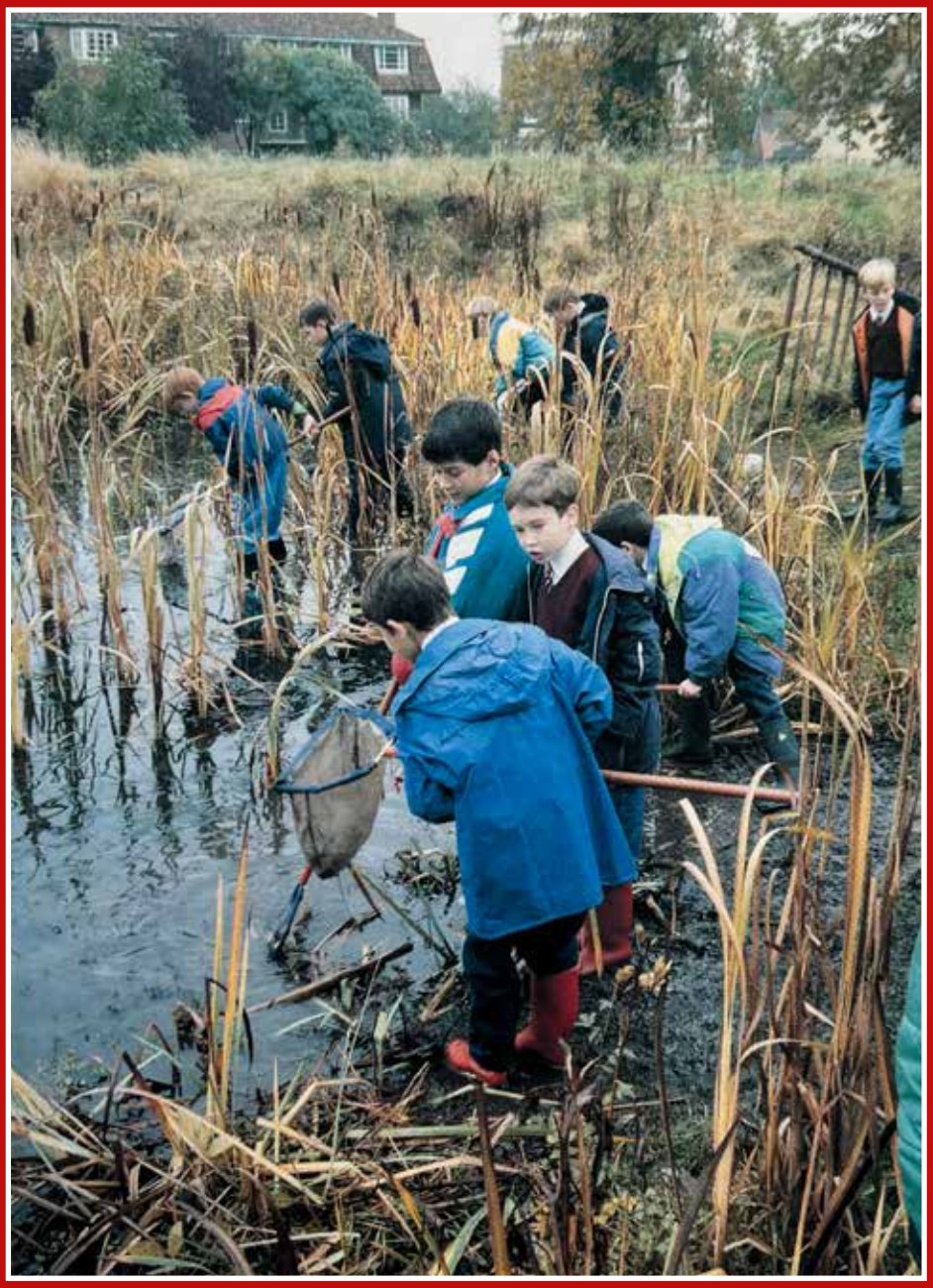
Nature Conservation in Sutton



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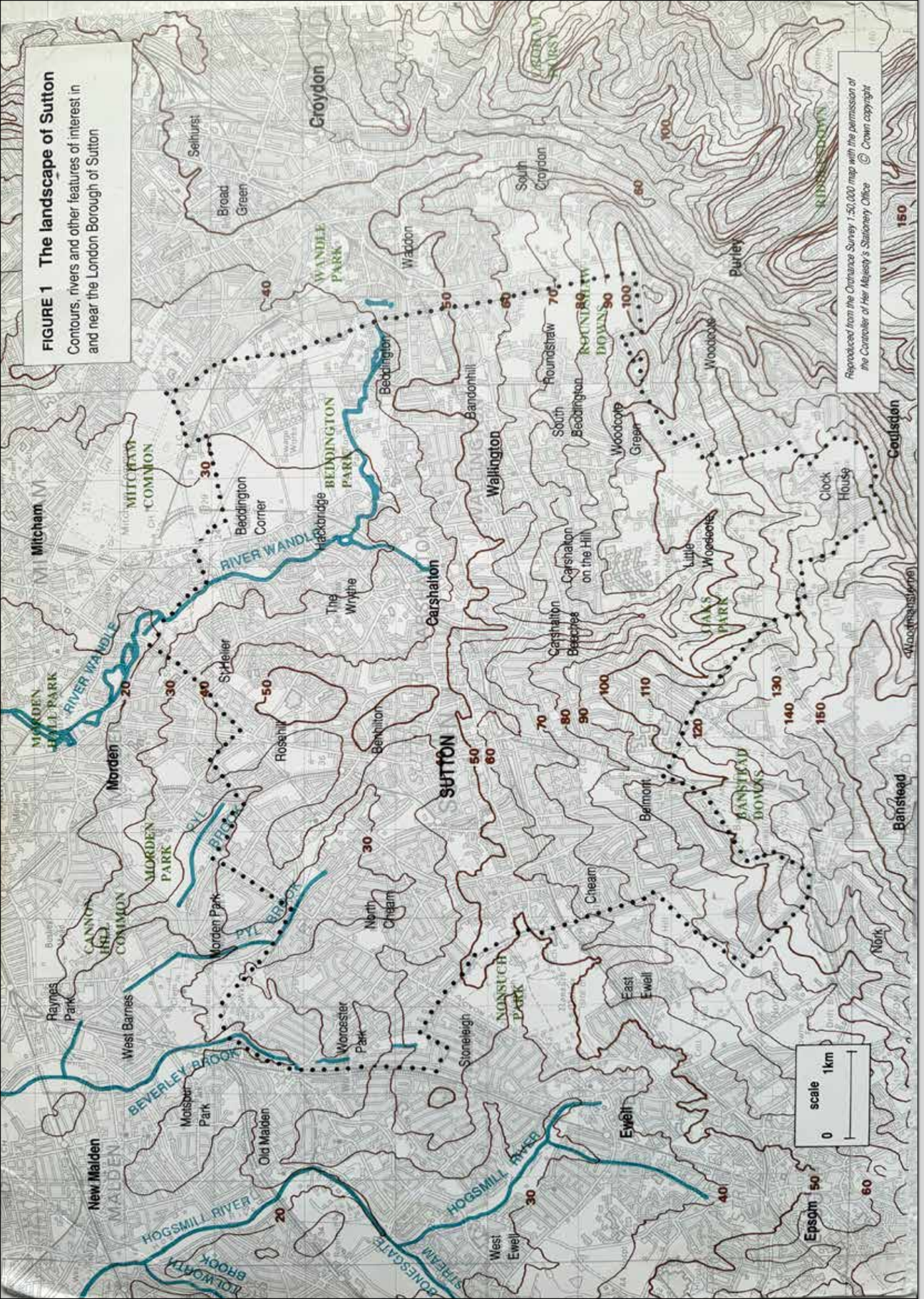

Nature Conservation in Sutton

Ian Yarham, Richard Barnes and Bob Britton

Ecology Handbook 22

LONDON ECOLOGY UNIT

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Readers should be aware that although many of the sites described in this book are freely accessible, many others are private. In some cases they can be visited by permission of the owner. The fact that they are described here does not necessarily mean that they are accessible and readers should be aware of the laws of trespass.

Front cover
Pond dipping at the Sutton Ecology Centre
LB Sutton/Karen Fry

Back cover
Pyramidal orchids at Woodcote Park Golf Course
LEU/Meg Game

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About the London Ecology Unit

This book is one of a series of publications produced by the London Ecology Unit. Other titles in the series are:

1 **Ecology and Nature Conservation in London**
2 **A Guide to Habitat Creation**
3 **Nature Conservation Guidelines for London**
4 **Woodland, Wasteland, the Tidal Thames and two London Boroughs**
5 **Nature Conservation in Brent**
7 **Nature Conservation in Hillingdon**
8 **London's Meadows and Pastures**
9 **Nature Conservation in Croydon**
10 **Nature Conservation in Greenwich**
11 **Nature Conservation in Waltham Forest**
12 **Nature Conservation in Southwark**
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15 **Nature Conservation in Hounslow**
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The London Ecology Unit works to develop new ways of creating a greener and pleasanter urban environment. It advises planners, developers and local people on how to protect wildlife areas in towns and how to create new habitats for plants and animals. The Unit has carried out extensive surveys of London's wildlife, ecology and landscape history. Funded by most of the London Borough Councils, the Unit has the support of the Countryside Commission and English Nature (the Nature Conservancy Council for England).

The Unit provides information and advice to local authorities and other agencies on all aspects of nature conservation and applied ecology. Its work includes the development of ecological policies for local planning, the assessment of the nature conservation value of specific sites, and advising on the appropriate management and development of sites to encourage wildlife and to provide new habitats.

The Unit maintains a database of London's wildlife habitats, with information on what is found in each place. These data are in constant use by the Unit and by many other organisations and individuals.

New work by the Unit includes guidance on developing nature conservation areas in towns, and how new wildlife habitats can be provided within urban development, including habitats on and around buildings. The Unit has published its guidance on these issues in a new book **Building Green**.

Contents

List of maps and diagrams

Foreword

Publication of *Nature Conservation in Sutton* is an important milestone in our series of Ecology Handbooks. The London Borough of Sutton has been in the forefront in implementing good environmental practice in London and has made considerable progress through its imaginative programme of nature conservation projects. It has encouraged local groups to become involved in a great variety of activities, including clearing rubbish from the River Wandle, local wildlife walks and protection of locally important wildlife areas.

The London Ecology Unit has worked closely with the Borough and is pleased to have been associated with many of these new initiatives. Our publication on *Nature Conservation in Sutton* is no exception. I am particularly pleased that this handbook reflects our continuing partnership through joint authorship with Richard Barnes, the Borough's Field Offices, who contributed several sections of the book.

Four Local Nature Reserves have now been designated in Sutton, two on the River Wandle at Wilderness Island and Spencer Road Wetland. Others are The Spinney, known locally as Nightingale Road Bird Sanctuary, and the newly created Ecology Centre in Carshalton. Many of the Borough's parks are being actively managed for nature conservation, notably Oaks Park and Beddington Park, whilst the large area, once part of Croydon Aerodrome, known as Roundshaw Downs is one of the best examples of calcareous grassland in London, with a host of chalkland flowers.

In addition to its success in protecting important sites, the Borough has developed its own Ecology Centre in the grounds of The Lodge Lands in Carshalton. New woodland, pond and marshland habitats have been created and the area now provides an outdoor classroom for schools and a place where local people can enjoy nature. The centre provides a forum for all aspects of environmental work including information on recycling, renewable energy and local sustainability, and provides a place for the many local groups to plan and discuss environmental projects.

Our handbook describes all of these places and has already been used b the Borough to take account of nature conservation in the new Unitary Development Plan which provides the basis for local planning in the forseeable future. I hope that it will not only provide the detail necessary for effective planning, but will also be popular with local residents as a guide to their local heritage of wild nature.

David Goode
Director
London Ecology Unit

Introduction

This handbook documents the wildlife of the London Borough of Sutton, and the initiatives of the Borough Council and others to protect and enhance habitats for wild plants and animals. It is one of a series of ecology handbooks produced by the London Ecology Unit on nature conservation in London boroughs. These are a guide to planners and land managers on how to further nature conservation in the capital, for example through policies in Unitary Development Plans, development control and the way in which open spaces are managed. It will also be of interest to residents and visitors to Sutton who want to find out about the green spaces, animals and plants of the Borough.

While much of the Borough is built-up, Sutton contains large areas of open land, especially in the south-east, where there is an extensive area of Green Belt at Little Woodcote, in the east at Roundshaw Downs, and in the north-east at Beddington. The River Wandle and its associated wetland habitats are also a fine asset to the Borough.

The Borough Council recognises the importance of wildlife and green spaces to people living in urban and suburban areas, and pursues policies to defend sites of nature conservation interest from development and to manage its open spaces with nature in mind. It also supports initiatives in environmental education, including nature areas in schools. Sutton has been in the forefront among local authorities in Britain in developing environmental initiatives.

Nature Conservation in Sutton was written using data from site visits supplemented by information from many other people, such as Borough officers and local naturalists and historians. Extensive consultation on the text was carried out with interested parties, including Councillors and officers of the Borough, landowners and managers, voluntary groups and local naturalists.

A full list of handbooks published by the London Ecology Unit is given at the front of this book.

Part One

1 The landscape and geology of Sutton

The London Borough of Sutton lies on the southern extremities of Greater London and is roughly rectangular in shape (figure 1). It covers an area of 4,342 hectares and provides a home for over 168,000 residents.

The Borough's boundaries

To the north Sutton is bordered by the London Borough of Merton. Here the irregular boundary does not follow any obvious physical feature, except for a short stretch of the River Wandle, a stream and hedge running east-west across Beddington Sewage Farm, and roads such as Bishopsford Road and Stonecot Hill. To the east the boundary with the London Borough of Croydon is straighter and was drawn along the line of an ancient embankment, Mere Bank, which has now disappeared without leaving a trace on the ground.

South of Roundshaw Downs the boundary turns west on high ground through Woodcote and then south once more to Woodmansterne. The southern boundary with Reigate and Banstead Borough continues generally along the northern edge of Banstead Downs, although at the south-western corner a tongue projects southwards at Cuddington Golf Course. To the west of here the boundary with the Borough of Epsom and Ewell runs northwards passing alongside Nonsuch Park to Stoneleigh, where it continues beside the railway line to Worcester Park station. Finally, in Worcester Park, Sutton has a short common boundary with the Royal Borough of Kingston upon Thames.

Residential centres

The London Borough of Sutton appears to be largely 20th century suburbia. However, ancient villages such as Beddington, Carshalton, Sutton and Cheam lie within the fabric and still retain some village character, although in the case of Sutton itself this is much harder to find.

The River Wandle attracted early industry and settlements such as Beddington. However, from Saxon times until the coming of the railways, most of the population was concentrated in the line of villages along the springline of the chalk on the northern edge of the Surrey downs. These ran from Beddington in the east through Wallington, Carshalton and Sutton, to Cheam in the west.

The village of Sutton was transformed between 1775 and 1809 when the main road from London to the newly-fashionable Brighton passed along the High Street. Sutton then grew into a town after the railway came in 1847. In the 1960s commercial development looked likely to turn the town into another Croydon but it never developed to that level. For all that, Sutton is a major shopping, commercial and administrative centre in south London.

The two main secondary centres are at Wallington and North Cheam. The latter developed at an important crossroads while the former developed after the railway came in 1847 and has now given its name to much of the area. The remaining District Centres at Cheam, Worcester Park and Stonecot in the west, Rosehill and Middleton Circle in the north, and Carshalton towards the east, serve local needs.

The development of 20th century suburbs such as St Helier and Worcester Park in the north and Belmont and Carshalton Beeches in the south has filled in many of the gaps, leaving extensive open spaces only in the east at Beddington and Roundshaw and in the south around Little Woodcote.

Roads and railways

The Borough is well served by railways, with three lines out of London converging at Sutton station. The most direct is from Victoria via Balham, Hackbridge and Carshalton. The other two are from London Bridge or Victoria via West Croydon, Wallington and Carshalton Beeches, and from London Bridge via Tulse Hill, Wimbledon and West Sutton. The Thameslink service also reaches Sutton via Tulse Hill, Selhurst and West Croydon. From Sutton the branch line to Epsom Downs heads southwards while the main Dorking line continues towards the south-west. One further line just enters the Borough at the north-eastern corner: the Wimbledon to West Croydon branch near Beddington Lane. The north of the Borough is greatly influenced by a line that does not reach it. The Northern line terminus at Morden is the focal point for several bus services from north Sutton and many people from Sutton commute from Morden to central London.

The Brighton Road has lost its importance, although it still takes much traffic into and out of Sutton town centre. The main north-south route replacing it is the Sutton By-pass (A217) via Reigate Avenue, Oldfields Road, St Dunstan's Hill and Belmont Rise. The two other principal north-south roads are Stonecot Hill, London Road (A24) in the west and London Road, Woodcote Road (A237) in the east.

The main east-west route still follows the line of the ancient track which linked the original springline villages of Beddington, Carshalton, Sutton and Cheam (A232). The other important east-west route, crossing the south of the Borough at Little Woodcote, is Croydon Lane, Woodmansterne Lane (A2022). One other busy route, linking Cheam to Worcester Park, is Malden Road and Cheam Common Road (A2043).

Geology

Geologically the Borough can be divided into four areas (figure 2).

The south of Sutton, south of the A232, is on the chalk, giving light, highly calcareous soils of low fertility. The northern boundary of the chalk closely follows the 50 metre contour. Unlike the Borough of Croydon to the east, where there are a number of steep-sided dry valleys and hill tops capped with Clay with Flints, the downland of Sutton is more gently rolling, and chalk is at the surface almost everywhere. One major dry valley runs down from Oaks Park to Carshalton, where some of the main spring sources of the Wandle until recently issued at the junction of the chalk and the overlying Tertiary sediments. A few tiny fragments of Tertiary sands also cover the chalk further to the south, as for example at Queen Mary's Hospital, but these are not nowadays reflected in differences in the vegetation as compared with the surrounding chalk. The chalk grassland which still exists on the downs is rich in wild flowers, including many species of restricted distribution in London. The highest point of the Borough is on the downs at Clock House in the extreme south, where parts of Woodcote Park Golf Course lie at over 140 metres above sea level.

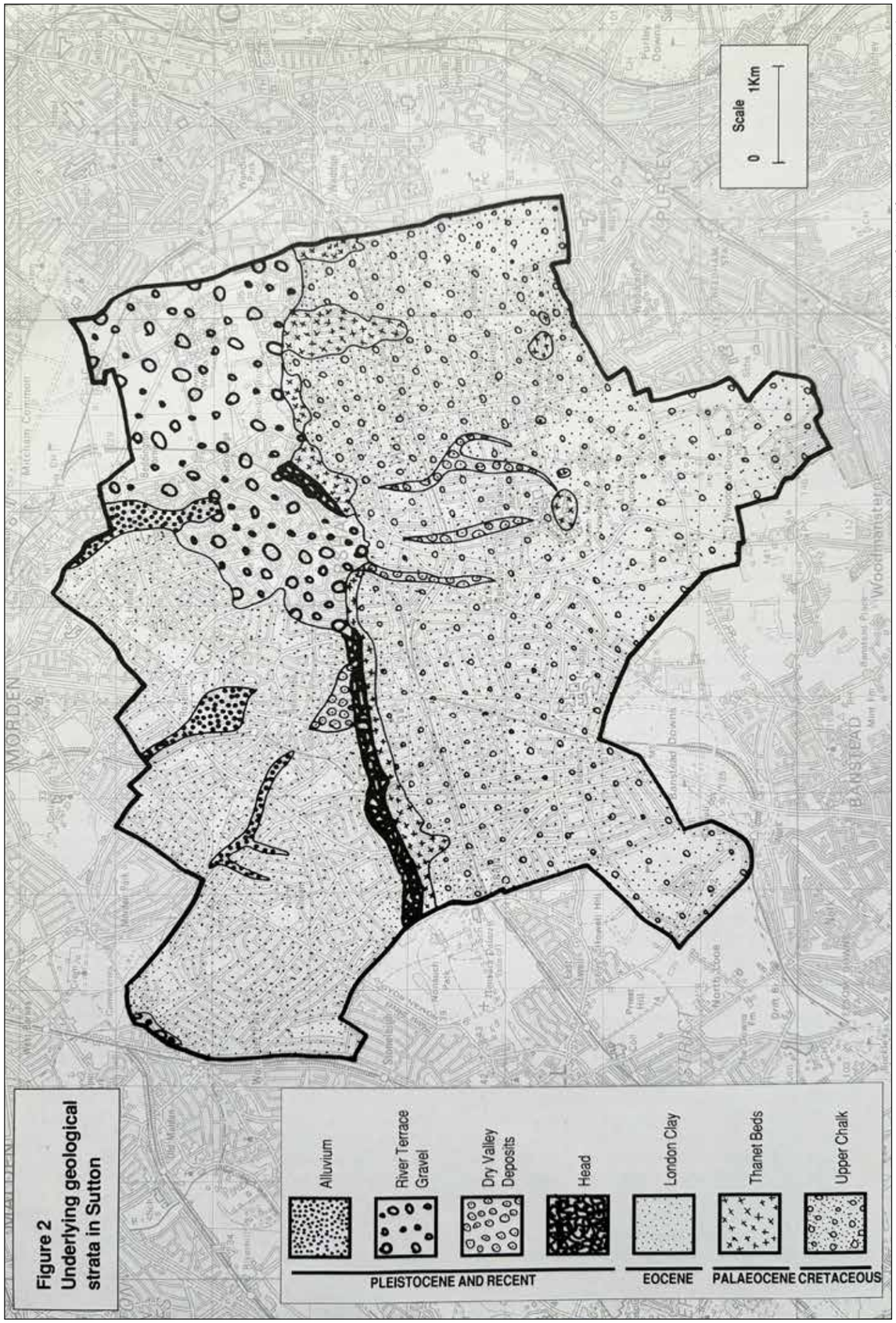
North of the chalk and to the west of the River Wandle the land slopes down to a dissected plateau of London Clay with two small isolated hills at Rosehill and Benhilton. Both formerly carried ancient oak woodland, but only on Rosehill do fragments remain. To the west of here the valleys of the Beverley Brook and the two branches of the Pyl Brook drain north-westwards, their courses marked by alluvium and river terraces-on the map. Most of the clay lands are now covered with suburban housing, and with the exception of the woodland there are few natural habitats of any extent.

Between the chalk and the London Clay is a narrow band of Tertiary sands, which continues along the foot of the chalk as discontinuous patches to the east of the Wandle. Thanet Beds, of fine, yellow-brown sand, is the main formation, and this is exposed as sandy soil along Croydon Road, Beddington, and at one or two other places nearby. West of Carshalton the overlying Reading and Woolwich Beds also occur. All three formations produce fertile loamy soils, and most of this area was settled early and is now built-up. The Blackheath Beds, which give rise to very infertile acid soils further to the east in Croydon, do not occur in Sutton.

In glacial times the Wandle was at times a raging torrent which gouged out a deep valley in the chalk from Coulsdon down to Croydon. As it reached the flatter ground north of the chalk it deposited a huge, almost level, fan of alluvial gravels, extending from Waddon and Beddington in the south to Mitcham, Merton and Colliers Wood in the north. These gravels cover the whole north-eastern part of the Borough, except where they are overlain by a narrow strip of more recent alluvium along the present course of the Wandle. The area of gravel is now occupied by Beddington Sewage Farm, Beddington Park and the housing of Hackbridge, and the original soil characteristics are masked. The vegetation of Mitcham Common to the north, with its acidic grassland, gorse and heather, may indicate the former vegetation cover of these gravel soils. Work is underway to extract much of the gravel underlying Beddington Sewage Farm, where its thickness exceeds four metres in places. This will leave a number of recreational lakes, and some areas will be dedicated to nature conservation.

Rivers

The dominant river in Sutton is the Wandle. It first appears now at Waddon Ponds, just over the Croydon boundary, and from there it flows westwards and then northwards to leave Sutton near Watermeads. Its original source was in the Marden Park Valley near Woldingham. Until recently numerous springs rose along the boundary of the chalk and the Tertiary sands, and these joined to flow into the river, just to the north of Carshalton. Unfortunately, however, because of water abstraction from the chalk in the Carshalton area and elsewhere, compounded by the dry weather of recent years, many of the springs are dry or reduced to a trickle, and the main river only carries a fraction of its former flow. The Carshalton branch of the Wandle now has to be supplied at Carshalton Ponds by water from sources further downstream in order to supplement natural inflow from rainwater.



Reproduced from the Geological Survey 1:50,000 map with the permission of the Director, British Geological Survey ©National Environment Research Council

Figure 2
Underlying geological strata in Sutton

Despite this, the River Wandle is a typical chalk stream and, unlike the streams on the London Clay, has a very constant discharge and clear water.

Much of the western part of the Borough is drained by the Beverley Brook and its tributary, the Pyl Brook. These are usually insignificant watercourses but, like most rivers on the London Clay, they are prone to flash floods, a feature exacerbated today by their built-up catchments. Only beyond the Borough boundary does the Beverley Brook achieve any significant size.

Some areas in the extreme south-west of Sutton, at Cuddington Golf Course and Cheam Park, are in the catchment of the Hogsmill River, which eventually reaches the Thames at Kingston. However, there are no significant watercourses of this catchment within Sutton.

2 The history behind the landscape

At first sight Sutton appears to be largely typical 20th century suburbia, particularly in the north, with the Green Belt retaining remnants of countryside in the south. A closer investigation of history and geography reveals considerable variety and a much more intricate pattern of development than at first appearance. There are many areas of great charm.

The River Wandle in the north-east attracted both early industry and settlements. Other settlements lie further south on the higher ground, along the east-west spring line of the chalk, although these too were influenced by the Wandle.

An account of the history of the Borough by its Heritage Officer, Douglas Cluett, can be found in the *Official Guide to the London Borough of Sutton* under the heading "Our Local Heritage". The early part of this chapter is partly taken from that source.

Early settlements

The area was inhabited from at least the Mesolithic or Neolithic Periods (Middle or New Stone Age). At that time south London and north Surrey had physical barriers to the north and south. To the north was the Thames which was then surrounded by marshes on which early dwellings could not easily be established. To the south was the Weald of Surrey, Sussex and Kent, the heavy clay soils of which were covered by thick forests which prevented communication with the Sussex coast until at least Saxon times. The Thames, by way of rivers like the Wey, the Mole and the Wandle, was the gateway to north Surrey in the Neolithic Period. The gentle, north-facing slope of the North Downs had firm and fairly level ground, light, easily-worked yet fertile soils and, probably most importantly, a line of springs to provide a good water supply.

The water supply was the key element in the pattern of settlements which followed and which can still easily be seen. Along the northern edge of the North Downs lies a narrow belt of Thanet Sands between the chalk to the south and the clay to the north. Water descended through the chalk and met the impermeable clay, whereupon it rose through the sand to form a series of springs and ponds. Croydon, Waddon, Beddington, Wallington, Carshalton, Sutton, Cheam, Cuddington, Ewell and Epsom grew along this line. During the Saxon period, when parishes were formed out of the settlements, their closeness led to a characteristic long and narrow parish shape with the north-south extent being about three times that from east to west.

The remains of a Late Bronze Age settlement were discovered at Carshalton in 1903 in the grounds of what is now the Queen Mary's Hospital for Children. This is still just visible as a slight mound in the south-east of the hospital grounds. Finds have been made there from the Middle and New Stone Ages, the Bronze Age and the Romano-British period, indicating occupation over thousands of years (Adkins and Needham 1985).

Recently, a very important Bronze Age settlement has been uncovered in the grounds of Carshalton House.

Elsewhere evidence of flint-working and bronze-smithing, as well as of the settlements themselves, dating from the Middle Stone Age onwards has been discovered in a number of places, especially at Little Woodcote, Carshalton, Beddington and Cheam. A possible Bronze Age barrow has been discovered at Carshalton and an Iron Age/Romano-British settlement near Waddon. A major Late Bronze Age/Iron Age site was found during the Beddington Roman Villa excavations in the 1980s.

The Romans

Roman Sutton's clearest remnant is the road from London to Chichester, Stane Street. This gave its name to the present-day Stonecot Hill which follows the same line. A minor Roman road, Mere Bank, existed in the east. It was roughly one metre high and ten metres across and was used as a boundary during the Anglo-Saxon period. The eastern boundary of the Borough still follows the lost line of this road.

Probably the most impressive Roman discoveries have been in the area of Beddington Sewage Farm. In 1871 excavations revealed a Roman bath-house, while in the early 1980s a Roman villa was discovered which was the nearest known villa to *Londinium* south of the Thames.

Possible Roman or Romano-British burials have been found at Beddington Park and, curiously enough, at Bandon Hill Cemetery, so the latter has been a cemetery in at least two different periods, 1600 years apart. The finding of a seven foot coffin in Beddington Park in 1930 containing a five feet tall skeleton led to much press publicity and an American magazine even published a fully-illustrated account of the discovery of the body of "Queen Boadicea", six feet seven inches tall, at Beddington, England!

Early antiquaries such as Camden and Aubrey found so many Roman remains in the Woodcote area that Camden claimed Woodcote to be the lost Roman town of *Noviomagus*, mentioned in Roman and later itineries as being ten or fifteen miles from London. Other places around London were also put forward as possibly being *Noviomagus* and there may have been more than one place so named. The name is translated as "Newmarket".

The Anglo-Saxons

After the Roman legions left it was 200 years until the 6th century AD when Anglo-Saxon invaders displaced the native Celts. The Wandle valley was extensively occupied in Anglo-Saxon times as shown by the place names of settlements along the river. Croydon, Waddon, Wallington, Beddington, Mitcham, Morden, Merton and Wandsworth are all unmistakeably Anglo-Saxon in their derivation.

There is an early Saxon cemetery at Beddington Sewage Farm and Saxon burial urns have been found near Queen Mary's Hospital. The main impact of the Saxons on the present-day Borough was in the origin of many of the place names.

A charter in the Chertsey Abbey Cartulary dated AD 727, but which is probably a 13th century "reconstruction" from earlier sources, mentions *Æuueltone* (Carshalton), *Cegeham* (Cheam), *Suthtone* (Sutton), and *Bedintone* (Beddington). The first is a variation of Ewell (a spring). The charter records gifts by Frithwald, the under-king of Surrey, to Chertsey Abbey.

Woodcote means "the cottage in the wood" or "a place by the side of a wood". Woodcote is a very ancient name, once for a hamlet but in 1811 it was said to be "now a simple farmhouse". The remains at Woodcote are now thought to be those of a deserted medieval village (Muckelroy 1973). The exact position of Woodcote village is lost but it was not necessarily where Woodcote Farm later stood. The Wrythe is the almost unchanged Old English *Rith* meaning a brook (c.f. Peckham Rye). The tithe map of 1847 shows a brook running along Wrythe Lane.

Surrey was divided into "hundreds" during Saxon times. The hundred of *Waleton* (or Wallington) included the whole of the present Borough of Sutton and an area beyond stretching south to Chaldon, east to Addington, north to Mitcham and west to Morden. The Hundred Court would have met in the open air at *Waleton*. Here justice would have been administered and taxes fixed.

Domesday

The Domesday Survey of 1086 was carried out to assess the taxable value of all the lands in England. The parishes were divided into manors which could cover part of a village or several villages. The manor community consisted of the lord and a number of free or unfree tenants. The free tenants were not free in today's sense of the word but were only free of some of the onerous duties of the ordinary villagers.

Bedintone (Beddington - possibly *Beada's Turr*: Beada's farm or settlement) appears twice in the Domesday Survey as there were two manors. One held by Robert of Watterville as tenant of Richard of Tonbridge had assets of two water-mills on the River Wandle worth 40 shillings, 24 acres of meadow, woodland yielding five pigs in rent, and 15 houses in London. The rate of the pig rent varied from place to place but here it would have probably signified between 35 and 50 small pigs in all. Pigs were normally only kept in woodland for about six weeks at the most as they were too destructive to leave there longer.

Carshalton appeared in the Domesday Book as *Aultone*. The original *Aultone* or *Æuueltone* part of the name probably meant "farm by the spring". The later *Kers* or *Cres* addition, which turned the name into *Kersaulton* or *Cresaulton*, either came from a cross or from cress, as the area was once famous for water cress.

Cheam, which was originally *Cegeham*, appears as *Ceiham* in the Domesday Book. One suggested origin of the name is *Kagi-Hamm* meaning "village by the stumps, or underwood".

As with Cheam, the first settlement at Sutton was on the Thanet Sands, dictated by where good water could be obtained. At this location, the church, manor house and village were founded. In 1086 at *Suthtone:*- "There are 21 villeins (villagers) and 4 cottars (cottagers)...2 bondmen (slaves) and 2 acres of meadow. The wood yields 10 swine. In the time of King Edward it was valued at 20 pounds, now at 15 pounds"

Villeins were farmers who had a right to their land by inheritance, providing they fulfilled their obligations to their lord in tilling his land, and paying taxes and fines on inheritance. Cottars had little land, perhaps five acres but often none. Bondmen were bound to their employers because there was nowhere else they could go but they were hardly slaves as thought of today.

This showed that there were about 200 inhabitants and about 30 houses at the time of the Domesday Book. *Suthtone* means "South-tun" or "South-farm", probably because it was the southernmost holding of Chertsey Abbey.

At the time of Domesday, Wallington was a separate manor from the two Beddingtons, and was held by the king. It included two water-mills on the River Wandle. The *Wal* in the name meant stranger or Celt as in *Wel* in "Welsh" i.e. the name applied to the native population of Britain by the Anglo-Saxon settlers. *Waleton*, or Wallington, equals "Welsh-Tun" and indicates a Celtic settlement surrounded by Saxons but at peace with them.

A total of 13 mills were recorded as operating on the River. Wandle in 1086 and seven of these were in the present Borough. At that time they would probably all have been flour mills.

Medieval Sutton

From Saxon times until the coming of the railways, most of the population of the Borough was concentrated in the line of villages from Beddington in the east through Wallington, Carshalton and Sutton to Cheam in the west. The ancient manors were also in a line, each about one mile wide from east to west and five miles long from north to south. The manors therefore proceeded from chalk in the south, through sandy loam in the centre, to London Clay in the north and accordingly each had a viable share of sheep pasture, arable land and cattle-feeding meadows.

From the Middle Ages onwards much of the downland south of the line of villages was cleared of forest and managed as extensive sheep walks and rabbit or hare warrens. One such, Hare Warren, still exists at Belmont and up until the early 19th century was used to breed hares for the cruel practice of hare-coursing on the downlands. Houses have now been built within it and the surrounding walls have been breached by numerous driveway entrances. These two-metre-high, brick and flint walls still contain narrow stone passages at ground level which allowed hares to pass through. The downlands were also used for hunting and horse-racing from the reign of Henry VIII.

The clay lands to the north of the line of villages were less hospitable and more difficult to cultivate than the drier lands to the south, and must have remained under forest cover for longer.

Medieval churches, or parts of them, survive at Cheam (in the form of the Lumley Chapel), Carshalton and Beddington. A major late medieval hall and its roof remains within Carew Manor School at Beddington, and a number of buildings from this period still exist at Cheam, particularly Whitehall, a timber-framed house from 1500, described as "the most accessible timber-framed house in Greater London" (Cherry and Pevsner 1983).

Early industries

The water-powered corn mill dates back to the later Roman empire. Mills on the Wandle ground corn continuously from the Norman Conquest to the late 19th or early 20th century. This continuity is partly explained by the fact that mills listed in Domesday (and only those) were, even if rebuilt, later exempted from paying tithes. This ensured that, right up to relatively recent times, these mills remained in exactly the same place for hundreds of years.

The key to the Wandle's use for industry is its relatively steady fall, which was steep enough to give a rapid flow, enabling a series of water wheels to be turned. However, at the time of Domesday, there was only one mill in the manor of Carshalton which was almost certainly on the site of "The Upper Mill" in The Grove. It was then worth 35 shillings which indicated a very substantial business. From 1200 onwards mills were also used for the fulling and dyeing of wool for clothmaking. From this time the number of mills on the Wandle steadily increased. Fulling was the rolling and beating process which was used to clean wool, fuller's earth being the de-greasing agent. Many more industries followed utilising water power.

The ponds along the river from Croydon to Carshalton were in many cases used as mill ponds from an early period. During the Middle Ages, a miller simply penned the water whenever the wheel was required for a job and the flow of the river then completely stopped for a while. Obviously this created problems for the next miller downstream and in the 15th and 16th centuries there were frequent disputes over the water rights of mills. Gradually by-passes were cut, old channels altered and dams built to make it possible for every miller to maintain a reserve of power while still allowing an adequate flow to reach the next mill without interruption.

The result of all this was that the Wandle as a natural river almost ceased to exist in the Borough. In many places its channel was duplicated and, where mills were in close proximity to one another, a most complicated network of watercourses was constructed to conduct the water supply to wherever it might be needed or to shut it off completely. This process started in the medieval period but the majority of the innumerable canals, cuts and sluices seem to be of post-medieval origin.

Chalk was an important part of the area's natural wealth in earlier times when blocks of it, often with flint inserts, were used particularly in building. However, even the harder material from the lower levels, known as clunch, weathered badly and gradually chalk was replaced as a building material. By the 18th century deeds of land in places like Carshalton frequently mentioned "old chalk pits", although a few continued to be worked for lime making.

Further north clay pits were fairly common. The main site was to the north of Greenshaw Wood but this had ceased by the mid-19th century. Millers used large quantities of clay to line the banks of watercourses and so minimise seepages of their water supply.

Apparently there were vineyards in Sutton in the 12th century, as there is a record from 1154 of the Prior and Convent of Merton borrowing forty marks on the security of their vineyard in *Suthtone*, Surrey.

Pottery was manufactured in the medieval period in Cheam. In 1923 a kiln base and many pots, some of which were unbroken, were found during excavations there. The remains of the kiln are now on long-term loan to the Borough's Heritage Service while 120 pieces of the pottery itself were good enough to go to other museums such as the British Museum, the Victoria and Albert Museum and Guildford Museum. Cheam Pottery was sold in London and earlier pieces found in London are in the London Museum. Evidence of other kilns has since been found in the Cheam area.

Country houses and a palace

The centuries after the Conquest saw the establishment of large country estates. The Carew family founded their seat in Beddington Park in the 14th century on the site of an earlier one, whilst there is evidence of enclosure and occupation at Oaks Park from the 14th century, although the main house (now demolished) dated from the 18th century.

Just to the west of the Borough, the manor of Cuddington was recorded in AD 675 as *Cotintone* and was also mentioned in Domesday. It continued to exist quietly until the early 16th century. King Henry VIII had decided, at the time of the birth of Prince Edward in 1537, to build himself a palace but had not immediately identified a site. Then one day he was hunting on Banstead Downs and was so delighted with the district and the view of his capital in the distance that he decided to demolish the village and church of Cuddington and to build the palace there. Henry wanted the new palace to outshine the Renaissance palaces of his great rival Francis I of France, and from the first he called it "None-such" because it was to be without peer or parallel. Day after day loads of stone were carted to the site from the newly-demolished Merton Priory and by the time Henry died in 1547 it was more or less complete, a palace unequalled anywhere in splendour and extravagance.

Leland described it as "a structure so beautiful, so elegant and so splendid, that in whatsoever direction the lover of florid architecture turns his eyes he will say that it easily bears off the prize". In contrast Hearnshaw writing in the 20th century in *The Place of Surrey in the History of England* called it "a flamboyant atrocity in the worst Italian style" and went on to say that "the hideous abnormity remained a royal white elephant". Without doubt, it captured the imagination of its contemporaries but its very size was its undoing as it was far too big for normal use. To quote from *Portrait of Surrey* (Cracknell 1974): "After a relatively short life of 140 years, during which it was rather severely damaged in the Civil War, Charles II gave it to the notorious Barbara Villiers, Countess of Castelmaine and Baroness Nonsuch, as a consolation prize for being passed over in favour of Nell Gwynne. The countess soon decided that this semi-ruin would be the ruin of her, so expensive was it to repair and maintain, and she had it demolished and sold the material for building. So it happened that the stones of old Merton Abbey were once more carted off, this time to help build the great houses that were springing up at the time around the newly fashionable Epsom". Among these houses was Woodcote Grove.

During the latter part of the 17th century, the village of Sutton became a notable centre of society. Several wealthy families came to live in the higher parts of the parish, attracted by the downs. Among the large houses built at this time were Sutton Manor, Sutton Court and Sutton Hall.

Barbara Villiers needed money to pay gambling debts and considerable profits came from the sale of the parks of Nonsuch. Worcester Park, which lies partially within the present-day Borough, is built on part of Nonsuch Great Park. It takes its name from the Fourth Earl of Worcester who was Keeper of the Great Park. The farms into which the Great Park was divided when Nonsuch was disparked included Worcester Park Farm.

The Wandle Valley was declared a royal hunting and fishing preserve in 1606 as far upstream as Merton and this was extended to Croydon in 1634.

The 18th century

The existence of large open common grazings, covering much of the chalklands in the south of the Borough until quite recent times, largely explains the complete absence of ancient woodland in this area. Enclosure of the downland commons started in earnest in the 18th century.

Although the clay lands to the north of the line of villages were more difficult to cultivate and therefore retained their forest cover for longer than the drier lands to the south, only small pockets of woodland remained by the end of the 18th century even here. These were located at Bean Hill, which was later to become the suburb of Benhilton, and at St Helier Park.

During the 18th century, most of the population of the Borough was still concentrated in the line of villages along the spring line.

A few chalk pits were still being worked for lime-making, and sand and clay for brick-making were being quarried in various parts of the Borough. Carshalton was one of a number of places in Surrey which contained flourishing brickfields and in the late 18th century there were two brickgrounds off what is now Green Wrythe Lane. A few traces of these activities remain today in the old brick works in Seears Park, sand pits near the south-eastern corner of Beddington Park and the ancient chalk quarry which was taken over for the original Sutton Water Works and is now occupied by the modern development of Water Gardens, just to the east of Sutton town centre (see site Su.BII 7).

The 18th century also saw the heyday of the River Wandle as an industrial resource and at the start of the century there was an average of one water wheel every 300 metres. Flour mills continued to be powered by water wheels in Sutton right up to the 20th century but the fulling and dyeing industries had ceased by the 18th century. The mills which they had once kept busy were modified or rebuilt to meet the requirements of other trades and new mill sites were also developed in the 17th and 18th centuries. The manufacture of gunpowder, sheet copper, linseed oil, drugs, snuff, paper, leather and calico were among the new industries that developed. By the end of the 18th century more people in Carshalton were employed in the mills than in the fields.

The river also produced quantities of water cress for the London markets and abounded with trout.

Many of the Wandle mills changed their functions over a period of time. A mill at Wallington, for example, went from corn to fulling to cloth to paper and back to corn, and finally ended up as a chocolate factory. One at Hackbridge went from corn to fulling to dyewood and eventually, in the mid-17th century, became a spread of four gunpowder mills.

Refugees from the Continent, especially from the Low Countries and the Huguenots from France, gave a particular boost to the Wandle milling industries. Snuff mills seem to have been mostly developed in the second half of the 18th century. Leather, oil and paper manufacturing had also developed by about this time and the Ansell milling complex at Carshalton began about the end of the century and was one of the most important centres of paper production in the country.

The Wandle bleaching grounds

An industry for which the Sutton part of the Wandle was renowned and which reached its peak in the 18th century was the bleaching of cloth. Prior to the discovery in the early 19th century of the bleaching properties of chlorine and its compounds, the process relied on the action of sunlight. The only chemical employed was wood ash; after linen and calico had been washed in a solution of this, they whitened gradually when exposed to sunlight for a long time in damp conditions. Depending on the weather this could take anything from one to six months.

The operation needed a large area of flat land and a constant supply of pure water, and the Wandle Valley had these. Cloth manufacturing often took place in parts of the country, such as the North of England, where sizeable acreages of level land were hard to find in the higher reaches of rivers where the water was clean enough. Whitening, therefore, became a separate industry and in the late 18th century one of the largest bleaching grounds in the country was to be found at The Culvers, just downstream of the Hack Bridge.

The two branches of the River Wandle here were made to fill an extensive network of ditches which were dug with the sole purpose of making a bleaching ground. The cloth to be whitened was laid out on the grass adjoining the ditches, and labourers with scoops constantly ladled water from the ditches onto the cloth to ensure it was kept damp. Sunlight did the rest. Linen almost completely covered 50 acres of ground and this subsequently extended to 200 acres of meadow land.

Once the capability of chlorine for bleaching was realised, the Wandle bleaching grounds did not survive for long. In 1835 Samuel Lewis in his *Topographical dictionary of England* confirmed that "The trade has lately much declined". By 1840 it was no more.

Calico printing was closely linked to the bleaching industry, and was found in the same area but also stretched downriver to what is now the Borough boundary. The calico industry here was regarded as the largest in the world. When bleaching stopped so did calico printing, which only had a life of some 60 years, from 1770 to 1830, on this site.

The coming of the turnpikes

Prior to the mid-19th century, roads were built solely to enable people to move from one place to another. Public highways were few in number, commonly had no name and were identified merely by their destination. The roads themselves generally did not have any houses along their sides, cottages tending to be clustered in courts and alleys leading off the principal streets. Other factors such as the presence of water supplies affected the location of houses.

The most ancient and most important road up until the mid 18th century was the east-west one and here the principal houses and shopping areas were gradually formed. The original east-west route ran slightly to the north of the present A232. Realignment along the route of the modern Cheam and Carshalton Roads took place in 1755, when the main road from London to Brighton through Sutton and on to Reigate was constructed.

Before 1755 Sutton was a small village scattered around the green at the bottom of the hill up which the High Street now runs. The growth of Sutton stemmed from the building of the Brighton Road, which was one of the first turnpikes. Sutton was an important staging post on this, the most important road southwards from London. The coaches on this road and the road from Croydon to Epsom, which crossed it here, led to the establishment of The Cock and other coaching inns. Toll bars were also installed at the cross roads.

There was a great deal of traffic passing through Sutton, including the Prince Regent and his friends on their way to and from Brighton, traffic on its way to and from race meetings at Epsom Downs, and to and from Epsom when it was a fashionable spa. There was a temporary reduction in this to-ing and fro-ing in 1809 when the London to Brighton road via Croydon was opened.

Not all travellers regarded the journey through Sutton with unreserved delight. William Cobbett in his *Rural Rides* of the 1820s had this to say: "Between Sutton and the Wen (London) there is, in fact, little besides houses, gardens, grass plats and other matters to accommodate the .... jobbers and the mistresses and bastards that are put out a-keeping". As far as the inhabitants of the City of London were concerned it was "out of sight, out of mind". The inhabitants on the journey did not appeal much to Cobbett and nor did the countryside: "From London to Reigate through Sutton is about as villainous a tract as England contains. The soil is a mixture of gravel and clay, with big yellow stones in it, sure sign of really bad land".

Carshalton, at the time, was regarded far more favourably. David Hughson in his *History of London* (1808) said: "Though this village is thus situated among springs, it is built upon firm chalk, and on one of the most beautiful spots south of London, on which account it has many handsome houses; some built with such grandeur and expense, that they might be rather taken for the seats of the nobility than the country houses of citizens and merchants" and *The Ambulator or Pocket companion for the Town of London and its environs* said of Carshalton in 1819: "In the summer season, it appears as if embowered in trees of various species".

The Grand Surrey Canal and the Surrey Iron Railway

The River Wandle was not navigable, and also the roads were in a bad state before the 19th century, despite the turnpikes. This particularly concerned the Wandle mill owners who needed to transport their produce to London for sale. They supported both the scheme for a Grand Surrey Canal, which was never built, and the Surrey Iron Railway, which was built and survived for 43 years. First proposed in 1795, in 1801 the Grand Surrey Canal Company was formed to build a canal from the Thames at Rotherhithe via Camberwell to Mitcham and on through the present Borough to Portsmouth. The canal to Camberwell was completed and in 1809 was extended to Croydon, but it never reached Sutton. In 1834 it was sold to the London & Croydon Railway Company who drained it and used the canal bed as the track of their new line from London Bridge to Croydon.

The Surrey Iron Railway had the distinction of being the first public railway in the world, although it was designed for the transport of heavy goods, not passengers, and the motive power was a horse at a speed of 2½ miles per hour. The financiers were merchants and the aim was to provide a profitable service for industrialists in the Wandle Valley by carrying their goods quickly and cheaply. The railway ran from Wandsworth to Croydon and Merstham with a spur from Mitcham to serve the Shepley and Culvers Mills near Hackbridge. The rails of this latter branch ran alongside London Road for most of the way. A section of track and some waybills used to be displayed in the grounds outside Wallington Library, but are to be reconstructed at the Heritage Centre in Honeywood Walk by Carshalton Ponds.

The Surrey Iron Railway opened in 1803, and closed in 1846. It was put out of business by the arrival of steam railways. Its route was unlikely to produce much passenger traffic and it therefore had little attraction for the early builders of steam railways.

It was bought by the London, Brighton & South Coast Railway and parts of its track were incorporated into the Wimbledon to West Croydon line. Nothing at all remains of the branch line from Mitcham Common to Hackbridge.

The arrival of the railways

It was the coming of the steam railways to Sutton in 1847 that finally changed the rural scene beyond recognition within a few decades. The West Croydon to Epsom line opened that year with stations at Wallington, Sutton and Cheam. Wallington at that time was only a small hamlet around Wallington Green but included an inn and one or two larger houses. What is now central Wallington was then fields. The new station, which stood some distance from the hamlet, was called Carshalton as that was the largest nearby place it was built to serve. The population expanded around the new station and when, in 1868, Carshalton was finally given its own station on the newly-opened Sutton to Mitcham Junction line, the old Carshalton station became Wallington station.

The coming of the railway accelerated Sutton's growth and this became especially rapid after the Sutton and District Water Company began operations in 1863 and made water supplies easily available on the hitherto undeveloped chalk areas to the south of the town centre, where previously deep wells had been necessary. In 1883 Sutton was described as a sprawling new town, whose population had expanded from 1,100 inhabitants to 10,334 in 50 years.

The railway came to Cheam in 1847, but it did not precipitate the development of the area, which remained substantially unchanged for a further 60 years. In the 1950s and 1960s the area alongside the railway became nationally but fictionally renowned as the home of probably Sutton's most famous "resident" (who never actually lived there). Number 23, Railway Cuttings, East Cheam was the abode of Tony Hancock. Ray Galton, one of the two scriptwriters, when asked why he chose East Cheam as a location said "To us in those days Cheam was the epitome of upper-class suburbia, the Beverley Hills of south London. And so we thought we'd put him there. But obviously he couldn't really be there otherwise he'd be quite rich, so we put him in East Cheam, which was not quite Cheam. And there again Railway Cuttings, that made a visual picture of a grimy Victorian terrace".

The next line to reach the Borough was the Wimbledon to West Croydon in 1855 which briefly passes through the north-east corner. An intermediate station with a single platform and low brick shelter, rather optimistically called Beddington, was opened at the same time on the present Borough boundary. It was located in open country nearly two miles north of the small village it was alleged to serve, and was accordingly renamed Beddington Lane Halt in 1887.

The Wimbledon & Dorking opened its railway between Raynes Park and Epsom in 1859; this ran along the western boundary of the Borough. There was no place of any importance between Wimbledon and Epsom and traffic was small except on race days. In 1865 Worcester Park Farm and its surrounding lands were bought by the Landed Estates Company who began to erect the modern suburb of Worcester Park .

The Epsom Downs branch followed in 1865. It has never been particularly well used except on race days and even then the traffic was something of a disappointment. Its only station within Sutton is at Belmont. This was originally known as California station because it served land bought by a building speculator who had made some money in the Californian gold rush of 1850. The California public house still exists in Brighton Road near the station. There was in fact little business here for the railway for a further 40 years, during which period the station was renamed Belmont, supposedly at the suggestion of the stationmaster's wife. Apart from pleasure seekers and wealthy commuters, one other source of regular traffic existed in the form of the institutions which were attracted to the airy downlands. These supplied freight business and a few passengers to the branch line. The first of these, the South Metropolitan District Schools (later the Belmont Hospital), was opened in 1856, before the railway, and when the railway arrived was given its own siding near California station.

There was little residential development around the branch before 1914 although some workers' cottages at Belmont in the late 1880s were followed in the 1890s by middle-class villas nearby.

In 1868 came the Peckham Rye to Sutton line via Tulse Hill, Mitcham Junction, Hackbridge and Carshalton, and that completed the railway map of the Borough until the 20th century.

Victorian Sutton

Enclosure of the downland commons, which had started in the 18th century, continued during the first half of the 19th century. It was during the early Victorian period that some of Sutton's few woodlands were created in connection with the enclosures. Big Wood, Ruffett Wood and the Wellfield Plantation are examples that first appeared on maps at this time.

In the early 19th century Sutton was famous for the sheep which grazed on the downs to the south of it. An old rhyme began "Sutton for Mutton, Carshalton for Beef" and it is recorded that at Ewell Fair in 1831 there were 30,000 Downs sheep for sale. Apart from sheep farming, arable and dairy farming were major land uses right into the 20th century, and only declined as suburban development spread across the landscape.

Lavender and herb growing were also very prominent in the Wandle Valley in Victorian times, and much earlier, and extensive fields of lavender and other aromatic herbs and shrubs were to be seen in the Carshalton, Beddington and Wallington areas. The original centre was at Mitcham and "Mitcham mint" and "Mitcham lavender" still exist as trade names. Lavender growing was a very prosperous part of Carshalton's agriculture in the 19th and early 20th centuries. John Murray wrote a handbook for travellers in the 1870s and when talking of Carshalton said: "Here as at Mitcham are extensive fields of lavender and other 'sweet herbs', perfuming the air for some distance." In Wallington the area to the north of the station was chiefly used, and in Carshalton it was near what became Carshalton Beeches station. The scale of the operation can be understood from the fact that, despite its not normally needing a large acreage, the Daily News of 22nd July 1914 was still able to state of the Carshalton Beeches area "In every direction the low hill sides of the farm beyond Beeches Halt are swept with the bloomy pastel tint of the lavender flowers".

