

LANDIMORE, CHERITON AND RYER'S DOWN

VARIED LANDSCAPES OF NORTH GOWER

Discover geology and landscape: walking trails in rural Swansea

6 KM
3 HOURS
GPS COMPATIBLE

START GRID REF. SS 46446 93532

at the end of the road through Landimore, which is served by buses to Burry Green. The parking area and the path to B may flood at very high tides, usually in the morning and evening.

PATH CONDITIONS

The trail follows marked paths that may be muddy. There is a steep ascent after D and a steep descent after G; both are avoided by the shorter option.

SCRATCHING THE SURFACE



CRAFU'R WYNEB

LANDIMÔR, CHERITON A RYER'S DOWN

TIRWEDDAU AMRYWIOL GOGLEDD GŴYR

Darganfod daeareg a thirwedd: llwybrau cerdded yn ardal Abertawe

6 KM
3 AWR
YN CYDWEDDU
Â GPS

MAPS

Ordnance Survey 1:50,000 map 159 (Swansea & Gower)
1:25,000 Explorer map 164 (Gower)
Geological Survey 1:50,000 Sheet 247 (Swansea)

REFRESHMENTS
Llanmadoc

SAFETY

Take care on roads. Grid references are for guidance only. Follow the Countryside Code (<http://naturalresourceswales.gov.uk>) and the Geological Fieldwork Code (www.rockwatch.org.uk/geological_code). Respect people, protect the environment and stay safe. Wear sensible clothing and footwear.

FURTHER INFORMATION

Local walking groups www.swansea.gov.uk/walking
Local geology www.swga.org.uk
For junior geologists www.rockwatch.org.uk
Geology and geological maps www.bgs.ac.uk
Gower Society www.thegowersociety.org.uk
National Trust www.nationaltrust.org.uk
Wildlife Trust www.welshwildlife.org

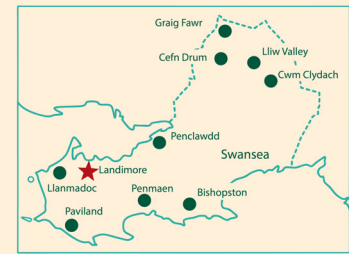
The Geology of South Wales: A field guide by Gareth T. George (gareth@geoserv.co.uk, 2008)

A Guide to Gower edited by Don Strawbridge and Peter J. Thomas (Gower Society, 1999)

Text and images: Geraint Owen, Siwan Davies (Swansea University)
Welsh translation: Dyfed Elis-Gruffydd
Design: iconcreatedesign.com



Look for other trails in this series!



