

File ref:

**County:** Hampshire      **Site Name:** Lymington River

**Status:** Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981 (as amended 1985), Section 17 of the Water Resources Act 1991 and Section 4 of the Water Industry Act 1991.

**Environment Agency Region:** Southern  
**Water Company:** Southern Water Plc

**Local Planning Authority:** Hampshire County Council, New Forest District Council

**National Grid Reference:** SU 215065 to SU 292041 (Ober Water); SU 243125 to SU 290040 (Highland Water); SU 292041 to SZ 328961 (Lymington)

**Length of River SSSI:** Approx. 12 km (Ober Water) 10 km (Highland Water) 10 km (Lymington)

**Ordnance Survey Sheet 1:50,000:** 195 196      **Area:** 35.65 (ha)

**Date Notified (Under 1991 Acts):** 24 July 1997      **Date confirmed:** 2 April 1998

**Other Information:**

This is a new site although parts of the site were separately notified as part of The New Forest SSSI in 1987 (renotified in 1996), Lymington River Reedbeds SSSI in 1984 and Royden Woods SSSI in 1985. Much of the site lies within the New Forest, and part, the Ober Water, is listed in "A Nature Conservation Review" edited by D. A. Ratcliffe, Cambridge University Press, 1977. The Highland Water is a Geological Conservation Review Site. Most of the headwaters lie within the New Forest Special Protection Area under the EC Directive 79/409 on the Conservation of Wild Birds and the Ramsar Site under the Ramsar Convention of Wetlands of International Importance.

**Description and Reasons for Notification:**

**Key Features:**

The New Forest streams are a geographically isolated type with no equivalent in lowland England. The Lymington River system is the largest in the New Forest, and the SSSI includes two contrasting tributaries: the Ober Water and Highland Water. The New Forest streams drain a catchment of base-poor (acidic) Tertiary sands and gravels overlying clay of the Barton series. The clay mainly occurs at the surface in the stream's upper reaches where it is often clad with peat. These peat valley mires help moderate the rate at which the sands and gravels are drained, feeding the small headwater streams through often extensive flushes. In the upper reaches the meandering river channel with its gravelly bed may be confined by steep banks where it has cut into the clay. Peat and clay underlie much of the Ober Water downstream of its headwater, the Mill Lawn Brook, whilst the rest of the middle and lower Lymington system flows mainly over alluvium and gravels.

Chemically the headwater tributaries are base and nutrient-poor (oligotrophic) and have slightly acidic peat stained waters. The Lymington system becomes more nutrient-rich further downstream, and the river communities reflect these changes. The plant communities of the Lymington system are unique in England; there is no other system currently known which shows such a rapid downstream succession in such a short stretch of river. At their source in extensive peat mires,

the tributaries have communities akin to nutrient-poor streams in the mountainous regions of Britain. Below these headwaters there are short stretches with less nutrient-poor communities as they flow through open grassland, heath and woodland. In the lower reaches, the plant communities of the Lymington are typical of more enriched lowland systems, though the effects of the acidic catchment are still evident.

Along parts of the Ober Water and Highland Water, flushes and seepages from the adjacent peat mires into the streams form specialised habitat on which depend a number of typical and rare invertebrates as well as characteristic plant species. The seepage water is usually acidic but locally it can be neutral.

### Flora:

The Ober Water has an exceptionally diverse and unusual flora with many species of upland oligo/mesotrophic waters growing alongside a community which has a clear meso/eutrophic expression. It is currently the only site in The New Forest for the nationally rare cut-grass *Leersia oryzoides*\*. The species which show the influence of base-poor substrates or the effect of acid flushes include lesser marshwort *Apium inundatum*, alternate water-milfoil *Myriophyllum alterniflorum*, water purslane *Lythrum portula*, shoreweed *Littorella uniflora*, intermediate water-starwort *Callitriche hamulata*, bog pondweed *Potamogeton polygonifolius* and least bur-reed *Sparganium minimum*. Species found growing where finer substrates have accumulated, and indicating more base and nutrient rich sediments, include fool's water-cress *Apium nodiflorum*, nodding bur-marigold *Bidens cernua*, purple loosestrife *Lythrum salicaria*, yellow water-lily *Nuphar lutea*, pondweed *Elodea* species and branched bur-reed *Sparganium erectum*. Lesser spearwort *Ranunculus flammula* and common water-crowfoot *Ranunculus aquatilis* occur widely, and species such as floating sweet-grass *Glyceria fluitans*, intermediate water-starwort *Callitriche hamulata* and Nuttall's' pondweed *Elodea nuttallii* are often locally dominant. Also present locally are blinks *Montia fontana*, patches of round-leaved water-crowfoot *Ranunculus omiophyllus*, ivy-leaved water-crowfoot *R. hederaceus* and the hybrid New Forest water-crowfoot *R. x novae-forestae*. Purple moor-grass *Molinia caerulea*, marsh St John's-wort *Hypericum elodes* and marsh pennywort *Hydrocotyle vulgaris* also typically occur along the peaty banks of the stream headwaters where the channels are not deeply incised.