The Wandle had traditionally been a rich source of water cress and a 12th century version of the name "Carshalton" was "Kersalton" (perhaps Cress Alton), indicating that it was already being exploited even then. Shallow, running water was the requirement for growing the plant and the river here was ideal.

It was an important local industry right through to the 20th century – the Heritage Library has photographs of farmed watercress beds dating from the 1920s. Increasing built development near the Wandle and pollution finished water cress in Sutton as a commercial crop although it can still be seen extensively in the river. The peak of the industry came in the Victorian era when boxes of water cress were sent to London by train. Many of Mrs Beeton's recipes used water cress. She lived nearby in Epsom.

A picture of the Wandle mills has already been given up to the end of the 18th century. By 1805 the Wandle was said to be the hardest worked river for its size in the world. During the 19th century still more types of mill are recorded including hemp, iron, drug grinding, silk printing, woollen, and felt-making, as well as peppermint and lavender distilleries. Impressive as the list of mills was by the middle of the century, it gave a false impression of continuing prosperity. The Wandle milling industries were on the verge of collapse, crippled by falling water levels and the rise of the steam engine. The decline in the second half of the century was so rapid that by 1889 one writer was able to remark on the melancholy sight of a river lined with defunct mills: "the living, generally horribly unpicturesque, interspersed here and there with their dead and dying brothers".

The quarrying of chalk and clay had virtually ceased by the Victorian era. Although Samuel Lewis's 1835 *Topographical dictionary of England* reported that Carshalton had several lime kilns, lime burning stopped here in the mid-19th century. However, the brickfields were still going strong. In the mid-19th century it was said that one of the two off what is now Green Wrythe Lane could supply brick earth to make 500,000 to 600,000 bricks annually, yet it closed not long after. The other was still selling its products at the end of the First World War.

For the most part, housing development in the Victorian period consisted of expansion of existing settlements, or around the new stations, but between these newly expanded villages and London, much of the north of the Borough remained as open country. Modest Victorian and Edwardian housing appeared in Sutton to the north of the station, while more substantial semi-detached houses and villas were built to the south, reaching almost to Cheam and Carshalton. Similar housing developments took place in Wallington and to a lesser extent in Carshalton, Worcester Park and Beddington.

By the mid-19th century Sutton was definitely regarded as a desirable place to live and William Cobbett's opinions of 40 years earlier were forgotten. *Morgan's Family and Advertising Almanack* of 1863 enthused: "Sutton enjoys a celebrity as a healthy locality. By many it is also as much esteemed for its beauty as for its salubrity. Certainly the undulating character of the ground on which it stands, the diversity of foliage exhibited by its trees, and the well distributed, and commodious houses, with their tasteful gardens, grass-plots, lawns and grounds, combine to earn for it the appellation of 'one of the prettiest villages in the environs of London'."

The 20th century

Expansion continued at a rather slow pace in the first two decades of the 20th century, certainly compared with what happened after the First World War.

There had been no further expansion of the railway network since 1868, until the London, Brighton & South Coast Railway opened "The Beeches Halt" in 1907 on the previously uninterrupted stretch of line between Wallington and Sutton. There had once been an avenue of beech trees flanking the old road to Woodmansterne, to the south of the station. The first houses in Beeches Avenue were not built until 1897, but by 1907 the whole district had developed sufficiently to encourage the opening of the station. Trains only stopped if there were passengers to pick up and the trains themselves only consisted of two-coach push and pull units which plied to and fro between West Croydon and Sutton. After the First World War the various lines were electrified, including the line between Victoria and Sutton via West Croydon in 1925. At this time it was decided to make "The Beeches Halt" into a station and give it platforms long enough for the London trains to use. After it was rebuilt it was given the name "Carshalton (Beeches) station" but the brackets were soon dropped. The name "Carshalton Beeches" was subsequently applied to the whole area. Carshalton on the Hill was, like Carshalton Beeches, a name invented to sell houses.

The final line to open in the Borough was the one from Wimbledon to Sutton in 1930 which helped to open up for housing the area between the two towns. An important spur to development of the northern part of the Borough was the opening of the tube to Morden in 1926 which gave rapid, clean and direct access to both the City and the West End. The Underground launched feeder bus services which took traffic from a wide area of what had previously been the sole territory of the Southern Railway and this included Sutton, Cheam, Wallington and Worcester Park. The bus services, combined with very low fares and through road-rail ticket facilities, drew much business. Just to the south of Morden, in 1929, the London County Council started to construct the St Helier Estate which by 1936 consisted of over 9,000 dwellings for 40,000 people, covering some 334 hectares.

Impetus for building here and elsewhere in the Borough also came from the electrification of the Southern Railway from 1925 which gave faster journey times to central London.

As elsewhere in outer suburban London, the peak period for house building in Sutton was from about 1928 through to the start of the Second World War. This is illustrated by the rising population in Sutton and Cheam: 21,320 in 1926, 52,530 in 1936 and 62,940 in 1961. Between 1927 and 1937 there was a tenfold increase in season ticket sales at Worcester Park station. The picture was the same right across the Borough so that by the time that Green Belt legislation came in after the Second World War, the only areas that would be designated as Green Belt were around Little Woodcote, including Oaks Park, and a small area which now includes Cuddington Golf Course.

Surprisingly enough the large new housing estates, built in the north of the Borough in the 1920s and 1930s, brought not the boom that would have been expected to the local brickworks but its death. It was not geared to large scale demand and found itself overwhelmed by competition from larger manufacturers.

Trams had started to run between West Croydon and "The Grapes" in Sutton in December 1906, travelling along Ruskin Road in Carshalton, which was built for the purpose, to avoid the narrow road by the Ponds. Petrol buses started to come through Carshalton village only after the First World War. The trams were gradually replaced by trolley buses which after the Second World War were eventually replaced by diesel buses.

The other important influence that transport had on the land use in the Borough was Croydon Airport, the "cradle of British civil aviation". Flying took place from the site between 1915 and 1959 but its heyday was between 1928 and 1939, when it was known as "The Airport of London". After its closure an industrial estate was built on the north-east part of the site while much of the western part went to provide land for the Roundshaw Estate. However, the central portion is now playing fields while the southern sector of the old airport is one of Sutton's finest wildlife sites, Roundshaw Downs.

The old buildings along the Wandle were able to be rented cheaply and a number of them were turned into small factories and workshops. Subsequent planning laws made the establishment of factories very difficult in residential areas such as Carshalton but small existing industrial areas were permitted to remain and could even expand.

This is how the rather incongruous situation arose of the large BP chemical works being sited in suburban Carshalton. A paper mill on the site can be traced back to 1747. In the late 18th century the old mill was pulled down and a new mill and engine house built in their place. By the late 19th century this once large factory was in its turn too small to compete in the commercial paper-making business. In the early 20th century fine handmade paper was being manufactured on the site but this had also ceased by 1907 when the premises were empty. For a short time, it was a chocolate and sweet factory, and at the end of the First World War it was turning out pencils for the British Pencil Company. This did not last very long either and the premises eventually were acquired by the Methylating Company which in due course became part of BP Chemicals Ltd. The works closed at the end of 1991 and were demolished shortly afterwards. Housing and business development are now proposed for the site.

Elsewhere along much of the Carshalton branch of the River Wandle and downriver of Wilderness Island, sizeable modern factories have been built on the valuable industrial land where modest water wheels once existed. The manufacture of chemicals, paints, plastics and electrical components are particularly prevalent. At Beddington Corner, the Wandle Trading Estate has introduced new industries in new buildings to replace the old skinning, flour and drug mills which were once on the site. There are many other examples. Only one water wheel is left in Sutton (at The Grove) out of some 30 recorded sites. This is now a grade II Listed building. Of the wheels that once worked on the Wandle as a whole, only four are left, including the one at The Grove. The others are at Ravensbury Mills, Morden Hall Park and Merton Abbey Mills (all in Merton). The latter is the only one that actually still turns.

To the west of Beddington Lane, the large area of the Beddington Sewage Farm had its origin in 1860 when a small sewage farm was established. Major expansion took place after 1870, following the large increase of the population of Croydon, when the site expanded to its maximum size. Much of the area was used to flood the fields with effluent but now this system is to be discontinued while the modern sewage works will remain. Gravel extraction is taking place across the site and following completion of this, it is hoped that the area will be used partly for nature conservation and partly for leisure, as well as partly for the final purification of sewage effluent.

To the east of Beddington Lane an extensive light industrial area has been developed since the Second World War on what at the turn of the century was farmland.

Since the War, lack of available land and Green Belt policies in the south of the Borough have seen a sharp reduction of new building although the 1960s were particularly busy, with the construction of a number of Council estates including the large Roundshaw Estate for about 7,000 people on part of the old Croydon Airport. Also from the 1960s private developers have replaced much of the older lower density housing around the town centres of Sutton and Wallington with higher density terraces and flats. Much of the recent housing has been in the form of infill development.

The main commercial development has taken place in the vicinity of Sutton town centre. This chiefly dates from the 1960s and, while never on the scale of that at Croydon, still provides by far the bulk of office and shopping floorspace in the Borough. Much of Sutton High Street has been partially pedestrianised following completion of a gyratory road system around the town centre. The other main commercial centres are to be found at Wallington, Worcester Park, Cheam and North Cheam, with a number of smaller centres scattered across the built-up part of the Borough.

Some of the pre-existing parks were acquired by the Borough's predecessors for recreational use, including Beddington Park in 1925, Oaks Park in 1933 and Cheam Park in 1937. Other parks such as Barrow Hedges to the south of Carshalton and The Park to the north of Carshalton have mostly disappeared under housing with only small parts surviving: Radcliffe Gardens Woodland from the former and The Spinney and Dale Park from the latter.

Surrey County Council first bought land at Woodcote in 1912, but after the First World War they made substantial purchases in the Little Woodcote area, on either side of Woodmansterne Lane. The primary purpose was for a scheme to provide smallholdings so that ex-servicemen who wanted to farm on a small scale had the chance to do so, as tenants of the County Council. Over the years many of the smallholdings have been given up but a number still remain. Surrey County Council now runs a dairy farm on the downs to the north and west of Woodmansterne Lane on land taken back from smallholders who did not wish to continue. The County Council also bought The Oaks Estate in 1929 but sold it on to Carshalton Urban District Council in 1933. Much of the land purchased by Surrey formed the backbone of what became the Green Belt in Sutton after the Second World War.

The London Borough of Sutton was formed on 1st April 1965 by the amalgamation of the Borough of Sutton and Cheam, the Borough of Beddington and Wallington, and the Urban District of Carshalton.

In 1935 Cox and Johnston remarked that "Sutton is singularly devoid of interest". This is certainly not a statement that can be applied to the wider Borough. Anybody who is able to travel round the Borough and see the varied landscape from the chalk downland in the south, including the wide open spaces of Roundshaw Downs with a mass of wild flowers on part of what was 60 years ago London's main airport, to the smaller scale of the different stretches of the River Wandle, where there is a continuous link with the history of the area to before Domesday, will sense this variety.

3 Sutton's wildlife habitats

Although, compared with other outer London boroughs, only a relatively small proportion of Sutton is open land, Sutton does contain very good examples of several habitats, including some of the best chalk grasslands and river systems in London. Only 14% of the Borough was surveyed in the 1984 Wildlife Habitat Survey compared with 24% in the neighbouring Borough of Croydon, although in the Royal Borough of Kingston upon Thames the figure again was only 14% (see figures 3 and 4). It is worth bearing in mind that many of the areas, particularly those in the Borough's ownership, are now more actively managed for their wildlife value than they were in 1984. The results can be clearly seen at such places as Roundshaw Downs, Greenshaw Wood, Beddington Park and The Oaks Park.

The large open spaces of wildlife value remaining in the Borough are mainly parks or golf courses, or have a history of some specialised land use such as sewage works or an airport. Sutton contains relatively few relics of the countryside such as woodlands, traditional meadows and pasture lands. Apart from golf courses, much of the Green Belt in Sutton is intensively farmed and is consequently not as high in value for wildlife as it could be. Since much of this is actually in public ownership, there is potential for changing land management to respond more to the demand from the local population for attractive and accessible countryside on their doorstep. Recently there have been signs that some formerly agricultural fields are no longer in production. Certainly the fields on either side of Grove Lane (to the south of Woodmansterne Lane) as well as others near Big Wood and Lambert's Copse are no longer used for the growing of crops. These could produce more attractive landscapes for wildlife, and in the case of the fields adjacent to Big Wood and Lambert's Copse this is sufficiently far advanced for them to be included as part of those sites in this handbook.

Rivers and streams

Of the many different types of British rivers, those fed by chalk springs are among the biologically richest and most productive. Clean water with moderate nutrient levels provides ideal conditions for diverse communities of plants and invertebrates. These in turn support abundant populations of fish, with many individuals reaching large sizes, hence the worldwide fame in angling circles of chalk streams such as the River Test and the Hampshire Avon. London has few chalk streams and, in common with most of the country, these have suffered badly in recent years from pollution and water abstraction. Sutton is particularly fortunate in having a substantial stretch of one of the finest chalk streams in the capital.

The River Wandle is, despite reductions in flow caused by water abstraction, one of the best chalk streams in the London area. The whole of the main, Croydon, branch has been accorded Metropolitan status, as has the Carshalton branch below the former BP works in Mill Lane. The latter branch of the Wandle actually flows from Carshalton Ponds but the water quality in the stretch between there and the site of the old BP works is not as good as further downriver and that section has been accorded Borough Grade II status. Not so long ago the Carshalton branch flowed from St Philomena's Lake eastwards into Carshalton Ponds but this watercourse has now dried up, as have the former flow of water from Carshalton Park, known as the Westcroft Canal, which joined the Carshalton branch at The Grove, and an old branch of the Wandle in The Grove. The latter course includes the last of the 30 water wheels once located along the Wandle in Sutton.

The combined waters of the Wandle split at a couple of places between Hackbridge Road and Middleton Road to form islands. Towards the western edge of Beddington Park the Wandle has a number of subsidiary streams of a beautifully clear quality and these have been incorporated into some formal gardens known as The Grange.

The best stretches of the Wandle support excellent communities of both submerged and marginal plants, including chalk stream specialities such as opposite-leaved pondweed and stream water-crowfoot, both of which are rare in London. Good populations of fish such as roach, dace, trout and chub can also be seen. The Wandle is an important river for grey wagtails and kingfishers along its length in Sutton.

At Mill Green a rapid flow of water hurries along to empty into the main river below Middleton Road. The quality of this water is far more dubious as it is the main outflow from Beddington Sewage Farm. It is nutrient-rich, and below its confluence with the Wandle this leads to a noticeable increase in the quantity of aquatic plants, but with a corresponding decrease in diversity, with just a few species, such as broad-leaved and Canadian pondweeds, which are tolerant of lower oxygen levels. Also on Mill Green is a rather stagnant ditch which is of historical interest and provides the main ecological focus at present with a number of wetland plant species.

The River Wandle totally overshadows the two other watercourses in the Borough, the Beverley Brook and its tributary, the Pyl Brook. The Beverley Brook in Sutton is of more limited size and nature conservation value than further downriver. However, it is of Local importance at a couple of sites at the western edge of the Borough, namely Cuddington Recreation Ground, and Beverley Brook in Worcester Park. At both of these places the brook is a pleasant amenity in an area otherwise lacking in accessible wildlife habitats. The Pyl Brook is largely canalised although to the east of the A24 at Stonecot some 700 metres acts as a useful Local site.

Ponds and lakes

The northern half of Sutton contains a number of lakes and ponds of varying sizes and origin. Many such as Carshalton Ponds and the ponds in Beddington Park, are associated with the River Wandle and its flood plain. Others are the result of gravel extraction, particularly in the Beddington area. One such lake at Beddington Sewage Farm is the largest still water in the Borough, and more are planned there.

This lake, although not long established and hence lacking any substantial marginal vegetation, already attracts a wide range of water birds at all times of year. These include breeding great crested grebes, coots and a variety of ducks, while many other species of ducks and waders occur on passage and in winter.

Figure 3
Wildlife habitat in Sutton

Reproduced from the Ordnance Survey 1:50,000 map with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright

Several of the other larger ponds in the Borough also support small numbers of breeding waterfowl. This is so even at Carshalton Ponds, where blue-green algae blooms and an almost complete lack of aquatic vegetation do not seem to deter tufted ducks, mallards and coots.

Shallower, often impermanent water bodies, such as filter beds, sludge lagoons and flooded fields, are found in the Borough's two sewage treatment works at Beddington and Worcester Park. These are also important for birds, attracting large flocks of gulls in winter and providing temporary refuelling stops during spring and autumn migrations for a surprising variety of waders, including occasional national rarities.

Smaller ponds are important for amphibians and aquatic invertebrates such as dragonflies, and can often support diverse communities of submerged, emergent and marginal plants. This is true even of tiny ponds in schools and private gardens, which become increasingly important refuges of frogs, toads and newts as more and more old ponds disappear through water abstraction or under built development.

A combination of abstraction and successive dry summers has led to the drying-up of several of Sutton's ponds in recent years, especially along the northern edge of the chalk. The most important of these, perhaps, is St Philomena's Lake, formerly managed as a nature reserve and home to several plants particularly rare in London, including both species of water speedwell (pink and blue) and round-leaved water-crowfoot. By 1990 this pond was completely dry, and the rare plants under serious threat. Other water bodies which have been dry for even longer than this include the nearby Margaret's Well, the Hogpit and associated Grotto Canal in Carshalton Park, the Westcroft Canal in The Grove and small ponds in Perretts Field and Cheam Park. Some of these ponds may again hold water given sufficient rain, but others may have gone forever, unless abstraction from the Wandle's catchment area is drastically reduced.

The picture is not entirely one of doom and gloom, however, as the losses are being partly offset by the creation of new ponds and lakes, sometimes specifically for nature conservation. The most important of these, and already one of the finest ponds in the Borough, is at the Sutton Ecology Centre, where a tremendous diversity of plants and at least seven species of dragonflies and damselflies are appreciated by thousands of schoolchildren every year. Several schools have also dug ponds in their nature areas, while a recently-created flood storage wash at Anton Crescent has been landscaped for wildlife.

Chalk grassland

The grassland which has developed on the chalk hills of the south-eastern half of England under centuries of grazing by sheep and rabbits is one of the richest and most colourful plant assemblages in Britain. A wealth of wild flowers, including many of our most beautiful orchids, can be found within the short turf. Many of the grasses and flowers are restricted to alkaline or calcareous soils; these are known as *calcicoles* The diverse plant community provides food for a wonderful array of butterflies, grasshoppers and other invertebrates, many of which are also restricted to the chalk. Sadly, agricultural "improvement", building development, cessation of sheep grazing and the decline, since the introduction of myxomatosis, of the rabbit have greatly reduced the amount of this habitat, to the extent that many downland plants and invertebrates are threatened with extinction.

In London, natural chalk grassland is restricted to the southern edge, where parts of the Boroughs of Sutton, Croydon and Bromley lie on the North Downs, and to the extreme north-west, in the Borough of Hillingdon, where outliers of the Chiltern Hills just reach into the capital. Other small areas of grassland containing species typical of the chalk can be found scattered throughout London growing on artificial calcareous substrates such as railway ballast and fly ash. Sutton contains a number of fine chalk grassland sites, two of which are of sufficient quality to be classified as Sites of Metropolitan Importance, Roundshaw Downs and Woodcote Park Golf Course.

The best site in Sutton for the general public to appreciate the attractiveness and variety of chalk grassland is at Roundshaw Downs, where careful management by the Borough is designed to maintain and improve the chalkland ecology. A number of wild flowers which, are uncommon or rare in London can be seen here, as well as large populations of the extremely rare and specially protected greater yellow rattle and the nationally scarce tall broomrape. This large downland area enables one in summer to look across to the office blocks of Croydon while standing amidst a sea of ox-eye daisies and listening to the constant singing of skylarks — a remarkable contrast. Although much of Woodcote Park Golf Course is closely-mown, at least two patches with characteristic flowers such as kidney-vetch, rough hawksbeard, marjoram and greater knapweed exist, and one of these patches is notable for its large population of pyramidal orchids, which form a magnificent display of deep pink flowers in June and July.

These two areas, apart from possessing the best examples of chalk grassland in the Borough, are different in many ways. Roundshaw Downs has free access, the chalk-loving species are distributed throughout the site and the management regime is uniformly designed to encourage the nature conservation value of the site. Woodcote Park Golf Course is restricted to members and the management of the course only allows the flowers to flourish in a few places.

Both of the other large golf courses (at Cuddington and The Oaks) on the chalk are also mostly closely-mown, and areas of wild flowers are smaller and more widely scattered. None of the three courses is accessible to the public, although a footpath along the Borough boundary at Fairlawn Road does run alongside a bank on The Oaks Golf Course which sports a variety of chalk-loving flowers, and near Croydon Lane it passes close to an area where two orchid species, man orchid and common spotted orchid, have been observed.

Several other sites contain good chalk grassland: Carshalton Road Pastures, Devonshire Avenue Children's Playground, Water Gardens Bank, The Oaks Park, Banstead Downs and the grounds of the old Cuddington Hospital. Carshalton Road Pastures, a small horse-grazed field, is most attractive in summer, with a number of chalkland species of restricted distribution in the London area, such as wild basil, purging flax and marjoram. A variety of butterflies, moths and grasshoppers also make this peaceful spot their summer haunt. Devonshire Avenue, an informal children's playground on the site of abandoned gardens, can boast five different flowers which are typical of the chalk and are uncommon or rare in London. These are kidney-vetch, blue fleabane, purging flax, restharrow and greater knapweed. Water Gardens Bank is a steep embankment, once the edge of a quarry dating back to Elizabethan times. This survived from the old Sutton Water Works which took over the quarry. It now graces a modern housing estate with a profusion of salad burnet and cowslips.

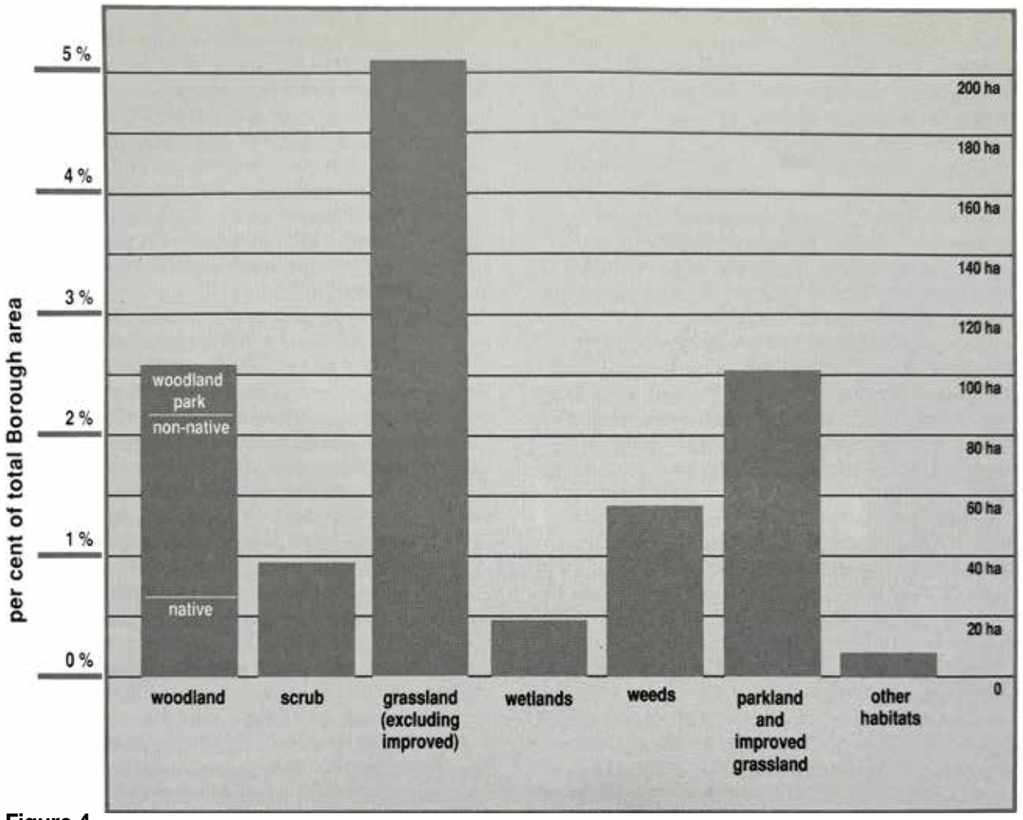


Figure 4
Extent of habitats documented in Sutton during the GLC Wildlife Habitat Survey

Areas are given as percentages of the total surface area of the Borough. Not all parkland, improved grassland and "other habitats" were covered in the survey.

Although most of the strip of Banstead Downs which lies within Sutton is now scrub and woodland, small fragments of grassland survive that retain a considerable number of chalkland plant species including salad burnet, stemless thistle and dropwort. Much more extensive grassland exists beyond the Borough boundary in Surrey. A recent change of management policy at The Oaks Park is encouraging rougher areas of grassland to develop chalk species. A similar process is going on on the old lawns of the former Cuddington Hospital. The above six sites are accessible to the public, apart from the hospital, although Water Gardens Bank is best viewed from the edge as it is a dangerously steep slope.

Other sites in the Borough which include areas of chalk grassland are The Avenue Primary School Nature Garden in Belmont, the Old Belmont Hospital, and the embankments of the East Sutton Railway Lines.

Many of the chalk grassland sites in the Borough have been modified in the past by applications of fertiliser, partial re-seeding and frequent mowing. The efforts to reverse the effects of this at such places as Roundshaw Downs and The Oaks Park are now showing results and it is to be hoped that such management can be extended.

Neutral grassland

As with most other London boroughs, grassland forms the largest proportion of the open land surveyed in Sutton. Most of this is low diversity neutral grassland and patches of such grassland occur on many of the sites described in this handbook. Recent changes in management of grassland in some parks in the Borough is turning drab amenity turf into delightful wildflower meadows, two examples of which can be seen at Greenshaw Wood. This policy is also starting to show results at Beddington Park. There is, of course, considerable scope in many of the parks to continue this process and the Council is aware of this and will look for opportunities to create meadows elsewhere.

A particularly large area of horse- and cattle-grazed, neutral grassland covers much of Beddington Sewage Farm. This is, however, extremely rich in nutrients due to years of sewage sludge being spread on the fields, and hence the floral diversity is low, with a few highly competitive grasses and herbs such as docks excluding less robust species. This area is currently being changed by the gravel extraction and other work going on there, but much still remains at the time of writing.

A field to the east of Big Wood, most of which lies on a capping of Clay with Flints, has fallen out of agricultural use recently and is displaying a variety of grassland flowers.

Woodland and scrub

Woodland is very scarce in Sutton, covering only an estimated 2.4% of the Borough, and there are no large continuous blocks. This can be ascribed to the absence of infertile acid soils, steep slopes, or badly drained valley bottoms, all of which would have impeded agricultural development or, later, the spread of housing.

The gently rolling chalk lands in the south of the Borough were cleared of forest and transformed into sheep walks early on, while arable and parklands claimed most of the north of the Borough even before the arrival of the railways and the outward spread of London. The largest woodland block in the Borough comprises Big Wood and Ruffett Wood, although this totals only seven hectares in extent.

At one place in Sutton old maps and ancient woodland indicator species suggest ancient woodland. This is a strip towards the western end of Roundshaw Downs alongside Plough Lane. It is quite clearly shown on the one inch to the mile First Edition Ordnance Survey Map dating from 1816, and woodland present at that date would almost certainly also be so in 1600, the date before which woodland now defined as ancient would have been present. Wood sedge, town hall clock and goldilocks, all rare plants outside ancient woodland, are found here.

Two other woodlands have species which are indicative of ancient woodland, although maps of the areas do not show continuous tree cover. Ruffett Wood appears from maps to be a 19th century plantation, but it is quite possible that some pre-existing trees and hedge bottom flora, from old field boundaries, were incorporated. Hazel coppice and wild cherry, together with sanicle, wood sedge and nettle-leaved bellflower are found here and are all normally indicators of ancient woodland. In contrast the adjacent Big Wood is composed mainly of sycamore and is clearly secondary woodland. Greenshaw Wood, on the London Clay in the north of the Borough, has suffered from unsympathetic management in the past, but still retains ancient woodland features, including Midland hawthorn, buckthorn, field maple and true crab apple. However, Greenshaw Wood does not appear on maps of 1816 and 1819 and it seems to have been planted at some time between then and 1860. There were larger areas of ancient woodland to the south in the Benhilton area and species may well have moved into Greenshaw Wood from the south. This is partly conjecture as early maps, particularly the First Edition of the Ordnance Survey Map of the early 19th century, can be unreliable.

Most of Sutton's woodland is undoubtedly secondary, the result of 18th and 19th century plantations or natural colonisation of unmanaged land, and is dominated by non-native trees, such as sycamore. Important areas of secondary woodland are found at The Oaks Park, the result of landscaping by Lord Derby two centuries ago, and at Woodcote Grove Wood, an abandoned Victorian arboretum. Both of these contain a mixture of native and non-native tree species.

Smaller plantation woodlands include Radcliffe Gardens, Little Woodcote Wood, Wellfield Plantation, and a patch of woodland in the grounds of Queen Mary's Hospital. The wood at the hospital is partly an early 20th century plantation of non-native trees, and partly the result of scrub invasion on the downland from the Wellfield Plantation. Lambert's Copse, on the southern boundary of Sutton, appears to have been planted as a game covert in Victorian times. This has been severely affected by the Great Storm of October 1987. Two other small woods are the survivors of belts of trees which once surrounded a 19th century park known as "The Park" to the north of Carshalton. These are to be found today at The Spinney, and in Dale Park alongside the River Wandle. Though small, all of these woods support a variety of birds and, where accessible to the public, provide a valuable recreational and educational amenity.

One "wood" would not seem to warrant the name. However, Revesby Road Wood half a century ago was an area of dense woods with thick brambles beneath. Today it is a woodland park with about 40 scattered oaks, but recent management changes have included the planting of native tree seedlings and the cessation of regular grass cutting over parts of the area, so in the future woodland may once again prevail here.

Scrub is a valuable habitat for birds and invertebrates. Some of the most recent woodlands contain much scrub, but more interesting is the chalk scrub that occurs at Woodcote Park and Cuddington Golf Courses, and at Banstead Downs, although in the latter two cases it would be preferable to reinstate the chalk grassland that previously existed. At Cuddington, a large field shows a classic succession from chalk grassland to impenetrable scrub with various stages in between. Unfortunately no management of the area is taking place at all and the chalk grassland will soon disappear. Scrubland and tall herb communities also dominate railway side sites in the Borough (the best of these being at East Sutton Railway Lines and on the Sutton to St Helier Railway Line) and the area between Poulter Park and the River Wandle.

Hedges

Hedgerows in Britain are disappearing at an alarming rate. In 1947 aerial photographs revealed the existence of over 500,000 miles of hedges in Britain. By 1974, 140,000 miles of these had been grubbed up (Nature Conservancy Council 1984), and although farmers are no longer encouraged by grant aid to remove hedges, losses still continue. Urgent measures are needed to preserve those remaining.

Hedgerows composed of a variety of species will produce an assortment of berries and nectar throughout the year: vital sources of food and shelter for birds, insects and small mammals. A surviving network of species-rich hedgerows, even if the enclosed fields are species-poor, is an excellent habitat for wildlife in its own right.

Generally, the more woody species composing the hedge the older it is, hence the oldest hedges tend to be the best for wildlife. A rule of thumb method for dating a hedge is to walk along a typical 30 metre stretch and to count the number of woody species present. For each species counted, add 100 years to find its age. This is very approximate but should normally distinguish ancient hedges from post enclosure Act (late 18th to early 19th century) ones, as the latter tended to be planted with hawthorn only. This method was developed by Dr Hooper and is therefore known as Hooper's Rule. Another method of distinguishing old hedges from those dating from the enclosures is that the latter tend to be dead straight while the former are more sinuous.

The area of Sutton where one might hope to see a network of hedgerows is in the Green Belt around Little Woodcote. Much of this land was bought by Surrey County Council after the First World War for their smallholdings scheme (see "The history behind the landscape - the 20th century"). Unfortunately, the fields, some of which have recently fallen out of agricultural use, are largely hedgeless and their open, windswept nature fails to provide shelter for much of the wildlife which could take advantage of the situation. The best hedgerows in the Borough have to be searched out.

Probably the best examples are the hedges alongside Grove Lane, a very old track running from Woodmansterne Lane to Woodcote Park. These include blackthorn, hawthorn, holly, hazel, elder and wayfaring tree, and give a glimpse of what much of Sutton must have been like last century. At the northern end, Grove Lane runs alongside Carshalton Road Pastures and the western hedge is common to both. The pastures also have other good hedges. Another excellent old hedge in The Oaks Park contains whitebeam, buckthorn and wayfaring tree, as well as a good variety of commoner shrubs.

Sometimes an old hedge remains but is not immediately obvious. An example is along the western edge of Lambert's Copse where a hedge of wayfaring tree, buckthorn, hawthorn and wild privet marks the boundary of the wood. It is no doubt of greater antiquity than the woodland, which was probably a late 19th century game covert. Other fine hedges with large trees rising above enclose the hay meadow to the east.

At Beddington Sewage Farm a straight, fairly continuous hedge, mostly of hawthorn with the occasional sizeable oak, crack willow and elder, runs along the present Borough boundary with Merton.

An old hedgerow can be seen along the western edge of Greenshaw Wood and continuing downhill across the adjacent park. Until recently this was rather forlorn amongst a desert of mown grass but now, following the Borough's efforts to create a wildflower meadow here, its surroundings are much more interesting and attractive.

Hedges of various ages can be seen at a number of other sites in the Borough including Mill Green and Belmont Nurses Home Pastures. At the latter, which is part of the Old Belmont Hospital Site, there is one almost entirely of hazel.

Other habitats and wildlife areas

As an outer London Borough, Sutton would not normally be expected to have as many "wasteland" sites as an inner borough. Abandoned sites taken over by nature are more traditionally associated with the inner city. Such sites typically feature artificial substrates which are well drained and low in nutrients, leading to the establishment of very diverse plant communities. The plant life on wasteland sites can include a remarkable range of species, from newly-arrived alien colonisers to long-established arable weeds which are now rarely seen in their traditional haunts.

Sutton contains several wasteland sites. The largest, at present, is Beddington Sewage Farm, much of the wider area outside the modern treatment works having been colonised by such typical ruderal flora as wild chamomile, oriental poppy and mountain cranesbill. By far the most botanically diverse wasteland site in the Borough, and one of the best in London, is Therapia Lane Rough. This area of former railway sidings alongside the Mitcham Junction to West Croydon railway has grown up over the last decade and now contains over 230 species of higher plants including 30 which are rare in London. The place is a botanist's delight and to see sheets of yellow vetchling, for example, a very rare plant in London, can come as quite a surprise.

The only other site in Sutton which is totally wasteland in origin is Beddington Lane Paddock. This former rubbish tip is now some five metres higher than the surrounding land and provides a surprisingly tranquil place amongst a sea of factories. An element of wasteland flora is also to be found at the Old Belmont Hospital Site and at Devonshire Avenue Children's Playground.

Churchyards can provide havens for wildlife and particularly so over recent years when reduced management has been coupled with a greater realisation of their potential as nature conservation resources. They are often located in areas where there are no other immediately accessible sites. Two churchyards in Sutton fit into that category and are included here. These are St Nicholas Churchyard in central Sutton and All Saints Churchyard, Benhilton. A further two are also included in this handbook as part of larger sites; these are All Saints Churchyard at Carshalton and St Mary's Churchyard at Beddington. The two All Saints are now managed by the Council, although they are still owned by the church authorities.

St Mary's Churchyard at Beddington is particularly notable for its wall flora and for its lichens. In fact it has been assessed as the most important lichenological site in the Borough and of importance for the whole of south London. Lichens, which are particularly susceptible to pollution in the air, are more traditionally associated with country churchyards. However, they are making a comeback in towns and cities as the air has become cleaner over the last 40 years. St Nicholas Churchyard is also good for its lichens and some gravestones have up to four different kinds clinging to their surfaces.

There are two other wildlife areas which do not really fit into any of these categories. The Sutton Ecology Centre has already been mentioned in connection with its pond but it contains a whole range of other habitats, as well as acting as a focal point for Sutton's commitment to the environment and a marvellous educational resource. St Mary's Court in Bute Road is one of the most unusual (and one of the smallest) wildlife sites in London. Only some 20 square metres, it contains a large population of ivy broomrape, a nationally scarce plant which is known at only two other sites in London.

Although the sites described in this handbook include the best wildlife habitats in the Borough, there are many other areas that make a significant contribution to nature conservation. Larger gardens provide a valuable reservoir for birds and other wildlife, and many institutional grounds include habitats which are of amenity and educational value. Many schools have created wildlife gardens in their grounds. Allotments, when abandoned, also offer scope for creation of miniature nature reserves, and one or two to the north-east of Sutton town centre have pockets of woodland or other wild areas along their edges. Even modest suburban gardens can have value for wildlife in the form of a garden pond, bird table and shrubberies or the odd tree, and this value is increased when gardens adjoin each other to form often quite extensive semi-continuous habitat.

Some of the more extensive parks in the Borough, or those with particular wildlife habitats, such as ponds, are included amongst sites described here, but many others are devoted largely to sports facilities or playgrounds and therefore consist mainly of short-mown turf or hard surfaces. Even in these there will be some wildlife value, especially where there are mature trees or less intensively-managed corners. All but a few of the most formal parks show great potential for habitat creation. More naturalistic planting in less-used areas can make the landscape more varied to the visitor's eye as well as encouraging wildlife.

Cemeteries usually have to be kept neat and tidy, but the presence of numerous trees and less intensively-managed grassland can make them more attractive to wildlife and rare plants can sometimes survive, such as meadow saxifrage and hare's-foot at Bandon Hill.

In the Green Belt in the south of the Borough, none of the actively-farmed areas has been included in the sites described in the handbook, although even here the hedges and field boundaries support a range of plants and animals, and the crop fields and grassland are of importance to birds at certain times of the year. With the present surpluses, there have been moves to take some agricultural land out of production. The proximity of large centres of population would make it desirable that this land be made more available for quiet recreation. Such land use changes could also have a beneficial effect on nature conservation in the Green Belt. Many of the footpaths that traverse the Green Belt in Sutton give a real sense of countryside, particularly those that pass close to or through sites of wildlife value such as Lambert's Copse and its adjacent hay meadow, or the bridleway along Grove Lane.

4 The role of the Borough Council

Sutton has been a pioneering Borough Council in the integration of nature conservation principles into its planning and land use policies. A committee, then known as the Nature Conservation Working Party was set up in 1983 to co-ordinate nature conservation activities and policies in the Borough. It consisted of Councillors, Officers from the Technical Services and Leisure Services Departments, and representatives from the Surrey and London Wildlife Trusts, Friends of the Earth and natural history societies.

One of the first tasks was the issuing of a "Code of Practice for Nature Conservation in the London Borough of Sutton". This was adopted by the Council in 1984 and was subsequently included in the Local Plan, together with a number of policies for planning for nature conservation in the Borough. The Code of Practice covers such issues as integration of nature conservation into the development process, landscape management and education, and implementation of nature conservation polices in the Borough. The role of the Working Party and the cause of nature conservation in the Borough were further strengthened in 1986 by the appointment of a full-time ecologist (the Field Officer) in the Planning Division.

1986 also saw the production of an Environmental Statement (probably the first Council to do so) which reflected the Council's "concern for the quality of the environment and the need to conserve the finite resources of our planet." The policies adopted aim to "establish a proper balance between short-term economic requirements and the longer term ecological needs of our community" and are as follows :

- **a** Protect and enhance the open spaces, water, trees and hedges under its control to meet the needs of the Sutton Nature Conservation Guide.
- **b** Encourage a positive attitude to the local environment from individual residents, groups and organisations and encourage the expansion of environmental education.
- **c** Act and campaign against pollution, e.g. of air and water.
- **d** Act and campaign against anti-social levels of noise.
- **e** Aim to reduce and discourage litter as part of "The Greener, Cleaner Borough" campaign.
- **f** Discourage waste and encourage the recycling of materials and use recycled materials wherever practicable.
- **g** Improve energy conservation in Council buildings and encourage this elsewhere.
- **h** Promote the development and implementation of renewable energy sources.
- **i** Encourage a responsible and informed attitude to the use of artificial fertilisers, pesticides and herbicides on Council-owned land and elsewhere and aim to reduce the use of artificial fertilisers.
- **j** Aim to protect the public from the dangers incurred through the use, transport and storage of dangerous and toxic substances, e.g. asbestos and radioactive materials.
- **k** Encourage healthy eating and provide the widest circulation of information on the subject and discourage the use of unnecessary additives, particularly within the Council services.

l Encourage the use and improved facilities for the disabled, pedestrians and cyclists.
m Consider favourably employment which enhances the Borough's environment;
n Promote allotments and horticulture.
o Where necessary, introduce new planning policies to support these aims.
p Encourage community participation in this programme and work with other organisations committed to the same goals.
q Monitor the rate at which green areas are diminishing in the Borough and endeavour to compensate for this.
r Produce an annual report on the state of the environment so that the implementation of these policies can be monitored.

To achieve these policies, an Environmental Statement Steering Group was set up with high level representatives from every Council Department, and now every committee report has to have a paragraph on "Environmental Statement Implications". The nature conservation working party has gone through two name changes to reflect its widened membership and role in implementing many of the above policies, and is now called the Ecology Working Party (EWP) and administered largely through the Environmental Services Department (formerly Technical Services). The latest initiative is to work towards a "Sustainable Sutton" through community, business and Council partnerships.

Community involvement has always been seen as the key to progress, so to implement policies a,b and p the Council set up the Sutton Conservation Group (SCG) in 1987 (for further detail see the SCG, in chapter 5). The Council provides a van, tools, office and storage space for the volunteers, and covers the running costs of the SCG, including the all important tea and biscuit provisions for work days! A part-time Assistant Field Officer promotes the SCG and supervises midweek tasks, with the important role of supervising the volunteers with learning difficulties who come out from Social Services day and residential centres. An events programme/newsletter is published quarterly, and is available from Sutton's Libraries, Council Offices, the Ecology Centre or direct from the SCG. In the 1991/92 year, the SCG and the Field Officer organised 134 workdays on 32 sites (including 14 schools), with a total number of 1263 "volunteer-days". Independently of the SCG, the Ecology Centre and the Downlands Countryside Management Project also run nature conservation workdays.

In addition to this "organised" community action, local residents can, through the Council's "Adopt-a-Plot" scheme, look after their local green or verge, or tidy up, maintain and enhance local eyesores.

Parks and open spaces

The Leisure Services Department is responsible for maintaining the parks and many open spaces in the Borough. Four parks have large areas of meadow (Rosehill East, Oaks, Roundshaw and Beddington) created by sympathetic mowing regimes, and are more fully described in the site descriptions.

The SCG has planted numerous hedges and woodland edges in parks and recreation grounds, and have undertaken larger woodland creation schemes at Rosehill Park (extending Greenshaw Wood), Dale Park, Cuddington Recreation Ground and especially Revesby Road Wood.

The Parks Division has also re-planted The Oaks Park to replace the 13,000 trees lost in the 1987 hurricane and itself has a regular tree planting programme for parks and open spades.

Under policy i of the Environmental Statement, use of fertilisers, herbicides and pesticides is only considered by Leisure Services if there is no other effective alternative, and never on a routine basis.

The use of temporarily vacant allotment plots for nature conservation is being considered by the Parks Division.

Planning and development control

As the statutory planning authority, the Borough Council is responsible for preparing a development plan. This deals with matters affecting the development and other use of land within the Borough, including measures for the improvement of the physical environment and management of traffic. The primary purpose of the plan will be to provide a framework for development control, but Sutton Council also sees it as a tool to bring local and detailed planning issues before the public.

Currently, the Greater London Development Plan (GLDP, 1976) and the Sutton Local Plan (SLP) comprise the statutory Development Plan for the Borough. The SLP was adopted in 1988 by the Council and its nature conservation policies were considered by many as models for other development plans. The GLDP and SLP will shortly be superseded by the Unitary Development Plan (UDP), and the deposit version of the Sutton UDP contains both improvements and new ecological policies. For full details, copies of the UDP can be viewed at libraries and the Environmental Services Department (24 Denmark Road, Carshalton), and can be bought at the latter place at cost price. The nature conservation policies are summarised as follows:

Land Management for Nature Conservation

Nature conservation considerations will be applied throughout the Borough, in respect of both new buildings and new infrastructure proposals, including schemes for drainage or flood alleviation, but will be particularly relevant in respect of existing open or undeveloped land. In applying these principles, the Council considers that development should respect, as far as possible, any features of nature conservation value on or adjacent to a proposed development site, and that landscape proposals should attempt to protect and enhance the nature conservation value of the site.

The Council will take full account of nature conservation principles in the management of its own land and will encourage other landowners, including statutory undertakers, public and voluntary bodies, to manage land in accordance with such principles.

Sites of wildlife value

The Council has identified 39 sites worthy of special protection for their nature conservation importance, and these sites carry a "presumption against development" in the deposit UDP. Furthermore, development on land adjoining these sites which would adversely affect their value will also be opposed. The Council, in a separate policy, considers that "applications for development which may have a significant impact on important ecological areas or ecological features of the Borough should be accompanied by an environmental impact assessment."

As regards actual management, the Council states that it will seek management agreements with landowners, local wildlife trusts, schools and other relevant organisations for Sites of Wildlife Value and will aim to enter into such agreements as landowner. Subject to the satisfactory completion of a management agreement, the Council will, where appropriate, declare Sites of Wildlife Value as Local Nature Reserves. Four Local Nature Reserves have been declared so far, at the Sutton Ecology Centre Grounds, Wilderness Island, The Spinney and Spencer Road Wetland.

In consultation with appropriate individuals and organisations, the council will seek to identify further Sites of Wildlife Value within the Borough. In this context, the Council will assess ecologically deficient areas, where new habitats and facilities for nature conservation may be provided, either on new sites or by managing existing open land. When protecting sites, the Council will, in addition to the intrinsic wildlife value, take into account the potential for amenity and education. Churchyards may be important in this respect together with temporarily vacant land that may be suitable for such considerations until developed.

Features of Nature Conservation Value within Development Sites

Four further sites already allocated for development have been identified as requiring detailed guidance from the Council in order to safeguard and enhance their nature conservation value. In considering applications for development on these or any other site in the Borough, the Council will still take account of nature conservation principles and will seek to ensure that "the design and management of new development take into account the retention and enhancement of existing features of nature conservation value".

Green corridors

In addition to Sites of Wildlife Value, the Council also considers that the fauna, flora and open aspects of corridors formed by rivers, streams and railways in the Borough contribute to the ecology and environmental quality of the Borough. Therefore, "The Council will seek to protect Green Corridors from development which would adversely affect their value for nature conservation, amenity, landscape or access purposes".

The Council recognises the importance of maintaining a network of green spaces through the urban area. This network of corridors connecting with open spaces assists animals, insects and plants to thrive in the developed parts of the Borough, provides valuable landscape and amenity features for residents and commuters to enjoy and, where appropriate, can serve as recreational access routes for pedestrians and cyclists. The Green Corridors should provide links from the wider countryside, Green Belt and areas of MOL into the fabric of urban London. Such corridors include land between railway lines or streams and adjacent road surfaces.

It is the Council's intention to prevent, as far as possible, building over the current garden areas within Green Corridors. Residents will be advised of the desirability of retaining as much natural area as possible, and in this way it is hoped to develop the natural potential of open spaces within and connected by these corridors.

River Wandle

A scheme for the Wandle Valley has recently been carried out, providing cycleways, footpaths and several areas of wildlife interest. The proposals were implemented under the auspices of the Manpower Services Commission and provided work experience for unemployed people in the Borough. In order to maintain and improve this facility for the Local Community it has been identified as a Green Chain, a Site of Wildlife Value and a Green Corridor. Accordingly, "The Council will seek to identify and manage areas of ecological interest along the River Wandle, stimulate the appropriate use of recreational facilities and encourage full community involvement in the management of those facilities and also seek to promote the completion of the River Wandle walkway and cycleway."

Green Belt & Metropolitan Open Land

The Council undertakes to safeguard the Metropolitan Green Belt and Metropolitan Open Land (MOL) in the UDP (see figure 5), with further detailed policies and a "Green Belt Plan" constituting Supplementary Planning Guidance.

A major part of the Green Belt Plan is a "Landscape and Nature Conservation & Development Strategy". In the main, improvements can be achieved through an increase in woodland screening and therefore woodland habitats, especially in the urban fringe. A great improvement would also be achieved by the establishment of hedgerows and hedgerow trees. Generally speaking, chalk grassland and meadow habitats are also important and opportunities to extend and improve these areas should be taken. Wetland habitats are almost non-existent and opportunities to introduce ponds in the area should be encouraged although artificial lining to retain the water will probably be required.

Finally, a number of sites can be earmarked for special treatment to promote nature conservation. This applies to sites with good habitats which need protecting and managing, and sites which have become neglected and cannot be beneficially used for agriculture but can be used for wildlife and informal leisure pursuits.

Green Chain

The Green Belt and MOL almost form a ring of open land around the built-up parts of the Borough. These areas, together with other areas of public open space and the River Wandle Green Corridor, provide a unique amenity and recreational function within the Borough. The Council intends to retain the sites which are considered to complete this ring as a Green Chain, linking MOL and Green Belt.

Therefore, the Council aims to "create a Green Chain and will retain Council owned land in open use and oppose the loss of other open land, which forms part of the Chain."

Back Garden Land

This is a pioneering policy which attempts to achieve a higher degree of sustainability to the development process and is aimed at an estimated 1500 hectares of garden land. The trees, shrubs and other vegetation not only supports a diverse fauna but also has environmental and health benefits for the residents of Sutton. The Council feels that the areas of green space which make up the combined back gardens of the Borough should generally be excluded from building development, as the cumulative development of these areas would constitute a considerable and fundamental environmental degradation of the Borough.

A London Ecology Unit study showed that an increased density of development does lead to a substantial decline in the variety of birds, which are considered to be indicative of other wildlife.

Consequently, the Council wishes to prevent unscheduled *ad hoc* development of back gardens, and will "normally oppose development of back garden land. Exceptions will only be allowed if the ecological value of the area is to be maintained or enhanced."

Environmental education initiatives

Wider education

The Council is keen to promote environmental awareness, understanding and action throughout the whole of Sutton's community, as in policies b and p of the Environmental Statement. In this chapter only the nature conservation element within Sutton is discussed, but there is a similar level of action on global nature conservation issues such as tropical hardwoods and peat exploitation, as well as the wider environmental issues such as recycling, anti-litter, pollution, ozone layer, transport, etc, as indicated in the Environmental Statement.

The Field Officer, the Sutton Conservation Group (SCG) and the Ecology Centre are the Council's main tools in furthering nature conservation issues amongst Sutton's community.

The Field Officer is the Council's contact for any enquiries about wildlife and nature conservation, gives talks to community groups, and promotes the Wildlife Garden initiative. The aim of the latter is to encourage residents to maintain their gardens more sympathetically for wildlife, and where possible carry out specific enhancements such as pond creation, bird box erections, tree planting and wildflower cultivation. To encourage and publicise this, the Council started a wildlife garden competition in 1988 (including a schools category) with a launch by Chris Baines (television wildlife garden journalist) and has run this annually. This competition is incorporated into the annual Environment Awards Ceremony (also started in 1988 as the Civic Pride Awards). Libraries carry exhibitions about the wildlife garden challenge, and the Environment Awards exhibition does the rounds after the awards ceremony. Other specialist exhibitions are organised on an *ad hoc* basis.

The SCG volunteers organise nature walks and talks on natural history and their own work. The practical work itself is educational, with a "tools talk" given to new volunteers and the reasons for and aims of the task fully explained. Tree planting is a popular winter event and the Council always organises extra tasks in National Tree Week.

The Sutton Ecology Centre is the focus for the Council's wide range of environmental initiatives and is an ideal centre for the environmental education of the whole community. The ecology, layout, history and usage of the site are included in the site description (Su.BI 3).

Work with schools

In schools, the National Curriculum stresses the use of environmental studies in cross-curricular work (lessons linking several subject areas) for pupils of all ages. A recent HM Inspectorate report, *Environmental education from 5 to 16*, is strongly supportive of initiatives in this field at all levels. Other recent publications on the subject include the *Curriculum guidelines No 7 on environmental studies*, produced by the National Curriculum Council, and the London Ecology Unit's report *The development of environmental education in London* (Swales 1988).

From January 1989 to August 1992 Sutton's Education Department employed an Environmental Education Advisory Teacher to promote environmental education within the National Curriculum. In-Service Training (Inset) courses were given to whole schools, mixes of teachers from different schools and to "cross-phase" groups of teachers (i.e. from nursery, infant, junior primary, secondary and special schools.). These Insets focused on a range of issues, from developing a school policy on environmental issues through to specific practical techniques. The Advisory Teacher supported teachers by working with them in both the indoor and outside classroom, and encouraged schools to develop their school buildings and grounds holistically as an outdoor learning environment, with the involvement of the whole school community. A model of this approach has been Beddington Park Primary School, and the BBC has filmed the work for schools television.

The Advisory Teacher produced written guidelines on relevant issues, for example developing environmental areas and using the outdoor environment to support the National Curriculum, with particular emphasis on the use of the Ecology Centre.

