

COUNTY: CHESHIRE

SITE NAME: OAK MERE

DISTRICT: Vale Royal

SITE REF: 15WBY

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

Local Planning Authority: CHESHIRE COUNTY COUNCIL, Vale Royal Borough Council

National Grid Reference: SJ 574679

Area: 68.78 (ha.)

Ordnance Survey Sheet 1:50,000: 117

1:10,000: SJ 56 NE

Date Notified (Under 1949 Act): –

Date of Last Revision: –

Date Notified (Under 1981 Act): 24.01.86

Date of Last Revision: 30. 09.94

Other Information:

Site boundary extension. Site is listed in 'A Nature Conservation Review' edited by D A Ratcliffe, Cambridge University Press, 1977. Proposed Ramsar site.

Site Description and Reasons for Notification:

The meres and mosses of the north-west Midlands form a geographically discrete series of nationally important lowland open water and peatland sites. The finest examples are considered to be of international importance. They have developed in natural depressions in the glacial drift (sands and boulder clays) left by the ice sheets as they retreated from the Cheshire-Shropshire Plain some 15,000 years ago. The majority lie in Cheshire and north Shropshire, with a small number of outlying sites in adjacent parts of Staffordshire and Clwyd.

The origin of most of the hollows can be accounted for by glaciation but a small number have become deepened by more recent subsidence resulting from the removal in solution of underlying salt deposits.

More than 200 hollows are scattered individually or in localised clusters across the Plain. Their size varies widely, ranging from less than a hectare to 70 hectares, with depth ranging from about one metre to 30 metres.

Although the majority of the meres are nutrient-rich (eutrophic) the water chemistry is very variable, reflecting the variable nature of the drift deposits surrounding each site. Both water chemistry and depth influence the development of associated fringing habitats such as reed-swamp, fen, carr and damp pasture. The different emergent and terrestrial plant communities which have developed at each mere are important to our understanding of how environmental factors affect vegetation succession in open water.

The development of swamp and carr causes the accumulation of peat which in some cases has led to the complete infilling of the basin. Eventually the vegetation growing on the peat surface becomes raised above the surrounding ground water and, supplied only by rainwater, becomes nutrient poor (oligotrophic) and acidic, thus allowing species such as the bog mosses *Sphagnum* spp. to colonise it. Hence, over many thousands of years, some meres have developed into mosses, and an invaluable record of the detail of this process is preserved in the layers of peat and mineral sediments. In a few unusual cases, where the water surface becomes directly colonised by floating vegetation and then *Sphagnum* mosses, a quaking bog known as a 'schwingmoor' is formed.

Oak Mere, a shallow lake formed where three kettle holes coalesced, is unique among the Midland meres. The water is acidic (pH 4.5 approximately), but compared to other acidic

lakes is slightly nutrient-rich (mesotrophic). Because of its unusual water chemistry it contains an outstanding assemblage of aquatic plants and animals, including species more typical of upland waters on acid rocks, a number of which are regionally and nationally rare. The hydrology of the site is complex, involving perched water tables and the underlying groundwater, such that large fluctuations of the water level are experienced, periodically leaving wide draw-down zones. The surrounding drier land is largely wooded with the southern catchment under agricultural use. To the north-west and north-east peat has developed which has been cut in the past, leaving boggy pools and basin mires where active peat growth continues.

Oak Mere is one of the few lakes in Britain where large populations of the planktonic alga *Botryococcus brauni* develop and on occasions the water is coloured orange by its 'blooms'. Aquatic plants include water-starwort *Callitriche* spp., yellow water-lily *Nuphar lutea*, and in the shallows, dense stands of shore-weed *Littorella uniflora*, a plant which is rare in Cheshire. The shoreline flora consists of soft-rush *Juncus effusus*, water horsetail *Equisetum fluviatile*, marsh pennywort *Hydrocotyle vulgaris*, common spike-rush *Eleocharis palustris* and locally great reedmace *Typha latifolia*. Floating and submerged mats of mosses *Sphagnum auriculatum* and *Drepanocladus fluitans* are present. Of particular note is the abundance of the nationally rare narrow small-reed *Calamagrostis stricta*.

On the east side of the mere the littoral zone contains a diverse bryophyte community including two mosses *Atrichum crispum* and *Pohlia bulbifera* which are very rare in the Midlands.

The two mire areas are dominated by bog mosses *Sphagnum* spp. Associated species include cross-leaved heath *Erica tetralix*, heather *Calluna vulgaris*, common cottongrass *Eriophorum angustifolium*, purple moor-grass *Molinia caerulea*, round-leaved sundew *Drosera rotundifolia* and bottle sedge *Carex rostrata*.

A variety of woodland types occur around the mere. At the north end is extensive carr woodland dominated by birch *Betula pubescens*, alder *Alnus glutinosa* and goat willow *Salix caprea* with a ground flora dominated by purple moor-grass and soft-rush. A large heronry is established in the remains of a Scots pine *Pinus sylvestris* plantation. The fringing band of woodland around the southern half is dominated by birch and oak *Quercus robur* with willows nearer the shore. Heather and bilberry *Vaccinium myrtillus* occur in the ground flora.

The zooplankton includes many species common in lowland lakes but also some found in upland systems such as *Ceriodaphnia quadrangula*. The rare *C. dubia* has also been recorded.

Oak Mere is outstanding amongst the meres for a number of aquatic invertebrate groups, especially dragonflies *Odonata*, and beetles *Coleoptera*. Notable species include the diving beetle *Ilybius subaeneus* and the water boatman *Sigara semistrata*.

Nine locally rare species of terrestrial invertebrate have been recorded around the mere, including the crane fly *Tipula subnodicornis* which is more typical of upland than lowland habitats.