The Highland Water remains a relatively un-managed and often densely shaded stream. It is typical of those New Forest streams where the rapid rise and fall in water level results in unstable conditions within the gravel-bedded river channel. Its flora comprises many species of neutral to base-poor waters including alternate water-milfoil, bog pondweed, bulbous rush *Juncus bulbosus* and the liverworts *Scapania undulata* and *Solenostoma triste*. The bank species more typical of streams in upland areas include marsh violet *Viola palustris*, marsh valerian *Valeriana dioica* and lesser skullcap *Scutellaria galericulata*.

The Lymington River downstream of the confluence of the headwater tributaries has a plant community which is more base and nutrient-rich in expression. It is still, however, influenced by the acid drainage from the New Forest to give an unusual lowland clay community type. The grazed, or poached, margins support the nationally rare Hampshire purslane *Ludwigia palustris*\* and slender marsh-bedstraw *Galium constrictum*\* and the nationally scarce chamomile *Chamaemelum nobile*\*\* and yellow centaury *Cicendia filiformis*\*\*. This predominantly southern river type is dominated by submerged beds of water starworts and bur-reed together with patches of yellow water-lily. Species of this varied community include the moss *Fissidens crassipes*, the nationally scarce river water-dropwort *Oenanthe fluviatilis*\*\*, brook water-crowfoot *Ranunculus penicillatus* v *pseudofluitans*, starwort *Callitriche obtusangula* and sweet-flag *Acorus calamus*. Locally, beds of common reed *Phragmites australis*, grey club-rush *Scirpus tabernaemontani*, bulrush *Typha latifolia* and branched bur-reed *Sparganium*

*erectum* are established. The acidic element is reflected in the continuing presence of soft rush *Juncus effusus*, lesser spearwort and intermediate water-starwort.

Downstream from the Forest boundary at Balmer Lawn, the soils of the valley locally include waterlogged silts and alluvium, as well as more free-draining but seasonally inundated pasture. Areas of perennially wet woodland and grassland are usually localised and contrast with the dry vegetation of the surrounding heathland catchment. They also provide important areas of riparian vegetation along an often deeply-cut river channel with steep dry banks. The flora here includes red pondweed *Potamogeton alpinus*, small pondweed *P. berchtoldii* and curled pondweed *P. crispus*.

Well developed wet woodland habitat, residual alluvial forest, is seldom extensive and usually comprises oak *Quercus robur*, ash *Fraxinus excelsior* and alder *Alnus glutinosa*, with localised stands of willow *Salix cinerea* and hazel *Corylus avellana*. One example near Brockenhurst supports a rich and varied flora, with frequent dog's mercury *Mercurialis perennis* and bluebell *Hyacinthoides non-scripta* identifying the dry tracts of ground amongst flushes and hollows with opposite-leaved golden-saxifrage *Chrysosplenium oppositifolium*, marsh marigold *Caltha palustris*, wood club-rush *Scirpus sylvaticus* and water mint *Mentha aquatica*. The flora includes a large number of species associated with sites having a long history of woodland cover such as moschatel *Adoxa moschatellina*, wood anemone *Anemone nemorosa*, wood spurge *Euphorbia amygdaloides* and sanicle *Sanicula europaea*. The nationally scarce narrow-leaved lungwort *Pulmonaria longifolia*\*\* is present and a population of the nationally rare summer snowflake *Leucojum aestivum*\* also occurs within the wet woodland.

These woodland trees, together with hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, bramble *Rubus fruticosus* and holly *Ilex aquifolium*, are the main species forming the often densely shading vegetation growing along the lower course of the Lymington. The river banks here support a diverse sub-Atlantic bryophyte community including *Hookera lucens* and *Hycocomium armoricum*. The western bryophyte *Nowellia curvifolia* is also present. *Porella cordaeana* may be found within the river growing on silt-covered roots of ash trees. Trees adjacent to, and overhanging, the river support a diverse lichen flora including species such as *Sticta limbata*, *Wadeana dendrographa* and *Degelia plumbea*.

