in summer caused small landslides that pushed the afream to the opposite side of the opposite bank and generating a steeper westacing slope.

Asymmetrical Sherbrook Valley (7)

sections of valleys like the Sherbrook 8 are also characteristic of these regimes. South-westerly winds would have caused snow to accumulate on east-facing slopes. Melting of these snow banks



developmentofpermafrost would have promoted surface drainage when snow melted during the brief summers. This, in combination with the weathering breaking up the escurrence of the plateau halleys and the dissected nature of the plateau. The asymmetric crossections of the plateau.

suggests they were eroded subgliscially.

At other times, the Chase was free of glacier ice but was still subject to cold conditions similar to northern Canada today. The

chase 2, 3 highlight the erosion of glacial meltwater. As water can only flow uphill underneath a glacier, being under pressure beneath the ice, the undulating profile of the northern channels

perimeter of around the northern channels incised a series of deeply-Cannock 13, 31 and linking Rugeley and prominent landforms. Both the impressive tsom has generated the meltwater glacial distances, transport material



have further accentuated the relief.

The episodic growth and retreat of the British Ice Sheet over the last 2 million years has had a dramatic impact on the landscape.

Whilst the Glacial Boulder 7 demonstrates the ability of glaciers to

Cannock Chase comprises an undulating plateau 150-250m in elevation that stands proud of the surrounding valleys. Its prominence reflects the combined influence of tectonic processes (earth movements) and surface denudation (by wind, water and scandstones (see cross-sections). These rocks are harder and sandstones (see cross-sections). These rocks are harder and more resistant than the mudatones of the surrounding area and subsequent differences in the rates of weathering and erosion

42 to Coldman's Slade and take the footpath from the back of the second car park parallel to the road, straight back to Satnall Hills Otherry

turn left across a field, then follow the path back to the canal.

Continue along the towpath to Trent Lane and turn left to cross Essex Bridge 40. Follow the road and Staffordshire Way through the Shugborough Estate 41 to the A513 and turn right. Follow the road 42 to Coldman's Slade and take the footpath from the back of the

Follow the A51 towards Stone, cross the Trent by the Wolseley Bridge 38, and at the canal take the towpath left. Approaching Great Haywood, cross the canal by the iron bridge, pass under the railway and take a right fork. Continue across a field taking the second main valley on the right down to a stile into a wood. Follow the path to Cliff Caves 39. Continue through the wood exiting by another stile, and Caves 39. Continue through the path pack to the canal

Wolseley Centre - Satnall Hills 38-42

follow it to Wolseley Bridge.

Continue along Jones Lane 34. On reaching the main road turn right for 100m, then left along a footpath to Chaseley Road. Turn left and after 450m turn right along West Butts Road to the end. Continue straight across and take the footpath to the summit of Etching Hill 35. Return downhill and turn right along Mount Road. At the junction, take the footpath opposite, following the field boundary and pass through a wood to a farm track 36. Turn right down the track 37 and

Stiting Mill - Wolseley Centre 33-37

gate: I once the pain past Home mile point 32. An alternate house might, opposite the Victory Hall, back to the Birches Valley Forest Centre. Back-track and follow the Heritage Path left down the valley. Take the footpath left to Slitting Mill pumping station 33.

your left into the Victoria Mound quarries 26. Retrace your steps to the Brereton-Ravenhill Way and follow it to the left, crossing Colliery Road 27. Continue to the end of the business parks 28 and fork right to the outskirts of Rugeley 29. Turn left along coppice Lane for 400m and take the right fork uphill. Continue straight shead across the minor road and across the main A460 along the farm track passing through the farmyard 30 and down the path beneath the railway and straight across the field crossing the path beneath the railway and straight across the field crossing the path the Reritage Path, turn left and then right through a gate. Follow the path past Horns mill pond 32. An alternate route continues past the pub turns left and then takes the path continues past the pub turns left at the road and then takes the path continues.

road 21. Carry straight on, keeping the ridge to your right eventually heading downhill 22 & 23, over a stream and follow the valley to the right, emerging on a spoil heap 24. Go straight on to the Brereton-right, emerging on a spoil heap 24. Go straight on to the Brereton-bend 25. Follow the bridle path on the opposite side of the road on