SCRATCHING THE SURFACE



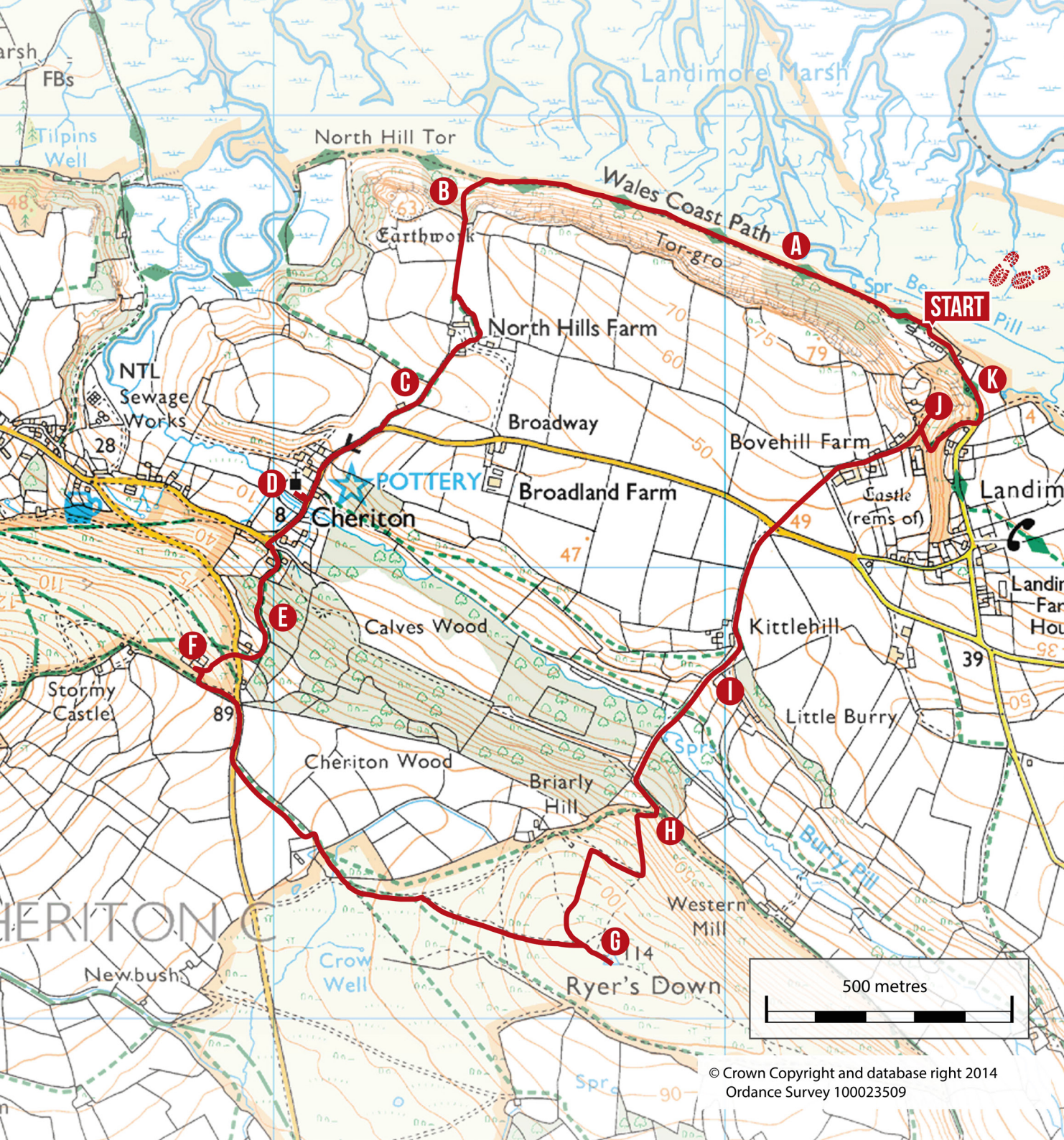
CRAFU'R WYNEB

Discover geology and landscape: walking trails in rural Swansea

Darganfod daeareg a thirwedd: llwybrau cerdded yn ardal Abertawe

© 2015 Geraint Owen and Siwan Davies (Swansea University)
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<http://geography.swan.ac.uk/scratchingthesurface/>





Go through the gate towards Landimore Marsh and walk 300 metres along the Wales Coast Path to a point near a creek and an old boat. [0.3 km; SS 46162 93672]

A The stones on the track are limestone. Many pieces contain fossils of animals such as corals, brachiopods and echinoderms. They show that Gower was covered by a shallow tropical sea when they were alive in the early Carboniferous period, 350 million years ago. Conditions have changed since then because plate tectonics has caused Britain to drift northwards at about the speed your fingernails grow.



Coral



Brachiopod

The stones come from the Carboniferous Limestone beneath the wooded slopes to your left. Crags along the path show layers, or beds, tilted about 45 degrees to the north (right). They represent successive positions of the sea floor as several thousand metres of sediment built up over tens of millions of years. The horizontal beds were tilted when plate movements squeezed the rocks 300 million years ago. Erosion since then has formed today's landscape.

The limestone here has been quarried, but before the marshes built up, the sea eroded the north Gower coast, forming cliffs. The marshes protect the cliffs, allowing woodland to become established. You can see the old cliff line beneath Weobley Castle and beyond.



Old cliff line

Continue along the track for a further 700 metres to a signpost. Turn left, leaving the Coast Path, and follow a path that winds up a wooded valley to a fence. [1.1 km; SS 45419 93817]

B Limestone crags are visible between the trees. When rocks deform, they fracture and slip along faults. Shattered rocks near a fault are weaker than those on either side. This narrow valley has been eroded along a fault.

Follow the fence up the valley to a gate. Continue towards North Hills Farm. Follow markers through the farm, first left, then right between buildings, then left along a track downhill. Stop at a gate where a path comes in from the right and view the field ahead. [1.6 km; SS 45352 93403]



Glacial meltwater channel

C This broad field slopes down the way you are heading. The sides are steep, but no stream flows along it. In the last 2 million years, warm interglacial conditions (like now) have alternated with cold glacial episodes when most of Gower was buried beneath glaciers. The last cold episode happened about 20,000 years ago. The shape of this dry valley is typical of a channel cut by glacial meltwater, either at the edge of a glacier or beneath the ice.

