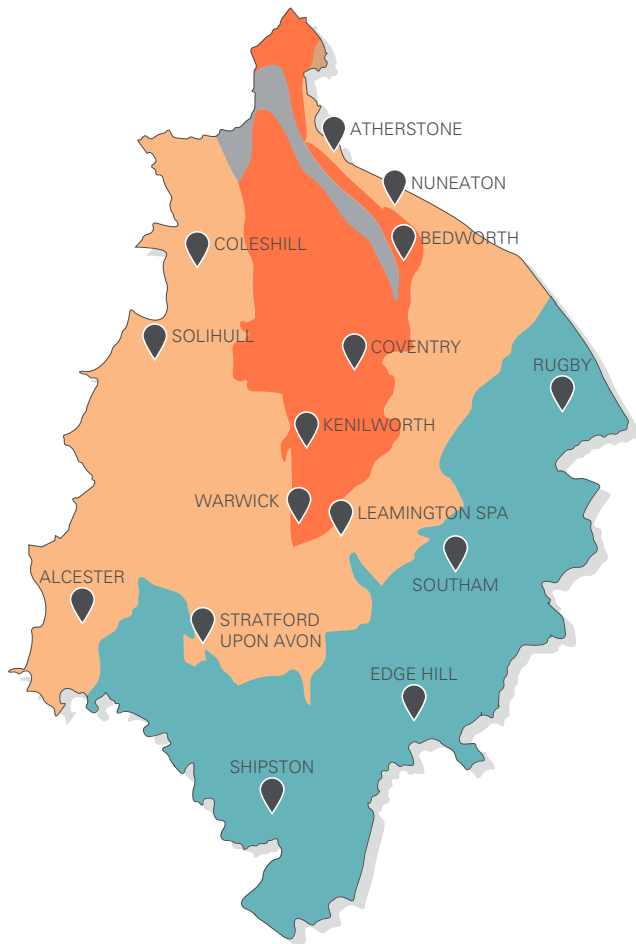


Under our feet



■ Nuneaton Ridge

Caldecote Volcanics, Hartshill Sandstone and Diorite.

■ Warwickshire Plateau

Coal Measures, Red Sandstone, Carboniferous Mudstone and Kenilworth Sandstone.

■ Triassic Lowlands

Mercia Mudstone, Permian Mudstone and Bromsgrove Sandstone.

■ Warwickshire Scarplands

White Lias, Blue Lias, Hornton Stone and Oolitic Limestone.

Introduction

The story of Warwickshire's geology, represented in the geology wall at Brandon Marsh, covers 600 million years of earth history preserved in the rocks. That story is told on the two information boards near the wall and also in more detail on the Warwickshire Geological Conservation Group website:

www.wgcg.co.uk/brandonwall

This leaflet tells a different story of how we can see the effects of the rocks on the world around us as it influences landscape and scenery, industry, building materials, and wildlife, as well as giving evidence of life in the past through the fossils that are found in the rocks.

Warwickshire Geological Conservation Group

Warwickshire Geological Conservation Group was established in 1990 by a few enthusiasts who wanted to raise awareness of, and to conserve the many rock exposures dotted around the county.

The membership has since grown and includes many enthusiastic amateurs, students and teachers as well as professional geologists. The group retains its two main aims: to raise awareness of geology and the landscape through education, and to conserve and protect the geological sites in the Warwickshire area.

For further information, including programmes and events, visit the WGCG website www.wgcg.co.uk or e-mail: warwickshiregcg@gmail.com

Warwickshire Wildlife Trust

Brandon Marsh Nature Centre, Brandon Lane, Coventry CV3 3GW
☎ 024 7630 2912 ✉ enquiries@wkwtr.org.uk

Warwickshire Wildlife Trust is a registered charity (Number 209200) and a company limited by guarantee. Registered in England, Number 582247. Warwickshire Geology Conservation Group (WGCG) is a registered charity (Number 1144717).

Every stone tells a story

The Brandon Marsh Geology Wall



Warwickshire

Geology and the story of life

Fossils in rocks record the evolution of life over the millions of years represented by the Brandon Geology Wall.