The Ecology Centre, staffed by a Community Ecologist and an Assistant Community Ecologist, is an ideal educational focus, and in the 1991/92 year a total of 4250 pupils visted the centre on 170 organised school visits. The school visits have involved 31 Borough schools and 11 non-borough schools. The facilities for arranged school vists at the Ecology Centre building (the Old Rectory) include three classrooms of different sizes, a specialist library, a basement utility room and a resource room with a range of equipment. A workshop and a greenhouse in the grounds are also available for school use.

The Field Officer is closely involved with schools, and is available for talks on nature conservation issues. However, the main thrust of the Field Officer's work in schools is in providing advice on enhancing the nature conservation and environmental education potential of school grounds (and obtaining grant aid) and supervising the practical implementation of the specialist nature conservation improvements (such as pond creation). The Field Officer currently keeps some of the Sutton Conservation Group mid-week tasks open to school requests and encourages the involvement of pupils too. From February to June 1992 the Field Officer and SCG dug and lined five new school ponds, planted two hedges and carried out general maintenance on school sites. Landscape architects in Environmental Services and Leisure Services also assist schools in improving their buildings and grounds, and the Parks Arboriculturalists provide tree advice as requested. The Council's intention is that every school will have an Environmental Area or access to a nearby school's Environmental Area, and so far 33 of the 60 primary, secondary and special schools have one, four primary schools share with their infant/junior partner, and most of the remainder have one or two elements of an Environmental Area within their grounds and/or are planning to create one.

There are many advantages in having such areas within schools. The transport costs and insurance problems involved in taking children outside school are avoided. There is greater flexibility; lessons can be switched round in the event of bad weather, and work can be fitted within scheduled lesson time. Long-term experiments can more easily be carried out, and can be regularly monitored by unsupervised as well as supervised pupils.

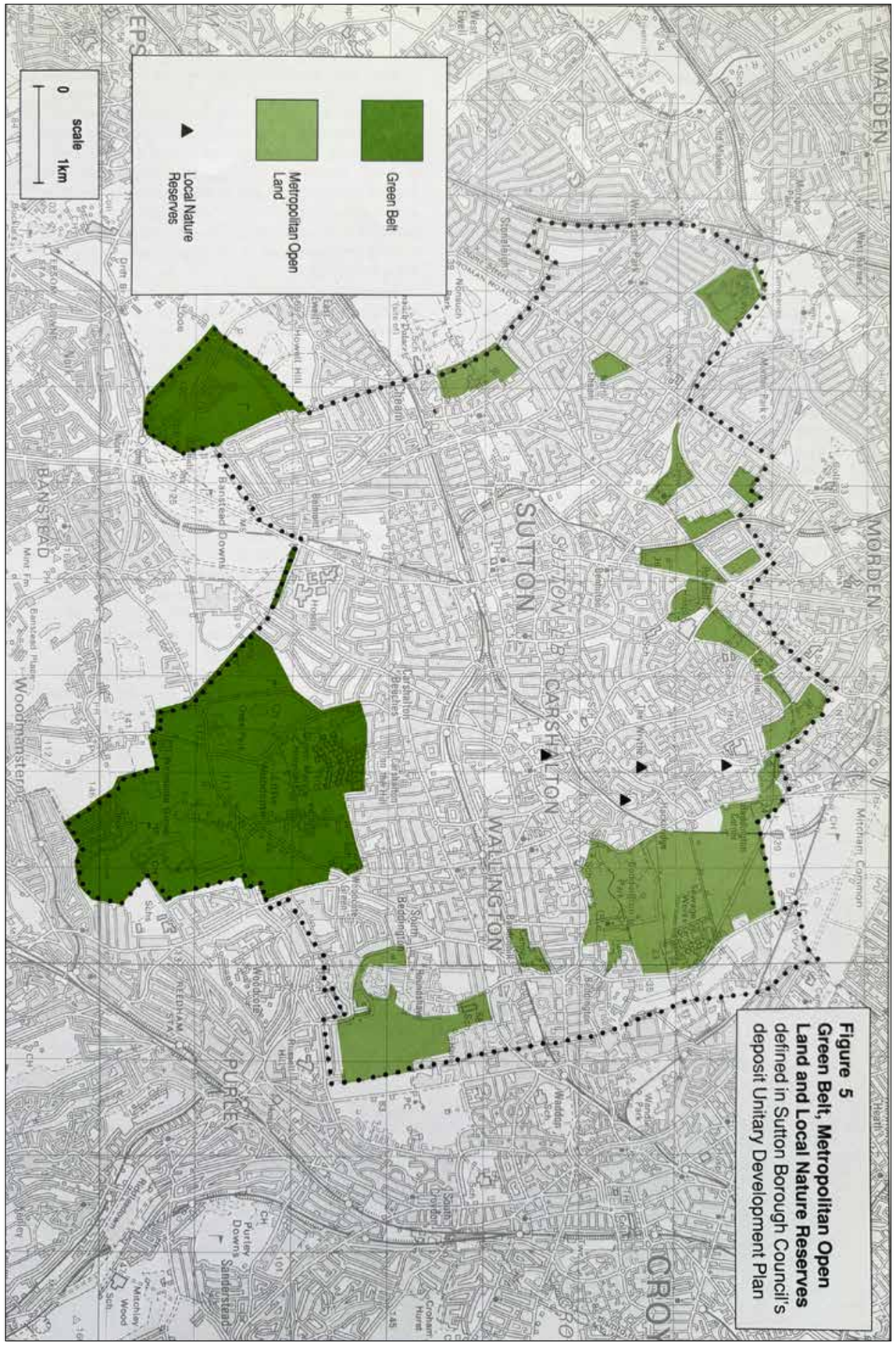


Figure 5
Green Belt, Metropolitan Open Land and Local Nature Reserves defined in Sutton Borough Council's deposit Unitary Development Plan

Altogether, a nature area can be a very valuable asset to a school.

However, it is important to realise the limitations of school nature areas. They require a considerable amount of voluntary input from teachers and/or parents. Often the initiative is taken mainly by a single interested teacher, and sites may fall into neglect if this person moves to another school. Maintenance of the site may depend also on the goodwill of grounds maintenance staff. The management of all school grounds will be put out to compulsory competitive tender. Special consideration will need to be given to developing appropriate specifications for managing nature areas and ensuring that contractors can supply staff trained in conservation management. School nature sites tend to be relatively small, and such areas can give only a limited understanding of the diversity of the natural environment. They only complement field trips to larger, more diverse sites, and should not be used as a substitute for gaining experience of rural landscapes.

School nature areas may vary from elaborately designed gardens to tiny patches of rough grass and "weeds" tucked away in a corner. All are of value to teachers and children, and all present different challenges and problems to those responsible for maintaining them.

Examples of school nature areas in the Borough

Cheam Park Farm Infant School,
Molesey Drive, North Cheam

This school has 240 pupils between the ages of five and seven and 50 nursery children between the ages of four and five. It is surrounded by an estate of 1930s terraced houses. The school grounds are mostly laid to concrete with only very small areas of grass. In the centre of the school was an enclosed, untidy and neglected courtyard area with concrete paths, a small grassed section and a few shrubs, and nothing to stimulate interest or observation among the children.

Although the courtyard was very small it was decided to create a nature garden there and to make it as safe and attractive as possible for both wildlife and people. The main aims were to provide first-hand experience for children to develop an awareness of the physical and human processes which help to shape the environment, to enable them to show a sensitive concern for living things and develop skills of observation, investigation and communication.

Discussion and consultation between the headteacher, staff, children, parents and friends of the school helped to draw up early plans. The major features that they chose were a pond, shrubs with flowers and berries for birds, butterflies and other insects, herbs, a log pile, compost bin, a wildflower area, a rockery and an enclosure for the resident rabbit. The Nature Conservancy Council awarded £325 to the project to enable the school to develop the courtyard area. Work began in February 1990.

The pond provides a home for frogs, toads and snails amongst others. It is bounded by a gravel area for bathing birds, a boggy area and logs for creatures to hide among. There is now a wide selection of shrubs and climbers giving food, colour and shelter. Fungi and wild flowers have self-seeded and the children have observed and compared all the plants through the seasons. A wide selection of birds and insects visit the area and bird boxes have been erected.

The children have been actively involved in all stages of the construction and development. They have shared responsibility with the adults for digging, planting, weeding and caring for the area. A weekly rota ensures each class, including the two nursery classes, has equal opportunities, and a parent also takes small groups into the courtyard for activities planned by the teacher. The area has proved to be excellent for studying the relevant sections of the National Curriculum and the school has collected reference books and pond nets to enhance the work. The parents also take a great interest and ensure too that the nature area is cared for during the holidays.

A measure of the achievement of the nature garden at Cheam Park Farm Infant School is that within six months of work starting it was the 1990 sole winner of Sutton's Schools Wildlife Garden Competition and the following year it was the joint winner. The enthusiasm of children, teachers and parents for the project is a pleasure to see.

The Avenue Primary School,
Avenue Road, Belmont (site Su.L 7)

The Avenue Primary School caters for 400 pupils between the ages of five and eleven and also has a nursery class. The fine wildlife area was started in about 1980 on the former gardens of houses backing onto the school fields. The houses had been bought by the Council some years earlier and rented to teachers, and at the same time the gardens were greatly shortened and then fenced off. Little use had been made of the land gained until the arrival of a new headteacher led to discussion of the best use of the area. It was decided to start a garden club for the study of environmental subjects and science.

The first project was to create a pond and, working with the fourth year junior children, a plan was decided upon. Tools were donated by parents, and the children and teacher in charge dug out the pond through the chalk and flint. The excavated soil was formed into a mound behind the pond and a rockery was built on this. A newspaper and sand infill was followed by laying of the liner. Three quarters of the perimeter was crazy paved to allow a whole class of children at a time to pond dip. The fourth year children also helped to lay the crazy paving and mixed the cement. An island was made from milk crates to give fish a chance to foil any passing herons. Unfortunately this was a failure and all 22 fish were eaten by a heron and the liner pierced by the bird's beak! The fish have not been replaced!

Among the plants in and around the pond are yellow flag, water-lilies, rushes and Canadian pondweed. Animal life includes common newts, frogs, pond skaters, water boatmen, great diving beetles, dragonfly, damselfly and mayfly nymphs, caddis fly larvae, bloodworms, leeches, water fleas, shrimps and ramshorn snails.

A shed was erected to store tools. Russian vine was planted around the perimeter fence to isolate the garden area, and buddleia bushes were encouraged for butterflies. Various woodpiles were situated around the garden for insect studies.

More recently, four new areas have been created in the garden by removing the topsoil and seeding with different wildflower mixes: a chalk grassland, a spring meadow, a summer meadow and an area of annual cornfield flowers. Marsh and common spotted orchids and hybrids were transplanted into the chalk grassland. To reach the chalk bedrock in this case, about 30 centimetres of soil was removed in places.

These four experimental plots were seeded in November 1989 coinciding with the exceptionally dry years of 1989 and 1990. As a result the chalk grassland and the spring and summer meadows were not too successful. This was compounded by the fact that the surrounding unmown grass was embarrassingly spectacular. In contrast with the three other areas, the annual cornfield was very successful in 1990 with a fine show of cornflowers, poppies and corn cockles, but the summer of 1991 display was rather disappointing.

Considerable use is made of The Avenue Primary School's nature garden by all ages from the five year olds upwards, but not by the nursery class. A variety of studies, such as environmental, arts and sciences, are carried out, and the garden area is also used for creative writing, poetry and drama. The nature garden is open to other schools by appointment. A few, including Sherwood Park Special School, have pond-dipped and used the garden area. Plants from the pond, flowers, and newts and their eggs have been given to other schools to stock new ponds.

This nature garden is a wonderful asset to the school and full use is made of the facility. Because of its size, variety of habitats, including a high quality pond, and extensive usage, The Avenue Primary School Nature Garden has been classified as a Site of Local Importance in the context of this handbook.

Beddington Park Primary School,
Mallinson Road, Beddington

This is an excellent example of how even small pockets of land within a school's grounds can be utilised to provide attractive areas for nature study. Three areas have been developed.

First was a "wild area", consisting of an area of land which the mower could not reach easily. For two years it was left uncut to see what would appear and then, in September 1991, it was divided into two meadows. One meadow was rotavated in January 1992 and sown with a wildflower/grass seed mix and the other was left as a comparison. In 1993 the second meadow will be rotavated but left to see what plants colonise it.

The second feature to appear was a pond, on the opposite side of the school grounds from the wild area. In April 1991 the older children decided that they would like a pond in the school grounds and this was eventually dug and lined in March 1992 by Sutton Conservation Group. By this time the BBC were in the school making a film about developing the outside areas of the school. Their filming timetable influenced progress in constructing the pond. Donated plants were introduced just before the Easter holiday, and tadpoles, collected by the infant classes, and two newts were also added. Otherwise it has been left to see what it will attract.

A low wire fence has been constructed on three sides to separate the pond area from the school field (the fourth side consists of the back garden fence of adjacent houses) and shrubs are being grown to make the perimeter look more natural.

The third area was developed in February 1992 when, as part of the project filmed by the BBC, some of the older pupils and parents dug over areas of a grass border alongside the playground next to Mallinson Road. Shrubs donated by the Borough were planted to produce grass "bays" surrounded by a variety of plants.

In July 1992 the three areas at Beddington Park Primary School were judged for the Sutton's Schools Wildlife Garden Competition and were awarded the joint runner's up spot — a fine achievement in so short a time.

Greenshaw High School,
Grennell Road, Sutton

This garden was started in 1986 by a biology teacher in a rectangular area, bounded on three sides by the main school buildings. A pond was dug, with the help of the Sutton Conservation Group, and various plants to encourage wildlife were added to supplement those already growing in the area. In 1989 the wildlife garden was taken over by the school's Environmental Group and they now maintain all the school's wildlife areas with the help of the gardener.

Recently many bulbs and wild flowers have been added to form a spring meadow and a summer meadow. Close to a hawthorn hedge, the school are trying to create a woodland edge effect and have planted bluebells and foxgloves.

The garden, which is now mature and pleasantly secluded as it has a fence and hedge on the fourth side, is used by the Biology Department for pond-dipping and ecology, and also by the Art Department.

A second noteworthy feature within the school grounds is the "energy garden". This had been a rather overgrown garden until it was redesigned by a sixth form group with the aim of encouraging wildlife and also to demonstrate solar and wind power. A fence and hedge were put in with the help of the Sutton Conservation Group who also helped to dig the pond. This was stocked with plants from another school's pond. Many of the plants already in the garden were retained and others have been added to encourage wildlife, such as honeysuckle, buddleia and lilac. Many bulbs and wild flowers were planted to create a meadow area in front of the hedge. A grant from British Gas enabled the purchase of a Rutland Wind Generator, a solar panel and lights, and pumps and equipment for a fountain and waterfall in the pond. The energy garden is used to show alternative energy in action and as a teaching aid for science and technology. It is also attractive to look at and it is visible from the school's entrance and main hall.

Elsewhere in the school grounds a herb garden is being created, trellises for climbing plants are being put up around the school buildings, and materials are recycled.

The judges of the 1992 Wildlife Garden Challenge were sufficiently impressed by the wildlife and energy gardens and the way that they had been looked after that Greenshaw High School was awarded First Prize.

5 Nature conservation organisations in Sutton

As mentioned in chapter 4, the **Ecology Working Party (EWP)** oversees the Council's nature conservation policies and has considerable representation from the voluntary sector. To implement these policies on the ground, in 1987 the Ecology Working Party set up the **Sutton Conservation Group (SCG)**, an amalgamation of the voluntary groups working in the Borough, the **British Trust for Conservation Volunteers, Surrey Wildlife Trust** and **London Wildlife Trust**, under the guidance and financial support of the Council. The Group has expanded greatly and continues to carry out a regular programme of practical conservation work throughout the Borough and in neighbouring areas, involving volunteers and, especially, schoolchildren. Practical work has included tree planting, clearance of storm damage, scrub removal from chalk grassland and pond construction and restoration. Other activities of the Group include monthly progress meetings, field excursions, talks on natural history and a regular social pub night. The weekend events are organised and led by the volunteers, who also write and co-ordinate the production of the quarterly events programme.

Although two Wildlife Trusts are active in Sutton, the London Wildlife Trust and the Surrey Wildlife Trust, only the former is directly involved in the management of sites. These are at Wilderness Island, Spencer Road Wetland and The Spinney. Until recently LWT also managed St Philomena's Lake but this has now reverted to the school. Practical management work on these sites is mainly organised through the Sutton Conservation Group.

The **Downlands Countryside Management Project (DCMP)** was set up in 1986 as a joint venture between Sutton, Croydon, Tandridge, Epsom & Ewell and Banstead & Reigate Councils, with Surrey County Council as chair and administrator of the project. The DCMP aims to improve accessibility to the countryside and enhance the local environment in the project area, with active involvement of the local community. The DCMP has two permanent staff and frequently employs temporary project workers and work-experience placements as resources allow. These staff run midweek and weekend tasks and when working within Sutton's Green Belt usually team up with the SCG. They help in the management of Little Woodcote Wood and Woodcote Grove Wood, and are as keen as the Council to manage Ruffett Wood, Big Wood and Queen Mary's Hospital Woodland. After an intensive survey of the rights of way in Sutton's Green Belt, they have started an improvement programme with the ultimate aim of producing a guided circular walk. They are currently discussing with the Council's Parks Division the options for guided walks (for people with differing abilities) around The Oaks Park and will continue to explore further improvements to the Green Belt itself and public access.

The **Banstead Commons Conservators** look after four commons having a total area of some 566 hectares of which under one per cent is in the Borough of Sutton. The four are Banstead Downs, Banstead Heath, Burgh Heath and Park Downs at Chipstead.

The London-wide group, the **London Natural History Society (LNHS)**, has been active in the Borough in recording its natural history, and is currently involved in mapping the distribution of moths and breeding birds throughout London. The LNHS produces a range of publications, including the annual *London Naturalist and London Bird Report* and distribution atlases for various groups of plants and animals (e.g. Montier 1977, Burton 1983; Plant 1987). The **Beddington Farm Bird Group** produce an annual bird report, detailing all notable sightings in the area. The **Croydon Natural History & Scientific Society** are active in the Borough and are represented on the EWP.

The **Wandle Group** are interested in the history and natural history of the River Wandle along its whole length, including that within Sutton, and co-ordinate the activities of local societies relating to the river. The local branches of **Greenpeace**, **Friends of the Earth** and **the World-Wide Fund for Nature** are also very active in the Borough, and usually help out in the annual Wandle Clean-up.

Some relevant addresses are contained in Appendix 1.

Part Two

6 Deciding which sites are important

The decisions leading to the selection of sites described below were based on criteria outlined in Ecology Handbook 3 *Nature Conservation Guidelines for London* (Greater London Council 1985) as subsequently revised in the report *Sites of Metropolitan Importance for Nature Conservation* (London Ecology Unit 1989). Sites have been graded into Metropolitan, Borough and Local sites and their locations are shown in figure 7 inside the back cover. More detailed information on site boundaries may be obtained from the London Ecology Unit. In addition Green Corridors are mapped in figure 6.

Sites of Metropolitan Importance

Sites of Metropolitan Importance for nature conservation are those sites which contain the best examples of London's habitats, sites which contain rare species, rare assemblages of species, important populations of species, or which are of particular significance within large areas of otherwise heavily built-up London.

They have the highest priority for protection. The identification and protection of Metropolitan sites is necessary, not only to support a significant proportion of London's wildlife, but also to provide opportunities for people to have contact with the natural environment.

Sutton contains all or part of five Metropolitan sites. Two of these, Therapia Lane Rough and Woodcote Park Golf Course, are wholly within the Borough boundaries. The former is one of the best wasteland sites in London while the latter contains areas of exceptional chalkland flora. Beddington Sewage Farm, a small proportion of which is in Merton, is one of the finest ornithological sites in London, while Roundshaw Downs, part of which is in Croydon, is a very fine (and accessible) chalk grassland with an area of ancient woodland. Finally the River Wandle, which flows also through Merton and Wandsworth (although it is only of Metropolitan Importance upriver of Collier's Wood) is one of the best chalk streams in London with very good wetland habitats adjacent to its course.

In the text, Metropolitan sites are identified by the prefix M, followed by a number taken from a list of sites over the whole of the Greater London area. Sites of Metropolitan Importance are not therefore numbered consecutively within the Borough.

Sites of Borough Importance

These are sites which are important in a Borough perspective; damage to these sites would mean a significant loss to the Borough. Borough sites are divided, on the basis of their quality, into two grades, but it must be stressed that they are all important on a Borough-wide view. In Sutton eight sites of Borough Grade I quality have been identified and sixteen of Borough Grade II status.

Sites of Borough Importance are identified by a Su. (for Sutton) and B (for Borough) prefix, followed by their grade (I or II), and then a number taken from a list of sites for the Borough.

Sites of Local Importance

A Site of Local Importance is one which is or may be of particular value to nearby residents or schools. These sites may already be used by schools for nature study or run by management committees mainly composed of local people.

Local sites are particularly important in areas otherwise deficient in nearby wildlife sites. Built-up areas more than one kilometre from an *accessible* Metropolitan or Borough site are defined as Areas of Deficiency. Local sites are chosen as the best available to alleviate this deficiency. Where no such sites are available, opportunities should be taken to provide them by habitat enhancement and creation, by negotiating access and management agreements, or by direct acquisition.

There are five Areas of Deficiency (A.O.D.s) in Sutton. All but one have Metropolitan or Borough sites within or very close to them but the problem is that the sites do not have access or at best they can only be viewed from the boundary. This emphasises the importance of trying to arrange access to some of them where this does not, at present, exist.

The largest Area of Deficiency in Sutton (although the one at Worcester Park is part of a huge one which mostly lies outside the Borough) runs from north of Sutton town centre to Benhill Recreation Ground and through Benhilton as far as North Cheam. If Anton Crescent Wetland was freely accessible much of the central part of this A.O.D. would disappear. However, the wetland doubles as a flood storage wash and access can only be under supervision. It is not possible for formal access to be arranged to Water Gardens Bank, due to its steepness and fragile nature. If access had existed all the part of the A.O.D. north of Sutton town centre would disappear. A number of Local sites in the form of All Saints Churchyard at Benhilton, St Nicholas Churchyard in Sutton and the Pyl Brook at Stonecot have been identified to help alleviate this deficiency.

The second largest Area of Deficiency lies in the Carshalton on the Hill and Wallington area. If access could be secured at Queen Mary's Hospital Wood, as has been mooted, this would remove all the western half of this deficiency. Only one Local site, Radcliffe Gardens Woodland, could be found close to this A.O.D.

A third Area of Deficiency exists in the Worcester Park area, and continues in the Royal Borough of Kingston, through New Malden to Norbiton. This is one of the largest A.0.D.s in outer London. If the Pyl Brook at Lynmouth Gardens, a recreation ground in Garth Road, was not available as a Borough Grade II site in L.B. Merton, this A.O.D. would be still larger and would join up with the one at North Cheam. It touches on Worcester Park Sewage Works but, of course, no access is likely there in the forseeable future. Three Local sites have been identified. Two of these are within or very close to the A.O.D. (Cuddington Recreation Ground, and Beverley Brook and Back Green, Worcester Park) and between them would eliminate the deficiency.

The fourth Area of Deficiency lies south of Cheam village and extends into Surrey. The nearest sites, Cuddington Golf Course and Old Belmont Hospital, would entirely eliminate this but neither are officially accessible. *De facto* access does exist to much of the latter, but the site is zoned for housing development in the Deposit Unitary Development Plan. The only Local site that is close is The Avenue Primary School Nature Garden which is widely used by local schools but is not, of course, available to the general public.

The final Area of Deficiency is a very small one in the area to the east of Beddington Sewage Farm. However, hardly anybody lives in this area at present.

Thirteen Local sites have been identified in Sutton.

Green Corridors

Green Corridors (figure 6) are relatively continuous areas of open space leading through the built environment which may link sites to each other and to the Green Belt. They often consist of railway embankments and cuttings, roadside verges, canals, parks, playing fields and rivers. They may allow animals and plants to penetrate further into the built-up area than would otherwise be the case and provide an extension to the habitats of the sites which they join.

About the southern boundary of Sutton lies a continuous area of Green Belt from Nonsuch Park in the west to Woodcote in the east. Corridor links north of this area are few and they do not penetrate as far as Sutton, Carshalton or Wallington town centres. The large Roundshaw Open Space lies in this unconnected void which continues on north into L.B. Croydon, so that there are no corridor links into Sutton from the east. To the north of the Borough, however, there is a series of linked open spaces stretching from Worcester Park Sewage Works in the west through Morden Park, Rosehill and St Helier to the largest of them all, the Mitcham Common and Beddington complex of open spaces in the north-east of the Borough. These are linked to the Green Belt by railside corridors to the west of the Borough, including those of the Wimbledon to Epsom line on the western boundary of the Borough and the young Beverley Brook which rises in Worcester Park and links north into New Malden and beyond.

The northern open spaces are linked to each other by several rather tenuous corridors including three rail lines which radiate out from Sutton station to Wimbledon, Mitcham Junction and West Croydon respectively. They are also linked by the river corridors, especially that along the two branches of the Wandle which become confluent in Hackbridge and flow north to link Mitcham Common, Poulter Park and further open spaces on into L.B. Merton. The southern branch of Pyl Brook links sites in the north-west of the Borough. The only other significant corridor extends from Rosehill, which lies beside a railway corridor, north-east through St Helier to join the Wandle corridor at Poulter Park.

Areas of land in Green Corridors should be managed in a way that is compatible with wildlife. This includes the areas which are outside nature conservation sites listed in this handbook, if this is compatible with their primary functions of agriculture, railsides, recreation or other open space. Conversion to hard surfaces should be discouraged, and where features such as railways and roads cut across the corridor, provision should be made to allow the safe passage of wildlife and, where appropriate, pedestrians.

Sites in neighbouring Boroughs

Sites within the London Borough of Sutton may be of value to people in neighbouring boroughs. In turn, as shown in figure 7 inside the back cover, and as listed on page 88, there are several sites in the adjacent areas of neighbouring London boroughs and in the County of Surrey which are important to Sutton.

An index of all the sites in Sutton described in this handbook is given on page 96, facing the inside back cover.

Figure 6
Green Corridors through Sutton

7 Sites of Metropolitan Importance

M91 River Wandle

Length of site 5.1 km (in Sutton)

Chalk streams, where they are unpolluted, have considerable value for nature conservation. Unfortunately there are fewer good examples now than there were last century, due to pollution and water abstraction.

In the part of its course that flows through the London Borough of Sutton, the River Wandle is a typical chalk stream, with clear, highly calcareous water and abundant submerged vegetation. Chalk streams are rare in London, the only other natural examples being the Fray's River and River Colne in Hillingdon, which are much larger and do not derive all of their water flow from below the chalk, and the River Cray in Bromley.

History

The present name of the river did not develop until the end of the medieval period. From the 7th century onwards the Wandle was known as the *Hlidaburna* meaning either the loud (*hlyde*) or sloping (*hlid*) stream. The name was steadily corrupted, appearing as "Ledeborne" in 1230 and "Lovebourn" in 1349. Wandle (or "Wandel" or "Wandell") seems to have been in use by the 16th century, although in 1586 Camden had attempted to latinise it with *Vandalis*. One possible derivation is from the Teutonic word for water *wandu*.

Although the River Wandle is relatively short, it has a steady fall over that distance amounting to 38 metres in 14.5 kilometres. Because of its rapid flow, it has never been important for navigation, except around Wandsworth, but has been a good source of power since its gradient was ideal for the construction of weirs and dams. At the time of the Domesday Book (1086) there were something like thirteen water mills on the Wandle for grinding corn. The heyday of the river's industrial use came in the early 18th century when there were 68 water wheels on the Wandle, an average of one every 300 metres. Even in 1805 it was said that the Wandle was the hardest worked river for its size in the world!

As steam engines and electric power came in, use of the old water wheels gradually ceased. By the mid-19th century the Wandle milling industries, crippled by falling water levels and the spread of the steam engine, were on the verge of collapse. Decline in the second half of the century was rapid. Many of the old channels and branches have now gone, but comparison of a map of the river one hundred years ago with a modern one shows how many of the branches do survive. What have changed use or vanished entirely are the watercress beds, flour, snuff, paper and corn mills, tanneries and even an iron works, which were all marked on maps at the turn of the century as dependent on the Wandle in what is now the Borough of Sutton. Many leather mills have also gone but two still exist. Modern factories, especially those manufacturing chemicals, paints, plastics and electrical components, have mostly taken over the sites. More detail on the industrial history of the River Wandle is given in Chapter 2.

The River Wandle was notable not only for its industry but also for its trout. Camden in 1607 described the "cleare rivulet Wandle...so full of the best trouts", John Evelyn in 1675 called it "the most crystal stream we have in our country", and Pope in the 18th century referred to "blue transparent vandalis". In 1817 it was said that the privately owned stretches provided angling as good as anywhere in the country. The Wandle was also a rich source of water cress, and at Carshalton a 12th century version of the village name as *Kersalton* (Cress Alton) indicates that extensive watercress beds were already in operation at that time. Alongside Mill Lane was one place where sizeable beds were found but they also existed at many other places along the river, such as at Merton Abbey and Mitcham.

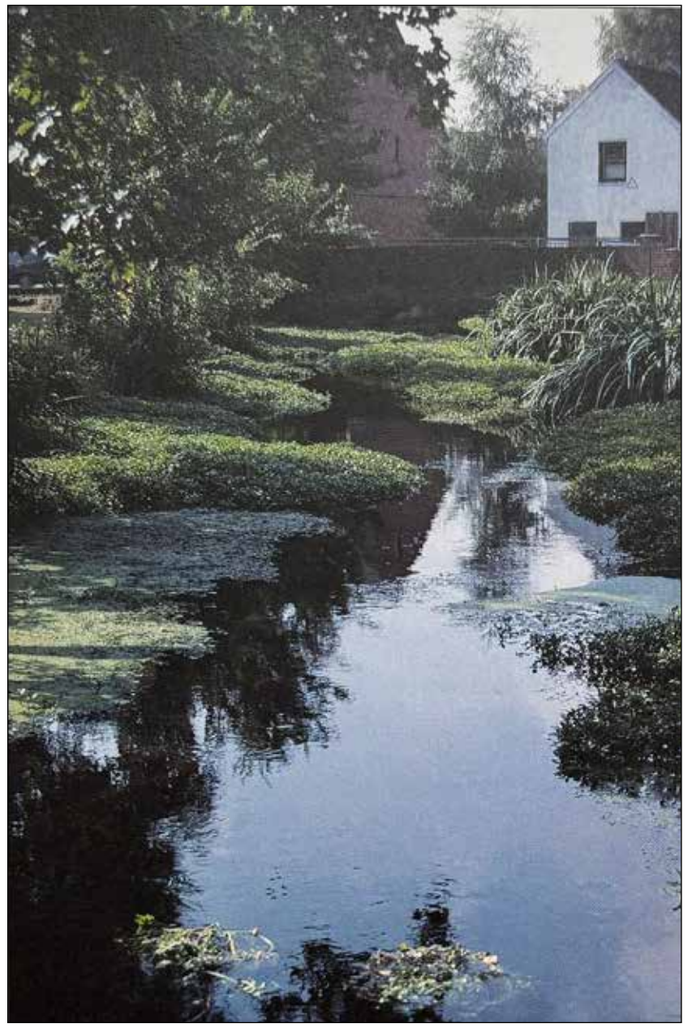
Domestic and industrial pollution caused a complete about-turn; although the stretches in Sutton were never as bad as the river further down, which Tennyson could only describe as "foul and dank, foul and dank, by wharf and sewer and slimy bank", pollution in the upper reaches, particularly from sewage, led to the loss of many fish, including the trout. Now, after a gap of 70 years since they were last found there, trout have been reintroduced to the River Wandle.

Sources

The river rises as a number of springs along the line where the chalk dips below the overlying Thanet sands and alluvial gravels. The springs have all been affected by water abstraction. This has lowered the water table and led to the drying out of some sources and a reduced discharge in others. There are two main branches of the river in Sutton, the Croydon branch from the east and the Carshalton branch from the west, and these unite just north of Wilderness Island at the place known as the "Confluence" or "The meeting of the waters". From here the river runs north, mainly through housing and industrial development, forming a large island around the Culvers Estate in the Hackbridge area and a smaller one to the south of Middleton Road. It leaves Sutton at Poulter Park, where the river is probably at its most attractive, before continuing north through Merton and Wandsworth to its confluence with the River Thames upstream from Wandsworth Bridge.

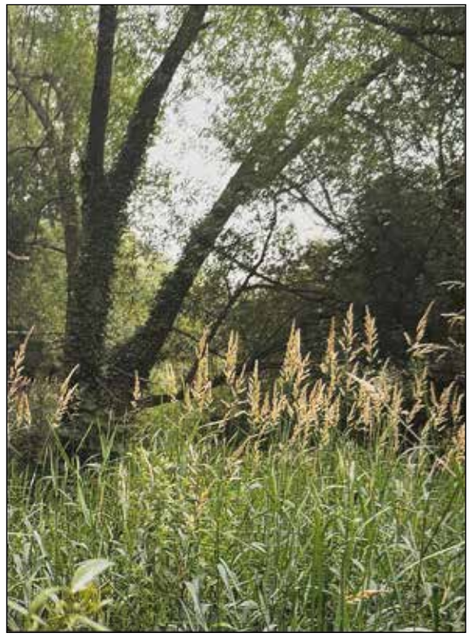
It was always accepted that the Croydon Wandle was the main branch of the river, the Carshalton arm being regarded as no more than a tributary. The original source of the Croydon branch was in the Marden Park Valley near Woldingham, from where it flowed through the Caterham Valley, through the heart of the town of Croydon, past the Bishop's Palace, to Waddon Ponds. This gave the original river a length of 26.5 kilometres as opposed to the 14.5 kilometres it is today. The authorities in Croydon piped away 12 kilometres underground when the river at that end became a health hazard. The first sight of the Croydon branch is now at Waddon Ponds, just over the Borough boundary into Croydon, while the Carshalton branch flows from Carshalton Ponds. In the not too distant past the latter branch was fed from St Philomena's Lake and from the "Grotto" springs in Carshalton Park, the flow from the lake passing by Margaret's Well, in the grounds of the Sutton Ecology Centre, and then into Carshalton Ponds. From Carshalton the Wandle flows northwards through The Grove, where it was joined by the course known as the Westcroft Canal which came down from Carshalton Park. After leaving The Grove, the Wandle passes through the site of the former B.P. works in Mill Lane.

Aspects of the River Wandle



← Lush stands of water cress and yellow flag fringe the Carshalton branch near Butter Hill
LEU/John Archer

↓ Reed-grass catches the light at Spencer Road Wetland
LEU/Dave Dawson



← The jungle-like scene on the Beddington Branch at Wilderness Island
L B Sutton/ Sutton Conservation Group

↑ The river flowing through Beddington Park
LEU/Ian Yarham

Because of abstraction of underground water and continuing dry summers and winters, St Philomena's Lake, Margaret's Well and Carshalton Park are all usually dry and therefore no longer provide water to the river system. Apart from natural inflow from rainwater, the main supply to the Carshalton branch of the Wandle is water pumped back from sources further downstream into the upper of the two Carshalton Ponds. For this and other reasons the water quality of the Wandle above the site of the old B.P. works is quite poor and all this part is excluded from the Metropolitan site described here; however, it is included as site Su.BII 4.

The Metropolitan site

The River Wandle Metropolitan site in Sutton extends from the boundary with the London Borough of Croydon near Waddon Ponds to where the river leaves the Borough just above Watermeads. As stated above, the Carshalton branch is only included below the former B.P. works in Mill Lane. The whole of Wilderness Island, which has been declared a Local Nature Reserve, is included as well as areas adjacent to the river in Beddington Park, Dale Park and Poulter Park. The ponds on either side of Derek Avenue (to the south-west of Beddington Park), and the wetlands to the west of Spencer Road and in the grounds of the former Wandle Valley Hospital make up the remainder of the site described here.

For the description this site has been divided into three sections:

1. The Croydon branch from the Croydon boundary to the railway bridge between Hackbridge and Carshalton.
2. The Carshalton branch downstream of the old B.P. works, Wilderness Island and the unified river to Hack Bridge.
3. From Hack Bridge to the Merton boundary including Spencer Road Wetland and the Wandle Valley Hospital Wetland.

There is public access to the river for much of its length, including sections with pedestrian and cycle tracks. The deposit version of Sutton's Unitary Development Plan recommends the extension of this network of paths to those sections of the river which are at present closed to the public, when the opportunity occurs.

1 The Croydon branch

a Waddon Ponds to Beddington Park

The eastern branch of the river enters the Borough from an underground culvert and flows through an attractive, narrowly wooded stretch as far as the footbridge at Lavington Road. The trees include lime, willow and sycamore, and chicory and reed-grass grow alongside. Vast numbers of sticklebacks can be seen in the water here.

The river rapidly improves in quality as one moves away from the culvert, and includes gravelly runs, although there is still a rather strange mixture of clean, water and pollution. In the early years of this century watercress beds were located alongside the north bank of the river here and these lasted until the 1930s.

After the footbridge, the river passes through a narrow strip of parkland bordered by housing. The south bank is closely mown while the north bank has some ten metres of rough grassland and scattered trees between the river and the mown grass. The major part of the wooden revetments have been replaced with a two-stage contoured channel by the National Rivers Authority. The bed is natural and more gravelly with increasingly varied submerged vegetation including curled and horned pondweeds, fool's watercress, water-crowfoot, star-wort and flote-grass. When not in flower fool's watercress can easily be mistaken for the real thing, hence the name.

At the western end of Richmond Green the river divides into two. The main branch disappears over a weir and behind houses into a narrow concrete channel and then into a culvert. Amphibious bistort is found in this part of the river. A remarkable plant, it has two different leaf forms, aquatic and terrestrial, yet both may be found on a single plant.

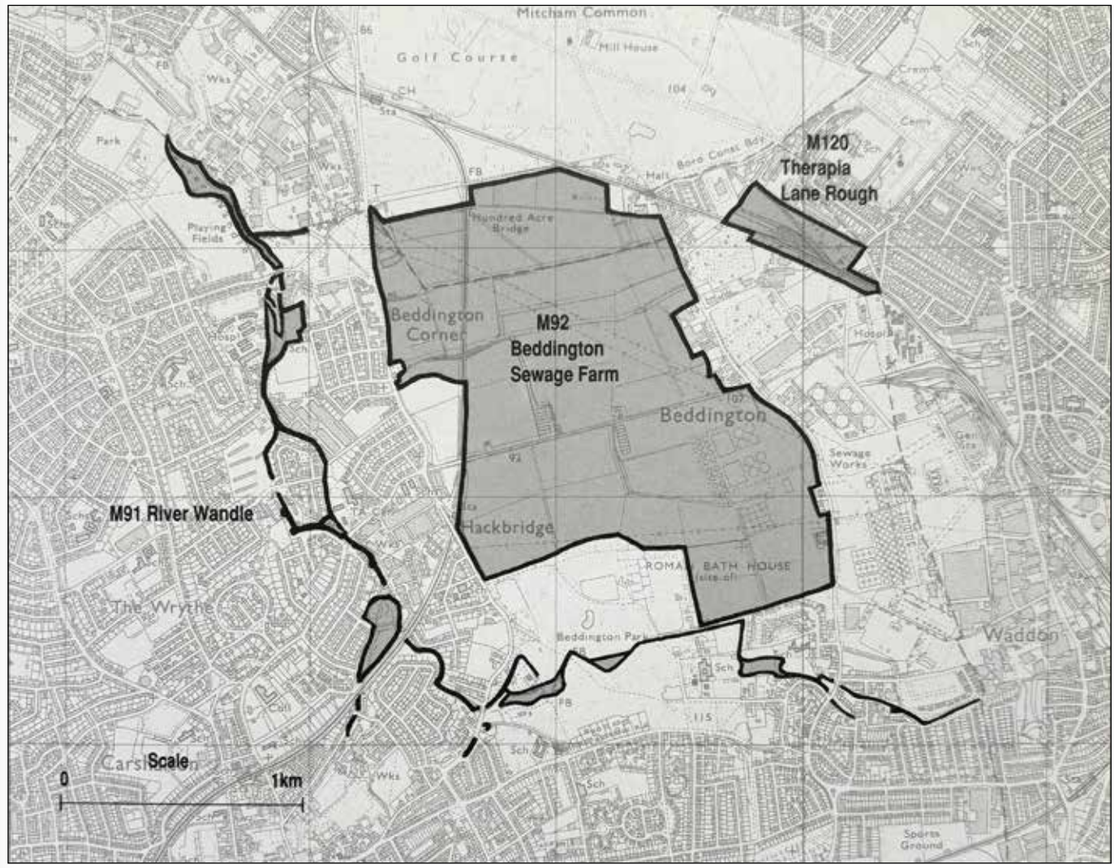
The main branch of the river reappears beyond Wandle Road, having flowed underground for a short distance beneath what was once Beddington Mill. This was a manorial mill dating back to Domesday, grinding corn for much of its working life but converted to Lambert's snuff mill for most of the 18th and 19th centuries. Just to the west of Wandle Road is a very pleasant spot with old wooden cottages (known as Mount Pleasant) and their gardens on the north bank and a footpath on the south. The cottages with their own footbridge were built for the workers at the nearby mills. The Wandle is clear here above a sandy or gravelly bed with marsh ragwort growing alongside the northern bank. This plant is uncommon in London, unlike its very familiar relatives, Oxford and common ragworts.

The northern diversionary stream, known as the Mill Stream, is narrow and here the water slides in and out of the light, beneath thick, old, pollarded willows. One can walk along the north side of this branch past new housing to the north. Canadian pondweed grows in this stretch of the Mill Stream, and white bryony scrambles over the willows. Beyond Wandle Road, celery-leaved crowfoot is in the water as the Mill Stream continues inaccessibly behind back gardens. When it reappears at Beddington Lane, the flowers of marsh yellow-cress can be seen above the water in the summer.

To the west of Beddington Lane, the main branch of the Wandle and the Mill Stream rejoin. A culvert enters on the northern side at this point and for a short distance the stream is less interesting and less attractive than east of Beddington Lane, being narrow with mown grassland on either side.

The river is now approaching the rear of Carew Manor which it passes to the north, after a series of right-angled turns. Just after the first turn there is a fine view from the footpath across the river and into the grounds of Carew Manor where a flood alleviation scheme has been formed. Permanent standing water is the main feature and a pond dipping platform has been added. Purple loosestrife and ragged robin are among the colourful flowers which have been planted around the pond and they appear to be thriving. A cornfield mix has also been sown on the north bank which creates a very colourful show in summer and is good for butterflies. Close by, and also within the grounds of the manor, is a very impressive plane tree which is almost as big as the one at Festival Walk near the Sutton Ecology Centre. The flood alleviation scheme has been very well laid out so that the school at Carew Manor is able to use the area for nature study or relaxation.

The Wandle itself improves again as Beddington Park is approached until, by the time the stream enters the park, the quality of its aquatic and bankside habitats is as good as before. Both Canadian and Nuttall's pondweeds, water-crowfoot, horned pondweed, star-wort, water figwort and bur-reed can all be found in this stretch, as well as fool's watercress.



b Beddington Park

The River Wandle flows through the centre of Beddington Park and, together with the small lake in the western part of the park formed by damming the river, is its main feature. The history and ecology of the rest of the park is described elsewhere (see Su.BI 2) but the Wandle and its adjacent parts of the river corridor within the park, the main pond and the streams in The Grange are all included as part of this Metropolitan site and are described here.

In Beddington Park the River Wandle becomes wider and shallower and submerged vegetation is more sparse, although additional species include the very uncommon opposite-leaved pondweed. The water is clean and clear but the poor vegetation is undoubtedly due to increased pressure from people and dogs, and from children with nets. The banks are mostly faced with vertical wood, but some marginal aquatic vegetation, including bur-reed, spearmint and reed sweet-grass, occurs where natural banks have been retained. The surrounding vegetation consists of short grassland which is mown right up to the stream bank, but some relicts of former marshland survive. One particularly good patch occurs on the north side of the river, in the centre of the park, where there is a sizeable bed of great pond-sedge, reed-grass and great hairy willow-herb. The invertebrate fauna is probably very good, especially in places such as this where the vegetation alongside is rather wilder and the pressure from people is accordingly less. To try and improve the naturalness of the stream's appearance, alders and silver birches have been planted along the banks.

The lake in the west of the park, into which the Wandle flows, is known as the Mill Pond. Earlier this century, a paper mill was situated at the outflow, and many years before that it was the mill pond for a corn mill. More recently it was used as a boating lake.

The mill pond is heavily silted and has little aquatic vegetation other than blanket weed, but is of value for its waterfowl which make use of the three islands. On the middle island grow a few scattered trees above a bed of nettles with good wetland vegetation around the edges, including angelica, yellow flag and Chilean rhubarb as well as a fair quantity of great hairy willow-herb. The largest island is similar apart from a tangle of elder scrub and young sycamore. The third island, below the footbridge, also features much bamboo. Water figwort occurs on all three islands.

Tufted ducks, moorhens, coots and mallards all breed here, together with Canada geese and mute swans. They benefit from the fact that all three islands are inaccessible to the public. As with the river, there is a noticeably large snail population in the lake.

Below the Mill Pond is a very attractive, clear tributary containing considerable quantities of fool's watercress, water cress and narrow-leaved water parsnip as well as trifid bur-marigold, meadow-sweet, reed-grass, bur-reed, pendulous sedge, water figwort, wild angelica and some hart's-tongue fern.

→ Horses roamed until recently at Beddington Sewage Farm
LEU/John Archer

↓ Spindle, a typical chalkland shrub, is found in the ancient woodland at Roundshaw Downs
Michael Waite

→ Hay-making at Roundshaw Downs
Jean Byatt

→ Herons, shovelers and other waterfowl roosting on an island in the main lake at Beddington Sewage Farm
Nick Pope

Rustic stone walls channel the stream and on these can-be seen the white and lilac flowers of ivy-leaved toadflax and the different coloured greens of liverworts.

Another tributary within the formal gardens of The Grange supports such uncommon plants as fleabane and remote sedge. Royal fern, of rare occurrence in London, is doing particularly well near the stream in The Grange. This, the largest British fern, used to grow in wet places throughout the country, but owing to drainage schemes and plundering by collectors, it tends to be found now in the west and north. In Victorian times, cart loads of royal ferns were brought from such places as Cornwall and the Isle of Man to grace gardens and this is doubtlessly the reason why royal fern can be seen here.

The gardens at The Grange are described under the account of Beddington Park. The stream through them derives from a number of ditches and streams beyond the formal part of the gardens, and these contain similar excellent native water's edge plants. They are all included as part of the Metropolitan site.

c Beddington Park to the Hackbridge to Carshalton railway

Just downstream of the Mill Pond are two shallow spring-fed ponds whose outflows join the main channel at the edge of the park. One of these is at the western edge of Manor Gardens, just north of Derek Avenue. The second, between London Road and Lakeside and outside the park, is rather more interesting. Fountains played at either end until the drought of 1976 put a permanent stop to them. The water level fluctuates but the pond still contains interesting vegetation. Included among the submerged plants is hornwort, while white water-lily and bogbean, rare in London, rest on the water's surface. Commoner plants such as celery-leaved crowfoot, reed sweet-grass and common star-wort are also surviving in the water whilst at the edges are water mint, great spearwort, common spike-rush, pendulous sedge, great reedmace and amphibious bistort. The bogbean and great spearwort are almost certain to have been planted. A small island in the pond boasts pendulous sedge, alder and privet. This pond is a fine local feature and is particularly noticeable when travelling along London Road (a road which in its turn rather dominates the pond). Leisure Services have recently cleaned it out, replaced the posts and re-puddled the southern end. It was dredged some time ago at the northern end, which is therefore deeper, and mallards and moorhens are breeding here. One of the two outflows joins the Wandle near the entrance to Beddington Park. The other, which is very narrow and heavily shaded by trees, runs alongside Riverside Close and joins the main river a little further down.

Downstream of the park, the River Wandle runs through an area of housing and is inaccessible until it reaches the railway line at Wilderness Island.

2 The Carshalton branch, Wilderness Island and the unified river to Hack Bridge

a The site of the former B.P. works to Wilderness Island

The Carshalton branch of the River Wandle to the south of the old B.P. works in Mill Lane is described elsewhere (Su.BII 4). The history of the B.P. site is described in chapter 2 in the section on the 20th century. This factory closed at the end of 1991 and was demolished in 1992. It is proposed that housing and some business use be put on the site and the River Wandle opened up throughout its length here with an accompanying cycleway and footway.

As soon as it appears from beyond where the B.P. works used to be located, it is obvious that the river has undergone a considerable improvement to what was previously seen upstream. It is now a nice chalk stream dominated by water cress in the margins, and Canadian pondweed and hornwort in the water. The river is flowing quite quickly now as it passes beneath the bridge at Butter Hill. Ansell's Snuff Mill (which closed in 1896) and Denyer's Flour Mill used to stand on each side of the river here.

Between Butter Hill and the railway viaduct, alongside Mill Lane, is a pleasant, easily-observed section of the river. New offices have been built on the other side of the river and there is a wide verge between Mill Lane and the Wandle. The clear water flows rapidly between large beds of water cress and fool's watercress which are so extensive that the channel is only half a metre wide in places. Hornwort and Canadian pondweed also stream out in the flow while clumps of yellow flag rise above. Strawberry clover, which is very rare in London, grows on the bank. Trout can often be seen along here in the few open stretches.

b Wilderness Island

After the Carshalton branch of the Wandle passes beneath the high railway bridge that carries the line between Carshalton and Hackbridge, one immediately reaches the entrance to a highlight of the walk alongside the river in Sutton: Wilderness Island.

This statutory Local Nature Reserve, only the northern part of which is actually an island, is situated between the two arms of the river and the railway line. It is owned by the Council, and managed by the London Wildlife Trust through its Sutton Group and local volunteers. The Trust has produced a leaflet which details a nature walk round the island. The reserve comprises a variety of habitats: woodland, orchard, scrub, meadows, ponds, sedge bed and damp hollows, and the river itself.

This is a superb site with a real sanctuary feeling, especially on the northern part. Despite trains on the adjacent railway line and factories across the eastern branch of the river, Wilderness Island lives up to its name. It was once part of the grounds of Shepley House, which stood on the west bank but was demolished in 1933. Prior to the 20th century, the northern half had no bridge across to it. Maps of the time show that much of this furthest part was itself water, composed of various ponds. The surrounding area used to be clustered with a great variety of mills.

The southern part of the nature reserve, which is the first reached after crossing the bridge from Mill Lane, is now mostly grassland and scrub, and includes a flower-rich meadow which contains common species such as everlasting pea, common St John's wort, Canadian golden rod and the tall yellow spikes of Aaron's rod, as well as a good population of vervain, which is rare in London. Teasels provide seeds for goldfinches in the autumn, and may have been used to tease cloth here during the calico bleaching industry.

The east-west cut which separates the two halves of Wilderness Island was reinstated by Greater London Council river engineers in 1984. It is narrow and secluded, with fallen trees across the water and willows leaning over at a dramatic angle.

The water in the channel is still and, standing on the very narrow bridge over it, the atmosphere is quite jungle-like. Paths lead from here to the eastern branch of the Wandle, and, with a sense of surprise, one emerges from the tranquility of the tree-cover to look across the river to factories, with their high wire fences, on the other side. Works have been here a long time; in 1868 they were woollen mills whilst in 1895 they manufactured snuff.

Standing on the path here, the birdsong from within the reserve contrasts very starkly with the human noises from across the water. Tufted ducks breed on this part of the river and common darter dragonflies can be seen in summer. Kingfishers are often seen here, and are thought to breed somewhere between Wilderness Island and Beddington Park. Dace and chub swim in the stream. Further north, large amounts of hemlock water dropwort occur on the edge of the river.

On the island, close to the eastern edge, is an extensive sedge bed, separated from the river by the path which runs along the eastern side of the north island. Large sedge beds are unusual in the London area and this one includes species such as pendulous and great pond sedges.

At the northern end of Wilderness Island are two ponds. The eastern one is largely covered with the alien plant least duckweed and is very overgrown, especially with extensive stands of angelica. This member of the parsley family is not poisonous, unlike many of its close relatives, and the garden form is cultivated for its aromatic leaf stalks used in cake-making. The western pond is rather shaded and grades into a marshy area with young willow trees. This pond is desilted annually by local volunteers and the Sutton Group of the London Wildlife Trust, and some young willows, reedmace and yellow flag are removed to increase the area of open water. The path goes down between the two ponds to the bridge over the channel.

Both the branches of the river around Wilderness Island are deep and slow flowing and submerged vegetation is sparse, mainly consisting of an introduced species, curly water-thyme. There are many dace to be seen swimming in the river and, in summer, dragonflies flit over the water surface.

Some thirty species of birds have been recorded on the island including woodland birds such as all three British woodpeckers, treecreepers, nuthatches and occasional sightings of kestrels and sparrowhawks.

c Wilderness Island to Hack Bridge

At the confluence of the two branches of the Wandle, the river has been impounded by a weir about two metres high. North from here it passes underground beneath a factory for some hundred metres. At one time Shepley Mill, which was a leather tannery, was located here to make use of the flow of water. Nearby is a concrete foundation which was the site of the oil mill which served the tannery.

