

Nature Conservation  
in Barnet - Ecology Handbook 28  
Sites of Metropolitan Importance  
L.E.U.

natural forces, such as falling water table following a succession of dry summers. Ponds have disappeared from many of the fields in recent decades and, at the end of the summer, few of the drainage ditches carry any water. This bodes ill for both plant and animal species which are dependent on damp ground conditions. One radical management technique which might reverse this trend would be to block up some of the field drains.

### Highwood Hill (or Sellar's Field)

Highwood Hill is another example of old pasture with broadly similar ecology lying at the head of the Folly Brook valley. It has retained features from the earlier farmed landscape, with mixed hedgerows and a scattering of fine old spreading oaks giving a parkland quality to the area. Two small spring-fed ponds form the source of the Folly Brook; these have recently been cleared by the owner.

The varied geology, with the Claygate Beds at the top of Highwood Hill giving way to London Clay on the lower slopes, is reflected in the flora. The grass is generally dominated by creeping bent and Yorkshire-fog. However, on the better-drained ground on the Claygate Beds, finer grasses such as red fescue become more frequent, whilst on damp ground near the foot of the hill the wiry tussocks of tufted hair-grass are conspicuous. Two grass species which are considered indicative of ancient grassland, crested dog's-tail and sweet vernal-grass, are also present. Most of the typical herbs of clay pasture may still be found here, such as meadow buttercup, common bird's-foot-trefoil, red and white clovers, lesser stitchwort, selfheal, common sorrel, common knapweed and yarrow. Locally, meadowsweet and devil's-bit scabious are present. Other rarities recorded from the field in recent years include great burnet and pepper-saxifrage.

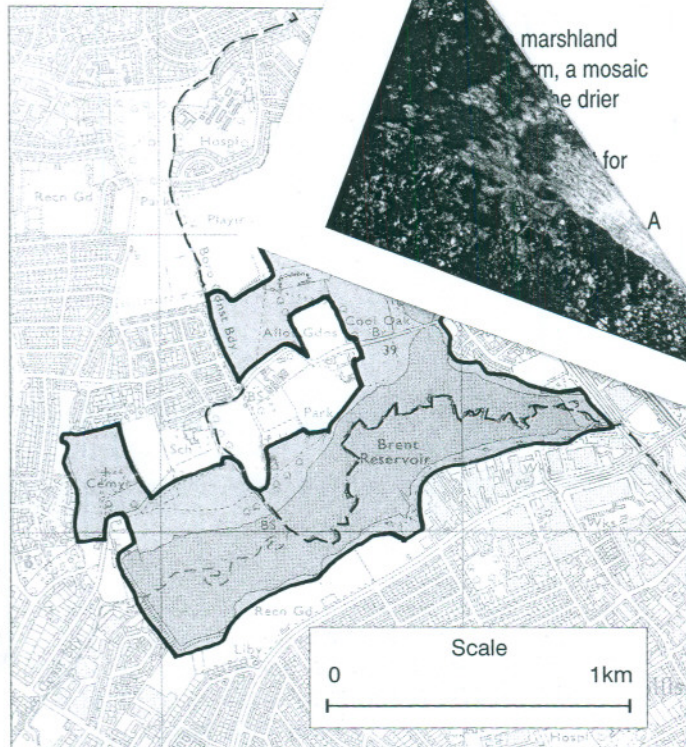
The area supports a good variety of farmland birds, including species such as nuthatch and green and great spotted woodpeckers which are associated with mature trees and dead timber. Further evidence of the Highwood Hill's biological richness is provided by its invertebrate fauna. A recent field survey found 22 beetle species in a single afternoon. These included six species which are considered indicators of ancient pasture woodland, two of them, the two-spot oak borer (*Agrilus pannonicus*) and oak pinhole borer (*Platypus cylindricus*), being national rarities. Many invertebrates are dependent upon dead wood and the continuous, rather specific, habitat conditions of old trees of wood pasture.