Trace fossil dating from the Cambrian period © Brian Ellis 2017

The earliest evidence of life in Warwickshire is found on the **Nuneaton Ridge**. Here are trails made by soft-bodied creatures burrowing in the mud at the bottom of Cambrian seas 500 million years ago.



Trilobite from Purley Quarry © Alan Cooke

The fossils of the earliest hard bodied animals are also found in the ancient rocks of the **Nuneaton Ridge**. These include trilobites which lived near the Cambrian sea bed and scavenged either for food floating by, or by attacking other creatures.



Leaf print © Hugh Jones 2017

By 300 million years ago in the Carboniferous Period life flourished on land. Equatorial forests decayed to form coal seams in the **Coal Measures** of the **Warwickshire Plateau** but fossil leaves and tree trunks have also been preserved.



Rhynchosaur skull © Warwickshire County Council 2017

Rhynchosaur were reptiles about 50cm long living in the desert of the Triassic Period about 240 million years ago. They lived in damper areas and ate tough marsh plants using their large, sharp teeth. This fossil was found in the **Bromsgrove Sandstone** at Coton End quarry in Warwick.



Occasionally, fallen trees do not decay and are preserved as fossils. The black marks in this fossilised tree trunk are mud-filled holes created by wood boring animals.



Harbury ichthyosaur © Warwickshire County Council 2017

Ichthyosaurs were one of the large predators of the Jurassic seas about 205 million years ago.

This specimen was found in a **White Lias** quarry at Harbury on the **Warwickshire Scarplands**. You can see its four paddles, its squashed rib cage and its long tail used to give extra speed when hunting.

Geology and wildlife

Different rocks have different mixtures of minerals and weather to produce different soils. This affects the plants which can grow in a particular area. This in turn affects the type of fauna present so plants and animals are often an indicator of the underlying geology.

Claybrooks Marsh is a Warwickshire Wildlife Trust reserve on the remains of the spoil heap of Binley Colliery in Coventry. A variety of species has

developed on the dumped shales since the spoil heap was levelled in the late 1960s. You might be lucky to find some Coal Measure fossils in the spoil.

The **Warwickshire Scarplands** in the south of the county support species such as the rare small blue butterfly. Its caterpillars feed on kidney vetch, a plant that only grows where the underlying Blue Lias is exposed by quarrying and railway cuttings in and around Southam.



Claybrooks Marsh nature reserve near Coventry © Brian Ellis 2017



A small blue butterfly feeding on the flowers of kidney vetch © Steven Cheshire (WWT) 2017

Geology and buildings

Before transporting materials became easier with the improvement of roads and the building of canals and railways in the 18th and 19th centuries, stone for building came from locally available rocks.



Cottages in Warmington village
© Brian Ellis 2017



Abbotsford
© Brian Ellis 2017



Hartshill Castle
© Hugh Jones 2017



Coventry Old Cathedral
© Hugh Jones 2017

These cottages and the church at Warmington on the **Warwickshire Scarplands** are built from **Hornton Stone**, a gritty limestone containing a lot of iron which gives the stone its rich orange-brown colour.

Abbotsford, overlooking the Market Place in Warwick, is a highly decorative and imposing prestige house built in 1714 using **Bromsgrove Sandstone** from the **Triassic Lowlands**.

Hartshill village lies on the **Nuneaton Ridge** and its castle was founded by the Normans in the 12th century. The castle was built using **Hartshill Sandstone**, a very hard rock which is difficult to work.

The old Cathedral in Coventry is built using one of the Carboniferous Red Sandstones called **Coventry Sandstone** which is found at the southern end of the **Warwickshire Plateau**.



Kenilworth Castle built from Kenilworth Sandstone
© Steven Cheshire (WWT) 2017

Geology and scenery

The underlying geology has a strong effect on scenery. Generally harder rocks, which are more difficult to wear away, form higher ground while softer rocks, which wear away more easily, form

lower ground. The differences in rock hardness reflect the environments in which the rocks were formed. [see Interpretation Board].

Geology and industry

Rocks and minerals found throughout Warwickshire provide raw materials for many industries which affect our everyday lives. Quarried stone is used for buildings, coal has been a source of heat and power as well as an industrial raw material. The construction industry depends on cement from limestone and on sand and gravel. Road building uses hard rock for aggregate while softer mudstones and clays are used for making bricks and tiles.