Continue down the lane to the road. Walk carefully down the road to the medieval Church of St Cadog. [2.0 km; SS 45055 93173]



St Cadog's Church

D The church has a mix of building stones. Most blocks in the walls are grey Carboniferous Limestone like you saw at A but some are made of rounded pebbles firmly cemented together; you will see this rock at E. The window surrounds are a limestone from the Cotswold hills that is more easily cut and carved. The roof is covered with slate, a metamorphic rock that may have come from North Wales. Many other rocks are present in the churchyard.

For the short trail, turn left out of the churchyard, then right towards Bridge Pottery. Follow marked paths towards Stembriage for 1 km to a junction. Turn left and resume the trail between H and I. The main trail turns right from the church and crosses the river (Burry Pill). Where the road turns right, go left along a marked path uphill, curving right into woodland. Stop where the path curves left. [2.3 km; SS 45016 92888]

E The blocks on the path are the white rock with rounded pebbles you saw at D. This is conglomerate. It formed from gravel swept here by large rivers about 400 million years ago. It is part of the Old Red Sandstone, which is beneath the Carboniferous Limestone in the rock succession. It is very resistant to erosion, and the hill you are climbing is the expression in the landscape of the contrast between Carboniferous Limestone in the valley and Old Red Sandstone forming Llanmadoc Hill.



Conglomerate

Continue up the path. At the top it curves right and meets a road. Carefully cross this to a grassy path ahead leading to a walled enclosure. [2.6 km; SS 44850 92794]

F These are the remains of Llanmadoc School. Blocks of conglomerate show that the underlying rock is Old Red Sandstone. It is a lovely spot to view the wooded spit of Whiteford Point at the mouth of the Loughor estuary. As the climate warmed after the last glacial episode, pauses in the retreat of the ice led to the build-up of sediment at its margins, forming moraines. Whiteford Point has formed on a moraine and has allowed sediment to build up in its sheltered lee, forming the marshes. They are flooded by the sea at very high tides and drained by a network of creeks.



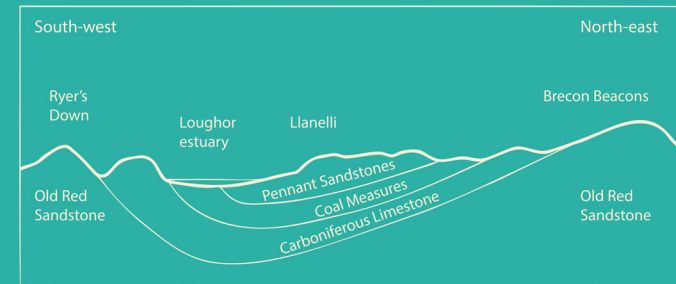
Whiteford Point

Turn right from the school entrance, then left along a track to the road. Turn right and after 150 metres cross a stile on the left. Keep to the right of the hedge across the field. At the end, cross a stile, turn right, cross another stile and continue over two small bridges to a track. Turn left for 50 metres then follow a grassy path on the right to the top of Ryer's Down. Turn right to the trig point. [3.9 km; SS 45748 92128]

G Blocks of conglomerate show that, like Llanmadoc Hill, Ryer's Down is underlain by Old Red Sandstone, as are all the high parts of Gower, including Cefn Bryn, Rhossili Down and Hardings Down. Old Red Sandstone drains less well than limestone and typically forms open grazing land. The patchwork of fields on lower ground is typical of areas of Carboniferous Limestone. This relationship is explored in a Scratching the Surface trail at Llanmadoc.



Looking across the Loughor estuary



Across the Loughor Estuary you can see Llanelli and Burry Port and perhaps even the Brecon Beacons. The squeezing that tilted the rock layers 300 million years ago formed a bowl-shaped fold, the South Wales Coalfield syncline. Erosion has planed through this, exposing the youngest rocks in the centre - the coal-bearing rocks beneath the Loughor Estuary and Llanelli - and older rocks to the north and south. The Brecon Beacons are made of Old Red Sandstone, like Ryer's Down, but Old Red Sandstone lies several kilometres beneath the ground at Llanelli, covered by Carboniferous Limestone and coal-bearing rocks.