The path follows the line of this underground section until the river emerges shallower and wider as a very clear flowing stream with a wide variety of submerged and emergent vegetation. The footpath continues along the west side. At first the river corridor is fairly narrow, but widens out before reaching Hack Bridge where there is an area of grass providing a place to pause and sit in summer. Steeply-sloping earth banks are overshadowed by trees such as horse chestnut, elm, ash, sycamore, willow, elder and hawthorn, with ivy and nettles beneath. Despite this, the river has fine gravelly runs through this section and bogbean, curled pondweed, hornwort, unbranched bur-reed and the aquatic moss *Fontinalis antipyretica* can all be seen in the water, giving an idea of its quality. The bogbean found here is unlikely to be of natural origin, especially as there are no historical records for it at this location. Its natural habitat is bogs or shallow acid-water pools and in this case it may have been carried downstream from some untraced source. Marginal vegetation includes yellow flag, water cress, fool's watercress and, especially in sunny sections, reed-grass.

3 Hack Bridge to the Merton boundary

a Hack Bridge to Buckhurst Avenue

Hack Bridge is where the B277 road crosses the River Wandle. The bridge gave its name to the local area. Its predecessors for many years carried the Carshalton to London road over the Wandle. The site was dictated by geography as upstream there would have been two rivers to cross (the Croydon and Carshalton branches) and downstream the river divided again almost immediately. The medieval bridge, which was probably only a packhorse bridge, was a little further down than the present one, with just beyond it the ford which wheeled vehicles had to use.

North of Hack Bridge the river divides into two channels which circumnavigate the Culvers Estate. There are extensive beds of water cress and fool's watercress on each side of the river, which also contains plenty of submerged vegetation. The eastern branch is clear as it passes over a small weir and under a footbridge. There are gravelly runs below the weir and willows overhang the river at this point. To the east of the river here was once a terminus for the Surrey Iron Railway, serving the Shepley and Culvers Mills. Beyond the footbridge, the water is shaded by sycamores and oaks and consequently there is little marginal or aquatic vegetation. The sides and bed of the river are less natural here than elsewhere.

Further along, where the tree canopy ceases, the aquatic vegetation returns, which here includes common star-wort and a small patch of bogbean. The latter is common in north-west Ireland and Scotland but is rare in the Greater London area and was probably introduced here. The dried leaves have been used to make a tea to relieve headaches and migraine.

At Culvers Avenue, which divides the island formed by the two branches of the river into two, the eastern branch is rather spoilt by the dumping of rubbish. To the north of Culvers Avenue the path continues along the west side of the branch while on the other side is a factory which helps to make this section rather gloomy.

The Wandle here is fringed with horse chestnuts, sycamores and crack willows and above the wooden vertical banks grow thistles, nettles and bindweed. The river itself has a gravelly bottom with much stream water-crowfoot and Nuttall's pondweed. Towards the confluence with the other branch of the river are some fine crack willows and poplars. The path peters out near the confluence and to continue along the river it is necessary to return to Culvers Avenue and follow the western branch northwards.

The eastern branch takes a larger flow than the western but in most other respects they are similar. However, the latter is more attractive than the eastern, particularly where it passes Dale Park.

Much of the park is mown grass, and is excluded from the Metropolitan site, but a strip adjacent to the River Wandle is distinguished by large mature trees, while other species such as guelder rose, dogwood and field maple have been planted more recently. A pond with two dipping platforms has been created immediately behind the boarding along the river.

A corn mill, known as Carshalton Mill, once stood over the river just to the south of Culvers Avenue. This was close to The Culvers, a house which in the 18th century was the centre of a great estate which specialised in calico production. The site of the house was near the southern end of Culvers Retreat. The southern half of the island at that time was used to bleach linen and by the late 18th century it was one of the largest bleaching grounds in the country (see *The Wandle bleaching grounds* in chapter 2). The trade did not long survive the discovery of the bleaching properties of chlorine and had ceased entirely by 1840. Calico printing was tied up with this and ceased about the same time. The calico industry in this area had been regarded as the largest in the world and stretched downriver to what is now the boundary with Merton.

Samuel Gurney, who lived at The Culvers in the mid-19th century, collected exotic wildfowl and had the first black swan brought to Europe from Australia. The late 19th century owner of The Culvers, John Gassiot, enlarged and enhanced the grounds and the canals, which were probably a relic of the bleaching grounds. He had a range of vineries, fig and peach houses, a palm house, and an artesian well with a 12,000 gallon tank. After his death, his house and estate were put up for sale in 1902.

North of Culvers Avenue, a footpath flanks the western side of the western branch with back garden fences on the east. From the path, at first the river is hard to see in summer through the tall vegetation of nettles and cow parsley. The nettles are often covered with the caterpillars of small tortoiseshell butterflies in summer.

The footpath continues past a recreation ground to the confluence of the two branches. The banks of the river are retained by old wooden boarding and the water is fringed by dense beds of reed sweet-grass, with some great reedmace and much stream water-crowfoot in the water. Mallards and moorhens breed here. On the eastern side of the river at first is a factory and car park but this becomes more open as one travels northwards.

b Buckhurst Avenue to Middleton Road

On reaching Buckhurst Avenue there is an inflow of water from a culvert and the quality of vegetation in the Wandle temporarily decreases. However, to the north of Buckhurst Avenue the river enters another particularly attractive section as the corridor widens again and gives the impression of flowing onwards through woods. Chub thrive here and the aquatic vegetation includes hornwort, stream water-crowfoot and curled and Canadian pondweeds. The very good marginal vegetation comprises beds of water cress, fool's watercress and amphibious bistort, whilst the excellent wide banks on each side of the river are adorned by reed-grass, reed sweet-grass, yellow flag and great hairy willow-herb, as well as hogweed and nettles.

The path passes into an area of rough grassland and trees. Apart from some young planted trees, there seems to be little apparent management. Whitethroats often breed here and orange tip butterflies may be seen in the spring.

To the north of here the footpath diverges from the Wandle and passes between factories and the grounds of the Wandle Valley Hospital. The river here is inaccessible. A small ditch by the path contains a good range of wet-loving vegetation.

Wandle Valley Hospital Wetland

On the other side of the path from the ditch, some fine ponds with good marginal vegetation, backed by tall Lombardy poplars and surrounded by goat willow, young ash, alder, guelder rose, dog rose and hawthorn, can be seen through a wire fence. This was part of the grounds of the former Wandle Valley Hospital, which has now been demolished. Great and lesser reedmaces, reed sweet-grass, great hairy willow-herb, gipsy-wort, celery-leaved crowfoot, lesser celandine, lady's smock and amphibious bistort grow around the edges of the ponds.

The processes of succession were reducing the diversity of habitats on the site and marshy areas were becoming invaded by willow carr. Fortunately this part of the old hospital site is owned by the Borough and now managed by them as a nature reserve. Steps have been taken to clear out the ponds and to keep the scrub under control. There is no general access at present, but once the adjacent site is developed, work on the wetland will be redoubled by the Borough with a view to declaring it a Local Nature Reserve and having regular open days and access by appointment.

Spencer Road Wetland

This part of the River Wandle is scenically one of the pleasantest stretches along the whole river. The interest and charm here is accentuated by the delightful Spencer Road Wetland to the east of the river. This Council-owned Local Nature Reserve was created from long-abandoned commercial watercress beds. By the mid 1980s the area had reverted to a mosaic of damp woodland, carr and reedswamp habitats. Following the Council's recognition of its potential, in 1989 the Sutton Conservation Group embarked on a programme of active management of the site, and these local volunteers have continued to do the work after a nature reserve agreement was signed with the London Wildlife Trust in 1991.

The main habitat is an area of reedswamp that can be seen almost at the beginning of the circular path created by the volunteers. Half of this area is dominated by reed whilst the other half contains a mixture of reedmace, yellow flag, reed sweet-grass and reed-grass. The now large stand of reed shows the success of the volunteers' removal of shading trees and willow saplings within the original stand, and as a result in 1992 reed warblers were recorded as a breeding species for the first time. This may also explain the presence of a cuckoo heard calling on two mornings in the spring, since reed warblers are a favourite host. The reeds and other marsh plants support some nationally rare moths, especially the Webb's wainscot for which this site has the only inland record. The twin-spotted wainscot and crescent moth also breed here.

The path westwards to the river is on a raised causeway constructed by hand from soil excavated from the new pond visible to the north, which in turn was dug to create an area of open water. This latter improvement has increased the number of birds regularly using the site, especially herons. To the south here and on either side of the path after it bends round to the north is an area of damp woodland and carr, which contains areas of standing water when the river runs high (see the illustration on page 31). Additional plants found here include angelica, celery-leaved crowfoot, great pond-sedge, black currant and red currant, the latter two probably being escapes from the allotments on the southern boundary.

The northern boundary is marked by a ditch that used to take water from the river and watercress beds to an old mill pond. The circular path follows this ditch round until it reaches a warehouse wall (which comprises most of the eastern boundary), where it heads back south to the starting point. This latter section affords excellent views over the reedswamp.

Other birds that are attracted to the varied habitats include (probably) breeding greater and lesser spotted woodpeckers, breeding kestrel, grey wagtail (which breeds nearby on the river) and two more new recordings for the site in early 1992 – snipe and redshank.

The latest ambitious project that the volunteers have already started on is the construction of a boardwalk over the existing circular path, to facilitate access by wheelchair users. They have also fenced off a small, more formal, "reception area" for schools and other visitors, and this is the only part of the site easily visible from Spencer Road. Due to the reserve's small size and delicate nature, there is no open access but there are monthly workdays open days when visits (and practical help!) are encouraged. The Sutton Group of the London Wildlife Trust and the Council's Field Officer have keys to Spencer Road Wetland and will happily show visitors round this valuable and rewarding site.

This site was a little secluded gem even before improvement works to remove rubbish, enhance access and diversify habitats. It is now a most remarkable area: a secluded wetland in the heart of suburban housing and industry.

Lavender, peppermint and other herbs were grown in the area and the Ordnance Survey Map of 1895 not only marks the watercress beds near the river but to the east shows a peppermint and lavender distillery.

As the River Wandle approaches Middleton Road it again divides into two to form a small island, covered by factories. At the end of the last century the Mitcham Leather Mills were located here, as well as Roberts Leather Mill and house, probably of Huguenot origin. The original Roberts Mill was destroyed by fire in 1968 but the Skinner's Arms public house nearby on Carshalton Road still commemorates this mill. Also in this complex was a famous enamel paint works.

The western arm of the river emerges from a culvert just south of Middleton Road. Pellitory-of-the-wall, which is uncommon in London, grows on the brickwork here, and the tall and graceful pendulous sedge grows beside the water. The water is shallow at the confluence, and grey wagtails are often seen feeding here.

The eastern arm is rather wider but very shaded. Good beds of stream water-crowfoot can be seen below the confluence.

The footpath, which passed by the Wandle Valley Hospital Wetland, joins the western branch just before the bridge at Middleton Road. It tends to be rather scruffy and rubbish-strewn here due to the derelict hospital site, and until this is developed it is probably best to hurry on to pleasanter parts further north.

c Middleton Road to the Merton boundary

One hundred years ago, as one looked downriver from what is now the bridge carrying Middleton Road over the Wandle (known then and now as Goat Bridge), immediately on the left was the Wandle Tannery, whilst straight ahead the river split into two. Paper, corn, logwood, drug and peppermint mills were clustered round the bridge.

North of Middleton Road, the river runs between steep concrete banks but contains a rich aquatic flora, including hornwort, curled pondweed and much stream water-crowfoot. A line of trees and scrub frames the far side. The path passes a terrace of 19th century cottages, erected to house mill workers. Just opposite these cottages are two reservoirs and the pumping station which recycles water back to Carshalton Ponds.

After about a hundred metres, the eastern bank becomes more earthy. It is here that the outflow from Beddington Sewage Farm comes rushing in at a much faster rate than the River Wandle's flow. The outflow itself seems to support no aquatic vegetation, but the banks are well vegetated with dense and overhanging shrubs and trees such as sycamore, elder and hawthorn.

Upstream of the outfall the water in the river is clear and, where it is not overshadowed by trees, contains an assortment of submerged aquatic plants. Comfrey grows on the banks. Downstream, the water is quite fast-flowing and normally clear, and submerged plants are still present, growing profusely in the nutrient-rich water. Extensive beds of broad-leaved pondweed occur and coots, feeding on the lush aquatic vegetation, nest here. Sticklebacks can be seen in the water.

The eastern bank is clothed in rank vegetation. Beyond are factory premises; one hundred years ago the Eagle Leather Works was here. The western side is fringed by crack willows and hawthorns. Dame's violet, a spectacular garden escape, and the extremely poisonous deadly nightshade also grow here.

Beyond the belt of hawthorn and up the top of a four metre high bank are the playing fields of Poulter Park. Just to the north, the area at the foot of the slope opens up to a larger area of tall vegetation and scrubby woodland, dominated by an electricity pylon. It is wet in parts, which accounts for the presence of species such as hammer sedge, reed-grass, marsh thistle and great hairy willow-herb. A variety of other wild flowers can be seen including fodder burnet (an alien species which is rare in London), agrimony, goat's-beard, teasel, red bartsia and mountain cranesbill. Birds frequently seen include treecreepers, long-tailed tits, woodpeckers and kestrels as well as a variety of warblers.

The river also becomes much wider at this point with extensive rafts of broad-leaved pondweed, together with water cress and water fern. A study of old maps shows a complex pattern of river branches, ditches, watercress beds and ponds in this area. A branch of the Wandle left the main channel on the western side near what is now Middleton Road, flowed along the foot of the high bank and rejoined the river at what is now the boundary with Merton. Between the river and the subsidiary channel were a number of lagoons and these account for the marshy parts in the same area today. One was partly dug out by the Community Programme in the 1980s and the Sutton Conservation Group are improving this gradually with the aim of producing a proper pond.

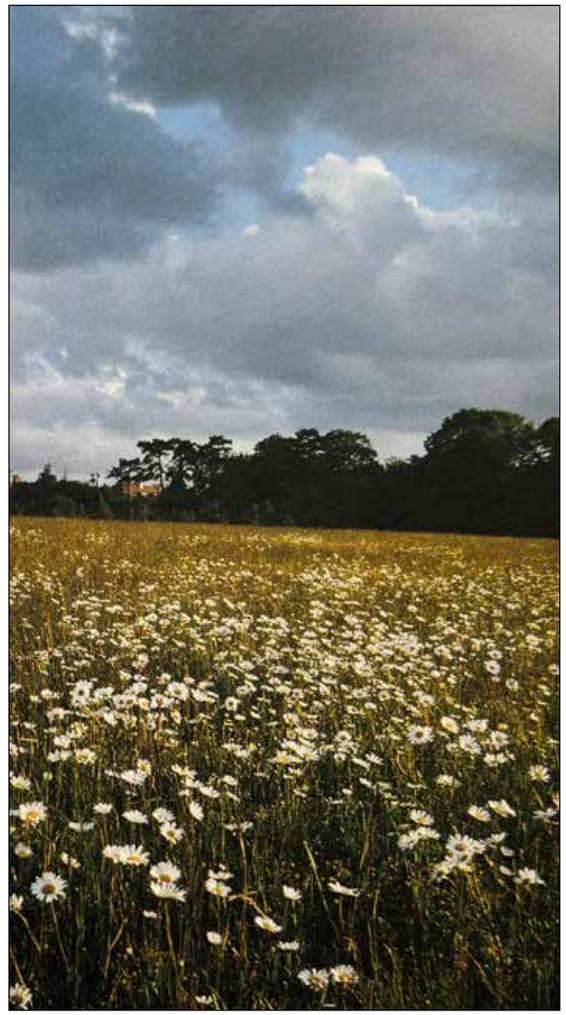
As the Borough boundary is approached, a most attractive, semi-rural stretch of the river unfolds. The water is also much cleaner due to the very extensive submerged vegetation filtering it. In places more than half the area is covered by broad-leaved pondweed, with also much star-wort in the water. On the bank grow reedmace, reed sweet-grass, nettles and creeping thistle.

Beyond a spot known as Bennett's Hole, where there is a right-hand bend in the river, one reaches the area known as Watermeads. This fine property is owned by the National Trust but, as it is in the London Borough of Merton, a description of its delights awaits a later handbook.

→ Tall broomrape is only found at five sites in London. Four are in Sutton and these include Roundshaw Downs
Michael Waite

↓ The very rare greater yellow rattle in close-up at Roundshaw Downs
LEU/John Archer

↓ A sea of ox-eye daisies at Roundshaw Downs
LEU/Meg Game



← Six-spot burnets flock to the abundant nectar of greater knapweed
LEU/Meg Game

M92 Beddington Sewage Farm

Grid ref TQ 293 664
Area 168 ha in Sutton

Beddington Sewage Farm (see map on page 33) is known throughout the birdwatching community as one of London's best places for seeing rarities, and at almost any time of the year ornithologists, armed with binoculars, telescopes and a key from Thames Water, can be seen around Mile Road, a private track that crosses the site from east to west, as well as elsewhere on the farm. The sewage farm is also one of the most important breeding and wintering areas south of the Thames for commoner species of birds, attracted to its wetlands and vast open spaces. Indeed, 152 species were recorded in 1991 and this figure was surpassed in 1992. It is for these reasons that the site has been designated as of Metropolitan Importance for nature conservation.

In the early 19th century the area now occupied by Beddington Sewage Farm was part of Beddington Park. In 1860 the original Beddington Sewage Farm was established. Forty years later Beddington Park had contracted to its present size and two small sewage farms are shown on the map – one near the centre and one near the south-east of the present-day farm. Their effluent was discharged into the River Wandle at Beddington Corner and this helped to make the Wandle into the most polluted river in London.

In 1871 it was stated that "The great increase of the population of Croydon has rendered the question of the disposal of the sewage of the town a matter of considerable importance, and recently the utilisation of this has taken a practical form. A large tract of land has been obtained at Beddington for the purpose of forming a large model farm, to be irrigated entirely by the sewage of the town". The model farm, an extension to the Croydon sewage irrigation system, required the digging of many criss-crossing irrigation trenches which carried the sewage on to the land. While cutting one of these trenches in February 1871, a wall was discovered which it was subsequently found belonged to a Roman bath-house. Just to the south, in April 1871, two human skeletons and a sepulchral urn were found which were part of a Saxon cemetery dating from the 5th and 6th centuries A.D. The bodies had apparently been orientated so that the hands were lying towards the west. This is commonly taken to infer that they were Christian burials. The last recorded finds from the cemetery were discovered in 1875 and in total at least 25 burials were found, some cremations and some inhumations. More recent excavations between 1981 and 1983 discovered a Roman villa, the nearest known villa to *Londinium* south of the Thames.

In 1985 the former Greater London Council (GLC) granted planning permission for the extraction of sand and gravel from most of the area currently occupied by the old-fashioned sewage farm lagoons. Under the proposals the sewage works would remain, but would be restricted to a much smaller area than at present, the system of flooding large open fields with effluent having been discontinued. This scheme was not implemented and in 1990 an application to renew this permission was submitted by Thames Water Utilities Ltd. Permission was granted but is subject to the completion of a legal agreement to secure (amongst other things) the water management of lakes resulting from the restoration proposals. Then further landscaping details will be submitted for discussion with the Council. We hope that these details will restore the presently very high value of the site for birds.

At present the aspect of the sewage farm is of a vast, level, almost treeless plain, although, before the ravages of Dutch elm disease, many tall elms were scattered over the site. The skyline to the east is dominated by two tall chimneys from the former Waddon Power Station, but, while the cooling towers of the power station have been demolished, the myriad power lines traversing the site still remain. Beyond are gasholders, the tall buildings of Croydon and, in the distance, the Crystal Palace ridge with its two television masts. To the north is Mitcham Common and to the south Beddington Park, both bordered by lines of trees and giving pleasant horizons in these directions. The railway line from Mitcham Junction to Hackbridge crosses the western part of the site, and beyond this to the west it is bounded by housing and industry along London Road. The white buildings of St Helier Hospital and the tower blocks of Sutton are also prominent on the horizon in this direction, though some are beginning to be partially obscured by a maturing tree screen.

Ian Nairn in *Nairn's London* described the whole area around Beddington Lane as "A forlorn, atmospheric place south of Mitcham Common. Six grand cooling towers, the first battered farm out of London, pylons everywhere, houses all round the horizon, light industry in the foreground. Yet out of these unexpected ingredients comes a poetry which is missing from most of the preserved villages around London." As noted in the previous paragraph, the cooling towers have now gone.

The present sewage farm can be divided into three areas: the modern treatment works and its deep sludge tanks, which are fenced off; the extensive sewage fields with occasional lagoons or deeper lakes and where gravel extraction is taking place; and, thirdly, the land to the west of the railway line, which has been partly tipped on.

The modern treatment works is much like many other such installations in the London area, and will be retained in any future development. A small extension of the deep sludge lagoons has been constructed to compensate for the reduction in sludge storage capacity caused by the loss of the sewage fields. The sludge lagoons are surrounded by tall earth banks which prevent birdwatchers from seeing into them except where spoil heaps nearby give a vantage point. They are therefore secluded and provide safe nesting places for waterfowl when wet and for waders when covered by a solid crust. Waterfowl species that have bred here include coot, moorhen, tufted duck, mallard and Canada goose. The rest of the intensive sewage works consists of concrete-sided settling and aeration tanks and sprinkler beds, interspersed with short-mown grass. This area is used for feeding by starlings and gulls (which have included Mediterranean gulls in recent years), but is otherwise of low value for nature conservation.

Gravel extraction has taken place over the extensive sewage fields and is planned to continue over a sizeable proportion of the site over a period of many years. Any sense of solitude in the centre of the site, near Mile Road, is prevented by the lorries and diggers constantly travelling back and forth. However, as one moves away from this part, towards the north or south, peace usually returns apart from the drone of motorcycle scramble bikes which, despite a high security fence, continue to trespass onto the site. Many of the fields are sub-divided into small plots of about half a hectare in extent, with narrow grass banks between. Between each of the blocks are wider grassy tracks, which to the south of Mile Road also support a few hawthorn and crack willow hedges. In the north-east of the farm are further scattered hawthorns and oaks.

The fields were flooded at irregular intervals with sewage sludge which gradually dried out and was then ploughed in. Little vegetation developed on the fields, which ranged from almost entirely open water when first flooded, to sparse growths of weeds such as hemlock, celery-leaved crowfoot, docks and oraches growing on dry, cracked sludge. The banks and paths between the fields are covered in common grasses as well as typical ruderal flora such as hastate orache, mallow and wild chamomile, which are particularly prolific here. Alongside them are broad-leaved dock, dwarf elder, field penny-cress, celery-leaved crowfoot, fig-leaved goosefoot, oriental poppy, white bryony, mountain cranesbill, nettles and scentless mayweed. A single plant of tree tomato, found in 1989, which arrived here as seed amongst the human sewage, was probably the first specimen to be found growing wild in Britain.

However, although leading to rather low botanical diversity, the management regime and resulting fluctuating water levels produce superb habitats for a wide variety of birds, especially waders. Lapwings breed here regularly, and redshanks and little ringed plovers do so from time to time. A far greater variety of waders visit the site on migration; common, green and wood sandpipers (the latter rare in London), dunlin, ruff and greenshank are all regularly recorded, while rarities in recent years have included Temminck's stint and two North American species, lesser yellowlegs and killdeer, which attracted birdwatchers from all over London and beyond.

Apart from waders, other breeding birds of interest include yellow and grey wagtails, reed and sedge warblers and tree sparrows. Beddington is particularly important in a London context for the latter species, which is declining both locally and nationally and is now a rare breeding bird in the capital. In early 1992 Thames Water gave permission for the Surrey Bird Club to place 100 birdboxes on site. As a result the 15-20 pairs, which previously bred in the trees scattered over the sewage farm, have now increased to 50-60 breeding pairs. In 1992 they reared approximately 300 young. In winter the number of tree sparrows increases to over 500. This site constitutes the largest colony of this declining species in London and probably one of the largest colonies in the country. In winter flocks of up to 500 skylarks can also be seen feeding in the fields along with smaller numbers of various finches and buntings. Birds passing through Beddington on migration include large numbers of swallows and martins, frequently hawking midges over the sludge lagoons, and wheatears and whinchats in the fields. Migrant songbirds also sometimes include rarities, most notably rustic and little buntings, which appeared together early in 1993, and three tawny pipits. Birds of prey are another attraction at migration times, with hobbies regularly recorded between May and September and ospreys being seen more or less annually. Short-eared owls and hen harriers have also been seen in autumn and winter, whilst little owls are regularly seen all year round.

The diversity of bird habitats has been increased in recent years by the creation of a sizeable area of deeper water, resulting from gravel extraction. This lake, situated beside the railway towards the western edge of the site and created as part of a flood prevention scheme, was only completed in 1990. Vegetation is now building up rapidly around the lake and on the islands. It has already attracted large numbers of birds, both common and rare, and has led to breeding attempts by great crested grebes and shelducks. The latter is a very rare breeding species in London. A good selection of ducks, in particular gadwall and wigeon, and other water birds can be seen, especially in winter, and the lake has already attracted its first national rarity, a little egret which visited briefly in 1991.

The land to the west of the railway is drier, with scattered hawthorn bushes, and was formerly grazed by horses. Much has been used for tipping of inert landfill material and is hummocky, with common grass species and associated wasteland wild flowers. Breeding birds here include lesser whitethroat and whitethroat. A proportion of this land is, however, scheduled for gravel extraction and this was underway by the end of 1992. Houses have recently been built on the southern part, which is consequently excluded from this site.

To the north-west of the site, beyond the railway line, is a copse composed largely of crack willow, with hybrid black poplars and hawthorn, surrounding what used to be a horse riding paddock. Between this and the railway line, and extending up to Mitcham Common, is an area where, at the time of writing, gravel is being extracted. The area is to be restored to flat dry land after the extraction.

In addition there is a further copse in the north-east corner of the site, comprising elm, oak and hawthorn, which adjoins a rifle range. Neither of the copses is very interesting botanically, but they do harbour woodland birds such as blackcaps, and at times tawny owls, and are frequented by woodland migrants on passage. Due to the recently erected security fence around the site, however, these two copses are for the time being inaccessible from within the works.

The northern third of the site, beyond a wide artificial ditch, is more varied, being generally wetter with more lagoons, and also more peaceful. Multitudes of insects congregate over the lakes in spring and summer and as a result many house martins and swifts swoop above the water feeding on them.

A small, natural-looking stream, on the north side of a hedge, marks the Borough boundary; the straight and fairly continuous hedge is mostly of hawthorn with the occasional sizeable oak, crack willow and some elder. Nettles, cleavers and hedge garlic grow on the banks of the stream. At the time of the 1868 Ordnance Survey Map only two trees were shown along this boundary, although elsewhere on the site many trees were marked, mostly in straight lines along field boundaries. The Boundary Commission's recent review concluded that the whole of the sewage farm should fall within the London Borough of Sutton. At some time in the future, therefore, it is likely that the southern edge of Mitcham Common will become the Borough boundary, rather than this stream.

The northernmost part of the site, at present in Merton Borough, is the most peaceful part of all and the birdsong is far clearer. Mitcham Common Golf Course lies immediately to the north and buildings, especially those in central Croydon, seem much more distant. A wych elm on Mitcham Common supports a colony of white-letter hairstreak butterflies which feed on vegetation on the northern part of the sewage works.

At present, access to the farm is limited to only 25 permit holders (and to anyone else by prior appointment) to the land to the east of the railway line. The land to the west of the railway is easily visible from London Road but not officially accessible. Otherwise, the best views of the site and of the gravel extraction are from the train between Hackbridge and Mitcham Junction. It is hoped that as the gravel extraction plans are carried out this access will be improved, and there will be a network of paths and public hides on this important ornithological site.

↓ A train passes the flower-rich Therapia Lane Rough
LEU/Ian Yarham

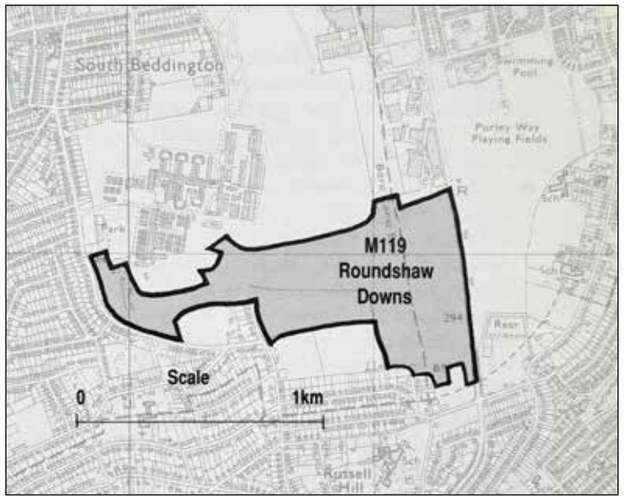
→ The nationally scarce yellow vetching as seen at Therapia Lane Rough
LEU/John Archer

→ Restharrow is rare in London but is found at several sites in Sutton including Therapia Lane Rough
Michael Waite

→ A blaze of colour on the southern part of Woodcote Park Golf Course
LEU/Meg Game

M119 Roundshaw Downs

Grid ref TQ 310 628
Area 57 ha (38 ha in Sutton)



The scenic Roundshaw Downs lies on chalk on the gentle, north-facing dip-slope of the North Downs. Expansive views of southern London, with the tall office blocks of central Croydon dominant and beyond the Crystal Palace ridge and its two television masts, provide a dramatic backdrop to the extensive sweep of downland of the park and adjacent amenity grassland. The wild flowers here provide a delightfully peaceful contrast to the hustle and bustle of town life.

The nature conservation value of the site centres around the very extensive chalk grassland, containing a range of uncommon plants including two national rarities, and several blocks of scrub and woodland, one of the latter being ancient.

This site has already been briefly described in our earlier handbook, *Nature Conservation in Croydon*, where it was called "Croydon Airport" and given Borough Grade I status. A reappraisal of the whole site for this handbook, coupled with improvements following management changes, has led to its being upgraded to Metropolitan Importance.

Until early 1993 the site was known as Roundshaw Park, except for the Croydon part which was officially Purley Way West. The name of the main area of chalk grassland within Sutton was then changed to Roundshaw Downs, although the area to the south and west of the Apeldoorn Estate remains as Roundshaw Park and the section within Croydon is still known there as Purley Way West. For the sake of simplicity the whole site here is called Roundshaw Downs.

History

Roundshaw Downs mostly occupies the southern part of the former Croydon Airport site, and is partly in the Borough of Croydon, but mostly in Sutton. The westernmost section, to the west of Apeldoorn Drive, lies in the grounds of the former Woodcote Farm. Nineteenth century Ordnance Survey maps show that the area later to become the airport was used by a number of farms, particularly Cross Shaw Farm (which by the mid-19th century had become New Barn Farm and is now lost beneath the Roundshaw Estate), and was mostly enclosed as fields. The farmland was said to be some of the best in Surrey.

There is evidence of a very much earlier history on this site. The present-day boundary between Sutton and Croydon follows the Mere Bank. This used to be a wide and high bank, and was the line of the Roman road to Portslade near Brighton. The Mere Bank was removed soon after the area became an airport, but parts remain to the south of Roundshaw Downs. To the west of this, and also running north-south, another old trackway, Plough Lane, crossed this site. Cross Shaw Farmhouse lay alongside Plough Lane.

It is, however, as the site of Croydon Airport that the area is best remembered. Often described as the "cradle of British civil aviation", flying from this site began before the First World War when it was known as Beddington Aerodrome. In 1915 the Royal Flying Corps took over the airfield from which, as Waddon Aerodrome, fighters took off to combat the Zeppelins. In 1918 the original National Aircraft Factory was built here and delivered its first aircraft 24 weeks after the initial turf was cut at the site.

Two years later, in 1920, the aerodrome was appointed as the Customs Airport of London, in succession to Hounslow and was henceforth known as Croydon Aerodrome. At this time flying operations were concentrated to the west of Plough Lane, which then crossed the site. The placing of a maintenance area to the east of Plough Lane made necessary a level crossing with gates so that the planes could taxi across the road. In 1926 Plough Lane was closed and it now survives in two separate parts: to the north of Stafford Road, and from Foxley Lane running up to end in a cul-de-sac, which provides good access to the modern Roundshaw Downs.

The closure was part of the general reconstruction of the airport which began in 1926. New buildings were erected in Purley Way, the Aerodrome Hotel was built and on 2nd May 1928 the new buildings and aerodrome were opened, henceforth to be known as "The Airport of London".

Croydon was now the most modern airport in the world and the late 1920s and the 1930s saw the pinnacle of its career. At this time it was London's only international airport. Imperial Airways ran regular routes to India and South Africa; in 1925-6 Cobham's five month trip to Cape Town and back began and ended here; in 1927 Charles Lindbergh, first person to fly the Atlantic solo, touched down from Brussels here to be greeted by a crowd of 150,000; and Amy Johnson left from here in 1930 on her historic flight to Australia.

During the Second World War the RAF operated from Croydon, and after the War civil flying was resumed. However, the great days were over. Airliners were getting too big, they needed longer runways and Croydon, surrounded by built-up areas, could not be extended. The coming of jet airliners settled its fate, although this had been virtually sealed when, in 1946, Heathrow opened as London's main airport. Croydon closed at the end of 1959 by when it was virtually used only by flying clubs.

The original Roundshaw Park was purchased in 1928 and was just a small area on the corner of Foresters Drive and Mollison Drive. Early maps show a tiny copse called Round Shaw in this area. In recent years the name has been used to refer to the whole area of open land between there and the Croydon boundary. The name of the main area of chalk grassland within Sutton was formally changed to Roundshaw Downs in early 1993.

Grassland

The bulk of the park consists of a wide, open sweep of grassland. Although most of it has been used for agriculture in the past, the area now contains quite a good range of meadow and chalk grassland plants. The spread and recolonisation of these has been helped by the low fertility of the soil, which has prevented competitive but nutrient-demanding species from becoming dominant. Positive management of the grassland by Sutton Council is designed to increase the flora and this is succeeding.

Although Roundshaw does not contain the full range of downland plants of London's best calcareous grassland, a number of notable wild flowers are present. The undoubted highlight is the large population of greater yellow rattle, which is sufficiently rare to be one of 93 plants given legal protection under the Wildlife and Countryside Act; it is illegal to pick it or dig it up. Both it and its smaller and commoner relative yellow rattle (also found here) are partly parasitic on grasses. They gain their name from their numerous seeds, enclosed in a large papery calyx, which rattle in the wind when dry.

A few chalk downlands in the Borough of Croydon and nearby parts of Surrey are the national stronghold of greater yellow rattle, most impressively at Happy Valley to the south of Coulsdon. At Roundshaw the largest patch at present is in the south-east, on the Croydon side, but a significant number of plants are also found across the boundary in Sutton, the only ones known in London outside Croydon. Greater yellow rattle is an annual, with a short-lived seed which is produced from July onwards. This means that at least some plants must complete their full life cycle every year, from germination to shedding seeds, for the population to survive at any given site. It is tempting to ascribe its rarity to this exacting requirement, but this is unlikely to be the whole story, for the ordinary yellow rattle, which is much commoner, is similar in its needs. The general abundance of greater yellow rattle seems to have increased greatly in recent years; possibly its seed is carried from site to site on hay-cutting machinery.

In the same part of Roundshaw Downs as the main population of greater yellow rattle is another very rare plant, tall broomrape. This has no green parts, and grows as a parasite on the roots of greater knapweed in dry, windswept chalk areas. It is locally common on Salisbury Plain and in the Cambridge area but extremely scarce elsewhere. It is very rare in London and there are only five confirmed sites in the capital where it is to be found. Four are in Sutton: this site, East Sutton Railway Lines, Cuddington Golf Course and Carshalton Road Pastures. This makes the tall broomrape population at Roundshaw even more remarkable, as there are several dozen spikes. There is a particularly impressive show of these on the Sutton side of the boundary, not far from a copse on the southern edge.

Other notable plants which are found here, many of them typical of chalk grassland, include lesser broom rape, field mouse-ear chickweed, field woundwort, greater knapweed, rough chervil, welted thistle, stemless thistle, blue fleabane, hoary plantain, hemp agrimony, marjoram, field scabious, grass vetchling, restharrow, wild parsnip, burnet saxifrage, bladder campion, agrimony, crow garlic, purging flax, upright brome and a substantial patch of cypress spurge. A fine selection of grasses include oat grass, Yorkshire fog, yellow oat grass, hairy oat, crested dog's-tail, smaller cat's-tail and rye-grass. Quantities of ox-eye daisies, hardheads, yarrow and greater knapweed, all with large colourful flowers, make a walk along the informal mown paths through the main expanse of the site particularly attractive in the late spring and summer. The pastoral atmosphere is enhanced by the continuous trill of skylarks.

At the western end of the site the grassland narrows to pass between Plough Lane and allotments to the south and the new housing at Apeldoorn Drive to the north, before reaching a wooded area at the far western end of the site. This strip contains fewer of the interesting plants found on the main stretch of grassland, although small quantities of agrimony, field scabious and greater knapweed are to be found here. Into this have been planted a mixture of native and non-native trees and shrubs, both singly and in densely packed beds. At the south-western end of this narrow section is dense scrub of hawthorn and young oaks fringing the road.

Birds of open grassland abound in the main part of Roundshaw Downs. Many pairs of skylarks breed here, and in summer linnets and goldfinches feast on the seed heads of the grasses and wild flowers. In winter flocks of gulls and lapwings feed on earthworms, leatherjackets and other invertebrates living in the grassland soil. Common grassland butterflies such as meadow brown, skippers and common blue are plentiful in the summer. The striking six-spot burnet moth can be found in profusion on the greater knapweed and scabious in late summer; its yellow-white cocoons are easily spotted on grass stalks.

Woodland

During its period as an airport the greater part of the site was cleared, so that mature trees are now mostly limited to a few copses at the southern and eastern margins and to an avenue to the west of Apeldoorn Drive, leading to the site of the former Woodcote Farmhouse. Only one of these copses is ancient: a small strip of woodland alongside the cul-de-sac part of Plough Lane. The First Edition Ordnance Survey Map from the early 19th century marks a long, narrow piece of woodland stretching south from Cross Shaw Farm and the Plough Lane copse would be the remains of the southern end of this. It is possibly the only ancient woodland in the Borough (although Greenshaw Wood in the north and Ruffett Wood in the south also show ecological, if not documentary, evidence of being ancient), and is dominated by oak, ash, gean and sycamore. Hazel, hawthorn, blackthorn and typical chalkland shrubs such as spindle, wild privet and wayfaring tree occur, and the ground flora is primarily of ivy, bramble and cow parsley, but also includes wood sedge, town hall clock and goldilocks. These three are all rare outside ancient woodland. Other interesting plants in the ground flora include sweet violet, typical of chalk woods and found here in both violet-flowered and white-flowered forms, and bearded couch grass. Old man's beard festoons some of the shrubs. A footpath runs up the spine of this wood and there are several fallen or partly fallen trees, including a large oak and a large ash. Bare, compacted areas have resulted from the heavy recreational use of the wood, but nevertheless overall it retains a good structure, with a useful dense, scrubby edge on the eastern side.

There are four other copses at Roundshaw Downs today, all relatively recently established and less rich in flora. One on the southern boundary, just north of Overhill Road and close to the boundary with Croydon, is probably on the site of a former garden. It is mostly composed of sycamore and oak with a dense understorey of dog rose, dogwood and buckthorn; the latter is one of only two food plants of the caterpillar of the brimstone butterfly.

Hawthorn and wayfaring tree can also be found here, and ivy covers much of the ground and also grows over the old steps and walls. The ground flora, surprisingly for such a recent wood, includes wood sedge, remote sedge and sweet violet. While the latter may well be of garden origin here, there is no simple explanation for the presence of the two sedges. Kestrels regularly nest in the tall trees near the edge of this wood, hunting and displaying over the open ground. This is an eerie place, with the silence broken only by birdsong, and it is a great contrast to walk out into the bright open grassland.

Another area of woodland is formed from an avenue of trees running due north in the western extension of Roundshaw Downs. The main trees are pedunculate oak, field maple, aspen, birch and Turkey oak and the understorey is of buckthorn, hawthorn and wild privet, with much planted snowberry and cherry-laurel. The ground flora, which is quite dense in places, consists of cow parsley, ivy, cleavers and nettles.

Woodland strips shown on old maps but which have now gone were the Cross Shaws which ran east-west and provided shelter from the north, and Furze Edge Shaw, west of the old Plough Lane. Furze is another name for gorse, and presumably gave its name to this woodland. It is unlikely ever to have been common on these chalky soils, but at least one bush is still present.

Scrub

Lack of grazing or cutting has allowed hawthorn and other shrubs to invade many of south-east England's choicest downlands. Where scrub becomes dominant it shades out the downland flora, and "scrub bashing" is an activity all too well known to people involved in managing chalk grassland nature reserves. However, scrub on such sites is not universally bad, and a shrubby component to the habitat is beneficial to many invertebrates, including some downland butterflies, providing shelter and feeding sites. A compromise therefore needs to be struck between the requirements of different groups of plants and animals, and decisions made as to which are the most important groups to favour on any particular site.

In fact there is relatively little scrub at Roundshaw Downs, although shelter is particularly needed on this open, windswept, north-facing site. Near the Borough boundary is a patch of scrub composed predominantly of hawthorn complemented by a wide range of native woody plants, including field maple, old man's beard, dogwood, ash, gean, buckthorn and three species of rose. The structure is excellently varied; the more open areas contain bramble, dewberry and an assortment of grassland and hedge bottom plants. Whitethroats breed here, and the shelter and variety of structure provides good habitat for invertebrates. The scrub merges to the east and west with the rest of the grassland, and a patch of hogweed lies on disturbed ground to the north.

Scrub along the western arm of the site fringing Foresters Drive is denser and older, with a more uniform structure. This is predominantly hawthorn and young oaks.

It might be advantageous to allow further judiciously-located areas of scrub to develop, although these should certainly not be extensive enough to prejudice the essential open character of the site or the important flora. A hedge has recently been planted along the edge of the main part of the site, bordering the sports field to the south.

Management

Management of Roundshaw Downs has to be a compromise between the sometimes competing interests of the flora, fauna, and enjoyment by people.

For many years a local farmer has cut part of the grassland for hay, although other sections have mostly been left untouched. Hay cutting will continue, and this should benefit the chalkland flora by maintaining an open sward, preventing scrub and coarse grasses from becoming dominant, and allowing the less competitive species to thrive. However, early cutting, at the time for producing the most nutritious hay, would disturb young skylarks, which may not fledge until the end of July or even later. Therefore it is planned that much of the grassland will not be cut until August, or not mown every year. Areas containing greater yellow rattle will be cut even later, once the plants have set seed. Towards the north-west, some areas will be kept as relatively short turf until June or July, so that at all times places will be available for active recreation. The Council has adopted a management brief drawn up by the London Ecology Unit (with the help of local experts) and is considering Local Nature Reserve status for the site.

The whole of Roundshaw Downs, including the part in Croydon, is Metropolitan Open Land with unrestricted public access, and is much used for informal recreation. It is the best place in the Borough for the public to appreciate the attractiveness of open chalk downland, and that, coupled with the high number of rare and uncommon flowers, especially towards the boundary with Croydon, and the presence of a pocket of ancient woodland, make this one of the ecological highlights of the Borough.

M120 Therapia Lane Rough

Grid ref TQ 299 670
Area 10 ha

This area (see map on page 33) of former rail sidings and industrial land, lying on both sides of the West Croydon to Mitcham Junction railway line in the north-east corner of the Borough, is one of the finest "wastelands" remaining in London. Wastelands, as abandoned industrial sites are usually known, are far from waste in wildlife terms, and are frequently home to a wonderful array of colourful plants and animals. Large areas of wasteland were once a common sight in London, particularly after the extensive bomb damage of the Second World War, but most of these have been redeveloped in recent years, a fate which may unfortunately befall the majority of Therapia Lane Rough.

The railway here runs approximately east-west, and the bulk of the site is to the north of the tracks, bounded by factories to the west and north and by Therapia Lane to the east. The Ordnance Survey Map of 1868 shows a large field here with the same boundaries to the east and west but extending further north. The railway line itself opened in 1855 although in the early 19th century it had been the route of the Surrey Iron Railway, the first public railway in the world. The site also includes a narrow strip on the south side of the railway, which extends east beyond Therapia Lane for about 150 metres. Habitats on the site range from concrete, paths and recently disturbed areas with sparse ruderal ("weed") communities, through various types of grassland to scrub and woodland, with the more mature habitats generally towards the western end.

As is often the case in wastelands, plants typical of a wide range of different soil types are found growing in close proximity, with non-native species also frequent. Plants characteristic of chalky soils are particularly well represented here, indicating a substrate of alkaline railway ballast. Numerous other species are associated with dry, sandy soils, while one or two wetland plants also (rather inexplicably) occur.

Over 230 species of flowering plants have been recorded from the site since 1985, making this one of the most diverse botanical sites in the capital, and these include about 30 native species which are rare in London. In addition, the site also supports an interesting variety of birds and invertebrates.

The eastern end of the site has an uneven topography, the result of concrete blocks left there by British Rail and other land users in the past. Although this gives the site a rather untidy appearance, it does increase the range of micro-habitats for plants and invertebrates, with sunny and shaded slopes, sheltered hollows and more exposed peaks. Many characteristic plants of disturbed ground have colonised this area, typified by poppies. In addition to the common poppy, the long-headed poppy, with a narrower seed pod, can also be seen here; it is not common in London. Also typical of disturbed places and rare in London is round-leaved cranesbill, a small, pink-flowered member of the geranium family. The much larger meadow cranesbill, with purple flowers, is also a rare native in London, but its presence on a spoil heap here is surely the result of a garden throw-out. The same origin is also certain for reflexed and Caucasian stonecrops; although not native to Britain, these stonecrops are excellent nectar sources for butterflies and other insects. One other London rarity found in this part of the site is blue fleabane; very much a plant of the chalk, its feathery seeds were presumably carried here by the wind.

Most of Therapia Lane Rough is grassland. The sward tends to be rather sparse due to the very low nutrient levels in the railway ballast which makes up most of the substrate. This low nutrient status is responsible for the wonderful floral diversity of this grassland, as fast-growing, highly competitive grasses are unable to dominate. The species composition has a strong calcicolous (chalk-loving) element, with restharrow, chicory, vervain and salad burnet all locally frequent, and marjoram, viper's bugloss, greater knapweed and cowslip also present; all of these are rare in London.

Probably the most important plant on the site, yellow vetchling, is more a plant of dry, sandy soils. A large colony of this nationally scarce species grows towards the eastern end of the site, with scattered plants elsewhere. It is easily distinguished from other yellow-flowered legumes (members of the pea family) by the large, leaf-like stipules, shaped like broad spear heads, which lie flat against its stem. Yellow vetchling formerly occurred at one other Sutton site, Albert Road railway embankment, but this site was bulldozed in 1992, and is known from only a handful of sites anywhere in London. Other London rarities typical of sandy soils found here are hare's-foot, corn salad, wild clary, thyme-leaved sandwort and bugloss. The latter is particularly rare in London, and found nowhere else in Sutton or Croydon.

The presence within this well-drained grassland of two predominantly wetland species is very odd. Dittander, a tall, white-flowered member of the cabbage family, is largely a saltmarsh plant, but it does turn up on wastelands in London from time to time. Hemp agrimony, however, is very much a species of streamsides and wet meadows, and to find it in such a dry place as Therapia Lane is most unusual; interestingly, it also occurs in an equally dry location on Roundshaw Downs.

As might be expected, such a flower-rich grassland supports a wide range of invertebrates, although these have not been studied in any great detail. Grasshoppers abound in summer, when it is also easy to see fifteen or more species of butterflies on the site in a single day. These are mostly common species, but the brown argus has declined markedly in London in recent years, and is now almost entirely restricted to the chalk grasslands of Croydon and Bromley. It is very unusual to find it on a wasteland site, and more so on one where neither its preferred caterpillar foodplant, common rockrose, nor the usual substitute, common storksbill, has been found. It has been suggested that cranesbills might be possible alternative foodplants for the caterpillars of this butterfly, and it seems likely that this is the case at Therapia Lane.

The abundance of invertebrate life on the site provides food for common lizards, which can be seen basking on sunny mornings, and for shrews. The latter are rarely seen, but give away their presence by their high-pitched squeaks, which can frequently be heard emanating from patches of long grass.

The birdlife of Therapia Lane is also of considerable interest, and relies for nesting cover very much on the areas of woodland and scrub. The main wooded areas are a dense stand of willow and birch at the western end, and a narrow strip of birch woodland alongside the railway. Neither of these areas is particularly mature, and there are few large trees and no woodland ground flora. However, they provide sufficient cover for both whitethroats and lesser whitethroats to nest, while four other species of warbler (willow warbler, chiffchaff, garden warbler and blackcap) are regular visitors on migration and may occasionally breed. Linnets and goldfinches are common residents, and great spotted woodpeckers and jays also visit. Kestrels and sparrowhawks can frequently be seen hunting overhead.

The part of the site to the south of the railway consists of grassland of a very different character. It is much lusher, often grazed by horses, and may have been agriculturally "improved" with fertilisers in the past. It is consequently much less diverse than the northern part of the site, although two additional plants of note can be found here. Crow garlic, an onion with narrow, tubular leaves and spiky heads of purple bulbils, is frequent towards the eastern end of the grassland; although sometimes a nuisance in agricultural areas, it is not a common plant in London. Much rarer is sickle medick, a nationally scarce, yellow-flowered legume native to the East Anglian Breckland but occurring only sporadically elsewhere; it can be seen growing here alongside its commoner, purple-flowered relative lucerne, an alien species once widely planted as the fodder crop alfalfa. Hybrids between the two can also be found, with flowers ranging from dirty yellow to purplish-brown.

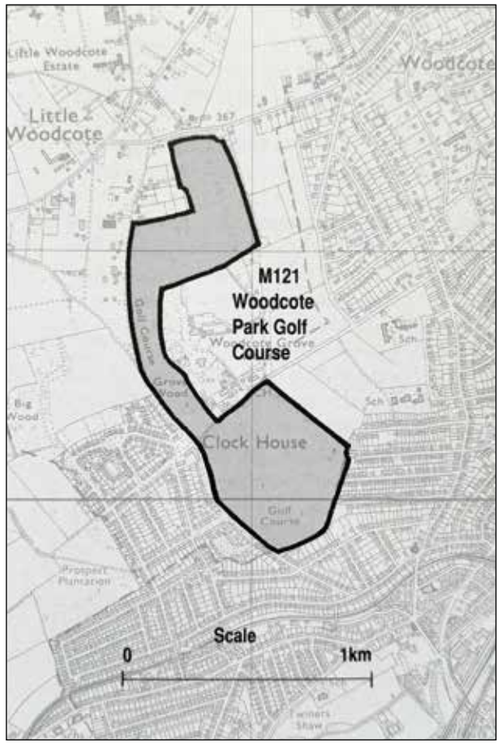
All in all, Therapia Lane Rough is a wonderful ecological resource, with great potential for amenity and educational use. Its importance increases as other large wastelands disappear under housing and industry. Unfortunately, however, the amazing botanical diversity of this site was only recognised in 1990, by which time it was already zoned for industry in the Council's Local Plan and negotiations with the various owners over development plans were already well under way.

It seems likely in the circumstances that a large part of this excellent site will be lost. The Council is negotiating with the developers to ensure that at least some of it is saved, including the main yellow vetchling colony and a corridor north of the railway.

Until recently there was *de facto* access to most of the site, which was greatly enjoyed by local people for dog walking and informal recreation. However, the bulk of the site is now fenced off, and there is no public access.

M121 Woodcote Park Golf Course

Grid ref TQ 286 606
Area 55 ha



At the southernmost extent of the Borough, this golf course contains one of the two finest examples of chalk grassland in Sutton, and indeed one of the best in London. Although most of the course is closely-mown turf with planted ornamental trees, there are pockets of flower-rich chalk grassland in the rough.

The golf course is divided into two by Meadow Hill, which also runs near the club house. Most of the course lies on chalk, but a capping of Clay with Flints, which underlies the adjacent Woodcote Grove Wood (Su.BII 11), extends out over part of the northward-sloping northern sector to give an area of damper grassland.

The chalk grassland is scattered throughout both sections of the golf course, although the total extent is relatively small. Typical swards are of yellow oat grass, upright brome and meadow oat, all species more-or-less restricted to calcareous soils, as well as commoner species of grass such as fescues and bent-grasses. In the north, the delicate flowering heads of quaking grass, another chalkland speciality, are a frequent sight in the summer. Associated with these grasses is a wide variety of flowers characteristic of dry or calcareous soils, many of which are uncommon or rare in the London area. Particularly noteworthy is a large population of pyramidal orchids, while other rare species found here include rough hawksbeard and man orchid, both of which are nationally scarce. Other species which are uncommon in London include stemless thistle, kidney-vetch, purging flax, marjoram, salad burnet, restharrow, centaury and greater knapweed.

Beyond the golf course to the north is a rolling landscape with scattered woodland and houses, while to the north-west are fields with Sutton town in the distance.

Immediately to the north of Woodcote Grove Wood is an exceptionally fine area of attractive chalk grassland. Scattered throughout the grasses here in summer are the beautiful pinky-purple flowers of the pyramidal orchid. About a hundred spikes flowered in 1990, probably the largest colony in London. Another attractive flower found all across this part is the delicate-looking pink-petalled centaury, a member of the gentian family. The dominant grass is upright brome which, although common on the North Downs, is more-or-less restricted to chalk soils. Quaking grass and glaucous sedge are also found here. Other flowers in this area include fair quantities of salad burnet, field scabious and hoary plantain, as well as lady's bedstraw, greater knapweed, ox-eye daisy, agrimony, wild parsnip, kidney-vetch, stemless thistle and marjoram. Rabbits are sometimes to be seen and foxes are also present.