Until recently, Highwood Hill had not been intensively managed and was a fine example of old herb-rich pasture, similar in quality to parts of Totteridge Fields. As a result of recent changes, it has lost much of its historic character, and the status of this part of the Metropolitan Site is currently under review. Highwood Hill is privately owned and access is strictly limited to public footpaths.

### M35 Brent Reservoir (or The Welsh Harp)

Grid ref: TQ 215 871  
\* Area: 96 ha (46 ha in Barnet)

Brent Reservoir is situated in the south-west corner of the Borough, alongside the North Circular Road. Despite this most urban location, it is undoubtedly one of the most fascinating places in the Borough for naturalists. About half the site lies within the Borough of Barnet, half within Brent, and the lake itself (plus a small area of marginal vegetation) is owned by British Waterways



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Board. Its significance for nature conservation is recognised in its status as a Site of Special Scientific Interest, notified chiefly on account of the high numbers of overwintering wildfowl, diversity of nesting waterfowl and uncommon communities of wetland plants. The SSSI boundary is indicated on the site map.

### History

Before exploring the ecology, it is worthwhile to consider briefly the history of the site. The reservoir was constructed in 1835, as a top-up supply for London's canals. It was the hey-day of the canal era; the London stretches of the Grand Union and Regent's Canals had recently been completed, the latter providing a link for heavy industrial traffic between the docks in the East End and the main canal leading northwards to the Midlands. (These may be regarded as sort of watery precursors to the M25 and M1 motorways respectively!) A dam was constructed across the River Brent, a short way downstream from its junction with the Silk Stream, and the lake filled naturally behind the dam. The surrounding area was still largely open countryside, a landscape of tranquil pasture and hay meadows. The new lake was soon adopted by water birds, and many rarities were recorded by Victorian naturalists, including J H Harting, author of the well known *Birds of Middlesex* (Harting 1866). It also became a popular outing spot for Londoners, who came by train for picnics, fishing or even (in the cold winters of the late 19th century) ice-skating championships. Many of these activities were centred at a large public house, called the Old Welsh Harp, which stood near Staples Corner. Though the original pub has long since disappeared, its name lives on as the popular name for the reservoir.

Whilst the surrounding neighbourhood has changed beyond recognition since those days, the site has retained importance both for recreation and for wildlife. Today it also plays an important role in flood defence. The management has to reconcile intensive use for water sports with nature conservation, whilst also incorporating the requirements of flood defence.

ns about 51 hectares of open water, and is d, with the main body of the lake following the rent, and the northern arm following the Silk different in structure from the typical drinking he London area. Except for the concreted he dam), it has largely natural earth banks, -sloping sides. This allows marginal re established along much of the shoreline, nesting habitat for birds. It is also much nking water reservoir, with an average depth of ind maximum of seven metres: this represents ding habitat for diving and dabbling ducks. servoir also plays a role in flood storage, the sharply after heavy rain, threatening any ich are not attached to floating structures. nent of the feeder streams is now largely ts to suffer from pollution, including oil run-off oms and trash traps have been constructed c Stream and the River Brent; these help to films and unsightly litter, though oil and heavy e bottom mud are still a problem. The lake is e to high levels of nutrients from sewage the source streams; this causes algal blooms. s heavily used for sailing and windsurfing, nds, with over 100 boats often out at once. ut the most tolerant wildfowl, such as Canada om the main body of the lake. However, a lands cuts off a secluded refuge of undisturbed stern shore. This is especially valuable for shyer roveler and gadwall. Its calmer, shallow water l feeding conditions for ducklings. The northern ss disturbed, although some sailing and lace, mainly towards the southern end, near dge. There is another refuge area for birds at f the northern arm. When recreational pressure s severe, the displaced birds can to some extent . few small islands and rafts serve as loafing and

wenty years, extensive areas of reed bed, have grown up on the silt deposits around the e. This is particularly well developed along the northern arm. Stands of sea club-rush, common at and lesser reedmace line the water's edge. grades into a tall marsh community of wetland at willowherb, purple-loosestrife, yellow iris, l, water-pepper, water mint, common fleabane, wsweet, wild angelica, Indian balsam and reed so contains some rather incongruous, but highly asteland species including Canadian goldenrod f Michaelmas daisy.