Carboniferous Limestone forms the ridge beyond Burry Pill, which you crossed at North Hills Farm. Thick rock units are not uniform throughout. The lowest (southernmost) part of the Carboniferous Limestone - the Lower Limestone Shale - is easily eroded and has been carved out by the Burry Pill to form the valley. Beyond Cheriton the river turns abruptly north towards the estuary, picking out weak rocks along a fault, like the valley at B.

Retrace your steps for 40 metres then bear right along a path down through bracken, gorse and invasive rhododendron to a gate in the north corner of the open land. [4.3 km; SS 45906 92417]

H The steep north side of Ryer's Down, like the slope you climbed at E, shows the differential erosion of Old Red Sandstone and Lower Limestone Shale. Most blocks on the path here are conglomerate, but look out for pieces of limestone as you continue.

Follow the path down through woodland to the ancient packhorse bridge across the Burry Pill. Continue ahead, crossing the path from Cheriton. Continue uphill for 100 metres until you see bedded (layered) rock on the ground. [4.7 km; SS 45974 92773]



Calcite crystals

I This is Carboniferous Limestone. Many patches have a blocky appearance and are white and shiny when clean. These are crystals of calcite, the crystalline form of calcium carbonate. The path follows another fault, along which calcite crystals grew in the spaces between broken pieces of limestone while they were buried. The calcium carbonate came from the dissolution of fossil shells under pressure.

Continue up the lane. At the houses, turn left along a track. Carefully cross the road and a stile opposite. Cross the field to another stile. Cross this and follow the track to the left of the buildings, emerging onto open land at a gate. Where the marked path turns sharply right, continue ahead for 50 metres to a small rocky summit. [5.5 km; SS 46492 93355]

J Craggy hills like this are called tors on Gower. The rock is Carboniferous Limestone and you can see beds dipping to the north. Some of the hollows are due to quarrying. Fossils are hard to find because the rock is covered with lichens.



Dipping limestone beds

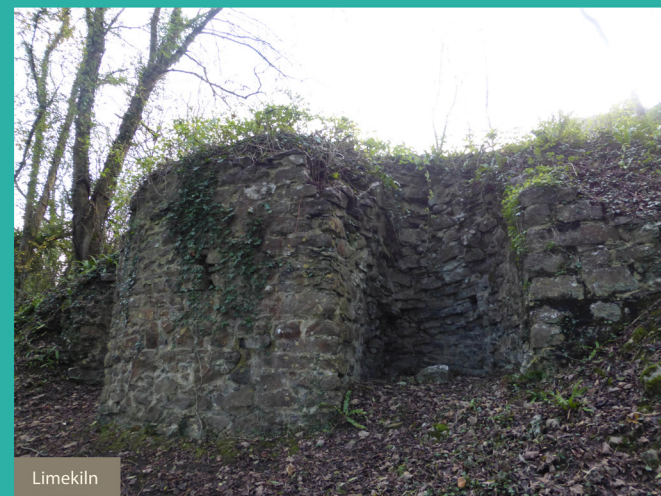
There is a wonderful view over the marshes with their maze of pools and drainage channels, or pills. Sediment has built up in the Loughor Estuary in the last 11,500 years: the Holocene epoch. Because of their funnel-like shapes, the Loughor Estuary and Bristol Channel have one of the largest tidal ranges in the world. High and low tides each occur twice a day, with a difference in water level often exceeding 10 metres. A vast amount of water has to enter and leave the estuary to achieve this, and strong tidal currents shift sand and mud around the estuary.



Llanrhidian marsh

Return to the bend in the path. Keep left of the cottage and turn left again, down to the road. Turn left for 60 metres to a stone structure on the left. [5.8 km; SS 46548 93412]

K This is an old limekiln, where blocks of limestone from local quarries were burnt with coal, converting limestone (calcium carbonate) into quicklime (calcium oxide). Quicklime was used for mortar, plaster and limewash, but mainly as a soil improver, particularly in areas underlain by sandstone and mudstone with acidic soils. Limestone quarrying and lime burning show that Landimore has not always been the quiet village it is today.



Limekiln

Continue carefully down the road for 150 metres, passing houses to return to the start point alongside the marsh.

FINISH