A number of trees have been planted in this area and if left they will in time shade out the chalkland flowers. Fortunately it seems that the staff at the golf course are aware of this and the trees are likely to be removed for this very reason. The grass in this area is cut once a year. This is a beautiful, peaceful spot on a summer's day and users of the golf course are indeed fortunate to be able to see it. The golf course staff have erected boxes for tawny owls and kestrels in the trees on the edge of Woodcote Grove Wood, and these have both been occupied.

Just to the west, near the centre of the course, is a smaller area of grassland close to some trees. Upright brome is again dominant and glaucous sedge, field scabious, agrimony, quaking grass, common St. John's wort, the sweet-smelling great hedge bedstraw, lady's bedstraw and especially large quantities of marjoram, salad burnet and hoary plantain are also to be found here. Hoary plantain is the most attractive of the plantains, producing spikes covered in delicate white flowers full of pollen. Other uncommon flowers worth looking out for in this patch are stemless thistle, sweet violet and purging flax. Again this is a very colourful area in summer.

Apart from these two pieces of exceptional chalk grassland, much of the rest of the northern part of the course is less interesting, with mostly frequently-cut fairways and just a few small corners including such flowers as field scabious, salad burnet and burnet saxifrage. Ideally, the use of broad-leaved herbicides should be kept to an absolute minimum, particularly away from the greens. This would enable the chalkland flowers to hold their own and possibly increase, yet would not interfere with the rounds of golf. However, there is one other part that is particularly useful for wildlife. A broad, triangular-shaped area of almost impenetrable scrub juts into the northern margin of the golf course. This contains a wide variety of shrubs, including buckthorn, wayfaring tree, privet, hazel, dogwood, crab apple, hawthorn, holly and blackthorn, but very little grows in the dense shade below, except ivy. Roe deer are said to lie up here in the daytime, and come out at night and in the early morning to graze the golf course and surrounding fields.

The southern part of the golf course beyond Meadow Hill at first appearance seems to have little interest and the main attraction seems to be the distant views of downland and woods away to the south.

This part of the course is in the form of a north-south ridge, sloping down to the east and west. Thin strips of rough grass between the fairways contain such flowers, often found on chalk grassland, as field scabious, agrimony and common St John's wort and there is also a small area of rough in the south-east corner. Among the ornamental trees planted between the fairways are scattered a few native chalkland trees and shrubs such as whitebeam, gean and buckthorn, with the trailing vines of old man's beard clambering over them.

The main attraction of the southern half of the golf course is a large area of rough in the south centre. This is a blaze of colour in the summer with the flowers of field scabious, ox-eye daisy, restharrow, agrimony, field poppy, cat's ear, greater knapweed and hoary plantain. Sadly, this area has also been planted with young trees of Swedish whitebeam, oak, lime and field maple. If allowed to grow, these will shade out the grassland flowers. It is to be hoped that, as with the northern part of the course where a similar management policy was followed, the trees can be removed before too much damage is done. Golf and nature conservation are not mutually exclusive and many golfers must appreciate the colourful wild flowers as they pass by on their round. It is not only the flowers here which are of interest, as the whole area is alive with butterflies, moths and grasshoppers in summer. Immediately to the west is a re-contoured part, where earth has been tipped; this was formerly of interest too for its wild flowers.

Woodcote Park Golf Course is wholly in the Green Belt and is privately owned. Unfortunately, there is no access to the general public to see one of the floral highspots of the Borough. Meadow Hill is a public right of way and this offers some limited views over the course and of the adjacent woodland but the three main wildflower areas are well out of sight.

8 Sites of Borough Importance: Grade I

Su.BI 1 Greenshaw Wood

Grid ref TQ 262 661
Area 5.6 ha

A strip of oak woodland formerly ran in a crescent from the site of the present St Helier Hospital south to a larger tract of woodland depicted on the First Edition Ordnance Survey Map as Been Hill. The strip of woodland seems to have been felled before 1815 and Been Hill was deforested in 1860 to make room for the new suburb of Benhilton, which was named after the wood (Smith 1960). Greenshaw Wood is all that remains of these former ancient woods but even it may not have a continuous history, not appearing on maps of 1816 and 1819 but showing up, with exactly the same boundaries as today, on the Ordnance Survey Map of 1866. The woods form part of a public park, known as Rosehill Park East, which is composed partly of closely-mown grass, but also includes an area now cut for hay. It sits on the slopes of a gentle hill of London Clay, overlooking the valley of the Pyl Brook to the west. Power lines cross the site from east to west and one of the pylons stands just within the trees.

Oaks predominate in the woodland, most of them not of great age, but including some ancient pollards. The larger specimens are at the south end of the strip alongside St Helier Hospital, and there is a particularly attractive spreading oak to the south, just beyond the rest of the trees. Oaks have also regenerated quite well to form an understorey of young trees in places. Other trees present include sycamore, which is being controlled by selective felling, and a few field maples and ash saplings.

The western half of the woodland is fairly open and has little sense of seclusion. Many parts of the wood have a good shrub layer and this is particularly so towards the top of the hill, adjacent to St Helier Hospital, where the woodland is denser and has a better established hawthorn understorey, including Midland hawthorn. The latter is usually an indicator of ancient woodland. The shrub layer also includes blackthorn, crab apple and field maple, whilst the ash seedlings, young cherries, rose and blackthorn coming through will spread the shrub layer over a wider area. Field maple and true crab apple are also indicators of ancient woodland. Beyond the north end of Greenshaw Wood, the area up to the houses has recently been planted with oaks and the grass left unmown. In due course this will increase the total area of woodland.

The ground flora of the wood is very poor, due mainly to mowing in the past. This is particularly evident in the north, towards Wrythe Lane, where the floor of the wood is covered with rye-grass and little else. Further from the road brambles abound, but as yet there are few other woodland plants, although hedge woundwort and broad-leaved willow-herb can be found. The recent change to less intensive management of the understorey may eventually allow the establishment of a more diverse woodland flora but, as the wood is isolated from other similar habitat, this may require deliberate introduction.

Along the west and south sides of the wood are ditches which add to the interest of the site and could well be ancient features. Stone parsley grows in the southern ditch while the western ditch is accompanied by an old hedge line of hawthorn, blackthorn and elm, which continues westwards from the south-western corner of the wood, downhill across the fields. This hedge is composed of English elm, hawthorn, dog rose, blackthorn, field maple, oak, bramble and cherry. There was probably a line of elm trees along here until a few years ago. It is kept fairly tightly trimmed and might be better if left to bush up a little more. A ditch following the south side of the hedge is a continuation of the one on the south side of the wood.

To the south of Greenshaw Wood, and continuing down the hill to the south of the hedge and ditch, is a wildflower meadow. Good quality notices provided by the Borough proclaim the fact, which is especially useful at times of the year when there are no flowers. The meadow has probably been reseeded in the past with rye-grass and previously it was closely-mown. It is now colourful in summer with the mauve flowers of self-heal, red bartsia, hardheads, red clover, and various yellow hues provided by birdsfoot-trefoil, hoary ragwort, creeping cinquefoil, agrimony, common St John's wort, wild parsnip, buttercups and fleabane. A considerable quantity of glaucous sedge also occurs on the slope. A new meadow on the western slope, north of the hedge, was allowed to grow during 1992 with many of the same species present. As time goes on, and with the present management, the diversity of the flora of both these meadows should increase further.

The woodland and meadows, to which there are free public access, are used by local schools for fieldwork.

Su.BI 2 Beddington Park and St Mary's Churchyard

Grid ref TQ 292 654
Area 58 ha

History of the park

From the 14th century until the early 19th, Beddington Place and Park were the seat of the Carew family. The estate was split up in 1857 and much of the house did not survive the drastic rebuilding of 1865-6 for the Lambeth Female Orphan Asylum. However, parts of the Carew Mansion of the 15th and 16th centuries remain, most notably the hall, in what is now Carew Manor School. A particularly fine early 18th century dovecot stands just to the north-west of the house on the site of an older one.

In the time of the Carews the park was much larger than that remaining today and encompassed the land later occupied by the sewage farm. The estate was even bigger and at one time extended from Streatham in the north to Epsom in the south. In its heyday the park was renowned for its formal gardens, including one of the earliest and largest orangeries in the country, and for its herds of deer. Sir Walter Raleigh was a frequent visitor as he married Elizabeth Throgmorton, who was Sir Francis Carew's niece, and Henry VIII, Elizabeth I and James I were at various times entertained here. Sir Francis Carew was the first person to successfully cultivate orange trees in England. His orangery produced over 10,000 oranges in its best years.

Thomas Cox, writing in the early 18th century, said of Carew Manor that it "stands low in a moorish ground, but being helped by

art is an handsome pile of buildings, having neat gardens and an orchard with several canals; but the most notable thing about it is the fine hall and oringery (sic)."

In 1877 the present-day park was acquired by the Reverend Bridges, who was responsible for much of the landscaping that we see today. It finally became the property of the Council in 1925, when the first five hectares were opened to the public. By 1935, 40 hectares were open and this was increased again by the public opening of The Grange gardens in April 1936.

Beddington Park lies on an almost level plain of River Terrace Gravels deposited by the River Wandle in glacial times, when it had a much higher discharge than at present.

The course of the River Wandle through the park has been extensively modified over the centuries by various landscaping schemes. At one time, when the fashion was for geometric layouts, the river was transformed into a straight canal leading westwards from the house. Later the river was allowed to find its own winding course through the park until the mid-19th century, when it was again channelled into a more restrained, although still sinuous, path, which it follows to this day. At the same time the lake was formed by damming the river near where it leaves the park. The River Wandle within Beddington Park, the lake, and the streams within The Grange gardens on the western side all fall within the River Wandle Metropolitan site (M91) and are described there.

The remainder of Beddington Park together with St Mary's Churchyard and the gardens of The Grange make up the site described here. The grounds of Carew Manor are not included but within the grounds to the east of the house is a very impressive plane tree, which is almost as big as the one at Festival Walk near the Sutton Ecology Centre. Beyond the plane tree, but still within the grounds of the school, is a recently formed flood alleviation pond and an area of colourful cornfield annuals. This is described in a little more detail under M91.

Ecology of the park

There is one pond in Beddington Park which is not described under the River Wandle Metropolitan site. This is located some 100 metres north of the Wandle and lies within a former river course, still visible on aerial photographs. The pond was probably excavated last century. Much of the perimeter is embanked by wooden boarding, but a wide expanse of mud, carpeted with a variety of aquatic plants such as common spike-rush, of which there are large beds, celery-leaved crowfoot, water cress, amphibious bistort, marsh yellow-cress and marsh foxtail, stretches from this down to the water's edge in the summer. Beneath the water is an abundant vegetation of star-wort, curled pondweed and filamentous algae with particularly thick growths of Canadian pondweed; duckweed covers the surface. A few alders and crack willows occur around the margins. Sticklebacks, newts, frogs and toads breed here.

To the north of the park is Beddington Sewage Farm (see site M92), from which it is separated by a narrow strip of woodland, mainly of oaks and sycamore. Much of the grassland in the park to the north of the river has been converted to sports pitches. Even these are not without ecological interest. The nationally-scarce fenugreek (or bird's-foot clover) and the London rarity blinks both grow in the short turf of the cricket pitch.

To the south it is a typical 19th century park with avenues of planted trees, including some old oaks and beeches, but mostly exotic species. An avenue of horse chestnuts leads west from the school and this avenue appears on the Beddington and Banden Enclosure Map of 1820, although then a canal was located between the two lines of trees. Today the only sign of the canal is a grassy depression. The enclosure map showed other avenues or lines of trees, generally focusing on the house, some of which still exist in part while others are difficult to trace. Also in the park now are copses of trees with denser vegetation below which are good for birds. Beyond the western end of the main avenue an area is being managed as a water meadow (1990 was its first year). The London rarity strawberry clover was abundant here in 1990, when the hot, dry summer was ideal for it. Since then, a variety of interesting wet-loving plants have become common here, including marsh bedstraw, imperforate St John's wort (both very rare in London), jointed rush, large birdsfoot-trefoil, flote-grass, marsh thistle and at least two species of sedge.

In the Great Storm of October 1987 the park lost 400 trees. Much of the dead wood, both standing and fallen, has been left and replanting is carefully planned to retain the character and species typical of the park. A series of excellent notices throughout are both attractive and informative, some of them making use of old tree stumps, although new growth from some of these is starting to obscure them!

To the south of St Mary's Church and Carew Manor School there are two small fields known as Church Paddock and The Warren, which are also included in this site. The grassland in Church Paddock is mown short and is bounded to the east by a hedge of sycamore, ash and elder. The Warren also contains an area of mown grass but the south-eastern part, on the site of a former sand pit, has developed into a woodland of elm, sycamore, oak, Turkey oak, young ash, and horse chestnut. Beneath is elder and bramble scrub and also ivy, nettles and common grasses, pierced by many large ant hills. Evidence of the sand pit shows up in the undulations of the ground and the name of the nearby Streeters Pit Road. On the bank at the east side of The Warren, adjacent to Streeters Pit Road, grows evening primrose, which looks most attractive when it is flowering.

The road to the south of Church Paddock and The Warren is rather noisy but to the north is a very attractive old wall dating from the 17th or 18th century and marking the boundary with Carew Manor. Pellitory-of-the-wall, thyme-leaved sandwort and rustyback fern grow on the wall and just beyond, within the grounds of the school, is a very large hazel about ten metres high and eight metres across.

St Mary's Churchyard and extension

At the western end of this wall one reaches St Mary's Churchyard, while on the other side of Church Road is an extension to the churchyard; both are included in this site, particularly because of the excellent walls which surround them. Fragments of St Mary's Church date from shortly after the Norman Conquest although much of the present church is from the 14th century. The church and manor house together make an impressive grouping.

The wall between the churchyard and the manor is of brick and flint and dates from the 17th century or earlier, while the south and west walls and those to the extension are low, of flint, and of later date. All have a rich growth of plants, especially ferns, and including several London rarities. They make an interesting study.

Growing on those of the main churchyard are at least three species of fern; rustyback, wall-rue and male fern.

→ An old hedge and ditch stretch up the hill to Greenshaw Wood
LEU/Ian Yarham

↓ The ditch marking the southern boundary of Greenshaw Wood could well be ancient
LEU/Ian Yarham

↑ Rustyback fern photographed on the wall at St Mary's Churchyard, Beddington
LEU/John Archer

↓ One of the two autumn lady's tresses which flowered at The Grange, Beddington Park, in 1992
LEU/John Archer

← A frozen pond in Beddington Park
LEU/Ian Yarham

The first of these is particularly rare in London. Three additional ferns, all rare in London, have been seen on the churchyard walls in the recent past, but do not appear to be still present. These are maidenhair spleenwort, black spleenwort and polypody. Other plants to be found here include rue-leaved saxifrage (another London rarity), a tiny but very attractive plant which produces its white flowers in April, pellitory-of-the-wall and ivy-leaved speedwell. Pellitory-of-the-wall is particularly abundant here. This native perennial of old walls and rocks has been used in the past as a medicinal herb to relieve bladder stories as well as coughs and burns. Within the churchyard itself, mouse-ear hawkweed is growing on a grave and lady's bedstraw on the path.

The walls of the churchyard extension are rather more overgrown than those of the churchyard itself and include a fair amount of ivy and bindweed. However, they also sprout a profusion of more interesting and attractively-named plants, such as thyme-leaved sandwort, thyme-leaved speedwell, rustyback fern, wall-rue and procumbent pearlwort.

One further point of interest in both the churchyard and extension is the lichen flora, both on the gravestones and the walls. There are several species which are rare in London and the diversity and extent of the lichens here make this the most important lichenological site in the Borough and of importance for the whole of south London.

The Grange

On the far, western side of Beddington Park are some attractive formal gardens known as The Grange. These were created by Alfred Smee and renowned throughout Surrey in the late 19th century: Smee wrote a 650-page horticultural work in 1872 about them entitled *My Garden, its plan and culture: together with a general description of its geology, botany and natural history*. The Grange itself was a Tudor-style mansion, built by Smee's son in 1879 but burnt down in 1960. The interest of these gardens is greatly increased by the presence of a subsidiary stream to the Wandle which runs under bridges on its way to the main river. This stream, together with its own tributaries, is included in the River Wandle Metropolitan site (M91) and is described there.

The gardens themselves have to be kept formally managed but on occasions, when the grass has been allowed to grow, uncommon plants such as autumn lady's tresses, parsley-piert, lady's bedstraw and stemless thistle have appeared. The last three are all plants of the chalk but autumn lady's tresses, which is a small grassland orchid with white flowers arranged in a spiral, is also found on moist meadows and grassy dunes, as well as chalk. It is mainly to be seen near the south coast and is extremely rare in London. In 1992 the grass in the area of the autumn lady's tresses was deliberately left unmown in late summer, and two flowering spikes appeared.

An impressive list of birds has also been produced for The Grange, including treecreeper, nuthatch, tawny owl and lesser spotted, great spotted and green woodpeckers, which are all resident, and among the birds of passage a long-eared owl was noted in 1989; this is a rare winter visitor in London.

Beddington Park, including The Grange, is owned and managed by the Council and is freely accessible at all times. St Mary's Churchyard and extension are owned and managed by the Church Commissioners and are accessible during daylight hours. The whole, with the added attraction of the Wandle, makes a fine and attractive amenity for the people of Sutton.

Su. BI 3 Sutton Ecology Centre

Grid ref TQ 277 645
Area 2.2 ha

History

The London Borough of Sutton's Ecology Centre encompasses an area known as The Lodge Lands and a nearby building, the Old Rectory. The Lodge, now housing part of the Borough's Social Services, was built in 1866 and replaced an earlier house. The Lodge Lands area was previously known as Cook's Orchard and records of it as an orchard go back to 1590. Parts of The Lodge Lands were used as allotments during the Second World War, and since then the area was used as Parks Department tree nurseries until the early 1980s when it became surplus to requirements. Archaeological investigations have found pottery and other remains from all ages back to the Bronze Age. The Old Rectory was built in about 1725 and is a Grade 2 Listed building. It has been owned by the London Borough of Sutton for many years and rooms leased to various charities and companies.

In 1986 the Council decided to change the land use of The Lodge Lands to "public open space purposes" and that the exact use be decided after a public consultation exercise. Seventeen local groups were consulted on the general idea of an ecological park and, after further discussion with the London Ecology Unit, this option along with those of a formal park and an informal park were put to public consultation. The ecology centre option was the overwhelming favourite and in July 1988 the Council formally decided to establish it. The Community Ecologist was in post by November 1988 and the Assistant Community Ecologist by February 1989.

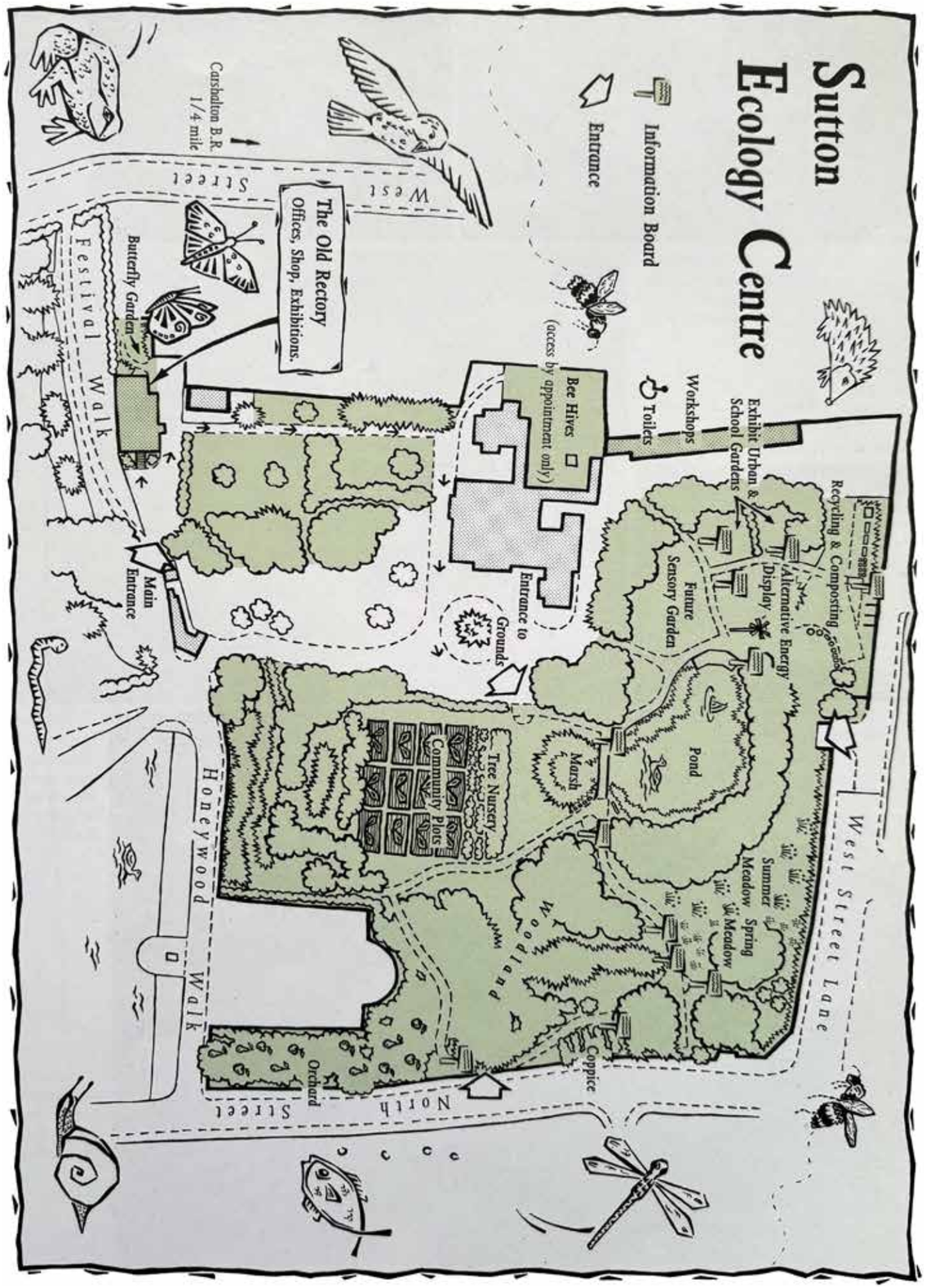
The Centre was officially opened by David Bellamy on 8 July 1989, when about 1,000 people enjoyed music, theatre, rainforest mural paintings, stalls, food, guided mystery tours of the grounds and face painting. The grounds were declared a statutory Local Nature Reserve in September 1990 and the grounds and facilities are continually being improved.

An associated area to the south of the Ecology Centre, Margaret's Well, is included within the site boundary but has a different history. Two springs form the double pond, which appears to have been there since Carshalton was first populated, and its outfall used to flow under part of the present Honeywood Lodge and helped to fill the main Carshalton Ponds. After receiving permission from the Lord of the Manor's Court in 1872, John Ruskin had the pond cleaned, the bottom cemented, sluices constructed, seven tonnes of Cumberland stone used for landscaping, wooden palings put up around the site, and flowers and shrubs planted by the paths. He named the well after his mother, Margaret, dedicating it to her memory. Of this work, all that can still be seen are the remains of the sluices and the Cumberland stone, and unfortunately even the springs have largely dried up. There is now a formal area of lawn and flower beds fronting Pound Street, but the rest has been left for wildlife.

Ecology

A map of most of the Ecology Centre grounds taken from the London Borough of Sutton's publicity leaflet is reproduced here. Only the area of Margaret's Well, to the south of Festival Walk, is not shown.

Figure 7

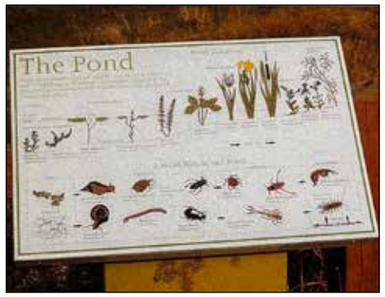


The Sutton Ecology Centre

← A broad-bodied chaser, one of the dragonflies seen patrolling over the pond in summer
John Archer

↑ Looking across the pond on a frosty morning
LB Sutton/Karen Fry

↓ One of the attractive and informative notices adding to the interest in the grounds
LEU/John Archer



↑ The Sutton Conservation Group clearing great reedmace from the marsh
LB Sutton/ Karen Fry

← Yellow flag is prominent around the pond in summer
LB Sutton/ Bruce Cockrean

The main feature of the Ecology Centre is the artificially-created pond, and adjoining marsh. The gently sloping edges allow a wide variety of water and marsh plants to find their own particular niche. In the middle are a number of native white water-lilies, as well as an ornamental red one that sneaked in. The main submerged aquatic plants are Canadian pondweed and hornwort. Closer to the edges are yellow flag, reedmace, flowering rush, reed and great spearwort, with mare's-tail poking out in between. Around the edges there are a wealth of marginal plants including kingcups, water forget-me-not, creeping Jenny, brooklime and water mint. A few ragged robin and a striking clump of purple loosestrife can be seen between the pond and the mound, although this area is out of bounds to protect the edge from trampling and to prevent disturbance of nesting birds, which in 1992 included moorhen and tufted duck (the latter on a purpose-built floating island). Other birds attracted to the open water have included mallards, herons, grey wagtails and (once) a kingfisher! The pond life has flourished despite the regular pond-dipping and includes frogs, toads, newts, sticklebacks, diving beetles, greater and lesser water boatmen, pond skaters, water fleas, water louse, water stick insect, water scorpion and numerous larvae of mayflies, dragonflies and damselflies. The adults of the latter two groups are easily seen on warm days in the summer months patrolling the area over the pond and laying eggs. Species include broad-bodied chaser, emperor, common darter, ruddy darter, brown hawker, common blue damselfly and blue-tailed damselfly.

Small shrubs such as dogwood and hazel have been planted to the north of the pond with additional oak, ash and wayfaring tree on the bund. A mixed hedge has been planted along the northern boundary, and other tree-planting themes include fruit trees such as wild pear and cherry plum in the orchard, small-leaved lime, hazel and sweet chestnut in the coppice area, and assorted native trees in the woodland. Running from the middle of this area to the northern tip by the log pile is a line of pine trees, frequented by blue, great and coal tits. The western arm of the woodland is comprised of old nursery stock (hence the straight lines) of wych elm, alder and field maple, under-planted with a mix of whips (especially ash and small-leaved lime).

The conservation tree nursery to the south of the marsh is a good place to practise the basics of tree identification, particularly early in winter when it is fully stocked. Any unused rows are usually seeded with the "farmer's nightmare" mixture of cornfield annual flowers, such as poppy, corn cockle, corn marigold, cornflower and corn chamomile, for a colourful summer display. Further south beyond the organic vegetable plots is a line of coppiced osier, purple and goat willows, then a line of cypress trees. Between the latter and the southern wall of the grounds (bordering Honeywood Walk), is another dry bed of the Wandle linked to the Festival Walk section. The banks are steep and are of stone and earth construction with a number of pollarded willows overhanging. With its sunny aspect, nettles in abundance and ivy climbing the walls behind, this is a popular spot for several species of butterfly, particularly speckled wood, holly blue and small tortoiseshell. Other good butterfly spots are to be found around the recycling facilities in the north-west corner of the grounds. Between the banks and the north wall, several large buddleias are the main attraction, whilst southwards the colourful cottage garden annuals in the demonstration wildlife garden are sure to attract comma, red admiral, small tortoiseshell and peacock butterflies on sunny summer days. A mixed hedge separates the two gardens and the school garden has a herb garden, rockery and novel pond. produced by sinking a (Field Officer's) bath in the ground. A larger, more conventional pond is situated in the other garden, along with flower beds and large tubs of cottage garden flowers and wild flowers.

The grasslands in the north-east of the site are split into three types by different mowing regimes in spring and summer, leaving one unmanaged. The unmanaged grassland contains a mixture of common grasses that are found throughout the grounds, such as oat grass, fiorin, barren brome, cock's-foot, couch, red fescue and wall barley, along with broad-leaved and curled docks, nettles and a few other species including black horehound, creeping thistle, beaked hawk's-beard, ribwort, common mallow, Oxford ragwort and hedge mustard. The summer meadow is more diverse with most of the above, as well as common vetch, ox-eye daisy, birdsfoot-trefoil, black medick, lesser yellow trefoil, red clover, rat-tail plantain and dove's-foot cranesbill. The spring meadow has much the same species at the time of writing (apart from the small patch of introduced common spotted/marsh orchid hybrids), but as the different mowing regimes take effect, this should change. No further introductions are currently planned.

To the south of the Festival Walk footpath is another dried out river bed. The outflow from St Philomena's Lake used to run into here and then on into the Carshalton Ponds. There is occasionally standing water at the western end, but the yellow flag (which last flowered in 1989) and pendulous sedge near the eastern end, are being squeezed out by the nettles. The main feature of this area is a magnificent plane tree which, when surveyed in 1964 was the biggest in Britain, at 124 feet with a girth of over 15 feet (at the 5 feet level). Although it hasn't been properly measured since, it has obviously grown bigger!

Beyond the old riverbed is Margaret's Well. This is the best area of woodland in the site, with mature ash and sycamore dominating with some grey poplar. There is a good regeneration of ash below with a ground cover including dog's mercury, ramsons, ivy, nettles and dock, and some clumps of pendulous sedge and yellow flag surviving in the damper areas. There are also several garden escapes such as winter heliotrope, Abraham-Isaac-Jacob and primroses, which may be remnants of John Ruskin's planting.

After the 1987 hurricane, extensive tree surgery was required and much of the smaller brushwood has deliberately been left on site. This, combined with the general dampness of the soil, makes Margaret's Well a popular site for frogs, toads and newts.

The variety of habitats attract a fair variety of birds for a suburban area and, in addition to those already mentioned, breeding birds include mistle and song thrushes, blackbird, robin, blue tit, great tit, starling and nuthatch, with green and goldfinches breeding near, if not on, the site. All three British woodpeckers have been seen on site, as well as kestrels, sparrowhawks, long-tailed tits and spotted flycatchers. A bird box trail has been set up around the grounds with examples of conventional boxes and novel constructions using plant pots, drainpipes and bark.

Educational role

The grounds are open from 9am until dusk, with eight ecology interpretation boards strategically placed to explain the key features of the habitat being observed. In addition there are a number of interpretation boards on the recyling facilities, composting examples and renewable energy displays, since the Ecology Centre is far more than simply a nature reserve.

Other unusual features include a permaculture garden, beehives, sensory trails and a wood-sculpture trail. The main paths around the grounds are suitable for wheelchairs, and a raised-bed tree-seedling nursery has been constructed on one of the "Community Plots". The others are used by various groups as organic allotments — the best examples are those run by two blind gentlemen who grow a huge range of fruit and vegetables on immaculate plots. Community groups (youth clubs, scout/guide groups etc) can visit the site by prior arrangement and borrow equipment such as pond nets, magnifiers, pooters and tree nets.

In the reception area of the Old Rectory building (open to the public 10am to 4pm, Monday to Saturday) are displays, wildlife photographs and local paintings to view, plus a wide variety of environmental information and newsletters that can be taken free of charge. This area is supervised by the staff of the "Owls" shop, also situated in reception, which sells a wide range of environmental products, including wildflower seeds, natural history and identification books, peat-free compost, natural wood products and green kitchen materials. Groups can book any of the three classrooms or conference room and can use the library, resource room and workshops under the supervision of the Centre's staff.

To demonstrate the level of use of these facilities, in the 1991/92 year 110 community group visits took place (ranging from cub packs to Churchwomen's groups) involving 1540 people, and 120 meetings were held in the building. The number of volunteers helping at the Centre rose significantly, contributing 620 workdays. In addition 97 workdays came from work-experience placements. Holiday events for children were, as usual, run over the Easter, summer and all half-term holidays, attracting 1443 participants in all. This was in fact down on previous years, due to the need to control numbers at any one event for quality and safety reasons. All in all there were about 20,000 visitors during the year.

The Sutton Ecology Centre is a wonderful resource for any borough to have, and complements the many excellent nature gardens which can be found in Sutton's schools.

Su.BI 4 Big Wood and Ruffett Wood

Grid ref TQ 281 603
Area 9.7 ha

These two rectangular blocks of woodland, in an elevated downland position, are joined at one corner. Looking up the hill from the north, they are particularly impressive against the skyline. From the usual approach to the south and from the northern end, there are extensive views north-eastwards taking in the City of London, Canary Wharf on the Isle of Dogs and the Crystal Palace ridge. To the west of the woodland are sports pitches whilst to the south-east are houses. In other directions are fields, most of which are currently unmanaged. Common weeds are now growing in these and one field, immediately to the east of Big Wood, has sufficient interest to gain its inclusion within this site. So far as the woodland itself is concerned, Big Wood, the southernmost block, is mainly composed of sycamore with few other tree species, and these mainly on the margins, but Ruffett Wood has a more varied composition. The site is particularly important as the largest single area of woodland in the Borough.

The woods cover a small patch of Clay with Flints lying on the gentle north-facing dip slope of the chalk of the North Downs. No woodland is depicted at this location on the one inch to the mile First Edition Ordnance Survey Map dating from 1816, when the area was part of an extensive rolling downland. They therefore seem to be 19th century plantations, but some pre-existing trees, in the form of old field boundaries, were probably incorporated, along with their hedge bottom flora. By the time of the Ordnance Survey Map of 1895, Ruffett Wood was shown as a deciduous wood, with a slight gap between it and Big Wood. The latter was indicated to be part coniferous and part deciduous.

Ruffett Wood is mixed, with ash and sycamore predominating, and with numerous tall mature gean trees scattered throughout. Gean, or wild cherry, is an indicator of ancient woodland. Oak and beech occur mainly around the margins of the wood, and are probably relics of former field boundary hedges. Other tree species present include horse chestnut, Norway maple, and a few hornbeam and false acacia.

Ruffett Wood has many more open glades than Big Wood, partly because of recent storms, but also following recent coppicing. Although it is much more open to the sky, it is also quite impenetrable in places, particularly at its northern end. The shrub layer is dominated by hazel coppice, now up to five metres high, with many sycamore saplings growing up through a carpet of brambles. Hazel coppice, like gean, is usually found in ancient woodland, but as indicated above and below, there is probably a different history here.

A fairly rich ground flora is present, due to the open canopy and many sunlit spots, and includes species such as sanicle, dog's mercury, nettle-leaved bellflower and wall lettuce, which are characteristic of woodlands on the chalk, as well as more widespread plants such as enchanter's nightshade, tall brome, slender false-brome, hedge woundwort, bluebell and wood sedge. Sanicle, wood sedge and nettle-leaved bellflower are normally indicators of ancient woodland but, in this case, perhaps survived in hedgerows or under trees and from there colonised the plantations. The latter species is particularly noteworthy, being rare in London and almost entirely confined to the chalk. Its attractive lilac, bell-shaped flowers appear between July and September and it has alternative names of bats-in-the-belfrey or throatwort, the latter indicating its former medicinal use in treating sore throats and tonsilitis.

The boundary between Ruffett Wood and Big Wood is marked by a huge beech tree, which has fallen across the path. The sunny glade created here is enlivened by rose-bay willow-herb.

Big Wood is much more uniform than Ruffett Wood, consisting predominantly of tall sycamore trees, with sycamore saplings below. Most of the trees are not of any great age and the south-west corner was clear felled about 20 years ago. A few ash, horse chestnut and beech trees occur, some of the beeches being very large, and elder, holly, hawthorn, rowan, nettle, hogweed and bramble are present in the shrub layer, as well as the young sycamores. In the dense shade cast by the sycamores the ground flora is sparse and dominated by ivy, which climbs 20 metres up some of the tree trunks. Some of the plants found in Ruffett Wood are present here, such as hedge woundwort, herb Robert and dog's mercury, as well as wood avens, male fern and Lords-and-Ladies, although quantities vary. Most noteworthy here, however, is martagon lily, its attractive pink flowers more usually being found in gardens, although it may be native in a few places in Britain. This colony, which is just inside the eastern edge, has been present here for at least a century and a half and was possibly planted at the same time as or soon after the wood itself.

Parts of the wood are moderately open and here the shrub layer and ground flora are better developed.

Along the eastern edge of Big Wood are bluebells and dog's mercury beside a pleasant grassy path, partly shaded by trees. Beyond is a field sloping away with Woodcote Grove Wood on the immediate horizon and the Crystal Palace masts in the distance. Only the part of the field west of a line level with the eastern edge of Ruffett Wood has been included within this site, but it has patches of scrub and young trees, particularly sycamore, and a variety of grassland flowers. The grasses include timothy, cock's-foot arid meadow foxtail whilst the most prominent flowers are red bartsia, hardheads, creeping thistle, ox-eye daisy, bindweed, red and white clovers and field poppy. The Latin name for red bartsia is *Odontites verna*, *"verna"* meaning spring, yet curiously its reddish-purple flowers appear between June and August. Other flowers to be found in this field include black medick, common St John's wort, wild parsnip, cut-leaved cranesbill, field scabious, agrimony and scarlet pimpernel. The latter is also known as poor-man's weather-glass because the flowers close before rain. Dog's mercury and old man's beard grow in the scrubby area near the wood. The field is well populated by invertebrates in summer.

The woods are privately owned but numerous paths traverse the site, which is well used by walkers and horse riders. However, these paths often lead to dead ends, so parts of the woods remain relatively undisturbed. Their dappled shade is particularly welcome on a hot summer's day. The field is also privately owned and has no official access. The whole site lies within the Metropolitan Green Belt. The Council is trying to negotiate a management agreement with the owner but so far without success. If a management agreement could be obtained, this should aim to encourage a more diverse tree canopy and shrub layer in Big Wood at the expense of the predominant sycamore. The owner has attempted to secure the paths in the woods to try and reduce the intrusion of motorcycles and leave the area for the benefit of walkers.

Su.BI 5 Carshalton Road Pastures and Grove Lane

Grid ref TQ 278 608
Area 7.0 ha

The main wildlife value of this small area of rough pasture, the best part of which is lightly grazed by tethered horses, is its chalkland wild flowers. They make a beautiful splash of colour in summer. Grove Lane is included because of its fine hedges.

Carshalton Road Pastures

Within Carshalton Road Pastures, a strip of land extending across the centre of the plot from the west is now occupied by a caravan site for travellers and the northern corner is now also given over to a caravan site. The rest is rough grassland with a particularly attractive area of chalk grassland with some scrub in the south-eastern part. The whole area is in fact underlain by chalk but until 1965 a Council tip was located on the western half of the site and this has covered over any calcareous influence there. Many years before, a chalk quarry was here and the 1895 Ordnance Survey Map marked "old chalk pit" in the centre of what is now this site. The land slopes down towards the north, while in the extreme south is a tall mound, some seven metres high, largely covered with brambles, scrub, rough grasses and nettles.

The main grasses are common and widespread species such as rye-grass, cock's-foot, oat grass and fiorin, but quaking grass, which is characteristic of chalkland, also grows here. Wild flowers abound in the south-eastern part of the meadow, which is slightly higher than the rest of the site, field scabious being particularly prominent. Large numbers of butterflies, moths and grasshoppers are attracted to the area in summer. It is peaceful and virtually undisturbed, although more people tend to be about near the camp sites.

Many of the flowers are chalkland species of rather restricted distribution in the London area; the more notable include wild basil, purging flax, wild parsnip, hoary plantain, greater knapweed, tall broomrape, marjoram and salad burnet. Wild parsnip is too woody to be of any use in the kitchen, as is wild carrot, which is also found on this site. However, wild basil and marjoram are both attractive-smelling culinary herbs and the latter is particularly profuse here. Tall broomrape is nationally scarce and very rare in London. Of the five known sites in London, four are in Sutton. These are East Sutton Railway Lines, Roundshaw Park, Cuddington Golf Course and here.

Other wild flowers such as common St John's wort, bladder campion, agrimony, red bartsia, vetches, hardheads, and many others, provide nectar for a range of grassland butterflies, including meadow brown, speckled wood, brimstone and nymphalids.

Bushes of blackthorn, hawthorn, dog rose and apple trees are scattered throughout the meadow, and around the margins there are dense areas of scrub, including a blackthorn thicket at the north-east corner. If the scrub is allowed to spread unchecked, it will shade out the chalk grassland flowers, and urgent management is therefore needed to prevent this happening.

The western half of the pastures, including the field to the south of the southern caravan site, is less interesting floristically, and is more heavily grazed. However, bladder campion, wild parsnip, agrimony and birdsfoot-trefoil can be found here.

A public footpath traverses Carshalton Road Pastures from south-west to north-east, although this is not too easy to find on the ground. Plans are afoot to improve footpath access through here, although there appears to be little restriction on access to other parts of the site, which is owned by the Borough. It lies within the Green Belt.

Grove Lane

Running alongside the pastures to the north is Grove Lane. This bridleway connects Oaks Park, from the junction of Woodmansterne Lane with Woodmansterne Road, to Coulsdon. Grove Lane is a very old track and was already well-established by the latter half of the 18th century.

It was then that the Twelfth Earl of Derby, and his sporting guests at The Oaks, used Grove Lane to ride down to the cricket ground by the Red Lion at Coulsdon to take part in the matches there. The southern half of it is now covered in tarmac, but the part between Woodmansterne Lane and the western boundary of Woodcote Park Golf Course is a very pleasant rural track with fine hedges and gives a glimpse of what much of Sutton must have been like last century.

At the northern end, where it runs alongside Carshalton Road Pastures, Grove Lane is a double-banked lane with hedges on both banks and is particularly attractive in summer. A large beech tree and two large oaks tower over the lane and Lords-and-Ladies, round-leaved cranesbill and wild privet can be found in the hedges. Beyond Carshalton Road Pastures, Grove Lane continues in a south-easterly direction up the hill and the hedge on the western side follows it all the way to Woodcote Park Golf Course, while the one on the eastern side has now gone. The main components of the hedges are blackthorn, hawthorn, holly, hazel, elder and wayfaring tree. The last-named was often planted in the past as an ornamental shrub on roadsides and this gave rise to its name. Old man's beard (also known as travellers joy) trails up the sides while hedge garlic, hedge woundwort and greater stitchwort add further colour to the base of the single hedge. A few ash trees are to be found towards the south, as well as elm, dogwood and the unrelated white bryony and black bryony.

The fields on either side of Grove Lane seem to have been taken out of agricultural use recently, possibly as a result of the set aside policy. They are now mostly rough grassland with typical tall wasteland plants such as thistles, docks, hogweed and ragwort, and grasses such as cock's-foot and oat grass. They are not very diverse at present but other flowers, such as agrimony, common St John's wort, wild parsnip and red bartsia have started to move in. These fields have a good potential and given time and appropriate management they will become much more diverse, rather like the ones included in sites Su.BI 4 and Su.BII 12 have done. At present, however, they do provide seeds for goldfinches, and are full of grasshoppers and other invertebrates. The pasture on the left, just before Woodcote Park Golf Course is reached, is horse-grazed. None of these additional fields have been included as part of this site but they enhance the rural feel of Grove Lane.

Grove Lane is open to walkers at all times and is also part of the Green Belt. There are fine views up to the crest of the hill to the south on which sits Ruffett Wood, while Woodcote Park Golf Course and Woodcote Grove Wood close the views to the east. To the north, beyond Queen Mary's Hospital, lies the sprawl of London.

Su.BI 6 The Oaks Park and Golf Course

Grid ref TQ 273 616
Area 96 ha

An original fragment of ancient woodland on this site was known as Lambert's Oaks, from the family that settled here in the 14th century and held the house up to 1770. From the latter date, it was let to the brother-in-law of the Twelfth Earl of Derby. In 1788, the Earl bought the house together with 134 acres of the adjoining downlands which he then ran as a sporting estate until his death in 1834. The name was contracted to "The Oaks" in his time. He named the classic horse race for three-year-old fillies, held each year at the nearby Epsom course, after this residence. "The Oaks" was first run in May 1779. The name of "The Derby" was also decided over dinner at the house. Apparently Lord Derby tossed a coin with Sir Charles Bunbury to settle the naming of the new race. The former won and so it became "The Derby" and not "The Bunbury". The first Derby was run in May 1780. The park, which was fomerly open common land, was enclosed in 1788 by a perimeter of plantations which survive to this day. Fragments of the ancient woodland may survive among 18th century plantations near the remains of the house.

The Oaks and its estate was sold by the Earl in early 1834, and he died in October of that year. The house and park passed into the hands of several other private landowners until May 1915, when the Surrey Joint Poor Law Committee bought them and The Oaks became the Home for Women Epileptics and the farmlands were leased to tenants. Surrey County Council became the next owners in 1929, after the Home had been moved to Effingham, and Carshalton Urban District Council took over the ownership in 1933. The house was opened to the public until the Spanish Civil War when it was used to house Basque refugee children brought to England. The mansion, which also dated from the 18th century, suffered from bomb damage and neglect during the Second World War and was demolished between 1957 and 1960.

Immediately to the west of The Oaks Park is The Oaks Golf Course. The golf course is incleded in this site, but has more recent origins, having been opened in 1974 on what for many years had been farmland. It now extends into the western part of the park, where there is also a golf driving range. At the turn of the century the area to the west of Oaks Park was mostly open downland which stretched across to the trees, scrub and chalk grassland of Carshalton Downs to the north-west. Between Carshalton Downs and what is now the golf course was a wide, open strip known as "The Gallop". Towards the west of the course was an extensive plantation of conifers. Carshalton Downs and The Gallop have disappeared under the housing of Carshalton Beeches.

The site described here lies on the dip slope of the North Downs and contains two dry valleys running north, one along the western boundary of the park and the other across its centre. The eastern boundary, which follows Woodmansterne Road, is located at the bottom of a third dry valley. Chalk underlies the whole area.

Near the entrance to the park in Croydon Lane, and surrounded by formal gardens, is a cafe, which is open all year, together with toilets and picnic tables. This part of the Borough is a long way from similar facilities, as well as public transport, and so they are particularly welcome here.

The Oaks Park

The park is pleasant and rolling as it gently descends towards the north. A recent change in management policy has encouraged rough areas of grassland to develop, particularly towards the east of the park, and wild flowers are beginning to give a good show in the summer. Stemless thistle, greater knapweed and hoary plantain are all present in varying quantities, along with the attractive quaking grass, indicating the chalky substrate, and bladder campion and hardheads can also be seen. However, the most impressive sight is the yellow spread of lady's bedstraw. The name comes from the legend that Mary gave birth to Jesus on a bed of this plant. Unfortunately, the planting of many small beech trees in this area will not help the development of the grassland flora. These trees are intended as replacements for some of those lost in the Great Storm of October 1987. Not far away, a clump of mature beech trees survived the Storm particularly well. These are surrounded by burnet saxifrage, agrimony, and the typical chalkland grass, upright brome. In 1992 a more extensive area of grassland was left unmown, resulting in the discovery of several patches of crested hair-grass, a rare and declining species of well-drained soils.

Much of the remaining grassland in the park is tightly-mown amenity turf. Primroses and cowslips can be found in short turf near the entrance to the park, as well as under nearby trees. Hybrids between these closely-related species also occur here. Such hybrids are often called "false oxlips" due to their close resemblance to that rare plant of East Anglian woods.

The other main habitat represented in The Oaks Park is mixed deciduous woodland, comprising the perimeter plantation and two further linear plantations extending north across the park. Broad bridleways run through most of the plantations and one of the strips forms an avenue along the main entrance drive to the park. Beech, ash and sycamore are the dominant tree species, with a few oaks, perhaps remnants or descendents of the former forest cover near the site of the house. Horse chestnut, yew and lime occur as minor constituents of the canopy. Saplings of the tree species and holly are abundant in parts of the woodland, but there are few other shrubs. Along the bridleways and the drive, and near the car park, excess trampling and management have reduced the cover of the ground flora, but in the less intensively-used parts of the wood, particularly to the north of the park, woodland flowers abound. These include species such as sanicle, wood sedge and sweet woodruff, which are generally associated with ancient woodland and are uncommon in London. Nest boxes have been put up in parts of the wood, and birds present include blackcaps, bullfinches and woodpeckers.

The largest area of woodland that existed before 1987 was located in the south-east of the park. This extended from the perimeter plantation adjacent to Woodmansterne Road, up the side of the dry valley in which the road runs and onto the more level part of the park. This woodland was totally flattened in October 1987 by the Great Storm. It is now being replanted but in the meantime an abundance of plants have sprung up, particularly Canadian fleabane, herb Robert, rose-bay willow-herb and ragwort. The seeds of these species have good dispersal facilities and are often among the first to take advantage of bare soil. Musk thistle, a chalkland plant rare in London, has also colonised this area. The large quantities of seeds from these plants attract flocks (known as charms) of goldfinches.

Alongside Woodmansterne Road to the east, a pleasant path runs all the way from south to north. Towards the south the path is at the foot of the herb and grass-covered bank which was previously covered by woodland. A further four-metre-wide band of herbs and grasses divides the path from the road. Towards the north, the plantation along the eastern perimeter survived the storm rather better and the path runs beneath beech and lime trees together with the odd sycamore and oak. At the time of the 1895 Ordnance Survey Map the belt of trees which ran along the whole of the east side of The Oaks Park next to Woodmansterne Road was mostly composed of deciduous trees and bushes, with a few conifers.

The large amounts of dead and decaying wood left by the Great Storm make The Oaks Park an excellent site for fungi. Three particularly rare species have been found here, though, in common with most fungi, they lack English names. *Peziza proteana* var *sparassoidesis* Britain's largest cup fungus, and resembles a cabbage; *Coriolopsis gallica* is a rare bracket fungus with a very hairy upperside, found here growing on an ash log; *Pereniporia fraxinea* is another bracket fungus usually found on ash (as its name suggests), but here was found growing on a beech stump. None of these fungi is good to eat.

The Oaks Park part of the golf course, apart from the linear plantations, is now mostly amenity turf. In 1978 over one hundred plants of red hemp-nettle were found on what is now the northern part of the course. Red hemp-nettle, once a common plant of arable land on chalk, is now exceedingly rare in the London area and scarce on a national scale.

The management of the park is likely to change as a result of financial restrictions but this should provide an opportunity to greatly increase its nature conservation value.

The Oaks Golf Course

The nature conservation interest of The Oaks Golf Course centres on areas of scrub and sections of chalk grassland.

The scrub is mainly composed of hawthorn and elder, with scattered oak trees, but species typical of the chalk, such as buckthorn, dogwood and old man's beard, can also be seen. There is little ground cover beneath the bushes, the most abundant species being ivy, Lords-and-Ladies, wood avens and hedge woundwort, all of which are common plants.

A bank running parallel and adjacent to the bridleway known as Fairlawn Road and a small area at the southern tip of the golf course comprise the chalk grassland. It is a pleasant walk from Banstead Downs to The Oaks Park via the bridleway or a path running just inside the boundary of the golf course. There are good views across to the Crystal Palace ridge whilst the horse-grazed pastures to the south (in Surrey) add to the sense of countryside, in spite of the two prisons recently opened on the site of the old Banstead Hospital.

Apart from the area by the east of The Oaks Park and the southern tip of the golf course, the bank is the only place on this site containing anything in the way of chalk grassland. Approaching from the west there is initially little floral interest, although the grassland is not completely improved - tufted hair-grass and timothy are present along with red bartsia, meadow vetchling and welted thistle. A patch of woodland and scrub, which stretches out onto the course, contains deadly nightshade. This is a rare plant in the London area, but is not uncommon on the chalk in the extreme south of the capital. Beyond this the bank increases its interest and variety as well as its size. The yellow of tansy and the purple of hardheads add colour to the scene and bladder campion is also present, together with some of the dreaded Japanese knotweed. On the southern slope of the bank is a fair amount of wild parsnip and upright hedge-parsley while, near the houses at the eastern end, fennel and the delicate, pale lilac flowers of vervain can be found. Other species which have been recorded here in the past include the grass upright brome and also glaucous sedge, marjoram, burnet saxifrage, hairy St John's wort and rough hawkbit. Brown argus, a rare butterfly which is confined in London to the chalk downland in the south, and other commoner species of grassland butterflies abound on these flowery banks in the summer.

At the southern tip of the golf course, adjacent to Fairlawn Road, is a small clearing. The soil in the centre of the-clearing has been scraped down to the chalk and the area has been used for the dumping of rubbish. Close by is a small colony of man orchids. This plant is nationally scarce and in London is confined to the southern extremities. It is only known from one other site in Sutton, Woodcote Park Golf Course. It is found only on chalk, and the individual flowers are man-shaped, with head, arms and legs, giving rise to the plant's name. Not far away, a common spotted orchid was recently discovered. Despite its name, this attractive

flower is actually rare in London. However, outside the capital it is more likely to be encountered, being found in a variety of habitats from marshes to woods and fens to downs. Blue fleabane, a typical downland plant, can be found nearby. The presence of these plants gives some idea of the potential of this site, but the dumping of rubbish in the area where the orchids exist should certainly cease.

A much more diverse chalkland flora than exists at present on the rest of the golf course could be encouraged if the turf was scraped off in places and left. Other chalk plants which still exist nearby, such as salad burnet, could also then colonise.

By contrast nearly all of the remaining grassland, even in the "rough", is typical sports turf dominated by rye-grass with the odd patch of yarrow and yellow toadflax. There is clearly room for the establishment of small pockets of herb-rich chalk grassland elsewhere on the golf course, particularly on the steeper slopes and away from the fairways. Like the park, the golf course is owned by the Borough but it is leased to a private company and there is little scope for changes in management taking effect.

