

Wild Warwickshire

# Saxon Mill Carr Vegetation Survey

September 2009



M. C. Smith

Saxon Mill Carr is managed for the Heber-Percy Estate by **Wild Warwickshire**



# SAXON MILL CARR VEGETATION SURVEY

## SUMMARY

The flora of Saxon Mill Carr is a mosaic of different communities. The site can be divided into about 8 zones of vegetation. These zones have been given broad Phase 1 classification. Floristic analysis suggests that the woodland and carr is NVC W6 and the grassland NVC MG13

## INTRODUCTION

Despite being only 1.75 acres in size Saxon Mill Carr exhibits a broad range of habitat types. This diversity is as a result of the different levels of water logging on the site and the amount of disturbance. Essentially the site can be divided into two areas, Wet Woodland and Alder/Willow Carr and Inundation Grassland. In this brief report an account of the flora will be made and an explanation and analysis of the site presented.

## METHODOLOGY

The information regarding the site has been derived by informal fieldwork over the summer of 2009. Numerous visits were made to identify key plant species throughout the site. The list developed is by no means complete and lacks any indication of coverage or quantification. Some literature review was undertaken to establish the nature of the site and to assign National Vegetation Classification (NVC) codes to each part of the site.

## RESULTS AND DISCUSSION

The species list derived from the survey work can be seen at the end of this report. The species list was used to draw up both a Phase 1 and an NVC map of the site.

## SITE DESCRIPTION

Saxon Mill Carr is situated on the Eastern bank of the river Avon. This section of the Warwickshire Avon is a Class B floodplain typified by a river channel passing through an unconfined valley with a medium energy current which is subject to regular seasonal floods.

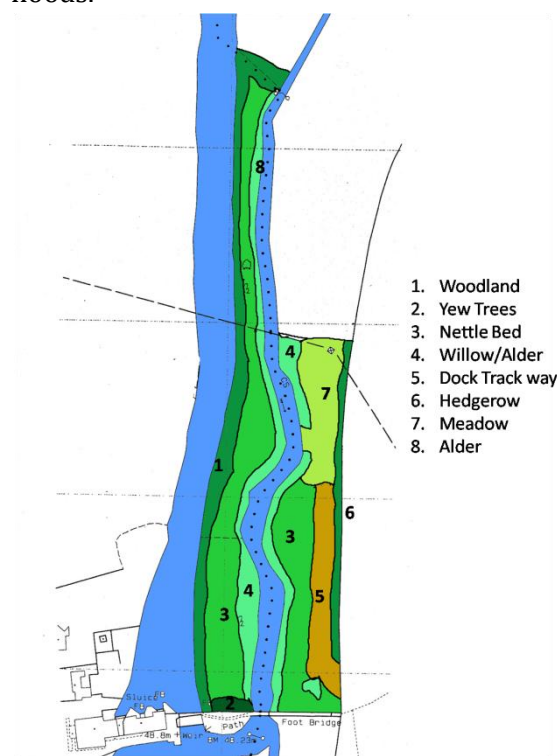


Figure 1 Broad Vegetation Zones

Floodplains that flood regularly support diverse communities. Active rivers such as the Avon naturally meander which, along with flooding create short-lived pioneer communities. These pioneer communities

tend to grade towards higher succession stages away from the river or on levees and terraces. This characterisation is in evidence at Saxon Mill Carr. Silt is steadily being deposited on the river bank narrowing the channel. The raised bank supports mature woodland whilst lower down between the backwater and raised hedgerow typical pioneer communities, namely Alder, Willow and Nettles are present.

Alder and Willow are early succession woody species that require high magnitude floods every year for complete renewal. Saxon Mill Carr is subject to low magnitude, high frequency flooding that do not regenerate the Wet Woodland. Instead the Willows are beginning to spread into the grassland.

## RESPONSES TO FLOODING

Most plants can withstand some inundation but within a matter of hours standing water can become stagnant and anoxic. Flooding at the Carr results not only in physical damage to plants but also physiological. Prolonged flooding results in an altered stomatal closure pattern, reduces photosynthesis and a build up of soil toxins. Heavy water logging will also disrupt any symbiotic associations a species may have particularly fungal ones.

All three of the dominant species, Willow, Alder and Nettle have some tolerance to Flooding. Willow can tolerate up to 13 weeks of complete inundation. Likewise Alder are adapted to combat high water levels with physiological adaptations to maintaining oxygen levels in plant tissue. Nettles are the least resilient and spring floods can be highly disruptive where growth can be halted and young seedlings can suffer high mortality rates. As flooding occurs on the Carr in the winter this effect on nettles is somewhat reduced.

## WET WOODLAND

The Alder and Willow Carr can be classified as W6 *Alnus glutinosa* – *Urtica dioica* Woodland. These communities occur on substantial, active alluvial deposits along mature rivers.

These habitats are responsive to seasonal flooding and have a high nitrogen content. Alder can supply 8-14 kg N ha<sup>-1</sup>y<sup>-1</sup>. The species contains root nodules containing nitrogenases that improve the soil around them.



Figure 2 Rough JNCC Phase 1 Map

Waterlogged soils can quickly become nitrate depleted but the Alder help to maintain a balance. Regular flooding deposit silts high in Nitrogen and Phosphorus.

The presence of large numbers of Elder on the site suggests that the soil is rich in available Phosphate, Potassium and Nitrogen. Likewise there is some evidence

that the *Urtica* species associate with high nitrate content soils although the species is equally adaptable in low nitrate sand and gravels.

extending down where Environment Agency work disturbed the ground and forced the nettles back.