From the view point 18 continue on to the far corner of Castle Ring. Turn left downhill and then immediately right along the path parallel to the fence 19 then forking left on the main path. Continue down, and cross the Red Brook 20. Take the track to the left at the marker post, continuing on and straight across the

Castle Ring - Slitting Mill 18-32

Continue straight ahead along the main path until it meets the Marquis Drive / Heart of England Way at a T-junction and turn left, following it to the crossroads 14. Turn right along Colliery Road and then left through a small car park on to a footpath. After 100m, take the footpath on the right. Continue along the path 15 and when it returns to the road follow the Heart of England Way to the left, continuing straight on to Castle Ring, past the second stream 16 to the creat of a sharp rise 17. Here, take the left fork and turn left to Castle Ring a sharp rise 17. Here, take the left fork and turn left to Castle Ring Follow the north side of the Castle Ring to the view point.

Continue past the entrance to the Forest Centre and the houses, and take the main path to the left. After crossing Stony Brook 11 continue straight on along the wide track to the road. Turn right, beneath the rail pindge 12 and then up the other side of the valley 13. Cross the main road and follow the side road down to the farm. Turn left and follow the track up the valley. An alternate route turns left near the mountain bike trail, through Regent's Wood to Stile Cop. It continues through Stile Cop car park and follows an escarpment emerging at The Levels near Brereton 27.

Birches Valley - Castle Ring II-I7

As the path bends left, meeting several others, take the bridle path sharp right and then turn immediately left at the notice board. The trail descends to a view point across the old part of Rugeley Quarry 9 and rock exposures 10. Continue to the road and turn right along Stafford Brook Road until it meets a T-junction with Penkridge Bank Stafford Brook Road until it meets a T-junction with Penkridge Bank Road. Turn left and then right to the Birches Valley Visitors Centre.

From the Glacial Boulder 7, head away from the car park towards a signpost on the Heart of England Way and turn right to follow it. After 200m, fork left at the signpost down to cross Sher Brook 8. Follow the path left 150m to a fork. The left fork tollows the alternative route back to Harts Hill. Follow the right fork up a dry valley. Continue straight on past a trig point and straight on crossing Abraham's Valley. An alternate route runs down Abraham's Valley, past the Seven Springs car park, crossing the Trent and on to the canal at Little Haywood.

Glacial Boulder - Birches Valley 7-10

From Satnall Hills Quarry 1 car park, cross the A513, taking extreme care, and take the footpath at the far end of the Punch Bowl car park. The valley passes Harts Hill 2. Follow the footpath atraight ahead to Mere Pool 3. Here, take the narrow track straight on upwards forking left after the initial ascent to Broc Hill 4. Continue straight on the Detrom of the Mere Valley and go right to Brook Lane. Follow Brook Lane to the left. At the T-junction, turn left back onto the Chase. After 300m, take the track right and continue straight on the Chase. After 300m, take the track right and continue straight on right around the top of Milford Quarry to Freds's Grave car park. Turn right around the top of Milford Quarry to Freds's Grave car park. Turn left then immediately right at the signpost along the Heart of England Way, taking the right fork after 250m to the Glacial Boulder.

GEOTRAIL DIRECTIONS

The Cannock Chase

Geotrail

A Landscape Evolved from

Desert, Swamp and Ice

Satrall Hills - Glacial Boulder I -6

recommend attempting it in sections. Alternative routes making shorter circuits are shown in italics. We advise visitors to use this trail guide in conjunction with the Ordnance Survey Explorer Map 244 as the proliferation of tracks on Cannock Chase can make navigation difficult. Take care crossing all roads.

The trail is probably too long to be completed in one go so we

Л5070Н&И0W015 GEOLOGY

The rocks of Cannock Chase belong predominantly to the Triassic Period (here 250-245 million years old). These overlie the Upper Carboniferous Coal Measures (314-312 million years old) separated by a 60 million year unconformity during which the older rocks were deformed, uplifted and eroded.