There is unrestricted public access to most of the park, except for some small fenced off areas around the golf driving range. However, the golf course is deemed private land, and pedestrians are obviously discouraged from walking across it for safety reasons as well, except along a path through the woodland belt which forms the western boundary of The Oaks Park. As mentioned earlier in this handbook the Council's Parks Division and the Downlands Countryside Management Project are looking to produce a series of guided walks round the park, and to incorporate the park into a larger Green Belt walk

Su.BI 7 Banstead Downs

Grid ref TQ 259 619
Area in Sutton 3.4 ha

Travelling out of London on the Sutton By-pass, one reaches the old Brighton Road at Belmont, and beyond is what appears to be the start of the countryside. This is Banstead Downs. The total area of downs remaining (about 170 hectares) is only a tiny fragment of an enormous tract of mostly unenclosed downland and woodland which formerly stretched from Carshalton in the north to the scarp slope of the North Downs near Reigate in the south. Grazing rights on the downs had been shared by surrounding manors, some as far away as Chaldon (near Merstham). This was one of the last large remaining areas of the ancient Royal Forest which covered the entire county of Surrey in mediaeval times. Banstead Downs once boasted several racecourses, but these were gradually superseded by Epsom Downs. There is also a Roman burial ground known as Galley Hills close to the A217.

During late Saxon times, the Weald to the south was being settled. Originally, landless drovemen took their stock from their home manors to the forest for the summer and returned to put their animals on the downs for the winter. Eventually permanent settlements in the Weald developed and the stock no longer wintered on the downs. However, the rights were never rescinded. Enclosure of the downs started in the 18th century and accelerated during the next hundred years but there was still much open country in the mid-19th century. In 1865 the Lord of the Manor, responding to local feeling, decided to dedicate the remaining downland as public open space, but on his death his successor wished to sell off the land for housing. There ensued a long-fought legal battle between conservationists and commoners on the one side (although the commoners were not on the side of conservation) and the Lord of the Manor on the other, which was finally, in 1889, decided in favour of the preservation of the commons, in a judgement of the Court of Appeal. The appeal judges were unanimous in upholding the old rights which must date back at least 1,100 years to the time of the first enclosures of the surrounding arable land. The judgement was later confirmed by an Act of Parliament of 1893, which granted Banstead Downs to the Corporation of London, to be managed for the enjoyment of the people of London. The downs are now administered and managed by a Board of Conservators of Banstead Downs, appointed by Reigate and Banstead District Council.

The downs are surrounded by housing and the grounds of the disused Banstead Hospital which is now being redeveloped. The latter was built in the second half of the 19th century as the London County Lunatic Asylum. They are also bisected by the railway line to Epsom Downs and traversed by a number of roads. Only a narrow strip of Banstead Downs, about 50 metres wide and 600 metres long, at the north end of the downs, lies within Sutton, the rest being in the District of Reigate and Banstead. The inclusion of this strip of land within Sutton is the result of a change in the Borough boundary. Formerly this ran along the edge of the common at Downs Road, but a dispute between the local authorities over who should be responsible for the improvement of this road was settled by granting the road and a strip of the downs in Banstead to Sutton, who then took this charge on itself. The road mainly serves Sutton residents. The part of the downs in Sutton forms the eastern side of a shallow dry valley, through which the railway runs. Chalk underlies the whole area.

Since the last war, when the vegetation on the downs was burnt off, and particularly since the arrival of myxomatosis in the 1950s, which reduced grazing by rabbits, much of the downland has been invaded by scrub and woodland. Little open grassland now remains. Woodland encroachment is particularly marked in the strip lying within Sutton and some of the trees along Downs Road are quite mature. Here the woodland and scrub is composed mainly of sycamore, ash and oak, with hawthorn, elder and dense wild privet below. Old man's beard, a characteristic chalkland species, trails over the bushes and trees, and ivy is the main ground cover in the denser shade. Bramble, nettle and thistle make it very difficult to penetrate the woodland or even to appreciate it from the busy Downs Road, where there is no pavement on the southern side. Rubbish and garden refuse have also been dumped along here and this accounts for a number of plants which are garden escapes. However, although people cannot easily find their way into the woodland, a wide variety of birds value the seclusion.

Here and there, and especially at the edges of paths and adjacent to Downs Road, small fragments of grassland retain a surprising number of chalkland plants. The main, grass species include the ubiquitous oat grass, cock's-foot and tufted hair-grass, plus chalkland species such as upright brome, tor grass and sheep's fescue. Other plants present typical of lime-rich soils, several of which are rare in London, include salad burnet, stemless thistle, greater knapweed, wild parsnip, dropwort, restharrow and glaucous sedge, as well as more widespread wild flowers such as hardheads, lady's bedstraw, white campion, wild carrot, great hedge bedstraw, burnet saxifrage and rough chervil.

The last-named is a white umbellifer whose Latin name *temulentum* means drunkenness, as this is a symptom of poisoning by this plant.

There is one larger area of open chalk downland in the Sutton part of the site at the western end, between some cottages and the bus turnaround near Belmont station. There are limited views up the hillside to the south which are eventually cut off by trees, whilst the contrast between red buses and the flowers of the chalk downland is unexpected. Apart from the flowers already mentioned in the previous paragraph, red bartsia, common St John's wort and agrimony are to be found here, alongside less common flowers of the chalk such as rough hawkbit and blue fleabane, and the eye-catching blue flowers of chicory. As is to be expected, grasshoppers and butterflies frequent this area in summer.

Around the edges are areas of hardstanding, and there has been some "dumping". As could be expected a "wasteland" element to the flora creeps in here with Canadian golden rod, weld, wild mignonette, goat's rue and lavender.

Near the cottages, where the woodland starts, a number of cherry and apple trees have grown up after being discarded by one of the occupants of the cottages. Beyond, the woodland rapidly becomes dense and impenetrable and needs cutting back, at least from the paths. The Sutton Conservation Group and the Conservators are improving access through this strip onto the downs.

The whole of Banstead Downs is in urgent need of extensive scrub clearance to safeguard the remaining fragments of chalk grassland and their flora and fauna. The Surrey Wildlife Trust and the Keepers of the Banstead Commons Conservators are presently carrying out such work, but this has not yet extended to the area within Sutton. The Trust have reinstated sheep grazing on the downs, but this also is only in the Surrey part.

There is unrestricted public access to the downs, but dense scrub limits human encroachment on foot and horseback, mainly to the better defined paths, few of which cross the Sutton sector. The most accessible part of the latter is the open downland near Belmont station.

Su.BI 8 Cuddington Golf Course and Cuddington Hospital

Grid ref TQ 242 613
Area 62 ha

Deriving its name from Cuddington, a village which disappeared during the reign of Henry VIII, this golf course lies in the extreme south-west of the Borough in a shallow dry valley on the chalk. It has an irregular shape due to enclaves of housing, and part lies across the Borough boundary in Epsom and Ewell.

Like most golf courses, it consists largely of short mown grass, mainly rye-grass, but has small pockets of flower-rich chalk grassland and some areas of woodland and scrub. A triangular field of scrub with rough grassland between Cuddington Way and the western end of the course is also included in the site, as are the grounds of the abandoned Cuddington Hospital to the east, which now contains some excellent chalk grassland.

On the First Edition Ordnance Survey Map produced early in the 19th century the area now occupied by the golf course was shown as two rectangular enclosures in the otherwise open Banstead Downs. Traces of these enclosures are still visible on aerial photographs.

Cuddington Golf Course

The main part of the golf course slopes gently to the north with extensive views in that direction, especially from near the club house. Other areas are more enclosed by trees and so the vistas are more limited.

The most valuable areas for nature conservation are the patches of less intensively managed grassland, which occur mainly around the edges of the course, and particularly on the eastern margin, but also as tiny scraps on the steeper slopes. Some of this grassland is typical of chalky ground, but other areas are more indicative of neutral soils. The latter have a sward dominated by common bent-grass, timothy, lop-grass and red fescue, with a variety of wild flowers, including agrimony, yarrow, hardheads, meadow vetchling and toadflax.

The best of the more calcareous patches display an excellent suite of downland plants, although rarely in great quantity. Characteristic chalkland grasses such as upright brome and hairy oat are present, with a colourful range of wild flowers, many of which in London are almost restricted to the downs. These include small scabious, kidney-vetch, dropwort, stemless thistle, wild basil, sweet violet and purging flax. Species present which are somewhat more catholic in their requirement include burnet saxifrage, bladder campion, mouse-ear hawkweed and common St John's wort. Curiously, broom is also present; this is most frequently encountered on acidic soils, although Burton (1983) states that it "will grow on all but the shallowest chalky soils". The substrate here was indeed probably just such a "shallow chalky soil", and the presence of broom may indicate the changed conditions brought about by construction and management of the golf course. There is a particularly attractive patch of chalk grassland by some trees, a hundred metres in from the eastern edge. Unmown, it is full of wild flowers and, as well as most of the ones above, includes field scabious, wild parsnip and great hedge bedstraw.

In the centre of the golf course is a triangular patch of woodland, and smaller patches of woodland and scrub are scattered between the fairways and around the margins. The woodland is partly planted and not of great antiquity although the trees have largely been left to their own devices with little management. Tree species include oak, sycamore, poplar, ash and a few young gean, as well as a small number of conifers. The shrub layer, and some of the areas of scrub, are more interesting as they contain several species characteristic of the chalk. These include wayfaring tree, wild privet, dogwood and buckthorn, plus the ubiquitous hawthorn and blackthorn. The ground flora is impoverished in the dense shade, and mainly consists of ivy and cow parsley, but also with a few patches of slender false-brome, sanicle, and male and hart's-tongue ferns.

Unfortunately golf course policy tends to be to make the game relatively easy and particularly to reduce the chance of lost balls. The wilder areas tend to be sacrificed and here the course is mown very regularly and sprayed frequently on the fairways and fairway edges. As a result only the odd patch of flower-rich rough is left. Even the ground inside many of the copses is sprayed. The fairway edges would be very much more attractive if mowing was less frequent, allowing flowers such as stemless thistle, great hedge bedstraw and birdsfoot-trefoil to make more of a show.

West of the golf course

The triangular field to the west of the course has altered in appearance considerably over the last ten years and is continuing to change. It was predominantly grassland, but it is being invaded by hawthorn and dogwood so that now it is mostly composed of scrub with rough grassland. The scrub is particularly thick at the north end, while further south are more open areas and the scrub is less impenetrable. The whole area is enclosed and relatively undisturbed. A pleasant unofficial path rambles gently up through this field towards the south and in the summer the whole area is alive with insects and birds. There are several ant hills to be seen. Unfortunately there is no active management of this field taking place and within a few years it will be totally impenetrable.

Hawthorn now dominates the field, forming a dense tangle, and dogwood and sycamore are also invading the grassland. The latter is mainly of oat grass, with a wide array of associated wild flowers such as wild carrot, red bartsia, greater knapweed, wild parsnip, agrimony, marjoram, wild strawberry, wild basil, small scabious and bladder campion. Together they make a most attractive collection. Both marjoram and wild basil have a very pleasant scent and are used for cooking, but the roots of wild carrot and wild parsnip are too small and woody to cook.

Tall broomrape is also found here. This plant, which is characteristic of the chalk downs, has a long spike of pale mauve flowers and is of very restricted distribution in the London area. It is a parasite of greater knapweed, which is not common in London, and is only ever seen where this grows.

The golf course continues across Cuddington Way and into Surrey. The narrow strip between Cuddington Way and the Borough boundary also includes an area of horse pasture with good tree and hedge lines and an area of abandoned nursery gardens. The trees and hedges are mainly of sycamore, Swedish whitebeam and hawthorn. Standing in Cuddington Way and looking in this direction, one has a real sense of countryside.

Cuddington Hospital

Closed in 1984, the derelict buildings and grounds of Cuddington Hospital are very quiet and eerie. The only sounds come from the adjacent Cuddington Golf Course, although the occasional police dog and handler may be encountered, since the area is used for training the dogs!

Most of the old formal lawns are now overgrown, although Epsom Health Care Trust, who own the site, do maintain the grounds to reduce risk of fire and other hazards. From a nature conservation viewpoint, the most attractive and worthwhile area is towards the west, between the buildings and the golf course. Several species here are not found on the adjacent golf course. Most prominent are large yellow sheets of lady's bedstraw, interspersed with the purple of greater knapweed. In July, the flowerheads of the latter can each be covered by half a dozen six-spot burnets, an attractive, glossy, green-black day-flying moth with red spots. This striking colouration gives clear warning to any bird contemplating a tasty morsel that the moth is poisonous.

Apart from the two flowers already mentioned growing in the hospital grounds, there are others here which are also uncommon in a London context. These are restharrow, salad burnet, hoary plantain and field scabious, all of which are primarily found on chalk. Restharrow obtained its name because its underground stems are so tough that they could bring the harrow to a halt. Rarer than any of the above, however, is the large population of autumn gentian present on the site. This beautiful little plant, with purple flowers, is found nowhere else in Sutton, though it is common on Banstead Downs just outside the Borough.

The main grasses present are oat grass and, since these used to be formal lawns, perennial rye-grass. The notable grass here is quaking grass, which is rarely found in London. The purplish brown flowers of this grass dance to the slightest breeze, hence the name.

Trees and shrubs are scattered throughout the site, particularly hawthorn, birch, elder, sycamore, dogwood and apple trees. Lime, plane, yew and ash are also to be found.

At the time of writing no development plans were known of, but if development did go ahead at some future date it is to be hoped that the areas of significant nature conservation interest could be preserved.

The whole of this site lies within the Green Belt and is in private ownership. Cuddington Hospital is in the ownership of the Epsom Health Care Trust.

There is no public access to either the golf course or the hospital grounds and no official access to the triangular field of scrub.

↓ Carshalton Road Pastures in mid-summer with tall broomrape and the greater knapweed it parasitises making a fine show
LEU/Dave Dawson

← The cocoons of six-spot burnet moths can be seen at Charshalton Road Pastures, as well as at Roundshaw Downs
LEU/Dave Dawson

↓ Nettle-leaved bellflower, also known as bats-in-the-belfrey and throatwort, is found in Ruffett Wood
Meg Game

↑ A fallen beech tree marks the boundary between Big Wood and Ruffett Wood
LEU/Ian Yarham

← Looking south across Banstead Downs from near Belmont Station
LEU/Ian Yarham

9 Sites of Borough Importance: Grade II

Su.BII 1 Beddington Lane Paddock

Grid ref TO 298 667
Area 5.7 ha

This is an excellent example of how nature can turn the most unpromising surroundings into an attractive place. Beddington Lane Paddock is a former rubbish tip, which was covered over in the 1950s and left so that it is now some five metres higher than the surrounding land. The trees, shrubs and flowers that call the site home have grown up since then and, away from the edges, lend a distinctly countryside feel to the place. However, the tip was never properly capped, and is classed as contaminated land. The site still produces methane and is potentially hazardous, so access is actively discouraged.

Maps from early this century show a single field where the present site is, set in a landscape of small fields. A few houses were scattered along Beddington Lane to the west and Pimm's Cottage is shown immediately to the east. There was no sign of the later developments which now characterise this area, apart from a couple of small sewage farms away to the west of Beddington Lane.

Going back further in time, the Ordnance Survey Map of 1895 showed that a dog sanatorium was located immediately to the east. The previous edition of 1868 still showed a single field with the same boundary as the paddock has today. The field was surrounded on the north, east and south by a ditch, and thin belts of trees were marked on all sides, although these were thickest on the north and northern part of the east sides. There appeared to be no trees away from the edges. There is a mystery as to the origin of a number of gravestones that are to be found on the site (obviously without the graves!).

The site is now bounded by Therapia Lane on the north and east, which acts as an access road to a number of factories, Beddington Lane to the west, and factory units and their car parking areas to the south. A security fence was placed round the whole site in December 1992 because of its potentially unsafe nature. Prior to this the approach was via a steep scramble up the bank from Beddington Lane through the dense elm and elder scrub which covers the slope. Once on the top the ground is uneven, as is often the case with old rubbish tips, and the banks and surrounding trees make the site, especially towards the centre, quite secluded. The view beyond is of the tops of houses and factories in most directions, lines of pylons to the west and the Crystal Palace ridge to the north-east.

The paddock is lightly grazed over most of its area by gypsy ponies, although this is being limited but not stopped by the fencing on the site. Scattered trees, mostly apple with some sycamore and false acacia, are interspersed with elder and hawthorn shrubs on the western half. Dog rose is also to be found, as is just one bush of sweet briar. The latter is a rose which usually occurs on calcareous soils and has a distinct apple-like scent. It is very rare in London and its seeds may have been brought here with chalky material dumped on this site.

Amongst the variety of flowers occurring here is a fair amount of tall rocket, an introduced species not infrequently found on waste and wayside localities in London. Other flowers present include Aaron's rod, spear thistle, mallow, common St John's wort, lesser yellow trefoil, weld, yarrow, field poppy, white and hybrid campions, shepherd's purse, ox-eye daisy, alkanet and scarlet pimpernel. The poisonous hemlock forms tall stands with white flowers and also noteworthy is the fact that three species of cranesbill can be found here - dove's-foot, cut-leaved and mountain. Cranesbills are members of the geranium family and the name refers to the long, central beak of the fruit. Dove's-foot cranesbill is so named because of the softness of its leaves, the leaves of cut-leaved cranesbill are divided almost to the stalk, while mountain cranesbill is found in the mountains of Portugal and Spain but is a lowland plant in this country, usually at the edges of woods, on waste ground or in hedgebanks. Its alternative, less confusing, name is hedgerow cranesbill.

Primrose and chicory have also been recorded here in the past. The grasses are fairly common ones, mostly oat-grass, cock's-foot and meadow-grasses. The eastern end of the site is rather more impenetrable with dense nettles, brambles and dog rose, together with large quantities of alkanet with its bright blue flowers, and, again, many apple trees. Towards the north-west, where there are rather more ponies, red bartsia occurs in some quantity.

As would be expected, this site is alive with birds and insects in the summer when, with the colourful array of wild flowers also, the surroundings and nature of the site could easily be forgotten. In June whitethroats and garden warblers can be heard singing, and may breed here.

Beddington Lane Paddock is owned by the Council and is scheduled for development after the hazardous waste has been removed.

Su.BII 2 St Mary's Court, Bute Road

Grid ref TQ 291 647
Area 20 sq. metres

This must be one of the most unusual wildlife sites in London and it is certainly one of the smallest. It is also perhaps the last place the casual observer would expect to find a very rare plant.

St Mary's Court is a modern sheltered housing development in a quiet suburban road in Wallington. Just inside its northern boundary, close to the entrance, are several large trees including two which are particularly large - a beech and a sycamore.

The small area of soft ground underneath is mostly covered with ivy, which also finds its way up the trunks of the trees, as well as the attractive two-toned grey and green leaves and yellow flowers of silver archangel. Scattered within the ivy are dozens of spikes of ivy broomrape. This plant, a parasite of ivy with no green parts, is extremely rare, being found only at two other sites in Greater London: Kew Gardens and Highgate Cemetery. A single plant also appeared in 1980 in a garden in Cavendish Road, Sutton but has not been seen since. It may have been a chance offspring of the Bute Road colony. Ivy broomrape is scarce nationally, being restricted to scattered, mostly coastal localities, largely in south-west Britain. Its purple-coloured flower spikes push up through the ivy and are seen to their best advantage in July. It is remarkable to find them here in such profusion.

A number of saplings such as ash, hawthorn and sycamore, together with bramble, if allowed to grow, may eventually smother the ivy broomrape. This would be a serious loss and so management should concentrate on removing these less important species before they become a problem.

The site is privately owned and, although there is no access by the general public, the ivy broomrape is easily observed over a low wall from the pavement in Bute Road.

Su.BII 3 Sutton to St Helier Railway Line

Grid ref TQ 252 640
Length 4 kilometres

Firm proposals started to be made in the early 1880s for a railway from Wimbledon to Sutton to stimulate house building across the clay pastures between the two places, which up to then had remained largely untouched. Lack of enthusiasm or downright opposition from established railway companies, particularly the London, Brighton & South Coast Railway, prevented any progress until after the First World War. Indeed, the LBSCR went to some lengths to demonstrate a lack of need north of Sutton, fortified by the knowledge that if the railway was built it would be a rival for their customers. When a Parliamentary committee in 1910 was considering a Bill for a line from Wimbledon to Sutton, the LBSCR produced a lady who explained that she had once tried to hail a bus which used to run between the two places. The conductor was so surprised at being hailed that he failed to signal to the driver to stop, and the driver turned round to see what the lady was waving at! The line finally opened in January 1930, nearly 50 years after it was first proposed.

Construction was not easy. Cuttings at the Sutton end slipped and extensive drainage was required. In order to link up with the existing line from Sutton to Cheam, the new line had to be cut deep through the chalk near Sutton station and a number of Victorian villas had to be demolished. The Wimbledon to Sutton railway was designed for electric trains, with many inclines and sharp curves, although it hardly justified the drivers' nickname for it: "Wall of Death".

Within Sutton, the site runs from Bridge Road, just west of Sutton station, as far as the Borough boundary with Merton at Forest Road. However, the lineside habitats continue into Merton where it is also classified as a Borough Grade II site.

There is, of course, no public access, although some of the overbridges such as those at Cheam Road and Norman Road provide a view of the railway, and from Gander Green Lane the sides of the cutting can be seen through a wire fence. This is one of the less busy lines in the Borough and the lineside can be fully appreciated from the train, giving a pleasant view of greenery at a fairly leisurely pace. A variety of habitats, including mixed woodland, scrub and grassland, can be found.

From Bridge Road looking westwards is a fine view of the junction with the line to Cheam. Immediately after the junction the St Helier branch goes into a steep-sided, rather narrow cutting. As this area was fully built-up by the time of the line's construction, the chalk cutting had to be lined in places with concrete to reinforce its steep sides and so minimise the land take. In places though, particularly near the Sutton end, the chalk still shows through. Above the walls there is much sycamore woodland on both sides of the cutting, with ivy and bramble below, and in a few places ivy and bindweed have completely covered the walls as well. Further north is a short stretch where it becomes more open and less steep but remains narrow and on both sides supports rough grassland which comes down to the trackside. Scattered bramble, bracken, sycamore, hawthorn and crack willow are also here. From the train, however, much of the view between Sutton and West Sutton is of the concrete walls of the cutting, although in summer a fleeting glimpse can be obtained of the flowers of red valerian, buddleia, rose-bay willow-herb and ox-eye daisy. These are mostly growing on the slopes above the walls.

After passing West Sutton station, there is a very narrow strip on both sides vegetated with young ash and sycamore woodland with the odd hawthorn, birch and elm. A long embankment then follows. This is mostly covered with ash and sycamore scrub. It eventually broadens slightly into a grassy cutting with scattered scrub and bramble south of Sutton Common station.

Between Sutton Common and St Helier the line continues, with ash and sycamore woodland alongside, on a narrow embankment. Marsh woundwort, a very scarce plant in east Surrey, grows in a small damp area at the foot of the embankment. After crossing the A217, the embankment continues with rough grassland, bramble thickets and scattered scrub along the sides, while immediately beyond to the west is a recreation ground. After this the railway passes over a bridge at Forest Road whence it crosses the boundary into Merton.

Su.BII 4 Carshalton Ponds, The Grove and All Saints Churchyard

Grid ref TQ 279 645
Area 5 ha

The centre of Carshalton is still a pleasant spot, despite the heavy traffic in a seemingly never-ending stream along Pound Street and High Street. The pattern of the old village is largely intact with the ponds in the centre, the parish church across the road to the south, a large mansion to the west (Carshalton House, now St Philomena's School) and the Old Rectory to the north. The latter now houses the Sutton Ecology Centre (site Su.BI 3).

This site comprises the Carshalton Ponds, part of The Grove public park and the large churchyard of All Saints Church. Carshalton Park is not included in the site since its ecological interest nowadays is very limited, but some information on the park is given later when describing All Saints Churchyard.

History of Carshalton Ponds and The Grove

The siting of Carshalton village in relation to the ponds probably dates back to the days of early Saxon settlement. The ponds were historically one sheet of water but the artificial division seems to be of great antiquity. In 1469 William Burton was prosecuted for repossessing himself of wild swans taken from "water called Kersalton Pole containing in length 14 perticas and in breadth 8 perticas". *Pertica* was the Latin for perch (five and a half yards) and so this Carshalton Pool was roughly the size of the West (upper) Pond. Since records began the West Pond was public property while the East (lower) Pond belonged to Stone Court (demolished c1800) and later The Grove: A medieval owner of Stone Court was the first builder of the causeway which divides the waters and it seems to have always been used as a footway.

↓ The woodland walks through The Oaks Park used to look like this before the Great Storm of October 1987. This one, adjacent to Woodmansterne Road, is now totally unrecognisable from this photograph.
Jean Byatt

↑ The nationally scarce man orchid is found on The Oaks Golf Course
Michael Waite

↑ Red hemp-nettle is exceedingly rare in the London area but not long ago over one hundred plants of it were to be found on The Oaks Golf Course where this photograph was taken
Jean Byatt

→ Fallen trees left in The Oaks Park add to the nature conservation interest
LEU/Ian Yarham

The East Pond was an attractive addition to the grounds of Stone Court but it was also the source of power for the Upper Mill which originally ground all Carshalton's corn and went with the sub-manor of Stone Court.

Both ponds, like all the chalk waters of Carshalton, abounded in trout. Those which lived in or strayed into the East Pond belonged to the owner of Stone Court. In the 18th century, Stone Court and its situation was described thus: "The front, towards the south, overlooks a neat grass plot which is skirted with borders consisting of a variety of exotic plants and spotted with shrubs. Beyond and almost extending to the church is a most beautiful sheet of transparent water, free from filth and is never known to freeze in the severest seasons. It is stocked with fine trout and other fish...The large current of water which is supplied from thence is formed into a canal and passes by almost close to the house; after which it drives several mills that stand a small distance below".

By the start of the 20th century, however, due to the increasing development of Carshalton and the diminishing flow of its waters, trout had almost completely gone from the Carshalton Ponds (although many still swam below Butter Hill).

After Stone Court was demolished c1800, the grounds were incorporated into those of The Grove. The latter was named after a grove of trees which used to be here and was one of Carshalton's most striking sights. In the 18th century, at the same time as the pond was described above, it was said that "Upon the east bank of the canal is a beautiful grove of high trees through which are walks conducted in a serpentine form that lead to an ornamental building or temple situated near the centre".

After the disappearance of the old Stone Court, "The Grove" became the name applied both to its own former land on the east side of the river and to the former grounds of Stone Court on the west side. In 1924 Carshalton Council bought The Grove estate and thereby acquired the ownership of the East Pond.

A small part of the original Stone Court remains, as offices by the junction of North Street with Mill Lane, while the main building in the park is The Grove house of 1825 (now the offices of the Education Department).

Carshalton Ponds

The ponds lie near one of the former sources of the River Wandle, which leaves the East Pond and then flows north over weirs through The Grove. The springs which fed the ponds rose at the junction of the chalk and the Thanet sands. One of these formerly fed St Philomena's Lake (Su.BII 5) and then flowed as a sluggish stream past Margaret's Well, which has now dried up (see site Su.BI 3 Sutton Ecology Centre). Margaret's Well was the known source of two other springs. The stream then continued onwards alongside Festival Walk and into the West Pond. The West Pond flows over a weir underneath the road bridge into the East Pond. The weir has a drop of about half a metre. Another source of the Wandle, from Carshalton Park, ran underground through the town and entered the ponds via a small culvert with the date, 1825, engraved on the keystone. This is now usually dry, but following the wet winter of 1987-88 water flowed from this source. There are more springs in the ponds and it is probable that the whole of the area used to be a mass of underground streams which only manifest themselves in certain places.

Extraction of underground water means the springs no longer maintain the water level in the ponds. Indeed the ponds actually dried up a number of times over the years, most recently in the early 1960s. Between 1967 and 1969 a recirculatory system was introduced by the Sutton and District Water Company, which took water from the Wandle near Poulter Park, and pumped it upstream by means of pipes laid along the river bed. At the same time the ponds were waterproofed. This water is delivered from a pipe at the south-west corner of the upper pond, where storm water from the surrounding streets also enters. The supply of water to the ponds is not, of course, as pure as when the supply was from the springs and this has led to a decline in water quality. The East Pond, particularly in the summer, can look and smell most unpleasant with large quantities of blue-green algae giving a purple hue to the water.

The main interest of the ponds is the waterfowl, which include tufted ducks, coots, moorhens, mallards, mute swans and a large number of Canada geese. In hard winters, with water frozen elsewhere, large numbers of tufted ducks are attracted as well as the occasional local rarity, such as a pintail in February 1991. Three-spined sticklebacks abound in the ponds. They are entirely surrounded by concrete embankments or vertical wooden sheeting, so that there is no aquatic vegetation around the margins although evening primrose and bugle can be found growing on the banks. There is clearly an opportunity for creating suitable habitat for aquatic vegetation around the edges.

The Grove

The River Wandle flows through The Grove after leaving the East Pond. The western part of the park, which contains many mature trees, has been included within the boundary of this site along with a dry ditch, known as the Westcroft Canal, which runs along the north-western and eastern edges of the park.

The canal was constructed c1700 to serve The Grove Mill of which only the sluice now remains. The mill originally ground snuff, but from 1868 it became "The Grove Ironworks" and under that name it worked until after the Second World War. Some manufacturing was done at The Grove Ironworks but repair work was the main business. Shortly after the War a fire occurred on the premises and the machinery was damaged beyond repair. Eventually the site came into the hands of the small chemical works which developed into Vinyl Products Ltd. Their factory was demolished in 1985 and houses are now on the site.

Nowadays the Westcroft Canal is vegetated with a mixture of rough grassland, scrub and tall perennials, and lined with trees of ash, sycamore and crack willow. The western end of the ditch, which spans the boundary between the park and adjacent playing field, has a pleasant woodland feel, and woodland plants found here include cow parsley, slender false-brome, hedge garlic, hedge woundwort, wood evens, sweet violet and stinking iris. The latter two are rare in London as wild plants, but may have been planted here in the past. The eastern end is more open, dominated by cock's-foot and other coarse grasses, with a few scattered elder bushes. It is mown several times a year, preventing scrub from becoming established. As the grassland is not particularly diverse, it might be more appropriate to cease mowing here. The rest is mostly mown grass and has been excluded from the site of nature conservation importance.

The Wandle at first sometimes suffers from blue-green algae, which come from the pond, but as it flows further northwards, the quality improves. Carp can be seen in the water.

Three different species of fern, including hart's-tongue fern, grow on the stonework of the 18th century bridge across the Wandle at the south end of The Grove. The bridge is known as the Leoni Bridge after the fashionable Venetian architect. He came to England in the early 18th century and was employed in the 1720s to design a house in Carshalton Park, which Leoni himself, without exaggeration, called a palace. The plan was so expensive and grandiose that the house never got built.

The branch of the Wandle through The Grove contains water cress and common star-wort, while dogwood, wayfaring tree, guelder rose, hawthorn, hazel and dog rose have been planted nearby. A branch to the west of this, which was cut to serve a line of four water mills along Mill Lane, has dried up but still contains water cress and fool's watercress, as well as great hairy willow-herb along its edges. Along this dried up branch is one surviving water wheel and wheelhouse which are being restored at the time of writing. This is the only water wheel left in Sutton out of some 30 recorded sites. Three others remain elsewhere on the Wandle today. These are all in Merton and their location is given in Chapter 2 in the section "The 20th century". The wheel in The Grove marks the site of the Upper Mill which is almost certainly the same as the single mill in the manor of Carshalton recorded in Domesday. In 1086 it was worth 35 shillings which indicated a very substantial business. At that time water wheels were generally used to grind corn and the mill here ground corn until the 1880s, although it was last used, in the 1920s, to generate electricity. The present wheel dates from the early 1800s while the housing is Victorian.

The Wandle leaves The Grove just beyond where the two branches reunite and pass under a footbridge. To the north the river is lined on both sides by willows, sycamore and ash. The banks are relatively natural and covered in ivy. Giant hogweed grows close to the bridge. Control measures may be required to prevent this spectacular but invasive alien from spreading. There is no access to this section, which has playing fields to the east and factories to the west, and it is therefore relatively secluded, but can be appreciated from the footbridge. A family of mute swans, together with coots and moorhens, enjoy the peace of this part of the river but, unfortunately, there is also rubbish in the water. The site of Borough Importance ends where the river passes through the site of the former B.P. works. When it re-emerges it is part of the River Wandle Metropolitan site (M91).

All Saints Churchyard, Carshalton

All Saints Church is situated across the very busy A232, to the south of the ponds, and is in a slightly elevated position. Although a church has been on the site since before Domesday, and medieval parts still survive, it is now mostly late Victorian in appearance. The very substantial churchyard extends away behind the church to the south.

The churchyard was extended in 1915 and 1937 by taking land from Carshalton Park, and huge sweet chestnuts at the south end used to be within the park. The main feature of Carshalton Park is still its very impressive sweet chestnuts. Like the ones in the churchyard, these have been pollarded in the past and probably date from at least the start of the 18th century, if not earlier. One of the trees has a girth of something like ten metres and might be much older. The manorial park was also famous for walnuts. The walnut trees which were in the part of the park taken into the churchyard extension have all gone, but a few remain in the present smaller park. Along the northern edge by Ruskin Road is an elm which is several hundred years old. Only the shell of the trunk survives and this is surrounded by iron railings. Apart from its trees there is little else of ecological interest at present in Carshalton Park as the grass is mown short and the water features have dried up. It has therefore not been included in this handbook as a site.

Carshalton Park was not always like this, of course, and old photographs give a quite different impression than one has today. There seemed to be far more trees 60 years ago and the park looked less bare than it does today. The watercourses looked impressive when filled with water but, even before the War, water levels varied and, for instance, in 1912 and 1926 the water features in the park were well filled, whereas during the summer of 1934 they were dry. As mentioned above (see The Grove), Leoni designed a palace for Carshalton Park which was so expensive that it never left the drawing board. Some of the extravagant improvements in the grounds did take place, however, such as The Grotto and other water features, and these also date from the 1720s. If the water features were reinstated and the vegetation beside them cut less frequently, Carshalton Park could once again be a valuable place for wildlife.

All Saints Churchyard is located on the North Downs chalk, which is at its northern edge here. A very impressive species list has been compiled for the churchyard. A number of chalk-loving plants, as expected, can be found. These include the grasses hairy oat, upright brome and flowers such as greater knapweed, hoary plantain and dark mullein. The latter is particularly rare in London. Also noteworthy is the fact that three species of mallow - musk, dwarf and common - can be found, together with four types of speedwell - germander, slender, ivy-leaved and grey. Hart's-tongue fern and male fern can be seen and on the south wall is an interesting white-flowered variant of the normally mauve-flowered ivy-leaved toadflax. Prickly sedge, rare in London and in east Surrey, grows in front of the church.

In areas where there is more tree cover, several woodland plants have been recorded, including dog's mercury and wood sedge. The presence of the latter in such a site is unusual as it is uncommon away from ancient woods.

The whole of this site, including the churchyard, is managed by the Council and there is free access except to the short stretch of the River Wandle north of The Grove. The churchyard, however, is still owned by the Church Commissioners. The site is effectively split into two by the A232 but refuge can be sought, after the hazards of crossing this road, in the cafe in The Grove which provides refreshments to, among others, weary naturalists.

Su.BII 5 St Philomena's Lake

Grid ref TQ 276 644
Area 1.3 ha

Carshalton House was built in the early 18th century by Edward Carleton, a tobacco merchant who went bankrupt in 1713. By 1716, it belonged to Sir John Fellowes of the South Sea Company, who, in 1720, also went bankrupt. Various other ownerships followed before, in 1847, the premises were let on a 21-year lease to the Board of Ordnance, who used it as a preparatory school for cadets of the Royal Artillery and Engineers until 1859.

A boarding school for young gentlemen occupied Carshalton House until 1883 after which it was empty for ten years before finally being bought by the Daughters of the Cross, a Roman Catholic order with their headquarters in Belgium. The house is now part of St Philomena's, the convent and school of the Daughters of the Cross.

The grounds were laid out by Sir John Fellowes, who employed Charles Bridgeman. The present informal and picturesque layout is probably the result of later modifications. Rocque's map of 1768 still shows a formal arrangement but by 1783 Watts's *Seats* shows the present irregular lake and the grotto at the south end. Beyond the lake at the eastern end rises the impressive tower of the Water House, which dates from c1720. This was built to carry on its summit "a large reservoir lined with lead, containing several thousand gallons". Water was brought to the tower by pipes from a spring on the other side of the lake. A wheel, driven by the outfall of the lake, pumped the water up into the reservoir from whence, by further pipes and the force of gravity, the top of the mansion and all the outbuildings were supplied with water. This was a great luxury in the early 18th century. Kestrels now use the building to nest.

Unfortunately the lake has suffered from the lowering of the water table in the chalk caused by abstraction of ground water for domestic supply. This, coupled with the recent dry climate, means that the "lake" generally has no water. In 1972 Jones wrote "the lake...has dried up". All written references within the last decade or so refer to St Philomena's Lake as "usually dry" and recent Ordnance Survey maps give the same picture. It is clear that even without the exceptionally hot and dry summers of 1989 and 1990, water abstraction has caused problems for a long time, and, when the lake was surveyed in 1990 for this handbook, there was no water whatsoever. The London Wildlife Trust had a licence to manage the lake for nature conservation for several years in the late 1980s but, as the groundwater level dropped to the bottom of the borehole, the pump used to bring water to the surface proved inadequate for the task and the Trust agreed to relinquish their licence. The lake is now managed by the school.

Formerly, springs welled up under the lake, which overflowed into a stream flowing east alongside Festival Walk towards Carshalton Ponds . The lake is divided into two sections by a causeway. The section to the south of the causeway was more often dry than the lower-lying northern section and both sections still have wildlife value. However, the aquatic plants, when last surveyed, were struggling to survive and as time goes on plants that are not dependent on wet conditions will tend to predominate.

When the upper (southerly) section of the lake was full of water in 1983 it was almost choked by a bed of water cress, with some narrow-leaved water parsnip. By 1987 this section had dried out completely and the clay bed had become partly colonised by damp-loving plants such as jointed rush, fiorin and water mint. In 1990 the water mint was still there together with hammer sedge, amphibious bistort, reed-grass and great hairy willow-herb.

The lower (northerly) section of the lake dried out more recently, and when surveyed in 1987 the floating leaves of amphibious bistort covered about a quarter of the lake, and in summer the surface was adorned by its pink flowering spikes. By 1990 large patches of amphibious bistort could be seen on the mud. Brooklime, marsh yellow-cress, marsh foxtail, and both pink and blue water speedwells were also clinging on, but were clearly stressed by the lack of water. The two speedwells are particularly rare in London. Young willows fringe this section of the lake. The uncommon moss *Mnium punctatum* has been recorded from the damp surrounding grassland. The toads, frogs, smooth newts and coots which bred in or around the lake together with the invertebrates such as blue damselflies have moved on to more friendly habitats. Great crested newts were introduced here during the 1980s and survived for a number of years until the drought arrived. Hopefully they are now breeding elsewhere.

Lying within the grounds of a school, St Philomena's Lake, if it had water, would be ideal for educational use. The area still has wildlife value and if a water supply could be arranged so that aquatic conditions could return, this site would be considerably enhanced and could well be considered for Borough Grade I status. The grounds are private and there is no public access.

Su.BII 6 East Sutton Railway Lines (The Warren)

Grid ref TO 266 640
Area 5.2 ha

The railway line from West Croydon to Epsom was opened on 10th May 1847 and the line from Peckham Rye to Sutton via Mitcham Junction opened on 1st October 1868. They converge just to the east of Sutton town centre, and at their junction is a triangle of rough land. This, and the sides of steep cuttings in which the railway lines run, constitute this site. The western boundary is Langley Park Road; the eastern boundary on the Mitcham Junction branch is Carshalton Road, and on the West Croydon branch is Kings Lane. The railway lines have been cut into the chalk, which underlies the whole site. In fact the Ordnance Survey Map of 1896 shows that where the Mitcham Junction line passed under Carshalton Road it was cut through "chalk pits". A small public park of mown grass and ornamental trees, approached from Kings Lane, also lies between the two railway lines. However, this is of little wildlife interest and does not provide a view of the adjoining cuttings, and has been excluded from the site. For the rest, the boundary of this site generally runs alongside back gardens.

To the west of the convergence, the railway is on a slight embankment, which is covered in vegetation typical of much railway land in London. Young sycamores form an open woodland, with brambles, ivy, nettles and other common perennial plants below.

After the fork, the more southerly railway line enters a steep cutting with chalky slopes on which grows a more diverse immature woodland of sycamore, goat willow, birch and hawthorn, with dense privet and rampant vines of old man's beard. This cutting has a good grading from trees through scrub and brambles to a fine strip of grassland alongside the railway line. The northern arm, also in a cutting, has a more closed woodland, mostly of sycamore with ivy below, but also with young yews.

Immediately to the south of Albert Road, at the top of the railway embankment, was an area of abandoned allotments. This was predominantly grassland and scrub with a few trees and shrubs. The grassland was colourful in summer with species such as creeping buttercup, Canadian golden rod, creeping thistle, everlasting pea, goat's-beard, greater celandine, hairy tare, meadow buttercup, rose-of-Sharon, rough hawkbit, teasel and yellow toadflax.

Rare plants here included marjoram, blue sow-thistle, field scabious and yellow vetchling. The latter is nationally scarce, and found in very few places in London and only one other in Sutton, Therapia Lane Rough. Foxes were also here as well as common woodland birds such as jays and great tits. Unfortunately this part of the site was bulldozed prior to a public planning inquiry in 1992, and at the inquiry approval was given for a housing development. It is retained in the site, as its vegetation should recover unless the planning consent is implemented.

The most interesting part of the site is the triangle of land between the lines. This is level and comprises a mixture of open grassland and scrub. The scrub is mainly of hawthorn and blackthorn, with the chalkland species dogwood, wild privet and old man's beard and some non-native species of tree such as false acacia, laburnum and plum. Among the grassland are many wild flowers including marjoram, Aaron's rod and Canadian golden-rod. The former is a species of the chalk while the latter two are typical of disturbed land. There is also a good colony of tall broomrape and the greater knapweed which it parasitises. Tall broomrape is nationally scarce and very rare in London and there are only five known sites in the capital where it is to be found. Four of these are in Sutton, one being here, another at Roundshaw Park, the third at Cuddington Golf Course and the fourth at Carshalton Road Pastures.

A number of common suburban bird species, such as collared dove, wren, blackbird, crow and tits, nest alongside the railway lines. Common lizards are also to be found here.

There is no public access to any of the land at present, but British Rail have agreed to allow the Council to manage the triangle of land if money could be found to fence this off. It is to be hoped that this will be achieved in the near future. This could then form a more natural extension to complement the park's more formal layout. In the meantime the best ways to see the site are either from passing trains or from the two bridges over the cuttings in Kings Lane. The northern bridge, particularly, has good pedestrian access.

All the railways in the Borough are invaluable for wildlife and provide important corridors throughout the area. Their value has been recognised by Sutton Borough Council who have protected corridors through their Unitary Development Plan. A map of green corridors in Sutton is shown in figure 6. This is the best railside site in the Borough and for that reason has been selected for Borough Grade II status along with the Sutton to St Helier railway line (Su.BII 3).

Su.BII 7 Water Gardens Bank

Grid ref TO 262 641
Area 0.2 ha

Part of the surrounding embankment to the original Sutton District Water Works, this north-facing bank has been preserved and now overlooks Water Gardens, a development of modern houses and flats on the site of the former water works.

Before the water works opened in 1863 this had been a chalk pit and the Ordnance Survey Map of 1866 shows the site as "old chalk pit". The diggings there dated from Elizabethan times and in those days the Carshalton Road chalk pit was the closest source of lime to the centre of London. Most of the lime used by London builders in the time of Elizabeth I came from Sutton. There is a story that the lime used for building St Paul's Cathedral after the Great Fire was taken from this pit. Gradually, as the pit was quarried out, it filled with water. That was how it was when the Sutton Water Company took over in the 1860s. At that time it was known as "Marling's Pit". The water works closed in 1978 when the new works opened in Gander Green Lane (see site Su.BII 14). The houses and flats were built on the site of the old works in the mid-1980s.

As is the nature of grassland near a water works, the banks had never been sprayed with fertiliser or herbicide as the chemicals might have passed into the water. As a result of this a fine array of flowers developed on the surrounding banks, particularly the southern one, and when the site was redeveloped, efforts were made to preserve these.

The bank which forms this site lies between Water Gardens and Carshalton Road and slopes down from the latter at an angle of about 45 degrees. Located near the northern edge of the chalk, chalk-loving flowers, as would be expected, dominate the slope. The eastern end of the embankment tends more towards rank grassland with some invading scrub but the western end is a truly remarkable sight, particularly in the spring. Amongst other species typical of calcareous soils, such as fescues, quaking grass, marjoram, field scabious and mouse-ear hawkweed, is a profusion of salad burnet and cowslips.

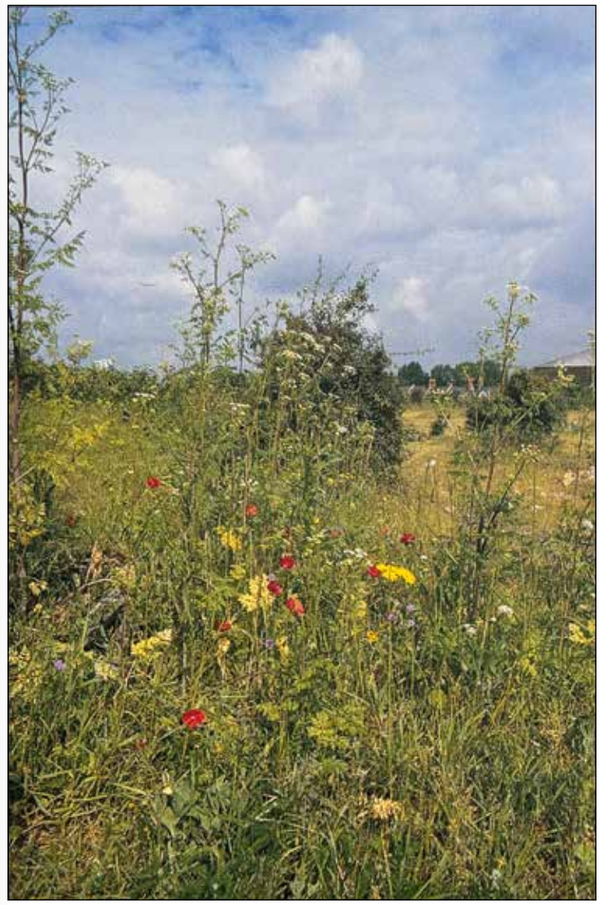
It is difficult to think of another place where cowslips are found in quite such quantities in a relatively small area, and although there must be a possibility that some of these were planted, there is no doubt that they are thriving here. The small nodding yellow flowers of the cowslip, several on each stalk, are a familiar sight in April and May, nowadays particularly in gardens. This is one reason, together with the ploughing up of old herb-rich meadows for grass and clover, why the cowslip is so much rarer in the wild now than it used to be. The name "cowslip" is a polite form of "cowslop"; the plants used to be found growing particularly well in the vicinity of cow-pats.

Salad burnet starts flowering when cowslip has finished and continues throughout the summer months. It has globular-shaped flowers and is usually only found in chalk grassland. Like many calcicolous plants it is also low-growing and it obtains its name from the fact that its leaves have a sharp, chicory-like flavour which add quite a fillip to a salad.

A number of other colourful wild flowers are found here, which are not just confined to chalk conditions normally. These include meadow vetchling, common vetch, red valerian, germander speedwell, Aaron's rod, ox-eye daisy, bugle, hardheads and birdsfoot-trefoil. The latter is the main larval food plant of the common blue butterfly, and doubtless this is a very good place for butterflies and other invertebrates.

The bank that forms the site is owned by the residents of the flats in Water Gardens. No management takes place, due to the difficulties of working on such a steep slope. At present the flowers appear to be thriving under this *laissez faire* system, but some control of scrub and rank grasses might be necessary to maintain diversity in the future if these are found to invade the areas of finer grassland. Any such management should be based on cutting, and the use of herbicides should be avoided. Although the embankment has *de facto* access it is too steep for people to really walk across it. However, this is probably one reason that the flowers, particularly the cowslips, have survived so well here and it does make an attractive backdrop when seen from Water Gardens.

↓ The former rubbish tip at Beddington Lane Paddock is a mass of wild flowers in summer
LEU/Ian Yarham



← Sweat briar is very rare in London; one bush of it can be found at Beddington Lane Paddock
John Archer

← Ivy broomrape is only found at three places in London. One of these is at St Mary's Court, Bute Road where this photograph was taken
LEU/John Archer

← Lady's bedstraw is abundant on the overgrown lawns of the derelict Cuddington Hospital
LEU/Ian Yarham

Su.BII 8 Devonshire Avenue Children's Playground

Grid ref TQ 262 632
Area 0.2 ha

Devonshire Avenue is *not* a typical asphalted children's playground, but consists of grassland with scattered trees and shrubs and several plants which are rare in London.

The playground occupies the site of former houses and gardens, next to a primary school, but separated from it by a tall fence. Remnants of the housing survive as rubble mounds and as relict garden plants. The underlying chalk is exposed in several places, and it is pleasing, in such a small suburban site, to encounter a number of typical chalkland wild flowers. The whole area slopes gently down towards the north and a grassy path runs all the way round, just inside the boundary.

The playground is informal, consisting of infrequently mown grassland and randomly scattered, mostly young, trees. A single park bench and two entrance stiles are the only equipment. The trees comprise self-seeded native species such as birch and goat and crack willows, mixed with garden relics such as laburnum, cypresses and buddleia. Some sycamores have been felled. Roses and honeysuckle adorn the boundary wall to the north, and old man's beard, the native chalkland creeper, climbs among the young trees elsewhere.

The grassland is of two types; a re-seeded turf of perennial rye-grass with a few flowers occupies much of the flatter part of the site, and is of little conservation interest, while interspersed with this is a flower-rich sward concentrated on and around the numerous scattered mounds and hummocks of chalk. Within the chalk grassland, fescues and bents predominate but also present are five plant species which are typical of the chalk and which are uncommon or rare in London. In order of increasing rarity these are greater knapweed, restharrow, purging flax, blue fleabane and kidney-vetch. Kidney-vetch, also known as lady's fingers, with its yellow flowers, is the main food plant of the caterpillar stage of the small blue butterfly. This, the smallest British butterfly, is found at a very few sites in south London but not here. Purging flax is so-called since a small quantity of the dried plant is purgative. It is also known as fairy flax on account of its dainty size. Other commoner wild flowers present include self-heal, clovers, vetches, birdsfoot-trefoil, yarrow, coltsfoot, ragwort and ox-eye daisy.

The site should be managed to preserve and increase the areas of chalk grassland and their floral diversity. This involves scrub control and grassland management. The former is particularly important to prevent the willows and birch from invading the grassland areas and to remove the poisonous laburnum which is not suitable for a children's playground.

Devonshire Avenue Children's Playground is located in an area to the south of Sutton town centre where there are no other accessible sites with nature conservation interest in the immediate vicinity. It is a very pleasant spot, particularly in summer when there is a wealth of butterflies, grasshoppers and other invertebrates as well as the wild flowers, and its location next to a school makes it especially valuable for nature study classes. The playground is owned by the Borough's Education Department and is open to the public at all times.

Su.BII 9 Queen Mary's Hospital Wood and Wellfield Plantation

Grid ref TQ 276 626
Area 6.0 ha

The area of wildlife interest within the grounds of this extensive children's hospital is a small wood in the north-west corner, close to the main entrance. Also included as part of this site is the Wellfield Plantation, immediately to the west and within the grounds of the Medical Research Council.

In the late 19th and early 20th centuries the Metropolis adopted a policy of siting new hospitals in the countryside, which then still started quite close to the centre of London. The Southern Convalescent Hospital, officially opened in 1909, was a product of that policy in Carshalton. At the inauguration ceremony it was said that the aim was "to bring sick poor out of the workhouses and onto the breezy downs of Surrey". The hospital was built on what had been Westcroft Farm. At the time of its sale in 1895, Westcroft Farm had been advertised as "suitable for public and private institutions as a sanatorium" and the Metropolitan Asylums Board obviously agreed. However, its plans changed and in 1910 it became the "Children's Infirmary" for the sick children of London and it soon had 1,000 patients. In 1912, Queen Mary gave it her patronage and name.

On the First Edition Ordnance Survey Map, dating from the start of the 19th century, the site now occupied by the hospital is shown as an unenclosed downland hilltop. By 1868 a rectangular plantation of mostly conifers is shown where the Wellfield Plantation is today. Another map, from early this century, marks the newly-built "Metropolitan Asylums Board Childrens Infirmary" with the buildings following almost exactly the same layout as today's hospital. In the north-west corner is a blank space where the hospital wood is now, while immediately west of the boundary is the Wellfield Plantation. The woodland within the hospital grounds has therefore developed since the start of the 20th century, and in fact none of the trees is particularly old. Chalk underlies the whole site and, where trees have fallen, the hollows left by the roots reveal that there is only a thin soil covering.

In the east and south of the wood, where it approaches the gardens of some of the detached houses that make up the hospital, there are many planted exotic trees and shrubs, but further to the west the wood seems to have developed naturally after scrubland encroachment on the downs. This could well have been by species infiltrating from the adjacent Wellfield Plantation.

In the areas with planted trees the woodland canopy is very mixed with beech, cedar, larch, pine, sycamore, ash, oak and horse chestnut, but further into the wood, sycamores and tall hawthorns predominate, with a few birch and field maple trees. Many of the sycamores fell in the Great Storm of October 1987, making access through the wood very difficult. Understorey shrubs include some tall cherry-laurels and other exotic shrubs near the planted margins, but elsewhere sycamore saplings, elder and hawthorn dominate, with smaller amounts of privet, dogwood, elder, red currant, holly and young gean. In the heavy shade cast by the sycamore and hawthorn, the ground cover is mostly a dense carpet of ivy with little else, other than some mosses and a few clumps of male fern. In more open areas dense growths of cow parsley, brambles and ivy alternate. Other woodland flowers present include one patch of dog's mercury, some herb Robert and a few individual plants of bluebell and wood avens.

