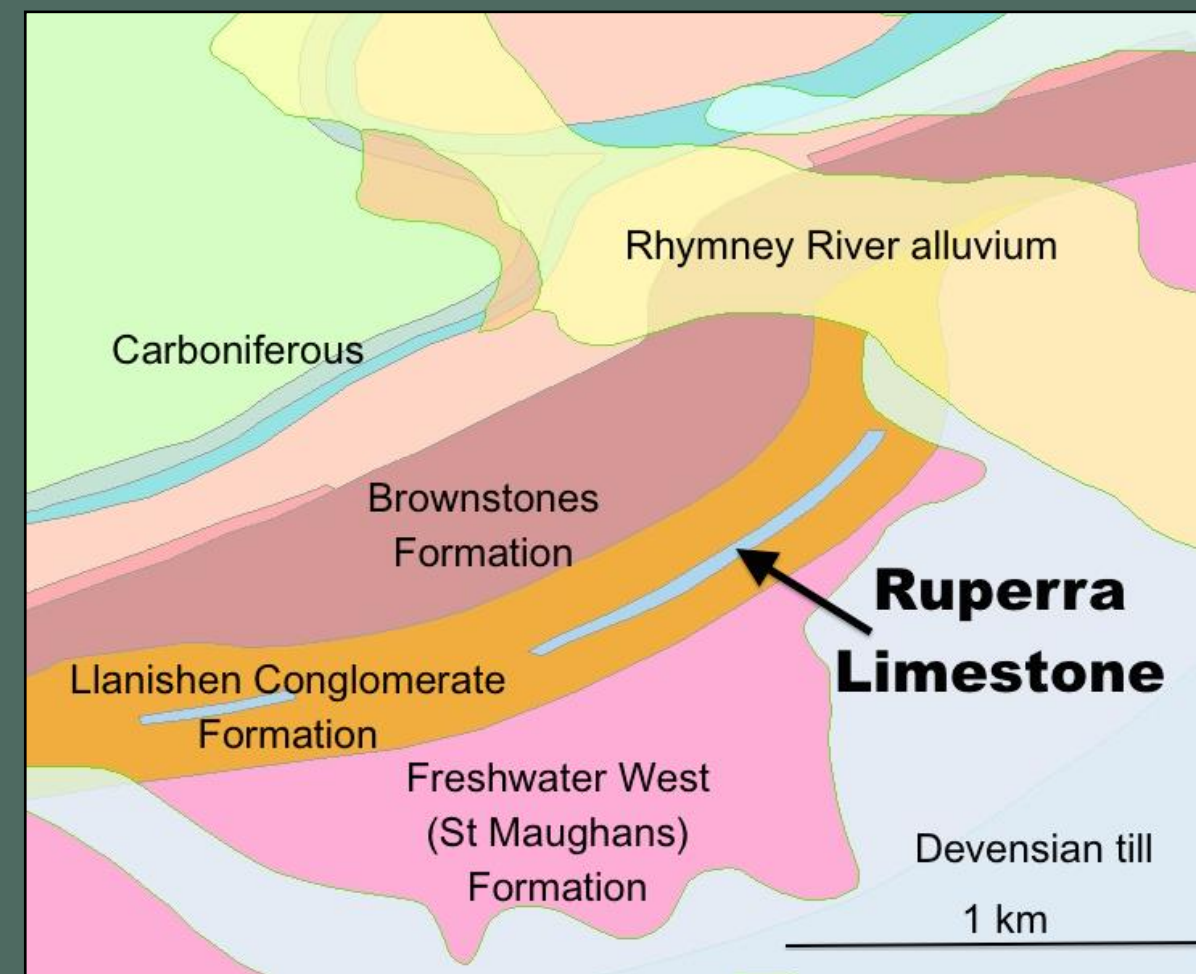
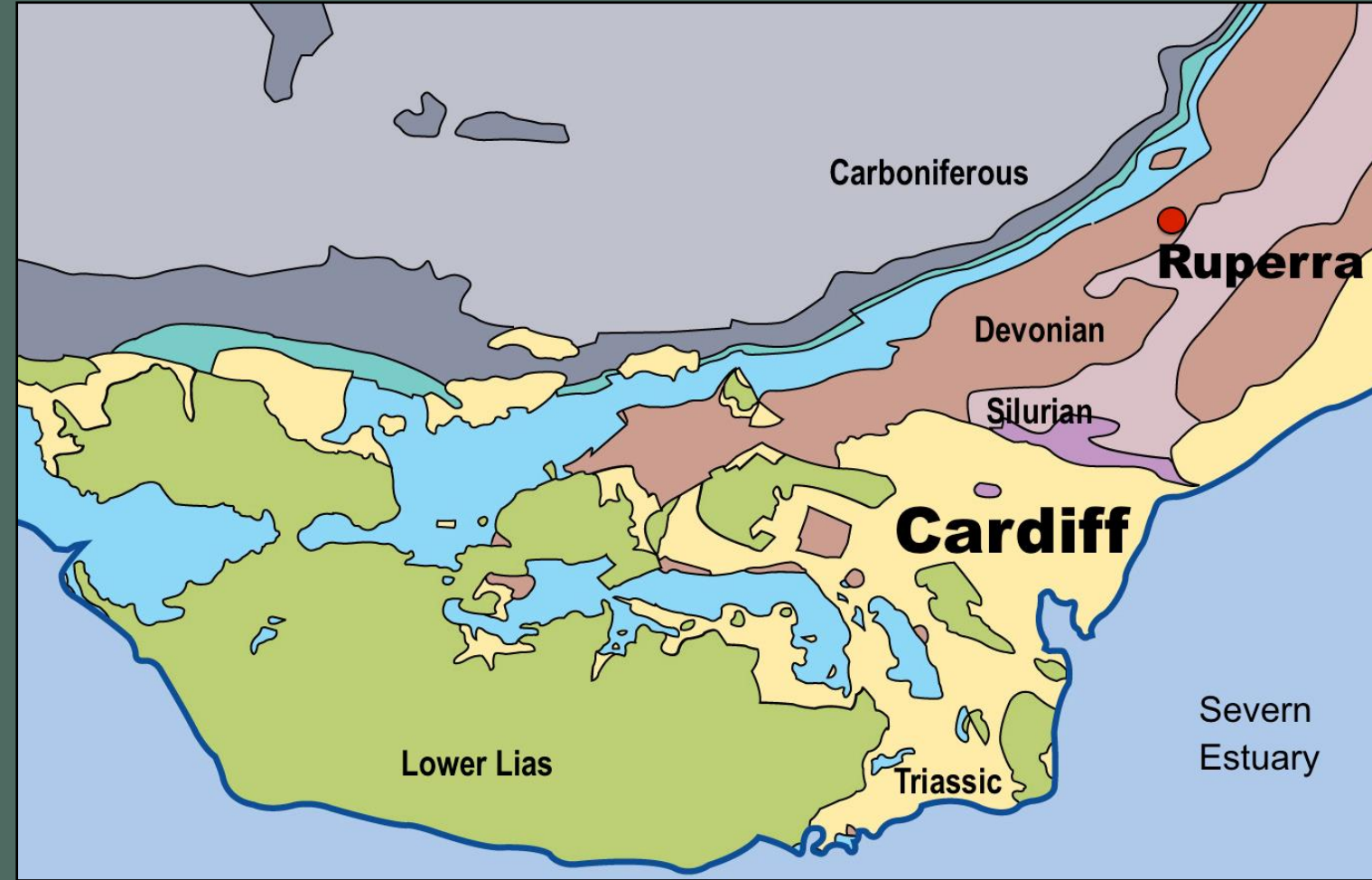