Daw Mill Colliery
© John Ball (WWT APC) 2017

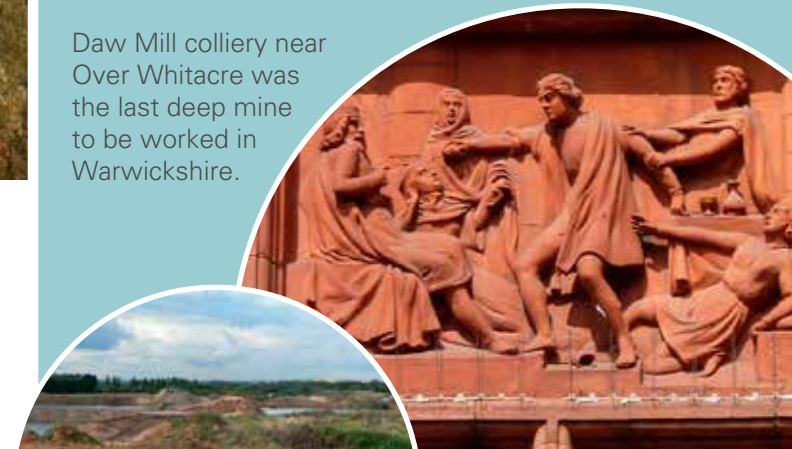


Mancetter Aggregate Plant
© Brian Ellis 2017

The coal seams in the **Coal Measures** rocks of the **Warwickshire Plateau** were, for 500 years until early in the 21st century, the basis of a coal mining industry between Nuneaton and Coventry.

The hard, grey igneous rock **diorite** is quarried at several places on the **Nuneaton Ridge**. It is crushed to make road stone at this aggregate plant at Mancetter, near Nuneaton.

Daw Mill colliery near Over Whitacre was the last deep mine to be worked in Warwickshire.





Judkins Quarry and River Meese Valley © Alan Cooke 2017

Judkins quarry in the foreground cuts into **Caldecote Volcanics** and **Hartshill Sandstone**, both hard rocks which underlie the high ground of the **Nuneaton Ridge**. Beyond are the **Triassic Lowlands** formed by the soft **Mercia Mudstone**.



Dene Valley, Weston Hall © Brian Ellis 2017

The rocks in the valley bottom and lower part of the hill are **Mercia Mudstone**, formed in a desert. The rocks at the top of the hill are **White Lias**, formed when a warm shallow sea flooded the older land. The scenery here is at the boundary of the **Triassic Lowlands** and the **Warwickshire Scarplands**.



Fillongley © Brian Ellis 2017

This undulating landscape of gentle hills and shallow valleys is typical of the scenery formed on the Red Sandstones of the **Warwickshire Plateau**.



Edge Hill © Brian Ellis 2017

The steep scarp of Edge Hill is capped by the relatively hard **Hornton Stone** and the lower, flatter area is formed by softer **Lias Mudstone** as part of the **Warwickshire Scarplands**.



Sand Quarry Meriden © Brian Ellis 2017

Thick beds of **sand and gravel** were deposited in river valleys throughout Warwickshire during the last Ice Age.

After washing and grading they are mainly used in the building industry.



Decorative tiles © Julie Harrald 2017

All mudstones and clays were the basis of a widespread brick and tile making industry in Warwickshire.

The terracotta tiled panel on the HSBC bank in Stratford shows scenes from Shakespeare's plays.



Fillongley © Brian Ellis 2017



Meriden sandpit © Brian Ellis 2017

The Brandon Marsh Geology Wall

In the southern hemisphere

⌚ 650 - 450 million years ago

Near the equator

⌚ 350 - 300 million years ago

In the desert

⌚ 300 - 200 million years ago

Under the sea

⌚ 200 - 145 million years ago

Caldecote Volcanics Hartshill Sandstone Diorite Hartshill Sandstone Coal Measures Fossilised Tree Red Sandstone Carboniferous Mudstone Kenilworth Sandstone Mercia Mudstone Permian Mudstone Bromsgrove Sandstone White Lias Blue Lias Hornton Stone Oolitic Limestone