The chalky nature of the soil is indicated by the presence here and there of old man's beard and wild parsnip.

In the north-east corner of the site is a block of rough grassland covered in brambles and invading scrub and trees. This is of interest as it demonstrates an earlier stage in the natural succession to woodland.

Coal tits breed among the conifers and other common woodland birds such as great spotted woodpeckers and jays are also present in the wood.

The grounds of the hospital are owned by the Regional Health Authority and there is access to the wood only by appointment. In any case, as stated above, fallen trees and rampant shrubbery make progress for any distance into the wood almost impossible. The hospital managers have indicated that they would be happy for the Borough to lay a nature trail through the wood, starting from the car park near the bus turnaround by the entrance. To do this, it would be necessary to carry out some clearance of scrub and construct a proper path. The wood could then be visited by the general public and this would provide a valuable access to wildlife for people in the Carshalton on the Hill area who do not want to travel as far as Oaks Park.

Immediately to the west of Queen Mary's Hospital Wood, and separated from it only by a fence, is Wellfield Plantation. This is located at the top of a slope behind the laboratories of the Medical Research Council. As indicated above, the plantation predates the wood by at least 40 years. Structurally the two are very similar, the main trees in the plantation being beech, pine, sycamore, horse chestnut and sweet chestnut. Cowslips, primroses and hybrids between the two occur here. Public access is prohibited and, as in the wood, wildlife in the plantation is little disturbed.

Su.BII 10 Little Woodcote Wood

Grid ref TQ 286 615
Area 1.9 ha

This is a small, fairly open sycamore woodland lying on a gentle slope in the fork of Woodmansterne and Little Woodcote Lanes. The underlying soil is chalk, but the area was once used as a tip for incinerator ash, and the soil is largely composed of rubble. Maps from early this century show an old chalk pit near the north-western corner.

A few horse chestnuts and ash trees add to the canopy, but none is very mature. There was, however, one large horse chestnut, at the south end of the wood, near Little Woodcote Lane, which was about 200 years old. It was planted to provide shade for horses waiting to be shod at the blacksmith's which stood by the side of it then. The blacksmith probably served Little Woodcote Farm as the farm cottages were close by. Unfortunately the tree died recently and for safety was topped which did, at least, provide dead wood. The 1868 Ordnance Survey Map indicates that the woodland was almost entirely coniferous at that time and this was still largely the position in 1895, although a few more deciduous trees were then shown towards the south-western edge.

In the understorey now there is much ash and sycamore regeneration, and also a few young oaks, as well as some elder, hazel, hawthorn and holly. The ground flora is dominated by ivy, with patches of wild angelica, nettles, cow parsley and hedge woundwort. The ivy has grown particularly vigorously over the mounds of tipped ash, and has enveloped some of the sycamore trunks, giving the impression of dark green shrouds.

A plantation of larch once occupied an area at the top of the slope at the west of the wood, but this was felled and the space is now covered with a wide variety of common plants such as thistles, mugwort, docks, mallow, wild mignonette and rose-bay willow-herb. Hairy oat, a grass of chalkland and uncommon in London though quite widespread in Sutton, occurs in this gap, which is being invaded by goat willow, sycamore saplings and hawthorn. This part of the site is now managed as an open area, split into four different habitats. These are a spring meadow, a summer meadow, an autumn growth of seed producing plants such as thistles and teasels, and an area of bramble. In summer this area is full of grasshoppers, spiders, bees and butterflies.

Towards the south, near Little Woodcote Lane, the canopy is now very open since many trees were lost in the storms of recent years. The clearings thus created are dominated by resprouting sycamore, elder, dock, teasel and common St John's wort. Thistles and nettles are particularly rampant. Dog's mercury can be found at the bottom of the slope at the southern end, indicating that this area has been undisturbed for longer than the rest of the wood. New planting of trees would be beneficial, especially in the unwooded gap, and a diversification of the tree species composition throughout the wood would be desirable. This is now being carried out as part of the management plans of the Sutton Conservation Group, both in the woodland and around the edge of the open area at the south end. In this context more oaks have been planted and sycamore regeneration is being controlled.

Kestrels nest in the wood. There are also bats, long-tailed tits, jays, bullfinches and blackcaps, as well as the usual woodland birds such as robins, wrens, thrushes and blackbirds. Visitors include spotted flycatchers, cuckoos and green woodpeckers. As there is little tree cover left on the smallholdings to the north, Little Woodcote Wood acts as an oasis for birds and the Sutton Conservation Group (SCG) have erected a bird hide that is accessible, and signed from the main pathway. However, the sound of the nearby traffic largely drowns out the birdsong. Butterflies feed on the flowers in the woodland clearing.

The site is owned by Surrey County Council, but is managed by the SCG on behalf of the London Borough of Sutton (which holds the management agreement). The group have created a woodchip path through the wood between Woodmansterne and Little Woodcote Lanes and parallel to this have now reopened the bridleway. The two are separated by a dead hedge, consisting of a rustic fence with planting which is growing up to form an impenetrable barrier. Unfortunately access to the woodchip path does not extend to disabled people at present as there is a stile at one end and steps at the other. Few horses use the bridleway owing to the presence of busy roads at either end, and it is intended that wheelchairs, bicycles and pushchairs should be able to use this route. A circular path around the wood for walkers has also been constructed by the SCG who ensure that it is kept clear. All these paths are accessible at all times and connect up with others beyond the boundaries of Little Woodcote Wood, such as the Telegraph Track which leads northwards across the smallholdings. The route through the wood will ultimately be part of a two and a half hour, ten kilometre Green Belt walk, being prepared by the Downlands Countryside Management Project in conjunction with the Council and the SCG.

One other attractive and useful feature is the seating alongside the bridleway, fashioned out of the trunks of trees brought down in the 1987 storm. These give the visitor somewhere to rest and watch the birds in the trees or admire the wild flowers.

↓ The spectacular dark mullein, seen in All Saints Churchyard, Charshalton, is rare in London
LEU/John Archer

→ Stinking iris is attractive, despite its name, and can be found in the Westcroft Canal in The Grove park and at Woodcote Grove Wood
Michael Waite

← In winter, the fruits of stinking iris split open to reveal bright orange seeds
Michael Waite

↑ The railway linesides in Sutton provide valuable wildlife habitats. They are particularly good to the east of Sutton station as seen here
Mathew Frith

← Carshalton Ponds act nowadays as the source of the Charshalton branch of the River Wandle
LEU/Ian Yarham

Su.BII 11 Woodcote Grove Wood

Grid ref TQ 287 607
Area 5.0 ha

This wood is adjacent to Woodcote Park Golf Course (M121), but lies within the grounds of a private nursing home which now occupies Woodcote Grove House. Also in the grounds are a few ancient pollarded oaks, which are between 350 and 500 years old and mark old field boundaries, as well as a very large beech which appears on maps going back to the early 18th century.

The main house was built in 1820 and extensions were added in the 1960s and 1970s, while the gardens and plantations which form this site were laid out in Victorian times. Features include a Chinese Garden and a French Garden, and monuments varying from a Buddha and a pagoda to a statue of Pan and a large toad. At one time in the 1960s the Chinese and French Gardens were allowed to revert to nature but at the start of the 1990s the Chinese Garden was cleared of all the overgrowth so that it is nearly back to its original state. The French Garden, however, was too overgrown for a recovery to be attempted and this has been allowed to remain in its wild state. The Buddha was vandalised and has been removed; the ruined pagoda has been repaired and restored and the surrounding walls of brick pillars and wooden trellises have also been repaired.

The Council has recently taken over the management of Woodcote Grove Wood and intends to maintain its nature conservation interest. The belt of woodland is about 150 metres wide along the western side of the grounds, with a further narrower strip of plantation along the northern boundary. It is on a flat-topped ridge of land composed of a shallow capping of Clay-with-Flints overlying chalk, and the calcareous soil is indicated by a number of lime-tolerant native trees and shrubs. The chalk is also exposed by the roots of trees toppled in the storms of recent years. A huge beech and a very large lime which have succumbed are particularly noteworthy in this respect.

The garden origin of much of the woodland is evident in the wide variety of exotic trees and shrubs. Exotic trees present include sycamore, sweet and horse chestnuts, holm oak, monkey puzzle, Norway maple, false acacia, western red-cedar, pine and a block of larch towards the northern end. The south of the wood and the narrow extension at the extreme north contain a higher proportion of native trees, of which beech and ash are the main species. The wood is excellently structured, with a dense understorey in places. A few extra gaps have been created by the storms and there is much fallen wood.

Like the trees, the shrub layer contains a strange assortment of species. Among the native shrubs are a number of characteristic chalkland species such as wayfaring tree, dogwood, buckthorn, privet, old man's beard and spindle tree, as well as the more ubiquitous hazel, elder, holly and field maple. Many of these shrubs could have colonised naturally, but some may have been originally planted. Almost certainly of garden origin are other native shrubs such as butcher's broom, red currant, box and juniper, and all the exotics, which include bamboos, rhododendron, cherry-laurel, tree of heaven and Oregon grape. Regenerating elm is much in evidence, while young trees such as ash and yew complete the picture.

The ground flora consists mainly of native woodland species, although there are some periwinkles, fritillaries and harebells of garden origin. Ivy dominates, as does dog's mercury in places, and other typical woodland plants such as bluebell, male and hart's-tongue ferns, Lords-and-Ladies, wood avens, cow parsley, slender false-brome and wood sedge are also widespread. There is additionally a good colony of cowslips, and nearer to the house are a few ramsons. Some clearings exist alongside the paths and these contain field scabious and agrimony. The pink of rose-bay willow-herb also colours these glades in summer. At the margins of the wood, where it extends onto the golf course, are some patches of chalk grassland with upright brome and hoary plantain. Stinking iris, attractive despite its name, is to be found here. A few pyramidal orchids grow in the grounds of the house but the main colony of these hereabouts is in Woodcote Park Golf Course. Towards the north of the wood, as the canopy is thicker, consisting mainly of horse chestnuts, the understorey is more open and the ground is either bare or ivy-covered. There is an attractive patch of sweet violets in this area.

Although small, the wood is rich in birdlife and in spring the continuous sound of birdsong competes with the equally continuous thwack of golf balls being struck on the nearby course. All three species of woodpeckers breed here, and there is a good assortment of warblers and tits, including coal tits. Boxes for owls and kestrels have been put up at the northern end of the wood by staff from Woodcote Park Golf Course, and the boxes are used by both tawny owls and kestrels. Rabbits, foxes and visiting deer also inhabit the wood.

Woodcote Grove Wood, which lies within the Green Belt, is privately owned although managed by the Council. This is actually being carried out by the Sutton Conservation Group. The SCG has put in a woodchip path through the southern section, constructed a post-rail fence along the southern boundary and is in the process of opening up a path within the larger northern part of the wood. They also plan to lay sections of the boundary hedges. Access to the wood at present is by appointment only.

Su.BII 12 Lambert's Copse

Grid ref TQ 274 607
Area 5.3 ha

Located in a remote and peaceful spot to the south of Oaks Park and adjoining the boundary with Surrey, this site consists of a narrow wedge-shaped woodland and a large hay meadow.

Despite extensive research we could find no name for this wood. The name "Lambert's Copse" was suggested during the preparation of this handbook by a local historian, Mrs Margaret Cunningham, to reflect the fact that the Lambert family owned it and the surrounding area for over 500 years, from 1240 to 1788. They also gave their name to Lambert's Oaks from which Oaks Park derives its name.

The Oaks Farm lies south of Croydon Lane (A2022), a busy road between Banstead and Purley. A public footpath leads from the road through the farm and gently uphill towards the wood, turning through its northern edge and across the middle of the hay meadow to Carshalton Road.

The Ordnance Survey Map of 1865 showed this as open downland to the south of Oaks Park with no sign of Lambert's Copse, although the farm is marked. The wood seems to have been planted at some time between 1865 and 1895, quite possibly as a game covert. The Ordnance Survey Map from the latter date indicates that the trees in the wood, right from the beginning, were mainly deciduous, with only a few conifers.

Lambert's Copse is now an unmanaged woodland. It is located on a north-facing slope of the chalk, which is here exposed by the roots of fallen trees. It is long and very narrow, its widest (northern) end being only some 15 to 20 metres across. In spite of this, much of the wood is impenetrable since so much light passes through the canopy, giving the shrub layer and ground flora the chance to flourish. The effects of the October 1987 storm were quite severe here and a number of trees still lie where they fell on that night. Woodpeckers have taken advantage of the situation and have excavated many holes in the dead elm and beech stumps.

The wood itself consists mostly of beech but these suffered particularly in the storm. Also present is a small whitebeam and, towards the southern end, a few sycamores and ashes make up the rest of the canopy. The shrub layer comprises hazel, holly, ash, sycamore, elder, hawthorn and regenerating elm, whilst the ground flora consists of cow parsley, ivy, cleavers and nettles near the edge and also wood avens and Lords-and-Ladies further into the wood.

Along the western edge, next to a private track which at the turn of the century was a public footpath, is a fine hedge, which is probably of greater antiquity than the wood. The main species present is wayfaring tree and also found are buckthorn, hawthorn and wild privet, with old man's beard and black bryony climbing through and over it. Wayfaring tree is naturally confined to the chalk and in the past was often planted as an ornamental shrub on roadsides – hence the name. The creamy-coloured flowers are seen in May and June whilst the small berries turn progressively black between July and September. The leaves may be used to make a black hair dye whilst the fruits and leaves have been used together as a gargle to settle the stomach (Phillips 1977). The fruits on their own are edible but not especially pleasant.

To the east, between the wood and Carshalton Road, is a large field which has been improved and re-seeded in the past, as shown by the dominance of rye-grass. It is now being managed as a hay meadow and a number of common wild flowers are present including meadow, creeping and bulbous buttercups, red and white clovers, bladder campion, cut-leaved cranesbill, cow parsley and common mouse-ear chickweed. If the use of fertilisers and herbicides is avoided, the diversity of species will continue to increase. The meadow is already attractive and its pleasantly rural feel is increased by the hedges that surround it. That to the north contains sycamore, hazel, hawthorn and elder with some large oak, sycamore, beech and ash trees rising above. A couple of trees here have fallen over, exposing the chalk which envelopes their roots.

Both the wood and the hay meadow are in private ownership and the only access is along the public footpath which clip the northern edge of the wood and then crosses the middle of the meadow.

Su.BII 13 Old Belmont Hospital Site

Grid ref TQ 256 625
Area 7.0 ha

Travelling south on the train from Sutton to Belmont, an area of countryside seems to open up on the right, with small, horse-grazed fields, surrounded by hedges, sloping uphill to woods. The fields are known as "Belmont Nurses Home Pastures" while the "woods" are in fact an area of scrub with a number of tall trees. These shield the area behind, which was once occupied by the now demolished Belmont Hospital. The pastures, the scrub and most of the area of the old hospital make up this site, the whole of which is located on the chalk.

The horse pastures consist of two very heavily grazed fields, immediately adjacent to the railway line. The grassland which they contain has little apparent botanical interest, although the purple flowers of mountain cranesbill can be seen in summer, while the odd bush of dog rose or hawthorn is scattered around. The main attraction of the pastures is the surrounding hedges which give an attractive, enclosed feel; the one separating the two fields is almost entirely of hazel, but is not old as it does not appear on the Ordnance Survey Map of 1896. The hedges surrounding the fields are older and mostly consist of hawthorn. A third, much longer, field lies to the south, beyond a narrow belt of scrub, and stretches alongside the railway as far as Belmont station. It appears not to be grazed.

Belmont Hospital had a particularly interesting history documented in *The Story of Belmont Hospital* (Edwards 1959).

Following the campaign by Lord Shaftesbury against the dreadful conditions in which many children lived in the early years of Victoria's reign, an Act was passed in 1844 for the benefit of the most wretched of them, particularly orphans and those deserted by their parents. Powers were given to boards of guardians (the authorities who administered the Poor Law locally) in London and five other cities to group themselves into districts for the purpose of building large schools to house, clothe, feed and educate these children up to the age of 16. Industrial training was given and the schools therefore acquired the name "industrial schools".

Under this Act it was decided to build a school to accommodate 1,000 children from south London. The Poor Law Authorities responsible formed themselves into the South Metropolitan District and sponsored a competition for the design of the building, which was completed in 1853. Known as "Sutton Schools", or more formally as the "South Metropolitan District School", it was expanded and a chapel also added in 1871. It was taken for granted that the children would benefit from being removed to the country away from the evil influences of the Metropolis. The school was divided into three groups (boys, girls and infants), each with its own section of the building and its own playground.

In the earlier years, the death rate in the industrial schools was high, chiefly because many of the children entered young and in poor condition. Sutton Schools used to be called the "Linger and Die" by local people for just that reason. The industrial schools became much more healthy places by the end of the century and were considered overall to be a success.

By the early years of this century, however, there was a movement against rearing children in "large barrack schools divorced from the joys and responsibilities involved in family life". The London education authorities had also been given incentives to fill the schools within the metropolitan area rather than outside it. Sutton Schools were closed down in 1902 and sold to the Metropolitan Asylums Board as a hospital for fever convalescents. Such a large building was unnecessary for this purpose since fever in London was rapidly decreasing. Eventually, in 1908, the whole of it was transferred to the Fulham Board of Guardians and the building became the Belmont Workhouse for men. Twelve London parishes combined to send to Belmont the able-bodied poor whom they could not accommodate in their own workhouses.

There was room for 1200 men. The London workhouses naturally preferred to keep their most amenable inmates and sent their toughest characters to Belmont. Belmont's reputation grew accordingly.

The workhouse at Belmont closed in 1915 and was turned into a hospital for German Prisoners of War and a house of internment for "enemy aliens". It reopened as a workhouse in 1922 but there were constant complaints about the conditions, including the fact that rats overran the dormitories. In 1928 it was renamed "London Industrial Colony" and in 1930, when the Colony passed into the hands of the London County Council, it became "Sutton Training Centre".

As the Second World War loomed, Sutton Training Centre was closed. The Government of the day feared that mass hysteria would break out and Belmont was opened as a neurosis unit, "Sutton Emergency Hospital", to deal with it. The wave of panic never materialised and for some months the new hospital had more staff than patients. In the event, Belmont provided 800 beds and did a great deal of useful work. From 1946 Belmont Hospital began a new life as a psychiatric hospital.

It was demolished during the 1980s and nature is now taking over, providing a range of habitats which, because of their diversity and the size of the site, make an interesting study. When walking round the site, it heightens the interest to think of the thousands of children and adults who passed through the buildings which were once here.

Immediately west of the horse pastures is an area of scrub with a number of trees such as cherry, young oak, hawthorn, goat willow, lime and mature sycamore. Underneath, the plant communities are tall and fairly dense in places with much ivy on the ground. This scrub thins out towards the south, alongside the long field, eventually becoming one of the lines of trees mentioned in the next paragraph.

Further west is a track running from north to south which once formed the main approach to the hospital. It now has banks formed by areas of tipped soil which are covered in poppies and other flowers typical of wasteland such as weld, wild mignonette, white melilot, red bartsia and the aromatic wormwood. A number of trees grow alongside the track, mainly ash, horse chestnut, sycamore and one or two old oaks. The southern part of the track has a line of trees on either side.

The remainder of the site, which includes the foundations of the demolished buildings, consists of a low sward of barren fescue with bare chalk in places. A range of wild flowers are found here, among them wild parsnip, bladder campion, thyme-leaved sandwort, birdsfoot-trefoil and patches of corn salad. The latter, which has an alternative name of lamb's lettuce, when sown in autumn produces edible leaves in spring before the early lettuces are ready. It is very rare in London. Also prominent here is the garden escape dusty miller, also known as "snow-in-summer" due to its white flowers and greyish-white foliage, and its habit of covering large areas with a dense, low growth.

To the south is an area of rank oat grass with a number of gorse bushes and also containing meadow vetchling, white campion, cut-leaved cranesbill, common vetch, common St John's wort, bladder campion and yellow toadflax, whilst to the north can be found scattered buddleia and goat willow bushes.

This site is scheduled for housing development and indeed some house building has recently taken place adjacent to Homeland Drive. The area to the north of Dorset Road and west of Homeland Drive is owned by Merton and Sutton Health Authority, has less ecological interest and is clearly destined to be built on next; it has accordingly been excluded from the site. The rest of the area may have a limited future but any development should retain the main features, including the hedges and mature trees. The fields adjacent to the railway provide an attractive buffer between the line and any future housing, and would be worth saving on their own account. With suitable management their range of wild flowers could be increased and this might also encourage preservation of the hedges.

The whole site is now owned by the Council and there is *de facto* access to the site of the old hospital and the southern field by the railway but not to the horse pastures.

Su.BII 14 Perretts Field and Sutton Water Works

Grid ref TQ 246 641
Area 3.9 ha

This site includes part of a public park, called Perretts Field but also known as Seears Park, plus an area belonging to the adjacent Sutton and District Water Works to which there is no public access. Both parts lie on a narrow band of Woolwich and Reading Beds, between the London Clay to the north and the Thanet Sand, which underlies Cheam village centre, to the south. These gravels have been removed in parts and the underlying clay has been excavated. The land is now very uneven with hillocks and steep-sided hollows.

The largest of these depressions (which is within the Sutton Water Works part of the site) contains a fine pond which has possibly been in existence since the turn of the century. Maps from that time mark old chalk pits and quarries to the south of Love Lane and the name Quarry Park Road perpetuates this. The area to the north of Love Lane (where this site is located) shows mostly fields, so the excavations were probably later, but where the Sutton Water Works pond is now, two ponds are shown as "Springclose Ponds".

Perretts Field

Although the accessible part of this site is formally known as Perretts Field, it is known by local people as Seears Park. Strictly speaking, only the small formal garden to the south-west, bordering on St Dunstan's Hill and Love Lane, is Seears Park and it is not part of this site. In the east of the park is a large area of close-mown level grassland (the original Perretts Field) but this also has been excluded from the boundaries of this site.

Further west, where a concrete path climbs a gentle incline, the grass has been allowed to grow longer. However, it is not particularly rich in species, being composed mainly of oat grass and cock's-foot, with an abundance of hogweed, whose creamy white flowers attract a variety of insects, including speckled wood butterflies.

Further up the hill this grades into hawthorn scrub and then into a patch of woodland on the most uneven terrain. The wood includes oak, sycamore, cherry, pear and birch, with tall hawthorns, goat willows, and, locally, rowan, dogwood and yew below. In the dense shade the ground flora is rather sparse, but includes bracken, male and broad buckler-ferns, plus ivy and cow parsley.

Within the woodland, and close to the boundary fence with the water works, was a small pond which was rehabilitated by the Sutton Conservation Group in 1985 when it was planted with a wide variety of submerged and emergent aquatic plants. Frogs and newts found the pond sufficiently attractive to breed there.

Unfortunately, by the end of 1990, after two hot and dry summers, it was a very different picture. The pond had dried up completely and although aquatic plants such as hard rush, great spearwort, jointed rush, yellow flag, gipsy-wort, fleabane and galingale were clinging on to life, they were clearly stressed. Showing rather more resilience was a large population of the highly invasive swamp stonecrop. This species was introduced into Britain as an oxygenating plant for fish tanks and garden ponds but, once established in a pond, it spreads rapidly and smothers most other vegetation.

Following advice from the London Ecology Unit the pond was temporarily filled in to eradicate the swamp stonecrop. At some stage it will be dug out again and it is to be hoped that the frogs and newts will return.

Further west, towards St Dunstan's Hill, the park becomes more formal, with lawns interspersed with ornamental trees. This part is not included in the site.

Sutton Water Works

The water works lie to the east of the park. Here there has been more recent earth movement to accommodate expansion of the plant. These works were opened as recently as 1978 to replace the original Sutton District Water Works in central Sutton (see site Su.BII 7). The Sutton District Water Company has dedicated an area at the western end of the site as a nature reserve but there is no access for the general public.

The main feature of the nature reserve is a steep-sided hollow, open to the east, with a pond at the bottom. The sides of the hollow are clothed in a dense thicket of young trees, mainly goat willow, but also including rowan, oak, elm, hawthorn, sycamore and gean, with ivy and nettles below. Sweet briar, a rose rare in London and found mainly on the chalk, grows here. The level of the pond fluctuates widely and the Sutton District Water Company, occasionally provides water to top it up. There was still water in it at the end of the hot and dry summer of 1990 but at a reduced level. Around its edge grows the usual great hairy willow-herb as well as water figwort and galingale. Emergent vegetation includes pendulous sedge, soft rush and water plantain, and submerged in the water are whorled water-milfoil and hornwort. Three-spined sticklebacks and moorhens breed here.

By the top of the hollow is a range of wild flowers including field scabious, hardheads (including an unusual variant with ray florets as well as the usual disc florets), fodder burnet, restharrow, wild carrot, melilot and birdsfoot-trefoil. These make a colourful flourish in the summer.

Su.BII 15 Anton Crescent Wetland

Grid ref TO 252 653
Area 1.1 ha

This area of former allotments, lying beside a primary school, has been transformed into a flood storage wash to help control flooding from the nearby Pyl Brook. It was designed and constructed by Thames Water, with advice from the Borough of Sutton and the London Ecology Unit. It now contains a pond, reed swamp, wet grassland and areas of meadow and shrubs.

The wash was designed to fill with water during floods, from an inflow channel and sluice at the south end, and to discharge this water slowly back into the Pyl Brook via a control weir at the north end. The area is roughly rectangular in shape, with steeply inclined banks on which have been planted a variety of native shrubs appropriate for the damp clay soil. Where no shrubs have been planted, a varied grassland has developed with wild flowers encouraging many invertebrates in summer.

The floor of the wash is mostly level and the underlying impermeable London Clay means that there is standing water even in dry weather. This is topped up by inevitable leakage at the inflow so that in the hot, dry summers of 1989 and 1990, the pond here was still up to a metre deep.

Although Anton Crescent Wetland contains just the one large pond at the northern end, there are patches of open water within the extensive and expanding beds of reedmace. The southernmost part of the area holds considerable areas of fool's watercress, and the marshy section at this end contains hard and soft rushes and great hairy willow-herb. At the other, northern, end, water figwort and pendulous sedge are to be found at the margins, and water plantain and great spearwort in the water.

Elsewhere, and particularly at the pond, mare's tail is emerging from the edges, along with celery-leaved crowfoot and water mint. Duckweed is to be observed floating on the surface, whilst in the water, on Canadian pondweed and filamentous algae, are innumerable snails. These are all bit players to the main scene which is dominated by the dense beds of reedmace, with crack willows also starting to colonise. Several of these plants, particularly mare's tail and great spearwort, are very rare as wild plants in London, but have been planted here.

Snipe and meadow pipits over-winter here, and flocks of mixed finches feed on the abundant seedheads in autumn and winter. Moorhens breed here and the surface of the water is popular in summer with dragonflies such as the common darter, migrant hawker and emperor.

On the narrower slopes to the north and east of the pond, shrubs such as alder, blackthorn and dog rose have been planted. The wider southern and western slopes have developed into a pleasant grassland dominated by oat grass and with common weeds such as docks, thistles and ragwort. Particularly noteworthy though are the maroon seedheads of crow garlic dotted through much of the grassland. This member of the onion family is uncommon in London, but widespread in Sutton. When found it is instantly recognisable, with its tall grass-like stems supporting the seedhead close to the top and the distinctive onion smell.

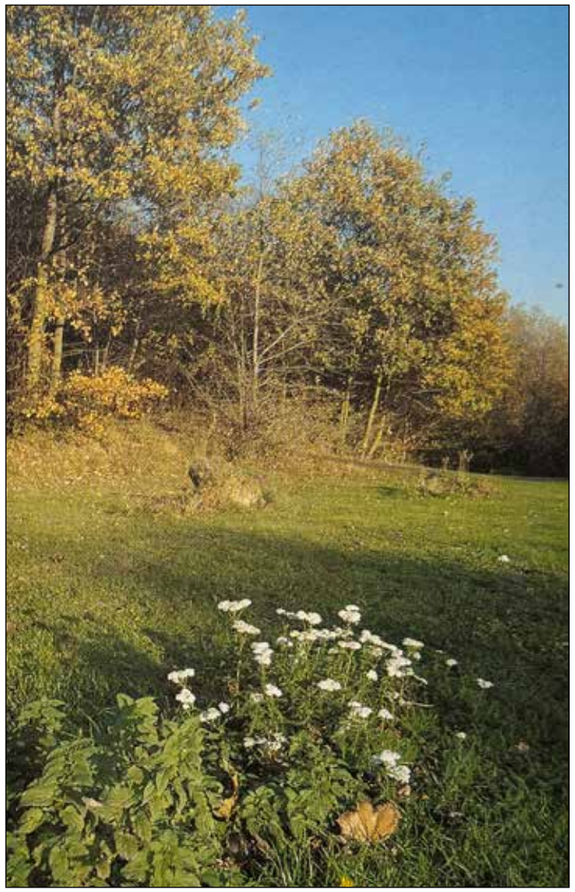
Butterflies such as small copper find the sunny banks an attractive spot in summer while Roesel's bush-crickets can be heard singing when the conditions are right. These latter are nationally uncommon, yet they have a stronghold in the Thames Estuary, being particularly common in east London, and are found at sites throughout the Metropolis.

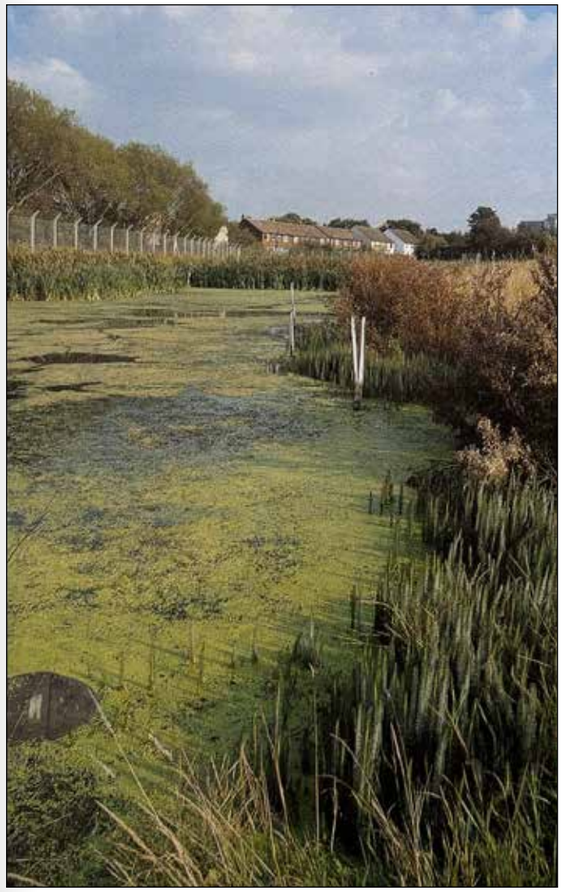
Anton Crescent Wetland is owned by the Council and leased to the National Rivers Authority for use as a flood storage area. It has been landscaped and is managed for nature conservation by the N.R.A. and the Sutton Conservation Group. For security reasons it is fenced off, but a public footpath along the eastern side gives excellent views over the site. There is a pond-dipping platform and the steps down to this were constructed during an international

→ One of the many cowslips flowering at Water Gardens Bank
LB Sutton/ Richard Barnes

↓ The steep Water Gardens Bank is covered in cowslip in springtime
LB Sutton/ Richard Barnes

↓ The flowers of yellow contrast with the autumn colours at Perretts Field
LEU/Ian Yarham





↑ Anton Crescent Wetland makes a good place to study nature in an area largely lacking such amenities
LEU/Ian Yarham

↑ An old hedge near Lambert's Copse shows the underlying chalk where trees have fallen
LEU/Ian Yarham

BTCV working holiday. Access is provided for supervised school groups and it is a particularly valuable nature study area for the adjacent primary school. Other would-be visitors should contact the Council's Field Officer who can show them round the site.

Su.BII 16 Worcester Park Sewage Works

Grid ref TO 231 666
Area 25 ha

The nutrient-enriched aquatic and terrestrial habitats of this small sewage works provide productive feeding grounds for a variety of birds.

In the early 20th century, the Epsom Sewage Farm occupied a small site immediately to the south of Green Lane. By the 1960s it had expanded southwards to cover about half of its present area, after which it further expanded to the east and west. Apart from the offices and parking areas near the entrance in Green Lane, the whole of the present sewage works is included within the boundary of this site.

The works are surrounded by a tall earth bank, preventing views over the site from outside but giving an excellent vantage point once inside. On the bank grows a rank mixture of oat grass and couch grass, with broad swathes of nettles, brambles, thistles and hoary pepperwort, together with occasional elder bushes. The violet flowers of lucerne, also known as alfalfa and once a popular crop plant, can be found amongst the rough grasses. Butterflies such as small tortoiseshell, red admiral and peacock abound here, feeding as caterpillars on the nettles. Much refuse originating from within the works has been tipped in the south-east of the site. Some of this latter land is bare, or covered only in sparse growths of annual weeds. Elsewhere there are patches of the tall, poisonous hemlock, a characteristic plant of nutrient-rich, disturbed soils, which is said to have been the source of the drug used to poison Socrates.

In the east of the works are three small sludge lagoons, and a further series is found in the south-west. All are surrounded by earth banks on which grow nettles, tall grasses and a few willow and elder bushes. Sedge warblers and several commoner birds such as dunnocks and wrens breed there. The nature of the lagoons varies with the stage in the operational cycle. When first filled with a foetid, bubbling liquid they attract small numbers of gulls, ducks and Canada geese. As the sludge dries out, floating rafts form and these become colonised with orache, celery-leaved crowfoot, marsh yellow-cress, bittersweet, grasses and even young willows. These rafts eventually coalesce to form a treacherous crust, cracked in dry weather and with surface pools after rain. These are highly attractive to wading birds, starlings and wagtails, which come to feed on the myriads of tiny flies and their larvae breeding in the sludge. At least one pair of lapwings breeds on the lagoons and small numbers of snipe and meadow pipits pass the winter here.

Even the most artificial parts of the works attract feeding birds. Four large, concrete-sided lagoons in the north-west of the works, where the effluent is given its final treatment before being discharged to the Beverley Brook, are feeding and resting sites for mallards, tufted ducks and the ubiquitous black-headed gulls. A large series of concrete sludge-drying beds in the centre have become colonised with luxuriant growths of tomato, annual meadow-grass and groundsel. Tomato plants are common in sewage works, which they reach by obvious means that need not be gone into here, except to remark that the seeds are resistant to human digestion. At Worcester Park they actually dominate much of the sludge-drying beds, and are joined by cucumber and millet plants. Large flocks of seed-eating birds such as greenfinches, linnets, house and tree sparrows, goldfinches and woodpigeons are attracted to this area. Even the cinder-filled sprinkler beds at the north of the site tempt hundreds of crows, gulls and starlings, as well as smaller numbers of wagtails and jackdaws, to feed on the worms and fly larvae which thrive in this seemingly inhospitable environment.

The works also attract passing migrants, ranging from the occasional waders and birds of open spaces, such as wheatears, to flocks of swallows, martins and swifts which hunt over the lagoons in the summer.

The present value of the site as a bird habitat depends on the continuing operation of the works. In the event of it closing down, these conditions could not be maintained, although the site could still have value for wildlife. Worcester Park Sewage Works is owned by Thames Water and, for reasons of personal safety, access is strictly controlled.

The works provide the major dry weather flow in the Beverley Brook, which flows north to form the boundary between Merton and Kingston Boroughs, and then through Richmond Park to the Thames at Barn Elms. Unfortunately discharge of nutrient-rich effluent to the Beverley Brook continues to have a detrimental effect on water quality downstream of here.

Also within the site are ancient boundary features. A bank and ditch runs between the sewage works and stables and the Garth Road recycling facility in neighbouring Merton Borough, and then continues east beside a short length of Trafalgar Avenue to the Pyl Brook. The length of the brook beside Trafalgar Avenue to Stonecot Hill continues the ancient boundary. An area of rough grassland lies between the brook and the avenue, while on the Merton side there is dense vegetation of elm, bramble, elder and ivy. The brook is free of rubbish but runs at the bottom of vertical revetments and supports little vegetation. The bank and ditch are a sadly depleted remnant; hawthorn, blackthorn, oak and dog rose survive amongst fly tipping and a muddy path. Sycamore, elm, elder and nettles complete the picture. Tipping on either side has left the central length of the bank and ditch in a deep gully. The boundary continues north between Merton and Kingston Boroughs and on further into Merton where it can be traced as far as Marina Avenue near Motspur Park station. It would make an excellent heritage trail if restored to its previous condition.

10 Sites of Local Importance

Su.L1 Mill Green

Grid ref TQ 282 670
Area 4.7 ha

This flat area is surrounded by busy roads, and power lines cross the site. Much of the grass is closely-mown, and the nature conservation interest centres on a ditch towards the western side. At the turn of the century this was part of a short branch of the Wandle, which led through from the watercress beds in the Spencer Road area. Now it is stagnant and contains much rubbish but also features abundant aquatic and emergent vegetation. About half way along, an attractive old stone wall forms the side and gives a good vantage point over one of the pleasanter parts of the ditch.

Towards the west two large trees draw the eye, one a plane and the other a hybrid black poplar, while a newly-established woodland area near Mill Green Road adds to the diversity and interest of this site. Wildflower meadows on Mill Green are, at the time of writing, still at the planning stage.

Damp-loving plants often have curious and attractive names and the ones in the ditch are no exception; celery-leaved crowfoot, fool's watercress, trifid bur-marigold, amphibious bistort, reed sweet-grass, water figwort and gipsy-wort can all be found in the ditch. The latter is so called because it produces strong black dye which was formerly used by gypsies to darken their faces and pass themselves off as African while fortune-telling. The ubiquitous great hairy willow-herb is also much in evidence.

Towards the north the ditch is more overgrown, with a profusion of water figwort. An adjacent hedge provides shelter and comprises species of dry ground such as garden privet, hazel and Japanese spindle near Mill Green Road, grading into goat willow, common sallow and crack willow towards Goat Road.

Just before it reaches Goat Road the ditch runs into the fast-flowing, concrete-lined channel which brings water from Beddington Sewage Treatment Works. This channel effectively cuts Mill Green into two and, although because of its fast flow and poor quality there is much less vegetation than in the ditch to the west, it does contain curled pondweed, bur-reed and unbranched bur-reed, as well as amphibious bistort in the mown grassland at the edges. The wildlife value of the area could be greatly improved by leaving a narrow strip of vegetation unmown on either side of the channel. At the turn of the century a pond was located in the angle of the channels which now form the ditch and the outflow from the sewage works. The outflow was at that time shown as a straight watercourse which seemed to start from the south-eastern corner of Mill Green. This was probably fed by small streams to the east of London Road as well as the discharge from the small sewage farm beyond the railway. The latter later became part of the modern Beddington Works.

In the 17th century, Mill Green was known as Cranmarsh. Ownership of the green was in dispute between the Manors of Mitcham and Wallington until well into the 19th century. Although originally within the ecclesiastical parish of Mitcham, it was brought within the civil parish of Wallington by local government boundary revisions during the late 19th century. At the time of the Ordnance Survey Map of 1868, Mill Green was clearly indicated to be part of Mitcham Common, as it still is, and used as a recreation ground. Encroachments had been taking place during the 1880s. Cyprus Terrace, Golden Terrace and four detached houses were built on the green, just east of the ditch. These were all demolished during the 1930s and the land reverted to common. There appear to be no signs on the ground of their one time existence. However, foundations were uncovered at the time the woodland area was being started. Also in the 1880s a chapel and school were constructed on the east side of Mill Green, alongside London Road. The chapel ended its days by being used for storage purposes and after the school and chapel were demolished in the 1930s, the land on which they had been located also reverted to common.

Although Mill Green is legally part of Mitcham Common and is owned by the Mitcham Common Conservators, it is quite distinct from the rest of the Common. Mill Green is managed on behalf of the owners by the London Borough of Sutton, although the Conservators retain the right to approve or veto any proposed alterations to the green. There is free access at all times.

Su.L2 Revesby Road Wood

Grid ref TQ 271 671
Area 8.4 ha

Half a century ago this was an area of dense woods with thick brambles beneath. Indeed the Ordnance Survey Maps of 1868 and 1895 mark most of the area of this site east of Green Wrythe Lane as deciduous woodland. The main interest of the site nowadays is as a woodland park with some 40 widely-scattered pedunculate oaks. Averaging 15 metres high, these make an impressive sight from every direction. Houses shut in the views to the north and south but there are open vistas to the west and particularly to the east across the Wandle Valley towards the Beddington area. The land slopes very gently and a pylon carries power lines along the edge by Revesby Road.

In the last 40 years the grassland was closely cut but a recent management change has led to large areas being planted with native tree and shrub seedlings such as hawthorn, dogwood, dog rose, crack willow, hornbeam and oak, and regular grass cutting has been stopped here. Field scabious and other meadow flowers can be seen in summer. The grasses are a mixture of timothy, rye-grass and fiorin. A number of logs lying around provide places to sit as well as habitat for invertebrates and fungi.

In the eastern area where the grass is allowed to grow long, common mallow forms a summer sea of purple. Mallow has for a long time been used to make a soothing ointment to treat various inflammations including ones of the eyes and skin. It is said that toothache can be relieved by chewing fresh flowers.

Across Revesby Road is Green Wrythe School, which has its own small nature garden. Unfortunately, this garden has suffered from recent drought and its location next to well-used roads. Because of the latter, rubbish, including hypodermic needles, has been frequently tossed onto the garden. Due to the danger to children (and adults) from these, use of the nature garden has largely ceased. Fortunately, the larger area of Revesby Road Wood makes a very useful adjunct for teaching purposes.

↓ Some of the children at Cheam Park Farm Infant School examine the pond in their nature garden
LEU/Sue Swales

↓ The beautiful flower of corn cockle can be seen in the "cornfield" at The Avenue Primary School, Belmont
Michael Waite

↓ Hybrid marsh orchids flowering in the nature garden at The Avenue Primary School
LB Sutton/ Richard Barnes

↑ Looking towards Revesby Road Wood across one of the meadow areas being left prior to new tree planting
LEU/Ian Yarham

← A spectacular show of cornfield flowers at The Avenue Primary School
LB Sutton/ Richard Barnes

Beyond Peterborough Road to the east are a few more oaks but without anything other than mown grass underneath. A simple change of management might improve the ground flora and thus increase the interest. This is part of Poulter Park, which is not a site in this handbook, but on the far side can be seen a line of trees, marking the Wandle Valley (site M91).

Just beyond Green Wrythe Lane to the west is an area of mown grass but which along its northern and southern edges consists of less managed land with a variety of common but attractive wild flowers. The area to the north is the more extensive and includes a couple of hummocks which have mallow, mugwort and hedge mustard growing on them. The long grass throughout this rough area comprises barren brome, cock's-foot, meadow fescue, rye-grass and meadow-grasses. There are scattered young oak and ash throughout with dog rose, apple and dense clumps of bramble. Other colourful flowers found in the main body of the grassland include cut-leaved cranesbill, goat's-beard, everlasting pea, goat's rue, common vetch, birdsfoot-trefoil, red clover and meadow vetchling. Whitethroats can be heard giving their scratchy song in late spring and summer, and probably nest in the brambles.

On the south side the rough edge is much narrower and is mainly regenerating elm with the odd bush of elder or hawthorn, and a field maple and two fine oaks in the south-east corner. The trees peter out towards the west. The main grass is wall barley. This must have once been an impressive line of elm trees before the advent of Dutch elm disease. Indeed a line of trees is marked here on the Ordnance Survey Map of 1868.

It will be worth watching the changes to this site over the next few years as the nature conservation value steadily increases. There is free access to the whole area, which is owned by the Council.

Su.L3 All Saints Churchyard, Benhilton

Grid ref TQ 258 652
Area 0.8 ha

All Saints is the church on the right as one heads northwards up the hill out of Sutton town centre. Large and prominently placed, All Saints dates from the 1860s.

The churchyard slopes steeply up from the busy B2230 to the church tower. The church occupies the north-eastern part of the churchyard and the area immediately surrounding the building is kept closely mown. The main area, and also the main ecological interest, lies to the south and west. From beside the tower, there are views to the west and south-west but in other directions these are interrupted by trees.

The western part of the churchyard is rough grassland dominated by oat grass with a number of common wild flowers such as ragwort, birdsfoot-trefoil, spear thistle and dove's-foot cranesbill, together with the occasional slightly less common one like bristly ox-tongue. The distinctive purple flowers of honesty can be seen in the spring followed by the large, disc-shaped fruits, while the yellow of autumnal hawkbit, as its name suggests, is prominent towards the end of the summer. The presence of ant hills suggests that this area has been little disturbed for some time. During the summer, large numbers of butterflies flit through the churchyard on sunny days.

The southern part of the churchyard is, by contrast, mostly a scrubby woodland, the main trees being sycamore, pedunculate oak, ash and yew. The shrub layer is composed of much hawthorn as well as dog rose, bramble and Japanese spindle, while ivy and cow parsley are much in evidence beneath.

Within the woodland are some patches of rough grassland, but these are being encroached upon by the scrub. Additional species to be found in these small areas include large bindweed, the colourful goat's rue, germander speedwell, one of the most striking, of all the speedwells, and tufted vetch. Foxes frequent this woodland area.

Along the southern boundary of the churchyard are horse chestnuts, leyland cypress, other conifers and, appropriately enough, two tree of heaven seedlings.

There is free access to All Saints Churchyard at reasonable times. Management of the whole churchyard was taken over by the Borough's Leisure Services Department at the end of 1990 with the intention of keeping the area round the church tidy and giving access to graves, while maintaining and enhancing the nature conservation interest of the southern and western areas. Ownership, however, remains with the Church Commissioners.

Su.L4 St Nicholas Churchyard, Sutton

Grid ref TQ 257 642
Area 0.3 ha

St Nicholas, the parish church of central Sutton, is Victorian, rebuilt between 1862 and 1864. Its tall spire looks impressive when seen from below or from the surrounding buildings. Its churchyard, hemmed in between modern buildings and busy roads, is a brief contact with nature for the hundreds of people who every day hurry between the car parks and the shopping centre. It is located just to the north of the Civic Centre and a number of paths cross it in different directions. The churchyard has been closed for burials since 1954.

Although of only modest nature conservation interest, this is a valuable open space in a densely built-up part of Sutton. The main ecological interest is to be found in the churchyard's mature trees and its gravestone lichens. There are a good number of well-established trees which are mostly yew, but also include a cedar, a sizeable oak and a large beech. Lady's bedstraw, an attractive plant with yellow flowers, is to be found growing close to one of the gravestones.

A number of lichens grow on the older gravestones. More commonly associated with country churchyards, the profusion of these indicates how much cleaner the air has become over the last 40 years. Forty years ago, virtually no lichens could be found in London, due to their extreme sensitivity to air pollution. Up to four different species of lichens cling to the surfaces of some gravestones, and some of these are rare in the Borough. They include *Caloplaca heppianae*, which forms orange-yellow closely-attached patches, and *Physcia caesiae*, which is a whitish-grey colour. Both of these are well-developed here.

This readily-accessible site, right in the centre of Sutton, is also a good place to see a number of common garden birds. It makes a useful Local site and is appreciated by many people as they pass through it, even though they rarely stop to think why. It is owned and managed by the Diocese.

Su.L5 Radcliffe Gardens Woodland

Grid ref TQ 273 630
Area 1.0 ha

This small suburban woodland was once at the eastern edge of a park known as Barrows Hedges, altering during the 19th century to Barrow Hedges, a name which is today commemorated by the nearby primary school. The origin of the name was from three ancient tumuli in the area. These have long since been obliterated by centuries of ploughing. In 1698 the older house here was being used possibly as an inn, where the horses entered for the races on the adjoining downlands could be inspected by the public during the 14 days before the races took place. It was sold in the late 18th century and in 1867 the old house was pulled down and a new one put up. The house continued in private occupation until early in the 1920s when it became a boarding school. In 1926 it was advertised as being "for sons of professional men and boys of a like class". Barrow Hedges was sold and demolished before the Second World War. The primary school now stands approximately on the site.

Maps from the 19th century show Barrow Hedges house surrounded by its park, which included belts of trees. The trees date from plantations made during the 18th century and the present wood is a remnant of them. It is now sandwiched between a busy road and a housing estate, on the east side of a dry valley on the chalk at Carshalton Beeches. The road, Beeches Avenue, was at the turn of the century rather picturesquely called Beechnut Tree Road.

The tree canopy is varied and mainly composed of mature specimens of non-native species such as sycamore, horse chestnut, lime, holm oak, cedar and ornamental plum, with some beech, yew and elm. The roots of several large fallen trees have been left; these show up the underlying chalk and give added interest to the site. There are few shrubs, so that it is possible to see through the wood from the road to the housing. The shrubs that are present consist of buckthorn, a characteristic chalkland shrub and a food plant for the caterpillar of the brimstone butterfly, together with a few hawthorns. Ivy and black bryony adorn the trunks of some of the trees, but the ground flora is sparse and shows signs of frequent mowing in the past. In most areas, except on the bare footpaths, the ground is carpeted with grass and common plants such as plantains, nettles, docks and buttercups. The purple flowers of black horehound can be found beneath some of the trees. The scientific name *Ballota* comes from the Greek word *ballo* meaning "to reject"; the reason for this is the very unpleasant smell given off by the crushed leaves and this has also given it one of its English names, "Stinking Roger". The only typical woodland species are a few patches of the grass slender false-brome, some wood avens and ground ivy, while spring also sees the flowers of violets and lesser celandine.

Common woodland and garden birds frequent the site and butterflies are abundant when the grasses are allowed to grow. On summer evenings bats can be seen around the tops of the cedar trees. The woodland would benefit from the establishment of better shrub and ground layers, particularly away from the more heavily used paths. Thought must also be given to the eventual replacement of trees, many of which are reaching the end of their life; there appears to be no natural regeneration. The Parks Department have planted a number of saplings, including exotic species, to reflect the woodland's current character.

The wood is unfenced, is criss-crossed by numerous footpaths, and much used by local residents, both as a short cut and for informal recreation. Unfortunately its narrowness and the noise from both sides (the road and the housing estate) prevent any sense of sanctuary within the woodland. It is owned and managed by the Council.

Su.L6 Royal Marsden Hospital Grassland

Grid ref TQ 262 622
Area 4.5 ha

The Royal Marsden Hospital is next to the Sutton General Hospital, just north of Banstead Downs. Maps from the early years of this century show "The Downs School", owned by the Metropolitan Asylums Board, covering the site of both of the present-day hospitals. Later the south-easterly part of the site was given over to the Royal Marsden Hospital and the remainder eventually became part of Sutton General Hospital. The present Royal Marsden was built in the early 1960s. Part of a large field to the east of The Downs School was taken into the boundary of the Royal Marsden and this remains as an attractive area of grassland to the north-east of the hospital buildings.

The land is slightly higher in the south, dipping down a small bank to the lower area to the north. It is surrounded by houses to the east and north, while the hospital buildings dominate to the south and west. Immediately to the west of the grassland is an area of buddleia scrub with the occasional sycamore and goat willow. To the north the scrub merges into a belt of sycamore woodland. Both the scrub and woodland are included as part of the site described here.

Although located on the chalk, there has been tipping here in the past so that species normally associated with chalky soils are little in evidence. In the field, the main grasses are fescues, lop-grass, Yorkshire fog, cock's-foot and oat grass, as well as various meadow-grasses and some crested dog's-tail. The higher, southern part of the grassland contains such common flowers as ox-eye daisy, meadow and bulbous buttercups, white campion, red clover, beaked hawk's-beard, hardheads, common vetch, meadow vetchling, common St John's wort, birdsfoot-trefoil and wild carrot. Wild parsnip and rough hawkbit are also found here, and these are the only ones of all these plants which are primarily found on the chalk, although wild carrot is also commonly found on calcareous soils. Neither wild parsnip nor wild carrot are worth eating, being too woody, although their cultivated versions have been developed from these wild origins. In the lower, northern part of the field, ox-eye daisy and buttercups feature particularly prominently, as well as red bartsia.

The grassland should ideally be managed as a hay meadow, mowing once a year in autumn and removing the cuttings. The whole area, both the buddleia scrub and the field, is alive with butterflies in the summer.

This attractive field is an asset to the hospital, as much of the rest of the site is built-up. Certainly the colourful wild flowers and the variety of invertebrates lend a touch of nature to this corner of the hospital grounds. The Royal Marsden plan to build over this area at some stage in the future but it is to be hoped that important elements of the habitats present can be retained within the finished landscape.

The grassland and scrub are owned by the Royal Marsden Hospital and are only accessible to people there.

Su.L7 The Avenue Primary School Nature Garden, Belmont

Grid ref TQ 252 624
Area 0.2 ha

See site description in Schools Initiatives section, page 24.

Su.L8 Cheam Park

Grid ref TQ 239 636
Area 12.5 ha

In many ways this is a typical town park, composed mainly of short-mown grass and scattered ornamental trees, many of them quite large. The main wildlife habitats are fringes of woodland along the western and southern margins and a small pond in the south-west.

The park was originally part of Nonsuch Park, which lies immediately to the west in the District of Epsom and Ewell, and in which once stood the palace of the same name, a favourite residence of Queen Elizabeth I. Cheam Park had, however, already become a separate entity by the start of the 19th century, with very similar boundaries to those of today. Sutton and Cheam Council acquired the house and park in 1937, but the house was completely destroyed by a flying bomb in 1944.