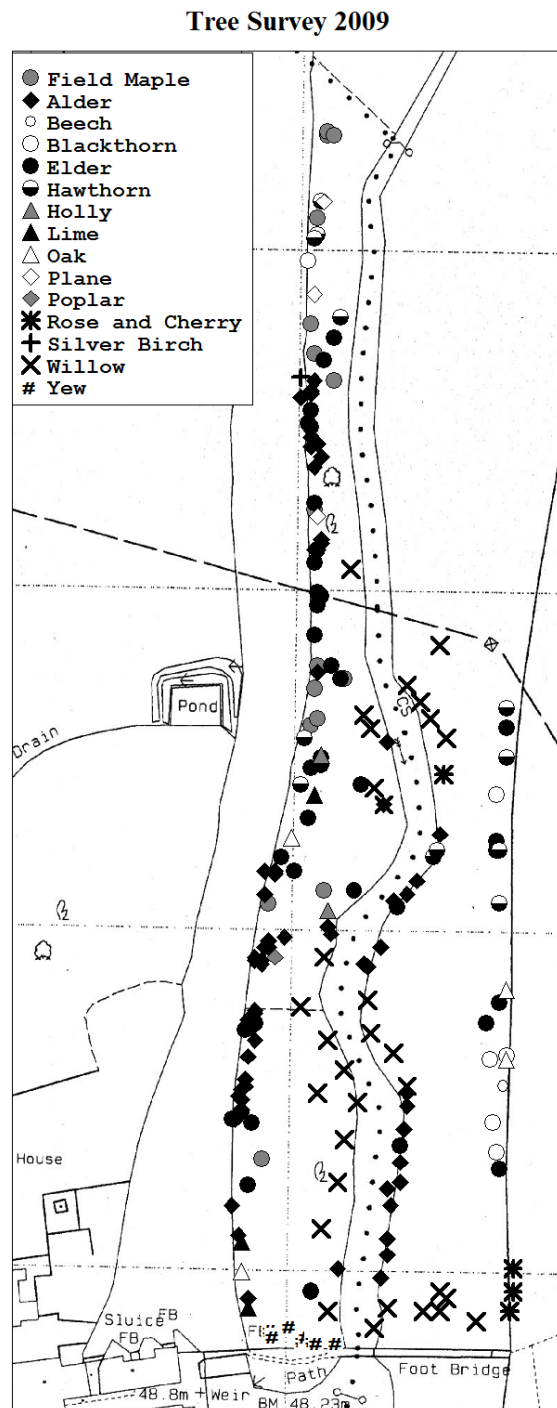
Where the grassland is free of nettles the mix of wild flowers include Wild Mint, Forget-me-not, Willowherb, Buttercup and Lady's Smock.

With patches of Rush, Dock species *Agrostis stolonifera* and *Alopecurus geniculatus* is believed that the meadow area can be classified as MG13. This classification is often in a mosaic with MG4 although in this case there is no Burnet on the site. MG13 is characterised by high soil moisture levels in autumn, winter and spring with frequent inundation.

## EVALUATION

The identification of all plant species is far from complete and the assignment of NVC classifications only provisional. Future analysis needs to focus on quantifying the abundance of core species.

In 2010 a fixed quadrat will be established to look at long term vegetation trends.



## INUNDATION MEADOW

Much of the flat meadow area has long been dominated by nettle scrub grading to grassland to the north. The general pattern still exists today with a ribbon of grassland

# SPECIES LIST

## MONOCOTYLEDON

### *ARACEAE*

Lords and Ladies

### *GRAMINAE*

Marsh Foxtail

Yorkshire Fog

### *JUNCACEAE*

Soft Rush

Remote Rush

## DICOTYLEDON

### *CRUCIFERAE*

Lady's Smock

Wavy Bittercress

Garlic Mustard

Marsh Yellow Cress

### *RANUNCULACEAE*

Lesser Celandine

Marsh Marigold

Creeping Buttercup

### *ROSACEAE*

Silverweed

Meadowsweet

Bird Cherry

Blackthorn

Hawthorn

Bramble

### *URTICACEAE*

Common Nettle

Common Hemp Nettle

### *ARALIACEAE*

Ivy

### *SCROPHULARIACEAE*

Creeping Speedwell

### *GERANIACEAE*

Herb Robert

### *LABIATAE*

Ground Ivy

Water Mint

### *BORAGINACEAE*

Comfrey

Water Forget-me-not

### *COMPOSITAE*

Marsh Thistle

Common Ragwort

Prickly lettuce

Lesser Burdock

### *CARYOPHYLLACEAE*

Red Campion

### *BALSAMINACEAE*

Indian Balsam

Orange Balsam

### *ONAGRACEAE*

Great Willowherb

### *POLYGONACEAE*

Broad-leaved Dock

Redshank

Amphibious Bistort

Water Pepper

### *HYPERICACEAE*

Square Stem St John's Wort

### *LYTHRACEAE*

Purple Loosestrife

### *UMBELLIFERAE*

Wild Angelica

### *FAGACEAE*

Beech

Oak

### *BETULACEAE*

Alder

Silver Birch

*ACERACEAE*

Field Maple

*TILIACEAE*

Lime

*SALICACEAE*

Willow

Poplar

*CAPRIFOLIACEAE*

Elder

*AQUIFOLIACEAE*

Holly

*PLATANACEAE*

Plane

*TAXACEAE*

Yew