

Boston Spa Riverside Woods



STATUS: Local Geological Site

OTHER DESIGNATIONS:

COUNTY: West Yorkshire

DISTRICT: Leeds

OS GRID REF. SE 423 465 – 430 459

OS 1:50,000 Landranger 105 York and surrounding areas

OS 1:25,000 Explorer 289 Leeds

BGS 1:50,000 Sheet 70 Leeds

FIRST DESIGNATED West Yorkshire Geology Trust February 2010

DATE OF MOST RECENT SURVEY August 2010 by West Yorkshire Geology Trust

DESIGNATION SHEET UPDATED August 2010

SITE DESCRIPTION:

Wooded cliffs on the south-west side of the River Wharfe, upstream of Thorp Arch Bridge, expose several places where Upper Permian Cadeby Formation dolostones (Lower Magnesian Limestone) can be seen. The dolostones include dolomite conglomerates and algal reefs draped by bedded dolomite sequences which are typical of the Wetherby Member of the Cadeby Formation. There are several crags and a quarry at the top of the cliffs which expose many features of interest, though most exposures are difficult to access.

HISTORICAL ASSOCIATIONS:

Several quarries have been opened up at the top of the cliffs, presumably to extract building stone for use in Boston Spa.

EDUCATIONAL VALUE:

The site is interesting for walkers using the main footpaths. It is not suitable for educational groups, because of the difficult access to crags on steep cliffs.

AESTHETIC CHARACTERISTICS:

The woods are very attractive and views across the River Wharfe can be seen from the cliff top footpath though the trees.

ACCESS AND SAFETY:

The geology of the river cliffs can be seen best from the eastern bank of the River Wharfe with binoculars, using the permissive footpath from Thorp Arch. Jackdaw Crag, at the foot of Deepdale, is accessible by footpath from Boston Spa and shows many interesting features. There is a permissive footpath running along the top of the cliff in Riverside Woods, from which excellent views across the river can be seen through gaps in the trees. There are no footpaths within the woods that allow access to old quarries and crags. The River Wharfe is deep and fast-flowing and groups should not attempt to climb down through the woods.

OWNERSHIP:

Boston Spa Parish Council

MANAGEMENT AND INTERPRETATION:

Boston Spa Parish Council hope to produce a leaflet of the geology, archaeology and history of the area. Interpretation boards to illustrate interesting features of the Riverside Woods, including geology, are planned for various places along the main footpath at the top of the cliff.

SCIENTIFIC IMPORTANCE:

Small algal reefs, several metres high, can be seen at several places in the woods and are typical of the Wetherby Member of the Cadeby Formation. They are draped with bedded dolostones and complete examples are seen best from the permissive footpath which runs from Thorp Arch along the eastern river bank. At Jackdaw Crag (SE 422 465) in Deepdale the lithology can be examined in detail. Structureless algal mounds with many vugs and larger solution hollows are covered with draped bedded dolostone.

A small, nearly inaccessible, quarry (SE 4271 4606) has been excavated in 2m of thinly laminated beds of conglomerates, with small well-rounded, oval-shaped dolomite pebbles, mainly 5-15mm in diameter showing current imbrication.

A large quarry face at the top of the cliff (SE 425 462) shows bedded dolostone with regular thin inter-bedding layers of clay/silt. A small algal reef has bedded oolith and pisolith deposits to the south east. There are mason's marks in places, showing evidence for quarrying. There are recent geological core drillings in the cliff face.

At SE 4249 4617 is another quarry with old carved graffiti, in bedded dolostones with beds of dolomite conglomerates, which drape over two small algal mounds. At SE 4260 4614 is a crag with algal mounds showing domed laminated bands and a vertical joint which has weathered to form a cave at the base.

REFERENCES:

Wilfred Edwards, G. H. Mitchell and T. H. Whitehead, 1950 *Geology of the district north and east of Leeds*, Geological Survey Memoir, p39

Cooper, A. H, and Gibson, A. 2003 *Geology of the Leeds district - a brief explanation of the geological map* Sheet explanation of the British Geological Survey 1:50,000 Sheet 70 Leeds
Geological Conservation Review Volume 8: Marine Permian of England Chapter 4: North-east England (Yorkshire Province) Site: Cadeby Quarry



Small algal reef draped by bedded dolostones from the footpath on the east bank of the River Wharfe at SE 4236 4642



Jackdaw Crag, at the foot of Deepdale, in Boston Spa Riverside Woods
In places the dolostone is slightly soluble, allowing small cave systems to develop.



Algal dome with fine laminations and cave opened by weathering of a major joint at SE 4260 4614



Small quarry of dolomitic conglomerate, thinly laminated with small well rounded oval-shaped pebbles of dolomite at SE 4271 4606