retches of the eastern shore and up the eastern rn arm, the vegetation has succeeded to dense, ole willow carr, grading into damp willow back from the waterside. Crack-willow dominates gether with white willow; several of the shrubby ch as common osier, goat willow, grey willow, d various hybrids, are also present. Alder and jent in some areas. A number of small pools erve as further wildfowl retreats. hern shore there is a mixture of wooded areas, ash, willow and hybrid black-poplar trees, and

rough grassland with tall herbs, which merges into marshland nearer the water. Up the west side of the northern arm, a mosaic of rough grassland and light scrub has developed on the drier ground, including a former rubbish tip. Together with the neighbouring allotments, this provides good feeding habitat for small birds. A recent plantation of (mostly) native trees, to the south of West Hendon Playing Fields, provides additional cover. A small area of naturally-colonised secondary woodland has grown up near the Environmental Centre, on a plot which had previously been prepared for a cemetery. The site also contains several old hedgerows, some of which pre-date the reservoir; a double hedge with bank and ditches (a fragment of an old green lane) marks the Barnet /Brent boundary near the northern shore of the main lake.

### Birds

The birdlife is undoubtedly the site's greatest attraction for naturalists. The reservoir is particularly important for over-wintering wildfowl, which migrate into this country in autumn from breeding grounds further north. The site attracts both dabbling and diving ducks; dabbling ducks are those that feed by straining the surface water or up-ending, whilst diving ducks dive right under the water to seek their food.

The numbers of individual species fluctuate from year to year. When the SSSI was first notified in 1950, the reservoir was one of the best sites in the country for smew, a small black-and-white diving duck from the Baltic area. The UK winter population of this species has declined markedly over recent years and it is now only occasionally recorded at the Welsh Harp. Today the site is more important for dabbling ducks, with peak winter counts of shoveler and gadwall from 1993-5 averaging 109 and 82 respectively. This is over 1% of the national winter population for both species (which is regarded as a nationally significant level). It is also a good site for teal (average peak winter count 1993-95, 79) and mallard. Amongst the diving ducks, tufted duck reached a spectacular 580 in 1995, whilst pochard reached 42 (although more impressive flocks of up to 150 could be seen here a few years ago). The winter 1995-6 was particularly good for diving ducks. This is perhaps because the reservoir had been drained down the previous winter, which possibly improved the aeration of the bottom mud and hence winter feeding conditions for the birds.

Cormorants and herons can often be observed roosting on the rafts and islands. Large flocks of gulls (chiefly black-headed gulls) congregate on the open water, together with the inevitable Canada geese. Impressive numbers of snipe are recorded in the marsh and reed beds, with up to 24 recorded in 1995 (and up to 50 in some previous years). These areas also provide cover for the water rail, a curious, secretive species which is more often heard squealing in the rushes than seen out in the open.

Perhaps even more remarkable is the range of species which breed on the site. Over the past twenty years, this has been one of the best sites in London for breeding great crested grebes, with up to 41 pairs in 1990. However, the nests are susceptible to flooding when the water level rises, with inevitable consequences for the young. Only two broods were successfully reared in 1993, although by 1996 there was a partial recovery with about 30 pairs attempting to nest, about half of them successfully. A few pairs of little grebes breed most years, although again numbers were considerably higher a few years ago. This one of the very few London breeding sites for pochard, shoveler, gadwall and teal, with one or two pairs of each most summers. The tiny ruddy duck — an escaped North American species which has recently become established in the wild in this country — also breeds here.

