South Wales RIGS Group Site Record
RIGS Description

SECTION A

General	South Wales
Site Name: Lancaut (River Wye)	**File Number:** Site_GOCCW_02
RIGS Number: 788	**Surveyed by:** Gareth Owen
Grid Reference: ST 5320 9650	**Date of Visit:** 24th June 2010
RIGS Category: Aesthetic, educational, scientific	**Date Registered:**
Earth Science Category: Geomorphology, fluvial	**Owner:** Unknown **Planning Authority:** Monmouthshire/ Gloucestershire
Site Nature: Large incised river meander	**Documentation prepared by:** Gareth Owen
Unitary Authority: Monmouthshire/ Gloucestershire	**Documentation last revised:** 15th March 2011
OS 1:50,000 Sheet: 162	**Photographic Record:** Attached
OS 1:25,000 Explorer Sheet: OL14	
BGS 1:50,000 Sheet: E250	

RIGS Statement of Interest:

The lower Wye between Ross and Chepstow has the best examples of incised meanders in Wales. These large valley meanders are spectacular features which have developed in a complex manner over a long period of geological time. The Lancaut meander is a classic example of this phenomenon.

A river usually only forms meanders when it is moving across a large, flat floodplain. The Lancaut meander therefore suggests that the lower Wye was once in such a setting, but that something has subsequently changed this situation dramatically. The deeply incised river valley seen today, with near vertical river cliffs, formed when the uplift of land caused the once meandering river to suddenly start eroding downwards along its course. The meander shape therefore got "frozen", and the river's energy became focussed on vertical erosion rather than lateral meandering. This act of revitalising a river to have much greater power to erode downwards is called rejuvenation.

Superimposed upon this ancient pattern of rejuvenation is a much more recent step in the opposite direction. Melting ice caps at the end of the last glacial period have submerged the Wye Valley downstream of Chepstow, and pushed tidal waters up as far as Bigsweir. As a result the downwards erosion of the river has slowed, and widening of the valley has been accelerated – a reverse of the previous process.

Geological setting/context:

Whilst there has been little recent research on the incised meanders of the lower Wye, the area provides valuable evidence for long-term landscape evolution. Whereas usually a river's course will be dictated by contrasting hard and soft rocks and structural weaknesses such as faults, the current shape of the Wye valley around Lancaut shows no regard for such things. This is thought to be because the river's current meandering nature originated when the river flowed over much younger (Mesozoic) rocks, now long eroded away. Indeed, there is evidence of at least three stages of erosion in this section of the river;

i) the 900ft (275m) plateau, which lay at an elevation above any seen in most of the immediate area today and probably dates to late Palaeozoic and early Mesozoic times;

ii) the 500ft (150m) stage – with a much smaller but better preserved plateau (e.g. the Tidenham Chase and the Forest of Dean), and from which level the Wye started to incise rapidly, and;

iii) the 250ft (75m) stage, preserved as benches in the meander cores, as preserved in the core of the Lancaut meander.

It is suggested by Miller (1935) that, whilst the 500ft stage represents the point at which the Wye started to significantly incise, this stage could not represent the level of the original floodplain, as it is far too small in area. Instead it is hypothesised that the 900ft plateau represents the original floodplain, and that this would have extended across a Triassic and perhaps Jurassic land surface. Uplift of the plateau then led to the complete removal of all but small remnants of these strata, and the start of the river's downwards incision. Such incision then paused at the 500ft level before resuming much more rapidly. There was then another hiatus in uplift/ incision with the river 60m above its current level – the 250ft plateau. This plateau can be seen as a distinct bench in the core of both Lancaut and Liveoaks meanders, with steeper north (upstream) slopes and shallower south (downstream) slopes.

A final phase of incision due to uplift then occurred, followed by much more recent submergence of the lower reaches due to the melting ice caps following the last glacial period.

The spectacular gorge at Lancaut provides invaluable evidence in helping to reconstruct the development of the landscape of the region since late Palaeozoic times, and is a much underused scientific resource in this regard.

References:

GREGORY, K J. (Ed.) 1997. *Fluvial Geomorphology of Great Britain. Geological Conservation Review Series Volume 13*. Chapman and Hall

MILLER, A A. 1935. *The entrenched meanders of the Herefordshire Wye*. Geological Journal, 85, 160-78

SECTION B

PRACTICAL CONSIDERATIONS:
Please score Accessibility and Safety Red Amber or Green

Accessibility:			X

Comment: Numerous footpaths criss-cross the western and eastern banks of the Wye, but landowner permission is required to access the shores of the Wye along much of its length.

Safety:			X

Comment: Uneven ground, steep slopes and cliffs present a potential hazard, but access is generally safe.

Conservation status: The River Wye at Lancaut is registered as a Geological Conservation Review site, and as such is a proposed SSSI. The majority of the site on the Welsh (western) bank lies within already notified SSSIs (Pierce, Alcove and Piercefield Woods SSSI and Blackcliff-Wyndcliff SSSI) whilst the River Wye itself is also notified as SSSI (River Wye (Lower Wye) SSSI). None of these SSSIs include the geomorphology as a feature, and so registration of the site as a RIGS will provide awareness of its importance until such time as the SSSIs are renotified to include it.

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Unknown

Planning Authority: Monmouthshire County Council and Forest of Dean District Council

Planning status/constraints/opportunities: The site already has information boards associated with nature reserves on the English bank, and would benefit from a geomorphological interp board. No constraints or outstanding planning cases known.

CONDITION, USE & MANAGEMENT:

Present use: Woodland, river and pasture

Site condition: Excellent

Potential threats: None

Site Management: None

SITE DEVELOPMENT:

Potential use (general): The site is a beautiful stretch or river gorge with spectacular views of the geomorphology with regular walkers and rock climbers. Potential for interpretation is good. This is also a much underused scientific resource.

Potential use (educational): The site is an excellent resource for all levels of education, from school up to post-graduate.

Other comments:

Photographic Record

Photograph 1: Looking north from Wintour's Leap. The 250ft plateau can be seen in the core of Lancaut meander in the background, with Lancaut Farm sitting atop it.

Photograph 2: General view of the site form Wintour's Leap looking north

Photograph 3: Looking upstream toward the apex of Lancaut meander viewed from the English (eastern) bank