

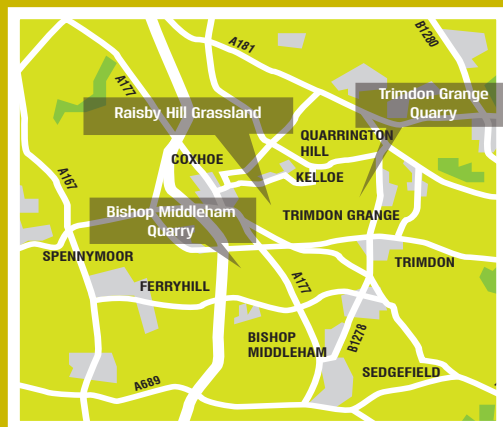
For more information on our reserves, membership and to book a visit please telephone

0191 584 3112

www.durhamwt.co.uk



Help conserve these internationally important sites for the future by becoming a member of Durham Wildlife Trust.



Enjoying your visit

During your visit there are a few simple rules that will help us to preserve these wild spaces for you and our future.

Dogs: please keep your dogs on a lead

Children: please keep your children safe - these are places with cliff edges and steep slopes.

Nature: there are places that are in delicate balance and disturbing them with fires and litter can be very damaging.


Access: please note that the paths are often simple tracks with stiles and steps that may prove difficult for access.

Electronic versions of this leaflet

Further copies of this and other leaflets can be downloaded from:

www.limestonelandscapes.info/Pages/KingdomofQuarries.aspx

Key to maps inside this leaflet

-  Squeeze Stile
-  Stile
-  Kissing Gate
-  Steps
-  Paths
-  Rock Edges
-  Parking



Kingdom of Quarries

Take a journey through time in some of Durham Wildlife Trust's Nature Reserves. Visit these abandoned quarries that tell a fascinating geological and ecological story.



This project has been co-ordinated by Groundwork NE & Cumbria; Changing Places Changing Lives - one green step at a time.

Find out more at www.groundwork.org.uk/northeast or follow us on Facebook and Twitter



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The National Lottery
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Limestone Landscapes



Geological Beginnings

We can trace the origins of the distinctive landscape of east Durham back 260 million years to the Permian Period. The 'British Isles' lay 10 degrees north of the equator and was part of one supercontinent called Pangea. The climate was hot and arid like the present day Sahara Desert.

A large area within Pangea lay below sea level. Water from the surrounding ocean entered this area in a catastrophic flood creating the Zechstein Sea. This inland basin stretched from what we know as Durham across the present day North Sea as far as Poland.

Limestone formed that contain fragments or entire fossilized remains of the creatures that lived in the sea. Usually limestone is a rock composed predominantly of calcium carbonate. However, the Permian limestones of this area contain magnesium carbonate as well as calcium carbonate. Such limestones gave rise to the sequence of rocks in Durham becoming known as the Magnesian Limestone.

A reef running roughly in a north-south direction formed a barrier between the deeper waters of the Zechstein Sea to the east and a shallow lagoon which extended westwards as far as the Pennines. The rocks in this area formed in that back-reef lagoon, and include the Raisby and Ford formations of the Magnesian Limestone.



Primary Magnesian Limestone grassland (Anne Kelly)

Why so Special

As much as two thirds of the UK resource of Magnesian Limestone grassland occurs in our area. The grasslands of greatest interest within the Limestone Landscapes area are on the coast or in the escarpments around the four sites in this leaflet.

Some of the sites such as Town Kelloe Bank and Raisby Hill Grassland include examples of primary Magnesian Limestone grassland. Primary grasslands are areas of original agriculturally-unimproved herb-rich grassland. The assemblage seen at these sites is particularly significant. It includes northern plants, which tend to occur on the older Carboniferous limestones of areas like the North Pennines. These are growing alongside plants of southern origins, which are more typical of the chalk and limestones of southern England.

Examples of northern species include blue moor grass and bird's eye primrose while some of the southern species growing near the northern limit of their distribution include upright brome and the rare and beautiful blue perennial flax.

Rather more numerous are secondary grasslands, most of which owe their origins to the recolonisation of old quarry workings but which can also occur on roadside verges and former railway lines. Many of these plant communities include spectacular orchid displays.

Managed by Durham Wildlife Trust since 1978, this site is considered to be one of the country's most important disused quarry habitats

Since the quarry was abandoned in the 1930s it has recolonised with a variety of limestone flora representative of Magnesian Limestone grassland.

1. Quarry Bottom between June and August this is a good place to see orchids. Look for common spotted, northern marsh, dark-red helleborines, bee, pyramidal and fragrant.

Butterflies seen throughout the summer months include dingy skipper, northern brown argus, common blue, small heath, ringlet and small and large skippers.

2. Sand martins have long taken advantage of the softer rock near the entrance to make nesting sites.

3. Moonwort is tiny - only 1cm tall. It can only be seen between May and early June.

4. You will notice the difference between the harder limestone of the Ford formation found here...

5. ... compared with the softer dolomites found in this cliff face and at point 2.

The moonwort is a small fern with much superstition attached to it. In past times it was popular with alchemists seeking to turn lead into gold.