*Nature conservation in Barnet*

Moorhen, mute swan, and large numbers of mallard, tufted duck and coot also nest most years. Rafts, which were originally introduced to provide roosting platforms for wildfowl, have become eagerly adopted by common terns, with up to 19 nesting pairs by 1996. At times, the reservoir provides less than an ideal feeding habitat, due to its murky water and oily films, which impede the visibility for fishing. However, in these conditions the birds disperse over neighbouring park lakes, canals and even the ponds on Hampstead Heath to forage, returning to the reservoir to feed their young.

Since the marsh and reed beds have grown up, reed and sedge warblers and reed bunting have become regular breeders. In 1992 (the last year for which systematic count data are available) 32 singing male reed warblers, five sedge warblers and seven reed buntings were recorded. Whitethroat, lesser whitethroat, blackcap, willow warbler, chiffchaff and linnet nest in the rough grassland, woodland and scrub. Grey wagtail and pied wagtail bred on the site in 1995. Kingfishers have recently begun to nest here once again. Tawny owl, sparrowhawk and kestrel also breed on the site.

Whilst high nesting or over-wintering numbers are important in assessing the site's importance for nature conservation, for the local birder the sheer range of species is a source of inspiration. In 1996, a total of 131 species was recorded. Many rarities have been seen, especially during the spring and autumn passage. Some of the more unusual records for 1995 and 1996 included slavian grebe, bittern, night heron, garganey, smew, blue-winged teal, ring-billed gull, long-eared owl, hen harrier, osprey, cuckoo and pied flycatcher.

**Mammals, amphibia and reptiles**

Pipistrelle and noctule bats feed over the lake. A pipistrelle roost is suspected in the old Neasden Library building nearby. Smooth newts and frogs are regularly observed in the reservoir and nearby ponds, and there are a few isolated records of common toad. Lizards were observed on broken concrete near Cool Oak Lane bridge in the 1960s, although their continued survival is thought unlikely. A small number of slow-worms were introduced some years ago near the Youth Sailing Base. Like many urban lakes, the reservoir has also been the recipient of red-eared terrapins; these can occasionally be seen basking in the marshy areas, although their presence is a problem as they are predators of young wildfowl. Water shrews have recently been reported from the site.

**Invertebrates**

The insect fauna of the site is also of considerable interest, both for wetland species and those associated with old grassland, woodland and hedgerows. Over 40 species listed in the *Red Data Book for Invertebrates* (JNCC 1991) have been recorded here as well as many other uncommon insects. The butterfly list for the site has now reached 24 species and includes the white-letter hairstreak, whilst the damselfly and dragonfly list totals 13 species, including the nationally uncommon ruddy darter. Other notable records include the day-flying chimney sweeper moth, the longhorn beetle *Phytoecia cylindrica*, hoverfly *Epistrophe diaphana* and brown lacewing *Symphorobius elegans*. Local entomologist [unclear] contributed most of the insect data, considers

**Plants of special interest**

The site is also remarkable for its wildflowers. Five species of orchid have been recorded in recent years. Broad-leaved helleborine grows in damp woodland near the eastern marsh, whilst common spotted-orchid occurs in grassland on the north and southern shores. Southern marsh-orchid can be found in the north and south marshes; a pyramidal orchid was discovered in the east marsh in the 1980s. Bee orchid was discovered on the ground in 1994.

The marsh areas support many other uncommon species, for example flowering-rush, cyperus sedge, fringed water-lily, great spearwort, greater bird's-foot-trefoil, marsh woundwort, great burnet and square-stalked St John's-wort. The London rarity golden dock has been found on drying silt.

Some of the dry grassland also contains interesting plants. Burnet-saxifrage grows abundantly in an area of rough grassland over rubble-filled soil near Cool Oak Bridge. Patches of acidic grassland, which contain abundant sheep's sorrel, can be found on the Taplow Gravel soil along the northern shore of the main lake. The London rarity heath groundsel has also been recorded.

