

COUNTY: OXFORDSHIRE

SITE NAME: ARDLEY CUTTING AND QUARRY

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981(as amended)

Local Planning Authorities: Cherwell District Council, Oxfordshire County Council

National Grid Reference: SP540269

Ordnance Survey Sheet 1:50,000: 164 **1:10,000:** SP52 NW, NE

Date Notified (Under 1949 Act): 1972 **Date of Last Revision:**

Date Notified (Under 1981 Act): 1988 **Date of Last Revision:** 28 July 1999

Area: 40.13 ha 99.12 ac

Other information: Part of the site is managed by the Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust

Description and Reasons for Notification

This site lies in the eastern part of the Oxfordshire Cotswolds along a section of the London to Birmingham railway line. It is of geological interest for its exposures of Jurassic rocks and has biological interest associated with limestone grassland, scrub, ancient woodland and wetland habitats. The soils are mostly shallow loams of the Aberford Series, interrupted in places by bands of ill-draining clays and outcrops of Northants sands giving rise to changes in the flora.

The railway cutting and southernmost quarry constitute one of southern England's key sites for Jurassic strata. It has exposures ranging from the lowest Bathonian Chipping Norton Formation to the White Limestone Formation thus exhibiting the entire local Bathonian development with the exception of the Forest Marble.

The Chipping Norton Formation is composed of oolitic limestones, sandy limestones, and mudstones. The formation is deeply excavated by sand-filled channels which themselves are topped by rootlet horizons and a lignite, indicating a period of emergence as low, marshy land. The overlying Sharps Hill Formation here consists of a thin oyster-bearing clay horizon and indicates the return of marine conditions.

The Taynton Formation, consisting of flaggy, oolitic limestones and a basal oyster bed was deposited in a relatively inshore site under turbulent conditions. The Hampden Marly Formation contains a rich fauna of oysters and brachiopods at a number of horizons. The cutting is the only site where an ammonite has been recovered from this formation and places it in the *Procerites progacilis* Zone, correlating it with the Acuminata Beds of the South Cotswolds and Somerset. The uppermost White Limestone Formation consists of approximately seven metres of micritic and peloidal limestones with subsidiary marls and clays. The site is the type locality for the Ardley Member of this formation. The abundant gastropods, bivalves and brachiopods preserved in these limestones enable correlations with the White Limestone Formation to the south in the Cotswolds, and with the Blisworth Limestone Formation in Lincolnshire and Northamptonshire.

This is a key site for its fossil marker horizons, palaeontology, sedimentary features such as channels and emergent surfaces, and its stratigraphy. The rocks of Ardley enable the Bathonian sections of the Midlands to be correlated with those of the Oxford area and Cotswolds and as such is of national importance for the understanding of the Jurassic Period in Britain.

The limestone grassland on the steep banks of the railway cutting and the adjacent quarry forms the main biological interest. It is one of the largest limestone grassland sites in the Oxfordshire Cotswolds where unimproved grassland is now very

rare.

The grassland is a characteristically tall sward either dominated by upright brome *Bromopsis erectus* or a mixture of brome and tor-grass *Brachypodium pinnatum*. The grassland contains a variety of species associated with limestone grassland including quaking grass *Briza media*, basil thyme *Acinos arvensis*, clustered bellflower *Campanula glomerata*, dropwort *Filipendula vulgaris* and sainfoin *Onobrychis viciifolia*. Other species which are locally common in the sward include horseshoe vetch *Hippocrepis comosa*, kidney vetch *Anthyllis vulneraria*, glaucous sedge *Carex flacca*, blue fleabane *Erigeron acer*, bee orchid *Ophrys apifera*, green-winged orchid *Orchis morio* and cowslip *Primula veris*, as well as a number of well-established introductions such as dragon's teeth *Tetragonolobus maritimus*, elecampane *Inula helenium* and broad-leaved everlasting pea *Lathyrus latifolius*.

The flora of the woodland includes lords and ladies *Arum maculatum*, wood anemone *Anemone nemorosa* and the uncommon green hellebore *Helleborus viridis*. The eastern edge of the quarry has a near vertical rock face with a seasonally dry pool at its base. This pool is contiguous with a low lying, marshy section containing willow carr and a flora dominated by soft rush *Juncus effusus*, reedmace *Typha latifolia*, reed canary grass *Phalaris arundinacea*, and water mint *Mentha aquatica*.

The invertebrate fauna is particularly rich along the railway cutting, with large populations of calcareous grassland butterflies like small blue *Cupido minimus*, brown argus *Aricia agestis*, dark green fritillary *Argynnis aglaja*, green hairstreak *Callophrys rubi* and Duke of Burgundy *Hamearis lucina*, all of which are uncommon in Oxfordshire. There is also a colony of the nationally rare four-spotted moth *Tyta luctuosa* whose larvae feed on field bindweed *Convolvulus arvensis*, as well as the nationally uncommon leaf beetles *Cryptocephalus hypochaeridis* and *C. moraei*.

The Cutting and adjacent quarry also support a notably wide range of vertebrates. These include part of a large population of the internationally protected great crested newt *Triturus cristatus* which spreads into several adjacent quarries.