The Carboniferous muds, coals and ironstones were deposited near to the equator in a low-lying muddy delta. Periodic emergence of the delta top allowed plants to colonise the surface, the remains of which were compressed to form coal. These coals, and associated ironstone bands have been

extensively mined on the southern margin of the Chase

By the Triassic, Britain had moved to the northern desert latitudes. The pebbly Kidderminster Formation was deposited in a large braided river flowing northwards from mountains located in Northern France. The liver coloured quartzite pebbles are

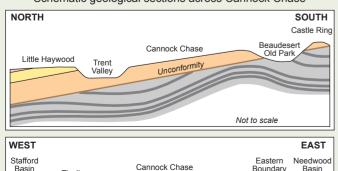


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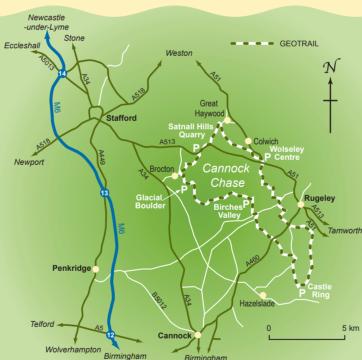
believed to have originated there and very rare limestone pebbles have been found to contain fossils from the Ordovician period of Brittany. Other pebbles include white vein quartz used in glass making, pink rhyolites and black basalts. The Kidderminster Formation is both an important source of aggregates and water.

The overlying Bromsgrove Sandstone is finer grained and lacks pebbles, indicating a decline in energy in the Triassic rivers, becoming meandering in nature as the mountains subsided. This unit has been used as a building stone and equivalent rocks beneath Morecombe Bay form a reservoir for natural gas.

Schematic geological sections across Cannock Chase



LOCATION MAP



A project managed by **Ian Stimpson** and **Richard Waller** on behalf of the Staffordshire RIGS Group with financial support from the Staffordshire Aggregates Levy Grant Scheme 2008. Text and photographs by members of the Staffordshire RIGS Group. Design by **Rosie Duncan**.

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- British Geological Survey
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- Cannock Chase ANOB Unit
 Cannock Chase District Council
 Staffordshire County Council

A member of UKRIGS, the Staffordshire RIGS Group is a voluntary organisation responsible for the conservation of regionally important geological and geomorphological sites in Staffordshire. For more information contact: Staffordshire RIGS – www.staffs-rigs.org.uk

North Staffordshire Group Geologists' Association – www.esci.keele.ac.uk/nsgga Staffordshire Wildlife Trust – www.staffs-wildlife.org.uk

Remember to follow the country code and please do not hammer rock surfaces. Be safe, plan ahead and follow any signs; leave gates and property as you find them; protect plants and animals and take your litter home. Keep dogs under control and consider other people. Please adhere to all Forestry Commission instructions and warnings

Printed by MC Print Services Tel: 01782 370080 Cover Photograph: Source of the Sher Brook