**Access**

Most of the site is open to the public, with a network of paths, starting from Cool Oak Lane and Birchen Grove. Two hides provide excellent birdwatching facilities in the east marsh. Serious birdwatchers can obtain a key from the Welsh Harp Conservation Group (WHCG); see Appendix 1 for their address. Public guided walks are organised occasionally by Barnet Council's Countryside staff and the WHCG, whilst Brent Council organises an annual event, Kingsbury Open Day, which includes wildlife walks around the reservoir. Brent Council's Environmental Education Centre is open to any primary school in the neighbourhood. In future, with financial support from Guinness, it is hoped to improve disabled access, including a hide accessible to wheelchair users.

**Management**

Management is a complex exercise requiring a balance between the needs of water sports, nature conservation and flood defence. The two Local Authorities have set up the Welsh Harp Joint Consultative Committee (WHJCC) to encourage dialogue between the different interest groups. In 1994, a firm of consultants was commissioned to prepare a draft management plan encompassing both recreational and conservation issues; however this has not yet been formally adopted by the WHJCC. The Environment Agency has drawn up a draft Water Level Management Plan for the SSSI to enable the nature conservation status of the site to be safeguarded.

Whilst sailing and nature conservation have many common requirements (for example a preference for clear water and a pleasant landscape), there are inevitable differences, such as the need for open wind-swept water for sailing, versus sheltered water for ducklings. Undoubtedly the lake could support many more wildfowl if there was no boating activity. Wildfowl vary greatly in their tolerance of disturbance; excessive recreational pressure has its most severe effects on the more sensitive species, such as the grebe and gadwall, which cannot be observed on ordinary parkland. Leaving little but the ubiquitous gulls and Canada geese, the lake's refuges are therefore vital in maintaining a diversity of birdlife.

Practical conservation work is therefore aimed at in

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In the longer term, it is hoped that the problems of water quality in the feeder streams and silt build-up in the lake can be addressed. The site management work is overseen by the two Boroughs, in consultation with WHCG. This group also carries out bird monitoring, publishes an annual bird report and is currently preparing a book on the wildlife of the site. Much of the practical conservation work is also carried out by group members, in consultation with the Council. For heavier tasks, such as raft-building, offenders working out community service orders under the Probation Service have sometimes been employed as well as Barnet Conservation Volunteers and BTCV. Appropriately for a wetland site, the local Beavers also help!

### M38 Arrandene Open Space and Featherstone Hill

Grid ref: TQ 226 920  
Area: 25 ha

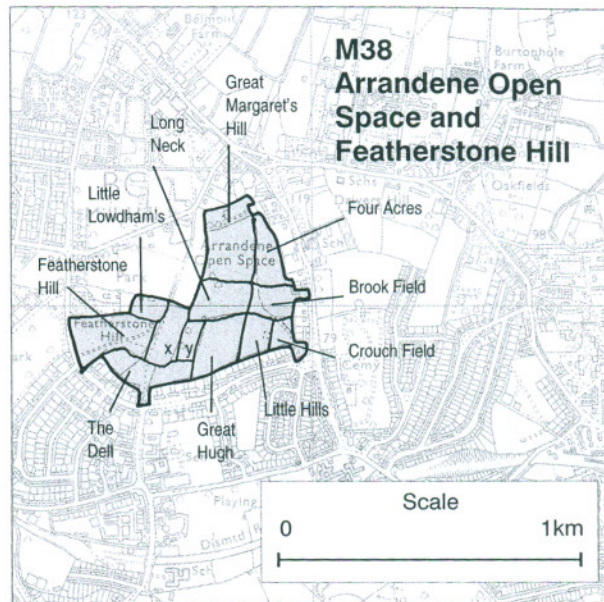
This is a delightful stretch of countryside on the southern slopes of Mill Hill. Although it lies almost in the centre of the Borough, and is surrounded by houses on three sides, the site has retained a remarkably rural quality. Its landscape of small fields, divided by tall hedgerows and small pockets of woodland, is reminiscent of many a Hertfordshire or Middlesex farm 50 years ago, before the advent of modern hi-tech machinery with its insatiable demand for vast open fields. It also represents one of the best examples of old hay meadow in London, supporting a number of locally rare plants. Most of the site was purchased by the local authority in 1929, and is now open to the public; a public footpath, several informal footpaths and a permissive horse ride cut across the site.