The park lies across the boundary of the chalk and the overlying tertiary deposits, and up to the late 1980s an intermittent spring issued along the eastern margin, from where it was channelled in a ditch along the south of the park and into the pond. In 1990 the pond was almost completely dry and contained a lush growth of nettles, docks, mugwort and persicaria, with yellow flag, policeman's helmet and great hairy willow-herb. The extent of the vegetation implied that the pond had been virtually dry since at least 1988. It is also shaded by two large weeping willows and receives much leaf litter. If rehabilitated and perhaps planted with a greater range of waterside plants it could become an attractive feature. At present the only water supply is a trickle from a pipe on the south side, rather than from the ditch, which appears to drain away very quickly. The Sutton Conservation Group have started to recontour the pond, but the hydrology of the pond needs investigation before extensive rehabilitation can occur.

In the south of the park the ditch runs through a belt of tall trees, many of which fell in the storm of October 1987. Sycamore, beech, horse chestnut and oak are the main species, with a hedge of hawthorn, suckering elm and holly below, and lesser celandine, ivy and cow parsley carpeting the ground.

A much wider belt of trees marks the western boundary of the park, but most of this lies outside the Borough in Nonsuch Park. Maps from early this century mark this strip as "The Rough". Sycamore and horse chestnut are the most abundant trees with a number of very large specimens. There are also a number of native species such as ash, gean, beech and oak as well as the introduced sweet chestnut. The shrub layer is quite well developed, hazel being particularly common, and common wild flowers occur below. A pleasant path runs northwards through this strip of woodland, making a brief diversion where a large tree has fallen. Some dead trees have been left standing next to the path and these need cutting half way up to ensure the safety of walkers below.

The park is owned by the Council and is freely open to the public. There is no barrier between it and the more abundant and varied wildlife resources of Nonsuch Park to the west.

Su.L9 London Road Edge, North Cheam

Grid ref TQ 232 646
Area 1.1 ha

This narrow strip of woodland and scrub runs along the eastern edge of London Road between Wordsworth Drive and Nonsuch Park, and provides an approach to the latter, which is just outside the Borough. The land was originally held for possible widening of the A24 but this proposal has now been dropped.

Beyond the pavement along London Road, the ground slopes away to a ditch and an overgrown hedge of predominantly hawthorn and suckering elm. Beyond that is the woodland which, although narrow, acts as a reservoir for birds, such as long-tailed, blue and great tits, which also frequent nearby gardens. A new path has been constructed parallel to the main road for part of the way and the old path has been improved by the Sutton Conservation Group. The route is somewhat spoilt by noise from the main road and, as usual, there has been some littering and dumping of garden refuse, but it is still pleasanter than walking alongside the road and it does provide a good lead in to Nonsuch Park.

Maps from the second half of the 19th century show London Road as consisting of wide verges with the actual roadway in between. Part of the eastern verge is what is now London Road Edge. The Ordnance Survey Map of 1866 shows trees on the central portion of the modern-day site that is described here but not on the northern and southern parts. More recently tennis courts were located on either side of Palmer Avenue.

Wide verges on either side of a road are a typical enclosure pattern and reflect the state of even the main roads before the days of the turnpikes. Roads that carried any considerable amount of through traffic had to be wide enough to allow for detours around the boggy morass that frequently developed in the winter. When modern roadmaking began these great widths were no longer necessary. Only a relatively narrow width was surfaced with stone, and the remainder was left under grass. Interestingly, the Cheam Enclosure Map of 1806 shows that the stretch of London Road which now forms this site was, in the early 19th century, almost twice the width of London Road just to the north. This also shows up quite clearly on the Sutton and Cheam Tithe Redemption Maps and Awards of 1842.

Approaching the site today from the north, the section between Wordsworth Drive and The Spinney contains many mature trees, mostly oaks but also a few ashes and red horse chestnuts. The tall oak trees in the short stretch just north of The Spinney give a quite different character from the rest of the site to the south. The understorey consists of elm and hawthorn while the ground layer comprises ivy and cow parsley with some Lords-and-Ladies and hedge garlic. The latter is also known as Jack-by-the-hedge or garlic mustard, while it is commonly stated that Lords-and-Ladies has more English names than any other plant, among the less rude of these being cuckoo pint and Jack-in-the-pulpit.

South of The Spinney are more open areas amongst the trees, which include elm, elder, hawthorn, ash, silver birch, sycamore and goat willow. Old man's beard is climbing up some of the trees.

Underneath are patches of bramble and blackthorn scrub, while the woodland grasses tall brome and slender false-brome, together with the usual nettles, docks, cow parsley and cleavers, form the ground flora. In the more open areas are oat grass, mugwort, rose-bay willow-herb, brambles and thistles.

The Sutton Conservation Group have broken up areas of tarmac and have planted silver birch and whitebeam, and annuals such as poppies have been able to colonise.

At the southern end, another ditch marks the boundary with Surrey and beyond is the fine old parkland and woodland of Nonsuch Park. The wood brings common woodland birds into this part of Sutton.

The whole of London Road Edge is owned by the Borough and there is free access at all times.

Su.L10 Pyl Brook, Stonecot

Grid ref TQ 244 658
Length 700 metres

The Pyl Brook runs underground for part of its course in Sutton, but here it emerges above the surface and runs between a small recreation ground and existing and proposed industrial development. This narrow site consists of the stream and an adjacent strip of wildlife habitat, as it runs from near Kimpton Road to the A24 at London Road.

At the time of the 1866 Ordnance Survey Map, this part of the Pyl Brook was surrounded by small fields, bordered by trees and hedges. The rural outlook was somewhat changed by the time of the 1896 Ordnance Survey Map as a gas holder, a sewage works and a cemetery had all appeared to the north.

The stream itself is of rather modest wildlife value at present as it is contained between wooden revetments or concrete culverts, although the bed is of gravel. It is subject to occasional discharges of pollutants from the industrial estate, and appears to support relatively little aquatic life.

The brook emerges from a tunnel just to the west of Kimpton Road and passes under a public footpath. The footpath, which is quite well used, continues along the north side of the stream for the whole length of this site and is at first flanked by a strip of semi-natural vegetation about 20 metres wide. Tall trees line the footpath; these are mainly ornamental species such as poplars, Norway maples and sycamores, but there are also a few crack willows. Beneath these grows a tangle of oat grass, cow parsley, nettles and brambles, with a few bushes of hawthorn, elder and blackthorn.

Further to the west pellitory-of-the-wall can be seen growing on the river bank while duckweed and filamentous algae are present in the water. Grey wagtails frequent the stream. These feed on flies, beetles and other invertebrates associated with the water, and are relatively uncommon in London. On the south side the recreation ground gives way to back gardens which hem in the stream and make it rather dark. These continue to the far end of the site.

On the other side, the strip of open land beyond the path widens out into an area of former allotments, which may be developed for industry. This is mainly occupied by tall oat grass communities, with a wide range of common wild flowers. An unusual white-flowered variety of great hairy willow-herb, which normally has pink flowers, is also present, close to the eastern edge. It is to be hoped that a wide strip of open land will be retained along the brook after development.

Close to the path, a square pond has been constructed to receive storm water run-off from the roads of the proposed development. If suitably planted and landscaped, this pond could be a small but valuable wildlife habitat, although water quality is likely to limit the range of aquatic animals. Unfortunately the pond is steep-sided, allowing little marginal vegetation to become established. Its surface is completely covered by duckweed through which is growing celery-leaved crowfoot. Great hairy willow-herb fringes the pond but rubbish thrown into it and the presence of the nearby development substantially reduce its visual appeal.

Beyond the proposed industrial area are further open spaces, including a meadow to be incorporated into school grounds, a few active allotments and an extension to the nearby Sutton Cemetery. None of these is included in the site, but their proximity increases the attractiveness of the surroundings for mobile wildlife such as birds and butterflies. Other birds nesting along the brook include linnet, greenfinch, goldfinch, wren and blue tit. Speckled wood and probably several other species of butterfly are present.

Ivy-leaved toadflax and yellow fumitory grow out of the wall on the south side of the stream as the A24 is approached. Yellow fumitory is a garden plant which has now become naturalised and is quite common throughout England, Wales and southern Scotland, growing on old walls. It makes a welcome splash of colour here.

It may be possible to undertake some improvement of the remaining habitat if the development goes ahead, to mitigate the loss of habitat. Subject to the agreement of the National Rivers Authority, improvements could include the construction of a two stage channel, the creation of variations in the stream bed, and the incorporation of nestboxes into the southern (inaccessible) bank at suitable locations. The existing pond could be enlarged and improved.

This is the only readily accessible wildlife site within quite a large area and, partly for that reason, enhancement of its nature conservation value would be particularly worthwhile.

Su.L11 Beverley Brook and Back Green, Worcester Park

Grid ref TQ 225 664
Area 2.0 ha

The Beverley Brook rises in Stoneleigh and flows north through Cuddington Recreation Ground to Worcester Park. In the section which forms this site it flows through a narrow strip of open space before leaving the Borough close to Worcester Park Sewage Works where its flow, but not its quality, is greatly augmented. The Beverley Brook eventually flows into the River Thames near Putney after skirting the edge of Wimbledon Common and Richmond Park.

The brook is enclosed by vertical wooden sheeting throughout most of this stretch, except at a few points where, after erosion, this has been replaced by a sloping concrete wall. It flows gently over a gravelly bottom, which is devoid of vegetation except for filamentous algae. Sticklebacks can be seen in the water.

To the east of the brook is a narrow strip of grassland. This is mown short close to Green Lane, but on the banks leading down to the water the vegetation grows taller, and here can be found cow parsley, nettles, cleavers and other common wild flowers growing among tall oat grass. Closer to the water, water figwort is also present. On the opposite bank there is a belt of trees and shrubs, largely young elm and elder, but including some taller ash and oak. Below the trees, the ground is carpeted with ivy, nettles and cow parsley, with a few patches of bluebells. Beyond the trees in the north is another strip of mown grass backing on to houses.

A larger area of grassland in a tiny public park, known as Back Green, lies next to playing fields in the south of the site. Back Green has great historic interest as it is a surviving remnant of common with its boundaries unaltered for at least 150 years. On the 1839 tithe map it is shown as “Back Green” and consisted of rough pasture with deciduous trees along the boundaries. It was thus named because it was connected, via a narrow neck of pasture, to the larger “Lower Green” which was situated along what is today the main A2043 through Worcester Park. The link was broken by the railway line which was opened in 1859. There was also an “Upper Green” near the junction of Malden Road and Church Road in what is today Old Malden.

The area of Back Green today is surrounded by a band of elm suckers and brambles, with cleavers, nettles and ivy below. Lords-and-Ladies, wood avens and ground ivy can also be found, as well as the stumps of the old elms, standing like nature’s tombstones. The grassland is mown regularly and consists mainly of rye-grass with common lawn weeds. Access to this park is by a footbridge over the stream. Ditches run either side of Back Green, underneath the scrub, and a pond existed along the northern edge well into this century, but has now gone.

The park would be made more attractive if a band of grass around the margins were mown less frequently and allowed to develop into a flowery meadow. It might also be possible to encourage bankside aquatic vegetation by creating small wetland areas at suitable points along the stream, and wetland plants could be encouraged into the ditches by cutting back the scrub in one or two places to give more light.

The boundary between the Boroughs of Kingston and Sutton runs north-south across Back Green. Although the western half lies in Kingston, the whole is owned and managed by Sutton Council who intend to put a “trim-trail” on the central grass area. Both banks of the Beverley Brook are also owned by Sutton and there is unrestricted public access to the whole site.

Su.L12 Cuddington Recreation Ground

Grid ref TQ 226 648
Area 8.4 ha

Sharing the same name as Cuddington Golf Course, which is some three kilometres away beyond Nonsuch Park, Cuddington Recreation Ground is in the extreme west of the Borough between Worcester Park and Stoneleigh.

The name Cuddington almost vanished from the map when the medieval village, parish church and manor house were ruthlessly destroyed in 1538 to provide the site for Henry VIII to build his palace and home park at Nonsuch. The parish, which covers the area between Ewell and Cheam, including Nonsuch Park, is still called Cuddington. The site of the church was just north-west of the site of Nonsuch Palace, which in its turn was also demolished.

Cuddington Recreation Ground was once the fields and woods of Sparrow Farm, which still occupied the area early this century. The farmstead itself was situated towards the south-east end of the present-day park. Sparrow Farm Road to the south commemorates the name.

The park slopes down to the north and there are good views in that direction. It mostly consists of short-mown amenity grassland but there are several mature trees scattered across the area, including many oaks and some hornbeams not far from the southern entrance. Some of these trees are probably survivors from Avenue Wood, which is marked on maps from early this century in the area north of the farm.

The star of Cuddington Recreation Ground is undoubtedly the Beverley Brook which provides a steady trickle along a meandering, natural course between fairly steep banks. The stream is difficult to see at times because of the tangle of nettles, thistles, cleavers, cow parsley, great hairy willow-herb, large bindweed and docks which engulf it in places. Dense elm suckers, hawthorn and willow scrub also grow across its course.

Some large, old oaks, field maple and blackthorn are to be found alongside the brook and, near its eastern side, native trees are being planted in an effort to increase the woodland cover. Where a strip of grass has been left in this area, hardheads, with their purple flowers, are coming up while elsewhere alongside the stream are good-King-Henry, the attractive yellow loosestrife (probably a garden escape here), pendulous sedge and hard rush. Stone parsley, a rather uncommon member of the carrot family with leaves that smell of petrol, grows on the banks, and the rather similar fool’s watercress is growing in the water, but there is little other aquatic vegetation.

The brook is crossed by a bridge about half way along its course and then, before it reaches the northern end of the park, it disappears into a culvert.

A number of common birds are to be seen or heard in the park including mistle thrush, magpie, blue tit, robin and crow. Black-headed and common gulls feed on worms in the short turf in winter.

Although the main nature conservation interest of Cuddington Recreation Ground lies in and adjacent to the Beverley Brook, the whole park, apart from in the extreme north, has been included in this site. As with most parks, there is great potential here, particularly for pond creation and woodland planting.

Cuddington Recreation Ground is owned by the Council and there is free access during normal hours.

Su.L13 The Spinney

Grid ref TQ 280 656
Area 0.3 ha

Although also locally known as Nightingale Road Bird Sanctuary, no nightingales breed today in The Spinney, but this small L-shaped wood does provide a useful local area for commoner breeding birds. It is entirely surrounded by housing and is fenced off from the public. Located on a level terrace of gravel, the site lies close to the River Wandle.

Maps from early this century show an area called “The Park” bounded to the north, west and south by Culvers Avenue, Green Wrythe Lane and Nightingale Road respectively, roads which still

exist today. The western, southern and eastern boundaries of The Park were marked by a belt of trees, but the only relics of these today are The Spinney and along the eastern edge of Dale Park by the River Wandle. The latter is part of the River Wandle Metropolitan Site (M91) while the L-shape of The Spinney follows exactly the line on the earlier maps. Almost all the rest of The Park has been built on by the housing of the Culvers Way area and the only remnant today, apart from the two areas of trees, is in the small area of Dale Park itself.

In The Spinney the only mature trees are at the south end adjoining Nightingale Road, where there are two tall plane trees and a few sycamores and hybrid black poplars, and at the extreme north end where there stands a large horse chestnut. The poplars suffered badly in the storm of 1987 and most have lost their crowns. Elsewhere the canopy is composed mainly of immature sycamore and Norway maple. During the dry summer of 1990 many of the sycamores were suffering from an unexplained die-back in the canopy.

The shrub layer is better developed in the more mature woodland, where there is a dense thicket of snowberry and bramble, plus a few larger hawthorns, holly and elm suckers. Elm and sycamore saplings, together with blackthorn and elder, form the rather sparse understorey in the north of the wood. The ground flora is also rather poor, being dominated by ivy and cow parsley, and containing only a few individuals of other typical woodland plants such as Lords-and-Ladies, hedge woundwort and hedge garlic. Butcher's broom is to be found and normally its presence would be an indicator of ancient woodland but here it is almost certainly of garden origin, as undoubtedly are the few bluebells on the site.

The site is rather hemmed in by housing and that, coupled with the noise of traffic from Nightingale Road, prevents any feeling of peace and quiet. Access to this site is limited to open days and volunteer work-days since unlimited access to a site of this size would almost certainly lead to damage through trampling and other activities. However, the Field Officer and members of the Sutton Group of the London Wildlife Trust can show interested people round the site. At present, apart from near the entrance, there is very little rubbish dumped. The wood, which is owned by the Council, is managed as a nature reserve by the London Wildlife Trust, who have been carrying out clearance of dangerous trees, clearance of snowberry and replacement planting with hazel, oak, hawthorn and wild roses. Common surburban birds such as blackbirds, song thrushes, blue tits, dunnocks, robins and wrens breed here, but the wood does not currently support unusual species or really important numbers of the commoner birds. The Sutton Conservation Group intend to introduce a large number of bird boxes to change this. There is at least one family of foxes in the wood.

After consultation with English Nature, the Council has declared the site a statutory Local Nature Reserve under the National Parks and Access to the Countryside Act 1949.

11 Important sites in adjacent boroughs

London Borough of Merton	
Sir Joseph Hood Memorial Wood	TQ 226 671
Pyl Brook behind Lynmouth Avenue	TQ 237 665
Morden Park	TQ 246 673
Pyl Brook Nature Reserve	TQ 251 669
St Helier to Wimbledon Railway Line	TQ 254 673
Moreton Green	TQ 263 672
River Wandle in Merton, including Watermeads & Bennett's Hole	TQ 274 677
Ravensbury Park	TQ 268 680
Mitcham Common	TQ 290 675
London Borough of Croydon	
Farthing Downs and Happy Valley	TO 309 568
Kenley Common	TQ 331 589
Riddlesdown and The Rose and Crown Chalk Pit	TO 381 600
Croham Hurst	TQ 342 629
Waddon Ponds	TQ 309 652
Surrey	
Banstead Downs	TQ 258 616
Nonsuch Park and Warren Farm	TQ 233 638

This is a list of sites of importance for wildlife close to, but outside, the London Borough of Sutton. It is not exhaustive.

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Appendix 1 Addresses of some relevant organisations

Banstead Commons Conservators
North Sandmills, Sandy Lane
Betchworth
Surrey RH3 7JA

Beddington, Carshalton & Wallington Archaeological Society
Honorary Secretary
57 Brambledown Road
Wallington
Surrey SM6 0TF

Beddington Farm Bird Group
The Secretary
62 b St Albans Road
Cheam
Surrey SM1 2JJ

British Herpetological Society
c/o Zoological Society of London
Regent's Park
London NW1 4RY

British Trust for Conservation Volunteers
80 York Way
London N1 9AG
Tel: 071 278 4293

British Trust for Ornithology
National Centre for Ornithology
The Nunnery, Nunnery Place
Thetford
Norfolk IP24 2PU

Croydon Natural History & Scientific Society
c/o Dr Jean Byatt
238 Green Wrythe Lane
Carshalton
Surrey SM5 2SP
Tel: 081 647 6551

Deen City Farm
1 Batsworth Road
off Church Road
Mitcham
Surrey CR4 3BX
Tel: 081 648 1461

Director of Education London Borough of Sutton
The Grove
Carshalton
Surrey SM5 3AL
Tel: 081 770 6502

Downlands Countryside Management Project
Highway House
21 Chessington Road
West Ewell, Epsom
Surrey KT17 1TT
Tel: 081 541 7282

English Nature
(Nature Conservancy Council for England)
Room 801, Chancery House
Chancery Lane
London WC2A 1SP
Tel: 071 831 6922

Environmental Services London Borough of Sutton
24 Denmark Road
Carshalton
Surrey SM5 2JG
Field Officer - Tel: 081 770 6246
Chief Planner (or Group Planner, UDP enquiries) -
Tel: 081 770 6200 (6258)

The Heritage Service London Borough of Sutton
Central Library
St Nicholas Way
Sutton
Surrey SM1 1EA
Tel: 081 770 4782

Leisure Services London Borough of Sutton
The Old Court House
Throwley Way
Sutton
Surrey SM1 4AF
Landscape & Conservation - 081 770 4638
Head of Parks & Recreation - 081 770 4660
Arboricultural Officer - 081 770 4625

London Natural History Society
c/o British Museum (Natural History)
Cromwell Road
South Kensington
London SW7 5BD

London Wildlife Trust
80 York Way
London N1 9AG
Tel: 071 278 6612

London Wildlife Trust (Sutton Group)
28 Burleigh Road
Sutton
Surrey SM3 9NE
Tel: 081 395 1353

Mitcham Common Conservators
8 Langley Road
Merton Park
London SW19 3NZ
Tel: 081 540 3459

Royal Society for the Protection of Birds
The Lodge
Sandy
Bedfordshire SG19 2DL

The Snuff Mill Environmental Centre
Morden Hall Park
Morden Hall Road
Morden
Surrey
Tel: 081 542 4232

Surrey Bird Club
Conservation Officer
18 Timbercroft
Ewell, Epsom
Surrey KT19 0TD
Tel: 081 393 0647

Surrey Wildlife Trust
School Lane
Pirbright
Woking
Surrey GU24 OJN
Tel: 0483 488055

Surrey Wildlife Trust (Sutton Group)
120 Ruden Way
Epsom Downs
Surrey KT17 3LP
Tel: 0737 351095

Sutton Conservation Group
The Old Rectory, Festival Walk
Carshalton
Surrey SM5 3NX
Tel: 081 669 5025

Sutton Ecology Centre
The Old Rectory, Festival Walk
Carshalton
Surrey SM5 3NX
Tel: 081 773 4018

The Wandle Group
The Honorary Secretary
25 Pine Ridge
Carshalton
Surrey SM5 4QQ

Wandle Industrial Museum
Vestry Hall Annexe
London Road
Mitcham
Surrey CR4 3UD
Tel: 081 648 0127

Appendix 2a Plant names used in the text

English names are given with their Latin equivalents

A

Aaron's rod – *Verbascum thapsus*
Abraham-Isaac-Jacob – *Trachystemon orientalis*
Agrimony – *Agnrnonia eupatoria*
Alder – *Alnus glutinosa*
Alkanet – *Pentaglottis sempervirens*
Amphibious bistort – *Polygonum amphibium*
Angelica – *Angelica* sp.
Annual meadow-grass – *Poa annua*
Apple – *Malus domesticus*
Ash – *Fraxinus excelsior*
Aspen – *Populus tremula*
Autumn gentian – *Gentianella amarella*
Autumn lady's tresses – *Spiranthes spiralis*
Autumnal hawkbit – *Leontodon autumnalis*

B

Barren brome – *Bromus sterilis*
Barren fescue – *Vulpia bromoides*
Beaked hawk's-beard – *Crepis vesicaria*
Bearded couch grass – *Elymus caninus*
Beech – *Fagus sylvatica*
Bent-grass – *Agrostis* sp.
Bindweed – *Convolvulus arvensis*
Birch – *Betula* sp.
Birdsfoot-trefoil – *Lotus corniculatus*
Bittersweet – *Solanum dulcamara*
Black bryony – *Tamus communis*
Black currant – *Ribes nigrum*
Black horehound – *Ballota nigra*
Black medick – *Medicago lupulina*
Black spleenwort – *Asplenium adiantum-nigrum*
Blackthorn – *Prunus spinosa*
Bladder campion – *Silene vulgaris*
Blanket weed – *Cladophora* sp.
Blinks – *Montia fontana*
Blue fleabane – *Erigeron acer*
Blue sow-thistle – *Cicerbita macrophylla*
Bluebell – *Hyacinthoides non-scripta*
Bogbean – *Menyanthes trifoliata*
Box – *Buxus sempervirens*
Bracken – *Pteridium aquilinum*
Bramble – *Rubus fruticosus* agg.
Bristly ox-tongue – *Picris echioides*
Broad buckler-fern – *Dryopteris dilatata*
Broad-leaved dock – *Rumex obtusifolius*
Broad-leaved pondweed – *Potomageton natans*
Broad-leaved willow-herb – *Epilobium montanum*
Brooklime – *Veronica beccabunga*
Broom – *Cytisus scoparius*
Buckthorn – *Rhamnus catharticus*
Buddleia – *Buddleja davidii*
Bugle – *Ajuga reptans*
Bugloss – *Anchusa arvensis*
Bulbous buttercup – *Ranunculus bulbosus*
Bur-reed – *Sparganium erectum*
Burnet saxifrage – *Pimpinella saxifraga*
Butcher's broom – *Ruscus aculeatus*
Buttercup – *Ranunculus* sp.

C

Canadian fleabane – *Conyza canadensis*
Canadian golden rod – *Soldago canadensis*
Canadian pondweed – *Elodea canadensis*
Cat's ear – *Hypochaeris radicata*
Caucasian stonecrop – *Sedum spurium*
Cedar – *Cedrus* sp.
Celery-leaved crowfoot – *Ranunculus sceleratus*
Centaury – *Centaurium erythraea*
Cherry – *Prunus* sp.
Cherry plum – *Prunus cerasifera*
Cherry-laurel – *Prunus laurocerasus*
Chicory – *Cichorium intybus*
Chilean rhubarb – *Gunnera* sp.
Cleavers – *Galium aparine*
Clover – *Trifolium* sp.
Cock's-foot – *Dactylis glomerata*
Coltsfoot – *Tussilago farfara*
Comfrey – *Symphytum officinale*
Common St John's wort – *Hypericum perforatum*
Common bent-grass – *Agrostis capillaris*
Common mallow – *Malva sylvestris*
Common mouse-ear chickweed – *Cerastium fontanum*
Common rockrose – *Helianthemum nummularium*
Common spike-rush – *Eleocharis palustris*
Common spotted orchid – *Dactylorhiza fuchsii*
Common star-wort – *Callitriche stagnalis*
Common storksbill – *Erodium cicutarium*
Common vetch – *Vicia sativa*
Corn chamomile – *Anthemis arvensis*
Corn cockle – *Agrostemma githago*
Corn marigold – *Chrysanthemum segetum*
Corn salad – *Valerianella locusta*
Cornflower – *Centaurea cyanus*
Couch grass – *Elymus repens*
Cow parsley – *Anthriscus sylvestris*
Cowslip – *Primula veris*
Crab apple – *Malus sylvestris*
Crack willow – *Salix fragilis*
Cranesbill – *Geranium* sp.
Creeping Jenny – *Lysimachia nummularia*
Creeping buttercup – *Ranunculus repens*
Creeping cinquefoil – *Potentilla reptans*
Creeping thistle – *Cirsium arvense*
Crested dog's-tail – *Cynosurus cristatus*
Crested hair-grass – *Koeleria macrantha*
Crow garlic – *Allium vineale*
Cucumber – *Cucumis sativus*
Curled dock – *Rumex crispus*
Curled pondweed – *Potamogeton crispus*
Curly water-thyme – *Lagarosiphon major*
Cut-leaved cranesbill – *Geranium dissectum*
Cypress – *Cupressus* sp.
Cypress spurge – *Euphorbia cyparissias*

D

Dame's violet – *Hesperis matronalis*
Dark mullein – *Verbascum nigrum*
Deadly nightshade – *Atropa bella-donna*
Dewberry – *Rubus caesius*
Dittander – *Lepidium latifolium*
Dock – *Rumex* sp.
Dog rose – *Rosa canine*
Dog's mercury – *Mercurialis perennis*
Dogwood – *Cornus sanguinea*
Dove's-foot cranesbill – *Geranium molle*
Dropwort – *Filipendula vulgaris*
Duckweed – *Lemna minor*
Dusty miller – *Cerastium tomentosum*
Dwarf elder – *Sambucus ebulus*
Dwarf mallow – *Malva neglecta*

E

Elder – *Sambucus nigra*
Elm – *Ulmus* sp.
Enchanter's nightshade – *Circaea lutetiana*
English elm – *Ulmus minor*
Evening primrose – *Oenothera erythrosepala*
Everlasting pea – *Lathyrus latifolius*

F

False acacia – *Robinia pseudoacacia*
False oxlip – *Primula* x *polyantha*
Fennel – *Foeniculum vulgare*
Fenugreek – *Trifolium ornithopodioides*
Fescue – *Festuca* sp.
Field maple – *Acer campestre*
Field mouse-ear chickweed – *Cerastium arvense*
Field penny-cress – *Thlaspi arvense*
Field poppy – *Papaver rhoeas*
Field scabious – *Knautia arvensis*
Field woundwort – *Stachys arvensis*
Fig-leaved goosefoot – *Chenopodium ficifolium*
Fiorin – *Agrostis stolonifera*
Fleabane – *Pulicaria dysenterica*
Flote-grass – *Glyceria fluitans*
Flowering rush – *Butomus umbellatus*
Fodder burnet – *Sanguisorba minor muricata*
Fool's watercress – *Apium nodiflorum*
Fritillary – *Fritillaria meleagris*

G

Galingale – *Cyperus longus*
Garden privet – *Ligustrum ovalifolium*
Gean – *Prunus avium*
Germander speedwell – *Veronica chamaedrys*
Giant hogweed – *Heracleum mantegazzianum*
Gipsy-wort – *Lycopus europaeus*
Glaucous sedge – *Carex flacca*
Goat willow – *Salix caprea*
Goat's rue – *Galega officinalis*
Goat's-beard – *Tragopogon pratensis*
Golden-rod – *Solidago virgaurea*
Goldilocks – *Ranunculus auricomus*
Good King Henry – *Chenopodium bonus-henricus*
Gorse – *Ulex europaeus*
Grass vetchling – *Lathyrus nissolia*
Great hairy willow-herb – *Epilobium hirsutum*
Great hedge bedstraw – *Galium mollugo*
Great pond-sedge – *Carex riparia*
Great reedmace – *Typha latifolia*
Great spearwort – *Ranunculus lingua*
Greater celandine – *Chelidonium majus*
Greater knapweed – *Centaurea scabiosa*
Greater stitchwort – *Stellaria holostea*
Greater yellow rattle – *Rhinanthus angustifolius*
Grey poplar – *Populus* x *canescens*
Grey speedwell – *Veronica polita*
Ground ivy – *Glechoma hederacea*
Groundsel – *Senecio vulgaris*
Guelder rose – *Viburnum opulus*

H

Hairy St John's wort – *Hypericum hirsutum*
Hairy oat – *Avenula pubescens*
Hairy tare – *Vicia hirsuta*
Hammer sedge – *Carex hirta*
Hard rush – *Juncus inflexus*
Hardheads – *Centaurea nigra*
Hare's-foot – *Trifolium arvense*
Harebell – *Campanula rotundifolia*
Hart's-tongue fern – *Asplenium scolopendrium*
Hastate orache – *Atriplex prostrata*
Hawthorn – *Crataegus monogyna*
Hazel – *Corylus avellana*
Hedge garlic – *Alliaria petiolata*
Hedge mustard – *Sisymbrium officinale*
Hedge woundwort – *Stachys sylvatica*
Hemlock – *Conium maculatum*
Hemlock water dropwort – *Oenanthe crocata*
Hemp agrimony – *Eupatorium cannabinum*
Herb Robert – *Geranium robertianum*
Hoary pepperwort – *Cardaria draba*
Hoary plantain – *Plantago media*
Hoary ragwort – *Senecio erucifolius*
Hogweed – *Heracleum sphondylium*
Holly – *Ilex aquifolium*
Holm oak – *Quercus ilex*
Honesty – *Lunaria annua*
Honeysuckle – *Lonicera periclymenum*
Hornbeam – *Carpinus betulus*
Horned pondweed – *Zannichellia palustris*
Hornwort – *Ceratophyllum demersum*
Horse chestnut – *Aesculus hippocastanum*
Hybrid black poplar – *Populus* x *canadensis*
Hybrid campion – *Silene* x *hampeana*

I

Imperforate St John's wort – *Hypericum maculatum*
Iris – *Iris* sp.
Ivy – *Hedera helix*
Ivy broomrape – *Orobanche hederae*
Ivy-leaved speedwell – *Veronica hederifolia*
Ivy-leaved toadflax – *Cymbalaria muralis*

J

Japanese knotweed – *Reynoutria japonica*
Japanese spindle – *Euonymus japonicus*
Jointed rush – *Juncus articulatus*
Juniper – *Juniperus communis*

K

Kidney-vetch – *Anthyllis vulneraria*
Kingcup – *Caltha palustris*

L

Laburnum – *Laburnum anagyroides*
Lady's bedstraw – *Galium verum*
Lady's smock – *Cardamine pratensis*
Larch – *Larix decidua*
Large bindweed – *Calystegia sepium silvatica*
Large birdsfoot-trefoil – *Lotus uliginosus*
Lavender – *Lavendula* sp.
Least duckweed – *Lemna minuta*
Lesser broomrape – *Orobanche minor*
Lesser celandine – *Ranunculus ficaria*
Lesser reedmace – *Typha angustifolia*
Lesser yellow trefoil – *Trifolium dubium*
Leyland cypress – X *Cupressocyparis leylandii*
Lilac – *Syringa vulgaris*
Lime – *Tilia* sp.
Lombardy poplar – *Populus nigra italica*
Long-headed poppy – *Papaver dubium*
Lop-grass – *Bromus hordeaceus*
Lords-and-Ladies – *Arum maculatum*
Lucerne – *Medicago saliva sativa*

M

Maidenhair spleenwort – *Asplenium trichomanes*
Male fern – *Dryopteris filix-mas*
Mallow – *Malva* sp.
Man orchid – *Aceras anthropophorum*
Mare's-tail – *Hippuris vulgaris*
Marjoram – *Origanum vulgare*
Marsh bedstraw – *Galium palustre*
Marsh foxtail – *Alopecurus geniculatus*
Marsh orchid – *Dactylorhiza majalis*
Marsh ragwort – *Senecio aquaticus*
Marsh thistle – *Cirsium palustre*
Marsh yellow-cress – *Rorippa palustris*
Martagon lily – *Lilium martagon*
Meadow buttercup – *Ranunculus acris*
Meadow cranesbill – *Geranium pratense*
Meadow fescue – *Festuca pratensis*
Meadow foxtail – *Alopecurus pratensis*
Meadow oat – *Avenula pratensis*
Meadow saxifrage – *Saxifraga granulata*
Meadow vetchling – *Lathryus pratensis*
Meadow-grass – *Poa* sp.
Meadow-sweet – *Filipendula ulmaria*
Melilot – *Melilotus* sp.
Midland hawthorn – *Crataegus laevigata*
Millet – *Panicum miliaceum*
Monkey puzzle tree – *Araucaria araucana*
Mountain cranesbill – *Geranium pyrenaicum*
Mouse-ear hawkweed – *Hieracium pilosella*
Mugwort – *Artemisia vulgaris*
Musk mallow – *Malva moschata*
Musk thistle – *Carduus nutans*

N

Narrow-leaved water parsnip – *Berula erecta*
Nettle – *Urtica* sp.
Nettle-leaved bellflower – *Campanula trachelium*
Norway maple – *Acer platanoides*
Nuttall's pondweed – *Elodea nuttallii*

O

Oak – *Quercus* sp.
Oat grass – *Arrhenatherum elatius*
Old man's beard – *Clematis vitalba*
Opposite-leaved pondweed – *Groenlandia densa*
Oraches – *Atriplex* sp.
Oregon grape – *Mahonia aquifolium*
Oriental poppy – *Papaver somniferum*
Osier – *Salix viminalis*
Ox-eye daisy – *Leucanthemum vulgare*
Oxford ragwort – *Senecio squalidus*

P

Parsley-piert – *Aphanes* sp.
Pear – *Pyrus* sp.
Pedunculate oak – *Quercus robur*
Pellitory-of-the-wall – *Parietana judaica*
Pendulous sedge – *Carex pendula*
Peppermint – *Mentha* x *piperita*
Perennial rye-grass – *Lolium perenne*
Periwinkles – *Vinca* sp.
Persicaria – *Polygonum persicaria*
Pine – *Pinus* sp.
Pink water speedwell – *Veronica catenata*
Plane – *Platanus* sp.
Plantain – *Plantago* sp.
Plum – *Prunus domestica*
Policeman's helmet – *Impatiens glandulifera*
Polypody – *Polypodium vulgare*
Poplar – *Populus* sp.
Poppy – *Papaver* sp.
Prickly sedge – *Carex muricata*
Primrose – *Primula vulgaris*
Privet – *Ligustrum* sp.
Procumbent pearlwort – *Sagina procumbens*

Purging flax – *Linum catharticum*
Purple loosestrife – *Lythrum salicaria*
Purple willow – *Salix purpurea*
Pyramidal orchid – *Anacamptis pyramidalis*

Q

Quaking grass – *Briza media*

R

Ragged robin – *Lychnis flos-cuculi*
Ragwort – *Senecio jacobaea*
Ramsons – *Allium ursinum*
Rat-tail plantain – *Plantago major*
Red bartsia – *Odontites verna*
Red clover – *Trifolium pratense*
Red currant – *Ribes rubrum*
Red fescue – *Festuca rubra*
Red hemp-nettle – *Galeopsis angustifolia*
Red horse chestnut – *Aesculus* x *carnea*
Red valerian – *Centranthus ruber*
Reed – *Phragmites australis*
Reed sweet-grass – *Glyceria maxima*
Reed-grass – *Phalaris arundinacea*
Reedmace – *Typha* sp.
Reflexed stonecrop – *Sedum reflexum*
Remote sedge – *Carex remota*
Restharrow – *Ononis repens*
Rhododendron – *Rhododendron ponticum*
Ribwort – *Plantago lanceolata*
Rose – *Rosa* sp.
Rose-bay willow-herb – *Chamaenerion angustifolium*
Rose-of-Sharon – *Hypenicum calycinium*
Rough chervil – *Chaerophyllum temulentum*
Rough hawkbit – *Leontodon hispidus*
Rough hawksbeard – *Crepis biennis*
Round-leaved cranesbill – *Geranium rotundifolium*
Round-leaved water-crowfoot – *Ranunculus omiophyllus*
Rowan – *Sorbus aucuparia*
Royal fern – *Osmunda regalis*
Rue-leaved saxifrage – *Saxifraga tridactylites*
Rush – *Juncus* sp.
Russian vine – *Fallopia baldschuanica*
Rustyback – *Asplenium ceterach*
Rye-grass – *Lolium* sp.

S

Salad burnet – *Sanguisorba minor minor*
Sallow – *Salix* sp.
Sanicle – *Sanicula europaea*
Scarlet pimpernel – *Anagallis arvensis*
Scentless mayweed – *Tripleurospermum inodorum*
Sedge – *Carex* sp.
Self-heal – *Prunella vulgaris*
Sheep's fescue – *Festuca ovina*
Shepherd's purse – *Capsella bursa-pastoris*
Sickle medick – *Medicago sativa falcata*
Silver archangel – *Galeobdolon argentatum*
Silver birch – *Betula pendula*
Slender false-brome – *Brachypodium sylvaticum*
Slender speedwell – *Veronica filiformis*
Smaller cat's-tail – *Phleum bertolonii*
Small scabious – *Scabiosa columbaria*
Small-leaved lime – *Tilia cordata*
Snowberry – *Symphoricarpos albus*
Soft rush – *Juncus effusus*
Spear thistle – *Cirsium vulgare*
Spearmint – *Mentha spicata*
Spike rush – *Eleocharis* sp.
Spindle – *Euonymus europaeus*
Star-wort – *Callitriche* sp.
Stemless thistle – *Cirsium acaule*
Stinking iris – *Iris foetidissima*
Stone parsley – *Sison amomum*
Strawberry clover – *Trifolium fragiferum*
Stream water-crowfoot – *Ranunculus penicillatus*
Swamp stonecrop – *Crassula helmsii*
Swedish whitebeam – *Sorbus intermedia*
Sweet briar – *Rosa rubiginosa*
Sweet chestnut – *Castanea sativa*
Sweet violet – *Viola odorata*
Sweet woodruff – *Galium odoratum*
Sycamore – *Acer pseudoplatanus*

T

Tall brome – *Festuca gigantea*
Tall broomrape – *Orobanche elatior*
Tall rocket – *Sisymbrium altissimum*
Tansy – *Tanacetum vulgare*
Teasel – *Dipsacus fullonum*
Thistle – *Cirsium* sp.
Thyme-leaved sandwort – *Arenaria serpyllifolia*
Thyme-leaved speedwell – *Veronica serpyllifolia*
Timothy – *Phleum pratense*
Toadflax – *Linaria* sp.
Tomato – *Lycopersicon esculentum*
Tor grass – *Brachypodium pinnatum*
Town hall clock – *Adoxa moschatellina*
Tree of heaven – *Ailanthus altissima*
Tree tomato – *Cyphomandra betacea*
Trifid bur-marigold – *Bidens tripartita*
Tufted hair-grass – *Deschampsia cespitosa*
Tufted vetch – *Vicia cracca*
Turkey oak – *Quercus cerris*

U

Unbranched bur-reed – *Sparganium emersum*
Upright brome – *Bromus erectus*
Upright hedge-parsley – *Torilis japonica*

V

Vervain – *Verbena officinalis*
Vetch – *Vicia* sp.
Violet – *Viola* sp.
Viper's bugloss – *Echium vulgare*

W

Wall barley – *Hordeum murinum*
Wall lettuce – *Mycelis muralis*
Wall-rue – *Asplenium ruta-muraria*
Walnut – *Juglans regia*
Water cress – *Nasturtium* sp.
Water fern – *Azolla filiculoides*
Water figwort – *Scrophularia auriculata*
Water forget-me-not – *Myosotis scorploides*
Water mint – *Mentha aquatica*
Water plantain – *Alisma plantago-aquatica*
Water speedwell – *Veronica anagallis-aquatica*
Water-crowfoot – *Ranunculus* sp.
Wayfaring tree – *Viburnum lantana*
Weeping willow – *Salix* x *sepulcralis*
Weld – *Reseda luteola*
Welted thistle – *Carduus acanthoides*
Western red-cedar – *Thuja plicata*
White bryony – *Bryonia cretica*
White campion – *Silene latifolia*
White clover – *Trifolium repens*
White melilot – *Melilotus alba*
White water-lily – *Nymphaea alba*
Whitebeam – *Sorbus aria*
Whorled water-milfoil – *Myriophyllum verticillatum*
Wild angelica – *Angelica sylvestris*
Wild basil – *Clinopodium vulgare*
Wild carrot – *Daucus carota*
Wild chamomile – *Matricaria recutita*
Wild clary – *Salvia verbenaca*
Wild mignonette – *Reseda lutea*
Wild parsnip – *Pastinaca sativa*
Wild pear – *Pyrus pyraster*
Wild privet – *Ligustrum vulgare*
Wild strawberry – *Fragaria vesca*
Willow – *Salix* sp.
Winter heliotrope – *Petasites fragrans*
Wood avens – *Geum urbanum*
Wood sedge – *Carex sylvatica*
Wormwood – *Artemisia absinthium*
Wych elm – *Ulmus glabra*

Y

Yarrow – *Achillea millefolium*
Yellow archangel – *Lamiastrum galeobdolon*
Yellow flag – *Iris pseudacorus*
Yellow fumitory – *Corydalis lutea*
Yellow loosestrife – *Lysimachia vulgaris*
Yellow oat grass – *Trisetum flavescens*
Yellow rattle – *Rhinanthus minor*
Yellow toadflax – *Linaria vulgaris*
Yellow vetchling – *Lathyrus aphaca*
Yew – *Taxus baccata*
Yorkshire fog – *Holcus lanatus*

Appendix 2b Alternative English names for plants

Many plants are known by a variety of different English names in different books. Those used in this handbook largely follow Clapham, Tutin and Warburg's (1981) *Excursion Flora of the British Isles*. For readers familiar with other texts, some of the commoner alternative names are given below.

A

Aaaron's rod – Great mullein, common mullein
Alkanet – Green alkanet, evergreen alkanet

B

Bindweed – Field bindweed
Bittersweet – Woody nightshade
Bindweed – Field bindweed
Blackthorn – Sloe
Bramble – Blackberry
Buckthorn – Common buckthorn, purging buckthorn
Buddleia – Butterfly bush
Bur-reed – Branched bur-reed

C

Canadian pondweed – Canadian waterweed
Celery-leaved crowfoot – Celery-leaved buttercup
Centaury – Common centaury
Chilean rhubarb – Giant-rhubarb
Comfrey – Common comfrey
Common St John's wort – Perforate St John's-wort
Crow garlic – Wild onion

D

Dusty miller – Snow-in-summer
Dwarf elder – Dane elder, danewort

E

Everlasting pea – Broad-leaved everlasting-pea

F

Fenugreek – Bird's-foot clover
Field poppy – Common poppy
Fiorin – Creeping bent
Flote-grass – Floating sweet-grass
Fritillary – Snakeshead fritillary

G

Galingale – Sweet galingale
Gean – Wild cherry
Goat willow – Pussy willow, great sallow
Great hairy willow-herb – Great willowherb
Great hedge bedstraw – Hedge bedstraw

H

Hairy oat – Downy oat-grass
Hammer sedge – Hairy sedge
Hardheads – Common knapweed, black knapweed
Hastate orache – Spear-leaved orache, halberd-leaved orache
Hedge garlic – Garlic mustard
Hoary pepperwort – Hoary cress
Holm oak – Evergreen oak
Hornwort – Rigid hornwort

J

Japanese spindle – Evergreen spindle

K

Kingcup – Marsh-marigold

L

Lesser broomrape – Common broomrape
Lop-grass – Soft brome
Lords-and-Ladies – Cuckoo pint, wild arum

M

Mountain cranesbill – Hedgerow crane's-bill

N

Narrow-leaved water parsnip – Lesser water-parsnip

O

Oat grass – False oat-grass, tall oat-grass
Old man's beard – Traveller's joy, wild clematis
Oriental poppy – Opium poppy

P

Pedunculate oak – English oak
Persicaria – Redshank
Policeman's helmet – Indian balsam, Himalayan balsam
Purging flax – Fairy flax

R

Ramsons – Wild garlic
Rat-tail plantain – Greater plantain
Reed-grass – Reed canary-grass
Ribwort – Ribwort plantain
Rowan – Mountain ash
Russian vine – Mile-a-minute

S

Star-wort – Water-starwort
Stemless thistle – Dwarf thistle
Stinking iris – Gladdon
Swamp stonecrop – New Zealand pigmyweed

T

Tall brome – Giant fescue
Tall broomrape – Knapweed broomrape
Timothy – Cat's-tail
Town hall clock – Moschatel

W

Water speedwell – Blue water-speedwell
Wild chamomile – Scented mayweed
Wood avens – Herb Bennett

Y

Yellow fumitory – Yellow corydalis
Yellow toadflax – Common toadflax

Index to sites and key to site numbers in figure 8

	site	ref	page
1	All Saints Churchyard, Benhilton	L3	83
see 10	All Saints Churchyard, Carshalton	BII 4	68
2	Anton Crescent Wetland	BII 15	78
3	The Avenue Primary School Nature Garden, Belmont	L7	85
see 8	Back Green, Worcester Park	L11	87
4	Banstead Downs	BI 7	60
5	Beddington Lane Paddock	BII 1	64
6	Beddington Park and St Mary's Churchyard	BI 2	49
7	Beddington Sewage Farm	M92	40
8	Beverley Brook and Back Green, Worcester Park	L11	86
9	Big Wood and Ruffett Wood	BI 4	56
10	Carshalton Ponds, The Grove and All Saints Churchyard	BII 4	65
11	Carshalton Road Pastures and Grove Lane	BI 5	57
12	Cheam Park	L8	85
13	Cuddington Golf Course and Cuddington Hospital	BI 8	61
14	Cuddington Recreation Ground	L12	87
15	Devonshire Avenue Children's Playground	BII 8	72
16	East Sutton Railway Lines (The Warren)	BII 6	69
see 6	Grange, The	BI 2	52
17	Greenshaw Wood	BI 1	49
see 10	Grove, The	BII 4	65
see 11	Grove Lane	BI 5	57
18	Lambert's Copse	BII 12	75
19	Little Woodcote Wood	BII 10	73
20	London Road Edge, North Cheam	L9	85
21	Mill Green	L1	81
22	The Oaks Park and Golf Course	BI 6	58
23	Old Belmont Hospital Site	BII 13	76
24	Perretts Field and Sutton Water Works	BII 14	77
25	Pyl Brook, Stonecot	L10	86
26	Queen Mary's Hospital Wood and Wellfield Plantation	BII 9	72
27	Radcliffe Gardens Woodland	L5	84
28	Revesby Road Wood	L2	81
29	River Wandle	M91	30
30	Roundshaw Downs	M119	43
31	Royal Marsden Hospital Grassland	L6	84
see 9	Ruffett Wood	BI 4	56
see 6	St Mary's Churchyard, Beddington	BI 2	50
32	St Mary's Court, Bute Road	BII 2	64
33	St Nicholas Churchyard, Sutton	L4	83
34	St Philomena's Lake	BII 5	68
see 24	Seears Park	BII 14	77
see 29	Spencer Road Wetland	M91	37
35	Spinney, The	L13	87
36	Sutton Ecology Centre	BI 3	52
37	Sutton to St Helier Railway Line	BII 3	65
see 24	Sutton Water Works	BII 14	78
38	Therapia Lane Rough	M120	45
see 29	Wandle, River	M91	30
see 29	Wandle Valley Hospital Wetland	M91	37
see 16	Warren, The	BII 6	69
39	Water Gardens Bank	BII 7	70
see 26	Wellfield Plantation	BII 9	72
see 29	Wilderness Island	M91	35
40	Woodcote Grove Wood	BII 11	75
41	Woodcote Park Golf Course	M121	47
42	Worcester Park Sewage Works	BII 16	80

M Sites of Metropolitan Importance
BI Sites of Borough Importance, Grade I
BII Sites of Borough Importance, Grade II
L Sites of Local Importance

To provide a London-wide reference, Borough and Local site numbers are given the prefix *Su.* for Sutton

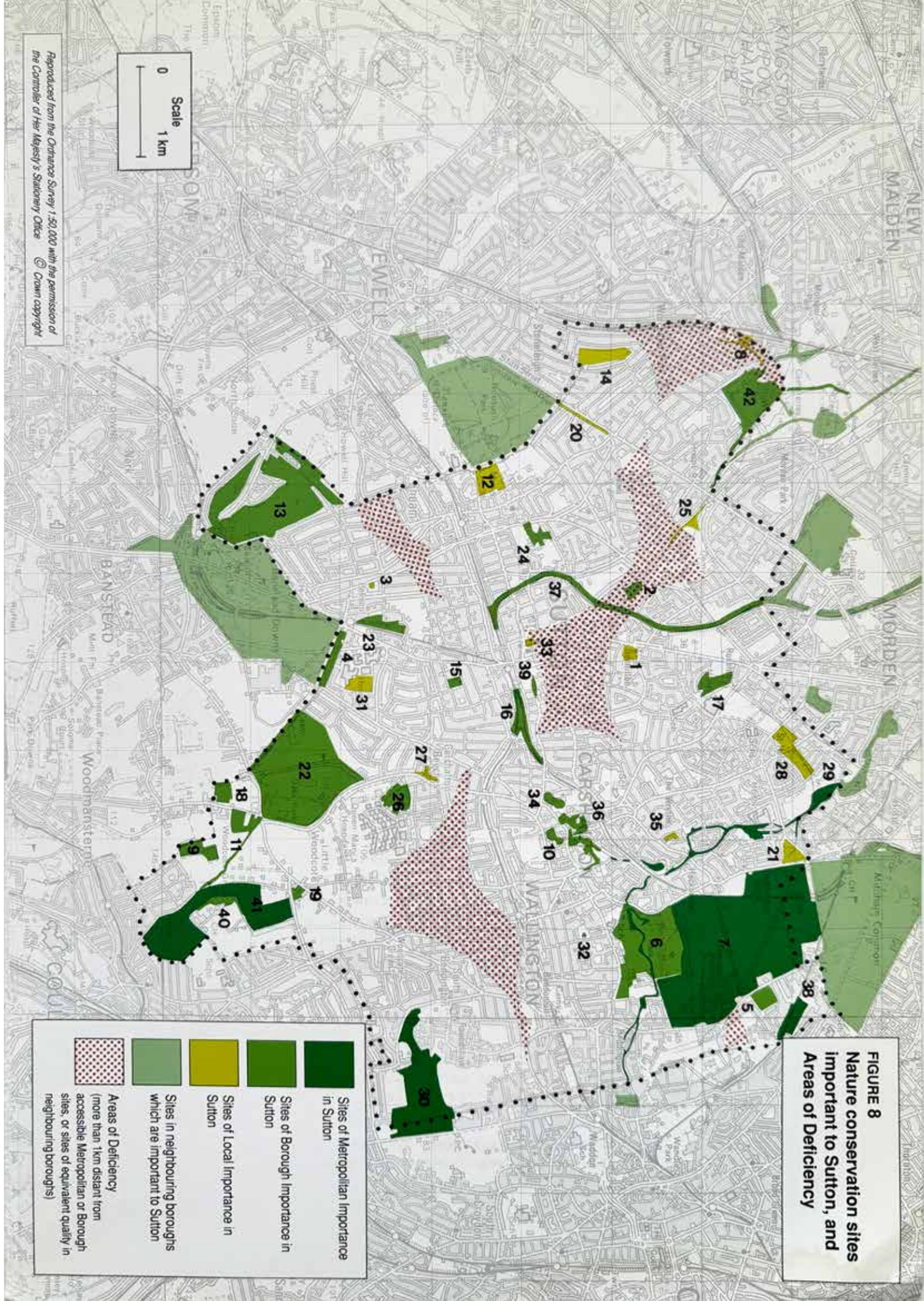

FIGURE 8
Nature conservation sites important to Sutton, and Areas of Deficiency