Green			
Accessibility:			X 
Comment: The site is within the Sennybridge Army Training Area (SENTA) but is accessible by foot and horseback only along the waymarked permissive Epynt Way bridlepath.			
Safety:		X 	
Do not pick up any military equipment. Do not enter adjacent military training buildings.			
Conservation status: There are no known conservation designations on this RIGS.			

OWNERSHIP/PLANNING CONTROL: Owner/tenant: MOD Defence Estates Planning Authority: Powys County Council Planning status/constraints/opportunities: There are no known planning constraints or opportunities

CONDITION, USE & MANAGEMENT: Present use: Pastureland Site condition: Generally good, but some outcrop within sheep holding pen.. Potential threats: None known Site Management: additional outcrop could be exposed.
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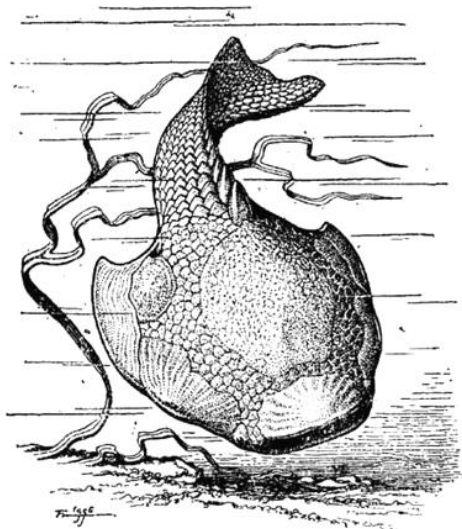
SITE DEVELOPMENT: Potential use (general): An important in situ location to see Bishops Frome (Psammosteus) Limestone. Potential use (educational): Good accessible site with interpretation panel in place..
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Other comments:

Photographic Record



Outcrop of Bishops From Limestone Member, with group whilst recording BBC Radio Wales "Weatherman Walking" programme with Derek Brockway



Reconstruction of a Psammosteid bony fish, disarticulated plates of which can be found at this stratigraphic level.