### **Invertebrates:**

The invertebrate fauna of the upper Lymington system is typical of the New Forest streams and together with the associated flushes, it comprises distinctive elements and notable species. Of the many families which represent the New Forest streams' macro-invertebrate fauna, the most diverse groups are the caddis flies *Trichoptera*, the mayflies *Ephemeroptera*, the true flies *Diptera* and *Oligochaete* worms. A large number of species of water beetle *Coleoptera* have been found in running water in the New Forest, the Lymington being one of the three systems most frequently studied. Several species of mayfly, stonefly *Plecoptera* and alderfly *Megaloptera* are present. The fauna can be divided into three general elements: 1) those species requiring gravel beds and fast flowing water; ii) those occurring in the silted, ponded sections and margins of slow flowing reaches; and iii) the often specialist fauna of the flushes. These elements do overlap to certain degrees and are further varied by factors such as heavy shading, water pH and the role that 'dams' of woody debris, leaves and silt play as refuges during winter. The natural river processes by which the meanders, shoals, pool and riffle sequences are formed and maintained are thus very important for the diversity and character of the invertebrate fauna.

The Ober Water's fauna is typical of gravely streams and together with its associated flushes it has long been of particular interest for dragonflies. Among the species recorded from the Ober Water area, the rare southern damselfly

*Coenagrion mercuriale*\*, a species of international importance listed on Annex II to the EC Habitats Directive, the nationally scarce small red damselfly *Ceriagrion tenellum*\*\* and blue-tailed damselfly *Ischnura pumilio* all breed in the flushes seeping into small pools as well as the stream course. The nationally scarce white-legged damselfly *Platycnemis pennipes*\*\* breeds in the stream, its larvae relying on the localised accumulations of sediment such as around emergent marginal vegetation. The larvae of many of the river's other dragonfly species also use the stream habitat while the adults range along the watercourses and any other nearby water bodies. Probably the most numerous of these is the beautiful demoiselle *Calopteryx virgo* whilst others of note include the local keeled skimmer *Orthetrum coerulescens* and the large golden-ringed dragonfly *Cordulegaster boltonii*.

As with dragonflies, the bare peaty soil and open flushes adjacent to the Ober Water are of value for particular water beetles including the nationally vulnerable *Graptodytes flavipes*\*, a nationally vulnerable species recently recorded from the New Forest streams where it lives in shingle deposits, often in shaded streams. Also found living within the river's gravels are the water-mite *Neoacarus hibernicus*, first recorded in Britain in the site, and *Niphargus aquilex*, an eyeless freshwater shrimp.

Fast flowing, gravely river conditions, both shaded and open, are a characteristic of many parts of the site. In addition to the typical fauna of such habitat, the water beetles *Gyrinus urinator*\*\* and *Deronectes latus*\*\*, both nationally scarce species, and *Stictonectes lepidus* have been recorded. Certain species of mayfly and stonefly such as *Paraleptophlebia submarginata*, *Ecdyonurus dispar*, *Nemoura erratica* and *Leuctra inermis*, which are more common in upland streams, are found here as rather isolated populations. Other species typical of such streams include the water boatman *Sigara venusta* and the alderfly *Sialis fuliginosa*.

In slower flowing river sections, both the shaded pools and the open well-vegetated margins each contribute to the diversity of invertebrate habitat conditions available. The species occurring in such locations include the river pond-skater *Aquarius najas*, the nationally scarce water beetles *Laccobius sinuatus* \*\*, *Agabus chalconatus*\*\*, *Hydraena nigrita*\*\* and *Rhantus grapii*\*\*, and on water lilies, the nationally scarce leaf beetle *Donacia crassipes*\*\*.

### **Other fauna:**

The river supports a largely unmodified fish fauna including bullheads *Cottus gobio*, and lampreys *Lampetra* species, all of international importance listed on Annex II to the EC Habitats Directive‡, as well as brown trout *Salmo trutta*. Otters *Lutra lutra*, a species of national importance listed on Annex IV to the EC Habitats Directive‡, are resident on the Lymington, and dormice *Muscardinus avellanarius* have been recorded in part of the site. Both of these mammals are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The river is home to kingfisher *Alcedo atthis*, a species of international importance listed on Annex I to the EC Birds Directive † and listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), and grey wagtail *Motacilla cinerea*.

### **Geomorphological Interest:**

Highland Water is a unique area demonstrating a combination of low management and low human impact on fluvial processes. It provides a valuable opportunity to study the role and influence of vegetation in hydrological and fluvial processes and is of exceptional value for the study of debris dams which have a significant effect on channel processes, travel times of flood hydrographs, channel roughness and flow resistance. The hydrological and fluvial characteristics of the Highland Water are typical of those that formerly occurred in much of southern England.

- \* Nationally rare plant species are listed in the relevant Red Data Book. For the invertebrate species: RDB1 – Endangered: RDB2 = Vulnerable: RDB3 = Rare.
- \* \* Nationally Scarce species occur in 16 to 100 of the 10km<sup>2</sup> squares in Britain.
- † The EC Habitats Directive – EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Directive 92/43/EEC).
- ‡ The EC Birds Directive – EC Council Directive on the Conservation of Wild Birds (Directive 79/409/EEC)