

Chalk Links in the North Wessex Downs

“Chalk Links” Fact Sheets:

Geology groups across the region have produced a series of fact sheets explaining how the underlying chalk affects other characteristic features of this unique area including landscape, soils, land use, industry, hydrology & archaeology.

Other fact sheets in this series can be downloaded from: www.northwessexdowns.org.uk

FACT SHEET: CHALK LINKS TO LANDSCAPE



Dry valleys on the chalk escarpment



Terracettes, on the steep scarp slopes



Bluebells in West Woods

What are the main landscape features?

The North Wessex Downs are characterised by a landscape of rolling hills and vales. The valleys are commonly dry - they were cut by streams during the Ice Age, when permafrost made the chalk impermeable. Now rainwater sinks into the porous rock until, at lower levels, the water-table is reached and springs emerge. Around the edges of the Chalk, where the layers dip gently into the hillside, a steep **escarpment** develops, as long as there is a resistant layer to cap the top of the hill and preserve the top edge. The **terraces**, small ridges known as ‘sheep tracks’ on the steep escarpment slopes, are simply the result of downhill soil-creep over the millennia.

What soil types are there in the area?

Soils above the chalk are base-rich and strongly alkaline (with a high pH). Because chalk is porous, they are often shallow. These generally advantageous features allow a wide variety of flowering plants, though calcareous soils are often poor in other nutrients such as nitrates and phosphates - a limiting factor on plant growth. Soil depth, slope and aspect have a profound effect on the actual species present.

On top of the highest levels of the chalk is a cover of **Clay-with-Flints**, or even the remains of sand and clay formations laid down 50-60 million years ago from which Clay-with-flints is derived. These produce acid soils less suitable for agriculture, so they tend to be wooded e.g. Savernake Forest, an ancient woodland site, and West Woods, managed by the Forestry Commission. Here bluebells, which indicate the presence of woodland over hundreds of years, thrive beneath the trees, producing spectacular displays in spring just as the new leaves are opening – before the woods become too dark.

Vegetation: Grassland in Britain is not the climax vegetation: it is an unstable habitat that would eventually revert to woodland. Land management, both past and present is the main controlling factor. Since pre-historic times, grazing animals, including rabbits (introduced from France in the 12th C), have hindered tree growth as they prevent invading woody plants from getting established: the woodland copses have initially been fenced – there is no ‘wild wood’ in the North Wessex Downs. Grasses are adapted to withstand grazing pressures, so the grassland habitat represents a balance between grasses and grazers. The latter eat competing plants, maintaining the dominance of grass, of which there are a number of species, including quaking grass, fescues, upright brome grass, false oat and rye grass. The poor fertility also prevented crops from being grown historically on this land. As long as the grass is kept short, many sun-loving herbs can flourish, like salad burnet, wild thyme, rockrose, harebell, bird’s foot trefoil, wild carrot, small scabious, clustered bellflower, milkwort, knapweed and several varieties of thistle as well as many orchid species. The result is a great diversity of flowers and therefore insects. Reducing grazing allows scrub to invade, the ground becomes shaded by taller plants and fewer species can thrive.



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Early purple orchid

Wildlife

As well as worms, slugs, snails and spiders, there are many species of insects, including butterflies such as the Adonis and Chalkhill Blue. A variety of birds can be seen but ground-nesting species such as lapwings and skylarks are now less common; in winter redwings and fieldfares arrive. Foxes, mice, rabbits, hares and badgers find a habitat on downland, whilst deer graze the fields – there are four species in Savernake Forest. A decline in harvest mice has been due to past farming methods but modern environmental stewardship is helping the farming industry to reduce impact and restore habitat for important species.

Anthills contribute appreciably to the plant species diversity of old downland: the mounds catch the sun's rays and provide a warm, dry breeding-place for the ants, at the same time making a specialised habitat dominated by rock rose and wild thyme. Grass rosettes cannot tolerate covering of their growing tips.

Agriculture

Man has been clearing the natural woodland for grazing and crop-growing for thousands of years, so the remaining patches of woodland have shrunk considerably, particularly under the impact of modern farming, which has produced an open arable landscape often with few trees or hedgerows. Traditionally the downs are farming country, with sheep, pigs and cattle as well as a variety of arable crops, including wheat, barley, oats, potatoes, linseed and oilseed rape. The mechanisation of modern farming has resulted in huge fields and removal of hedges, though with the present need to diversify, farming practice is changing again and government grants encourage nature conservation.



Chalk downland farming: sheep grazing on the higher ground, arable crops below



On the escarpment slopes bordering the Marlborough Downs, remnants of medieval cultivation strips, known as **lynchets**, can be seen. They are now grazed by cattle or sheep, like much of the higher downs.



Dewponds, hollowed out of the porous chalk and lined with clay and straw, allowed rainwater to accumulate and supply livestock with water before piped supplies became an option.

There are a number of **nature reserves** on the chalk, including some under the care of Natural England including Pewsey Downs, Fyfield Down, Roundway Down and Morgan's Hill. Others are overseen by the Wildlife Trusts. The Kennet and Avon canal, crossing the Chalk from the Vale of Pewsey through Hungerford as far as Kintbury is like a linear nature reserve, especially for aquatic plants and waterfowl.

For more information please visit:

Wiltshire Geology Group Website: www.wiltshiregeologygroup.org.uk

Natural England: www.naturalengland.org.uk/ourwork/conservation/designatedareas

Wildlife Trusts: www.wildlifetrusts.org