The landscape is undulating, with its highest points at Featherstone Hill in the west, and Mill Hill Ridge in the north-east, at 105 metres above sea level. From these vantage points, there are fine views west across the Silk Stream valley towards Harrow-on-the-Hill and south-east towards Highgate Hill and Alexandra Palace. The underlying geology is London Clay, although at the top of Featherstone Hill this is capped by small areas of sandy clay of the Claygate Beds. Between the two high points, a stream flows roughly west to east, joined by a tributary from the north-east end of the site, and drains towards the Dollis Brook. The western slopes drain towards the Silk Stream. Although now of only intermittent flow in dry summers, the streams and ditches provide corridors of damp habitat across the fields.

#### History

The site's most important feature is its old hay meadow flora. Traditionally, the main use of the fields was growing hay for London's horses, with intermittent use for grazing. By some accident of history, most of the fields escaped both the pressures to plough for arable crops during the war, and re-seeding with improved grass mixes in later years. As a result, much of the original clay meadow flora has survived. Exceptions were part of Featherstone Hill, which served temporarily as a cornfield, and Brook Field, which was used as allotments during the 1940s. Little Lowdhams Field also has a rather different history, as it used to be a school playing field.

From the 1960s to the 1980s, the Local Authority managed most of the open grassland by turbo-mowing, in a similar way to the amenity grass regime in local parks. However, over the past few years, a more ecologically-sensitive management regime has



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been applied, involving a single late summer cut. To some extent this mimics the management of the old hay meadows, allowing the flowers to bloom and set seed before they are cut. Much of this work is carried out under a Countryside Stewardship agreement.

A few years ago, before the botanical importance of the site had been fully appreciated, a proposal was put forward to develop the area as an arboretum. As part of a preliminary stage, a number of exotic trees were planted, which contrast with the more traditional communities of trees and shrubs of the agricultural landscape. Today the management recognises the need to maintain the open grassland if the meadow flora is to thrive, and tree planting, especially of non-native trees, is confined to a few discreet areas.

#### Meadow flora

In summer, the fields are now a blaze of colourful wild flowers. Whilst a broadly similar ecological pattern can be seen across most of the open grassland, each field seems to hold its own specialities, so that as you wander from field to field, there is always a chance of finding something new. The two small fields at the top of Featherstone Hill (marked x and y on the map above) may be taken as examples. These small secluded fields are surrounded by tall hedges and a strip of elm scrub separates one from the other. This contains a rabbit warren. The turf is dominated by creeping bent, common bent and Yorkshire-fog, with cock's-foot and false oat-grass, and tussocks of tufted hair-grass, soft-rush and compact rush in damp areas. It contains a number of uncommon wild flowers, which are rarely found in London except on surviving remnants of old clay pasture; these include sneezewort (its name reflects the fact that it was once a constituent of snuff), pignut (whose tuberous root is loved by pigs) and greater bird's-foot-trefoil (a robust relative of the more widespread common bird's-foot-trefoil). Abundant common knapweed, lesser stitchwort, common sorrel, cat's-ear, autumn hawkbit, creeping buttercup, yarrow and oxeye daisy make for a colourful sward. The distinctive tall fescue, a handsome grass more commonly associated with rough road verges than open meadow, is also present.

Long Neck Field, to the north-east, is a little larger, and slopes down gently to the east and south. A small seasonal stream runs