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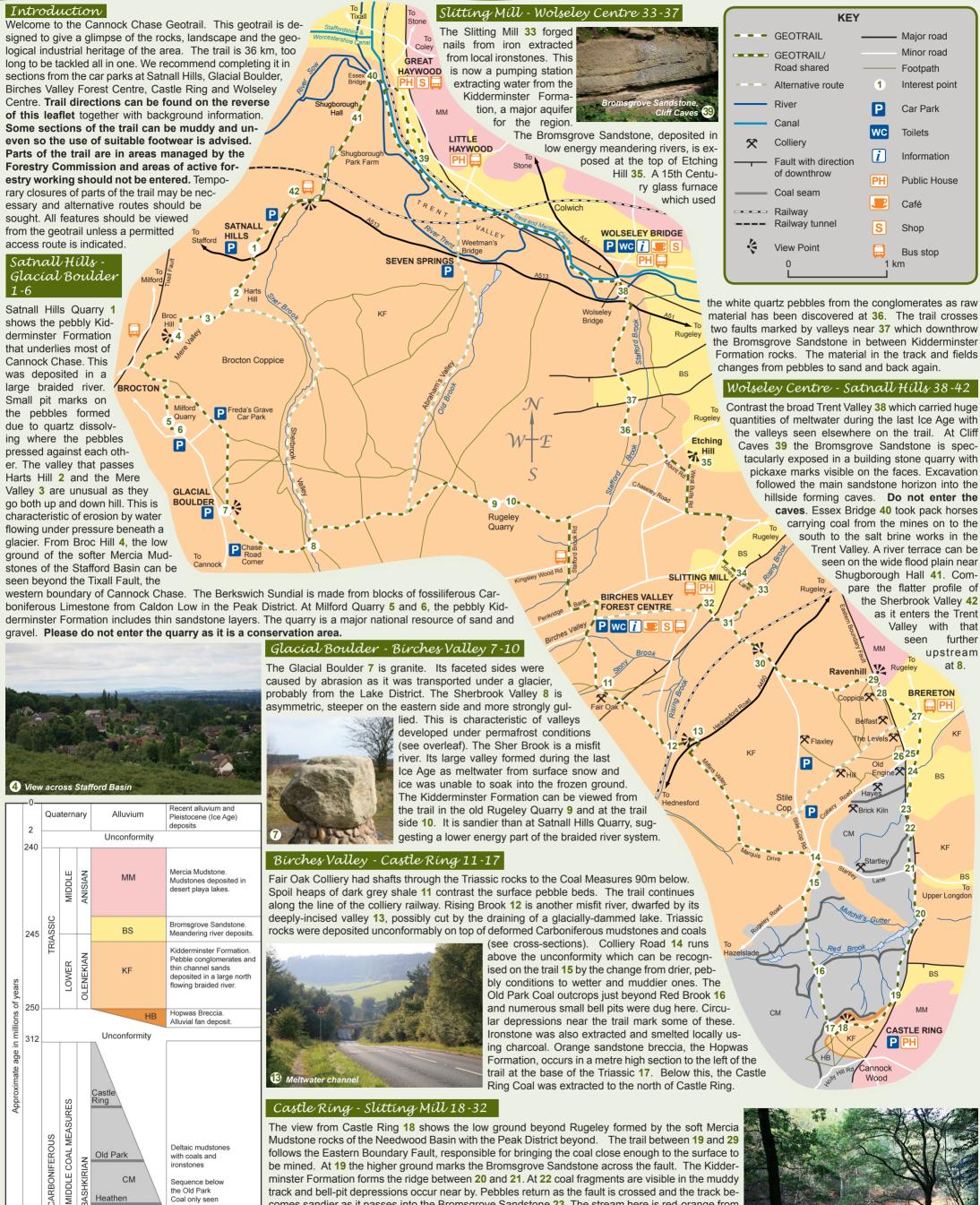
Staffordshire





Hopwood Fault

The Cannock Chase Geotrail



The view from Castle Ring 18 shows the low ground beyond Rugeley formed by the soft Mercia Mudstone rocks of the Needwood Basin with the Peak District beyond. The trail between 19 and 29 follows the Eastern Boundary Fault, responsible for bringing the coal close enough to the surface to be mined. At 19 the higher ground marks the Bromsgrove Sandstone across the fault. The Kidderminster Formation forms the ridge between 20 and 21. At 22 coal fragments are visible in the muddy track and bell-pit depressions occur near by. Pebbles return as the fault is crossed and the track becomes sandier as it passes into the Bromsgrove Sandstone 23. The stream here is red-orange from the leaching of ironstones within the coal spoil tip which can be examined at 24, the site of the Old Engine Pit. The Eastern Boundary Fault can be seen at 25 with downthrown Bromsgrove Sandstone nearest the road and Kidderminster Formation behind. The latter unit can be seen in the guarry 26. The track from 24 to 27, 28 & 29 is the old colliery railway. The Levels and Belfast Pits were near 27 and the Coppice Pit at 28. From 29, the view is from the high ground of the Kidderminster Forma-

UPPER CARBONIFEROUS

Old Park

Heathen

Stinking

Yard

Bass

Cinde

Deep

Deltaic mudstones

ironstones

the Old Park

in coal mines.

Not to scale

tion across to the lower ground of the Mercia Mudstone beyond the boundary fault. The trail from 30 to 32 re-crosses the misfit Rising Brook 31 valley. Compare the valley profile to that at 13. The far valley edge is a fault with Bromsgrove Sandstone 32. The escarpment at 34 also marks the fault.

Iron stained stream