A dingy skipper displays a pattern of browns and greys that is not at all dingy. However, its lustre is lost over time.



To A177 North to Coxhoe.

Sand martins use burrows and holes in the rock to lay their eggs.

The northern brown argus can be seen on the quarry bottom and next to the sand martin bank.

Under the management of Durham Wildlife Trust since 1978, this is one of the few remaining examples of primary Magnesian Limestone grassland left in the country

With its limestone grassland, developing ash woodland, ponds and marsh this site is nationally significant for its flora.

1. Orchid species in the quarry area include the dark-red helleborine, fragrant and pyramidal orchids. Common rockrose grows abundantly and supports a small colony of northern brown argus butterfly. Other butterflies seen in large numbers include dingy skipper, common blue, ringlet and small skipper.

2. Secondary Magnesian Limestone grassland can be seen in this spoil bank which supports populations of the dark-red helleborine.

3. Dragonflies such as common hawker and darter rely on the marshy grasslands and ponds. Dominated by lesser pond sedge, these areas provide valuable habitat for breeding, food and shelter.

4. The primary grassland contains plants typical of this internationally rare habitat, including blue moor grass, fairy flax, devils-bit scabious, burnet saxifrage and columbine.

5. The mature wych elms growing in the ash woodland provide food for the larvae of white-letter hairstreak butterflies. Warblers, especially grasshopper warblers seek



The distinctive landscape of Town Kelloe Bank has been managed since 1972 by Durham Wildlife Trust and supports a diverse range of flora and fauna

Please note that access to the reserve is by appointment with Durham Wildlife Trust - see back cover for details

Shaped by the last ice age, the reserve lies within what remains of a glacial lake meltwater channel system. Primary Magnesian Limestone grassland covers the steep sides of the winding valley.

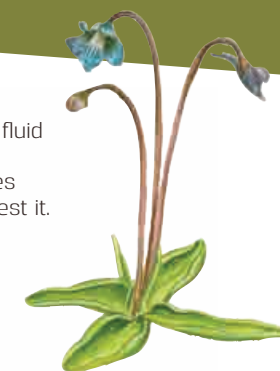
1. The exposures here are in the Raisby formation of the Permian Magnesian Limestone whereas the exposures in the rest of the site are from the Ford formation. The Raisby Formation rocks are well exposed in the quarry near Town Kelloe where thin, generally horizontal beds of cream coloured, Magnesian Limestone can be seen.

2. Primary Magnesian Limestone grassland: Blue moor and quaking grass, glaucous sedge and meadow oat-grass flourish on poor soils of the valley sides. Look for fragrant orchids and classic herbs such as wild thyme, salad burnet, milkwort, and autumn gentian. Common rockrose provide food for the larvae of the northern brown argus butterfly.

3. Arctic alpine: The north facing slopes with wet flushes, support alpine plants such as butterwort, rest harrow, salad burnet and the largest population of birds-eye primrose found in County Durham. Orchids are also found here.



The birds-eye primrose is one of the Magnesian Limestone specialists and is absent from much of the rest of country.



The bright yellow-green leaves of common butterwort excrete a sticky fluid which attracts unsuspecting insects. Once an insect get trapped, the leaves slowly curl around their prey and digest it.



Quaking grass



Autumn gentian



This abandoned quarry provides a home for Magnesian Limestone flora, complimented by mature hawthorn scrub and developing ash woodland. The site has been under the stewardship of Durham Wildlife Trust since 1975

The flat quarry floor has established as secondary Magnesian Limestone grassland, which is a nationally scarce habitat.

1. Geology: The rocks at this end of the quarry are mainly a hard limestone with a sugary (saccharoidal) appearance.

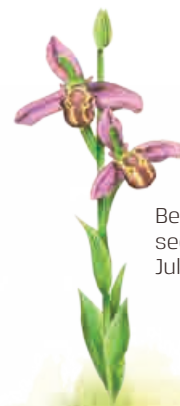
2. History: The remains of a hut used by workman can be seen which provides a clue as to the site's quarrying past.

3. Nature: Look for, blue-moor grass, quaking grass and glaucous sedge. you can also see carline thistle, autumn gentian, blue fleabane and the very scarce but attractive bee orchid.

4. Grassland: An area of species-rich grassland where plants such as field scabious, greater knapweed and meadowsweet can be seen in June and July.

5. Rarities: In this species-rich grassland glade look for twayblade, common spotted orchid and wild thyme.

Butterflies can be seen throughout including common blue, ringlet, orange tip, small copper and the six-spot burnet moth. Ash woodland provides excellent breeding and roosting habitat for a variety of woodland birds.



Bee orchid can be seen in June and July.



The carline thistle is a spiny biennial plant that can be found on dry, chalk grassland. Its distinctive brown and golden flower heads look like a daisy that is dying or a thistle that's gone to seed, but they are, in fact, in full flower. They can be seen from July to September, although the dead heads persist for much longer, often into the following spring.



To Trimdon Grange

Site Entry

To Trimdon

Common spotted orchid.

The six-spot burnet moth is a day-flying moth. Its caterpillars feed on common bird's-foot trefoil.