Lower Devonian Ruperra Limestone



During a RIGS survey of SE Wales in 2009, a potential site was identified along the outcrop of a limestone bed within the Devonian Lower Old Red Sandstone about 10 km NE of Cardiff city centre. Here on the the southeastern edge of the South Wales Coalfield syncline, the beds dip at about 35° towards the northwest. The terrestrial Old Red Sandstone in this area contains several limestone (calcrete) beds, one of which, the Bishops Frome Limestone, marks the Silurian-Devonian boundary. The Ruperra Limestone lies about 450 metres above this horizon within the Llanishen Conglomerate Formation between the mudrocks of the Freshwater West (St Maughans) Formation below and the sandstones of the Brownstones Formation above.

Although the Brownstones and the Freshwater West Formation continue around the East Crop of the coalfield to its northern side (where the Brownstones form the steep north-facing scarp of the Brecon Beacons), the Llanishen Conglomerate is restricted to the Cardiff area. The pebbles and cobbles of the conglomerate include acid to intermediate volcanic rocks, lithic sandstones and quartzites and are thought to have been derived from a Bristol Channel Landmass to the south. Within the 150 metre-thick Llanishen Conglomerate is the Ruperra Limestone Member, 6 metres of grey-white nodular limestone.

The Ruperra Limestone is even more limited in extent, cropping out over a distance of only about three kilometres. For most of this distance it forms a low scarp and has been quarried in several places for the production of agricultural lime.



Ruperra Limestone potential RIGS site, November 2009



Tree-cutting by Ruperra Conservation Trust staff, April 2014



Site clearance, April 2014



Site at March 2015

Much overgrown when first visited in 2009, the site has been now cleared and excavated by members of the SEWRIGS Group and the SWGA. The site lies to the west of the Rhymney River valley within a publicly-accessible nature reserve owned by the Ruperra Conservation Trust who have been very supportive of the work on the SE Wales RIGS Group on their land. Although the type locality of the Ruperra Limestone is an overgrown quarry about a kilometre to the west of the excavated site, it is privately-owned, situated in the centre of a cultivated field and therefore much less accessible.

The aim of the clearance work, which began in 2013, was to expose a section of the Ruperra Limestone and to allow an examination of its relationship with the adjacent conglomerate beds. Since then, three additional small sections have been cleared along strike to the northeast. Each of these expose different parts of the sequence. The most easterly, and probably uppermost, exposes a karst-weathered massive limestone with maroon sandstone lenses and flame structures. Another shows slump-folded? thin-bedded nodular limestones, while the main site at the western end exposes a sequence from pebbly cross-bedded calcarenites and pebbly limestones down to a maroon conglomerate and sandstones



Ruperra Limestone hand specimen, November 2009

Although interpretive work on the site is at an early stage, it is clear that the Ruperra Limestone is not a straightforward calcrete, but may represent lakeside tufa deposits or evaporites subsequently reworked and redeposited in a very active fluvial environment.

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Massive uppermost limestone with sandstone lenses and showing karstic weathering



?Slump-folding in nodular limestones



Cross-bedded pebbly limestone, main site.



Llanishen conglomerate at the base of the main site.