

Nonsuch Park Habitat Management Plan

2023-2028



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EPSOM & EWELL BOROUGH COUNCIL**

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ACKNOWLEDGEMENTS

A number of people who have been involved in the writing of this management plan. Thanks go to the following individuals:

Peter Howarth - Epsom & Ewell Borough Council
Sam Whitehead - Epsom & Ewell Borough Council
John Armitage – Future Woodlands/Lower Mole Partnership
Jon Whitehead – Nonsuch Voles
Alison Whitehead MacLean – Nonsuch Voles
Peter Steel - Epsom & Ewell Borough Council
Peter Bullock - Epsom & Ewell Borough Council
Jeremy Young – Epsom & Ewell Borough Council
Stewart Cocker - Epsom & Ewell Borough Council
June Chatfield - Zoologist and Patron of Nonsuch Watch

EXECUTIVE SUMMARY

Nonsuch Park is an extremely important asset to the Boroughs of Epsom & Ewell and London Borough of Sutton and their residents. Currently it is managed mainly for its amenity use and is highly regarded by its many visitors; however, it is also extremely important for wildlife and has not yet reached its potential. It has a wide variety of habitats and species and if some key management techniques are employed, the biodiversity value of the site will flourish.

The open grasslands are a key feature of the park and if, once cut, the arisings are removed, the botanical diversity would improve along with the animals it supports. There is a large section of chalk underlying the southern area of the park, which if managed in this way, could become a priority habitat - chalk grassland, similar to the neighbouring Warren Farm. Currently the grassland is in unfavourable condition but this could be easily rectified.

Nonsuch already contains three priority habitats, Lowland mixed deciduous woodland, Hedgerows and Ponds. Currently there is not the resource to actively manage these habitats, along with 32 priority species as defined under the Natural Environment and Rural Communities Act.

It is a key focus of this management plan to:

- highlight the importance of Nonsuch in terms of its Biodiversity
- to seek ways to increase the management resource
- identify practical habitat management techniques, which can continue in to the future.



INTRODUCTION

The Countryside Team were asked to update the Nonsuch Park Five Year Management Plan running from 2021 until 2026. The past management plans were reviewed and numerous meetings and discussions were had with the staff and volunteers involved in the site's management to come up with the prescriptions outlined within this management plan. As this is an update of past management plans, many of the habitat descriptions and recommendations are still current and therefore used where appropriate. The key difference is that the information included in this plan is solely for Nonsuch Park and does not include guidance on the management of the adjacent Warren Farm. The Woodland Trust owns and manages Warren Farm.

Nonsuch Park was surveyed during the months of June and July 2020 to assess the habitats' current status and potential. This management plan focuses on the site's habitat management and the enhancement of its biodiversity value, particularly its habitats of principal importance.

STAGE ONE – DESCRIPTION

1.1 Introduction

Nonsuch Park is a large area of open parkland dominated by its large areas of sweeping grassland but has a rich mosaic of other habitats including woodland, scrub, parkland trees and ponds. It is a hugely important area for people and wildlife.

1.2 Location

Nonsuch Park is situated between Cheam and Ewell Village in the north of Epsom and Ewell. The eastern boundary of Nonsuch Park is the boundary between the boroughs of Epsom & Ewell and the London Borough of Sutton. Central grid reference is TQ 23163 63636.

1.3 Land Tenure and Associated Statutory Requirements

Since the 1930s, the freehold of much of the park has been owned by Surrey County Council and has been managed jointly by the London Borough of Sutton and Epsom & Ewell Borough Council (and their predecessors) through the Nonsuch Park Joint Management Committee (JMC). In 2008, Surrey County Council granted a long lease of its ownership jointly to Sutton and Epsom & Ewell Councils. This legal agreement will allow the two Boroughs, through the JMC, to deliver effective estate management and financial planning. There is a separate management plan that has been prepared for the whole estate along with a maintenance plan for the park buildings, which includes the Nonsuch Mansion House.

The Natural Environment and Rural Communities (NERC) Act 2006 currently includes a duty on public authorities to have regard to the conservation of biodiversity. The new Environment Act has amended this duty so that there is an expectation on public authorities to look strategically at their policies and operations from time to time (at least every 5 years) and assess what action they can take 'to further' the conservation and enhancement of biodiversity. They must also have regard to the relevant Local Nature Recovery Strategies, Species Conservation Strategies and Protected Sites Strategies, as part of the consideration. The production and implementation of a management plan will be a key part of adhering to this duty.

1.4 Local Designations

Past management plans have included reference to Warren Farm, which is located to the south of Nonsuch Park. This plan does not as it is a separate site, owned by The Woodland Trust and managed independently. However, as the habitat is continuous, they collectively form the Site of Nature Conservation Importance (SNCI). It has been selected as a SNCI, as indicated on the Local Plan, for its mosaic of habitats and important wildlife.

It is also within the North Downs Natural Area (more information available from Natural England) and is within the greenbelt. The site is also included in the Surrey Biodiversity Opportunity Area (BOA) ND04: North Downs; Epsom Downs to Nonsuch Park. The aim of the Biodiversity Opportunity Areas (BOAs) is to establish a strategic framework for conserving and enhancing biodiversity at a landscape scale. BOAs identify the most important areas for wildlife conservation in Surrey and each include a variety of habitats, providing for an 'ecosystem approach' to nature conservation across and beyond the county. Therefore the management work detailed in this report could be seen to provide a landscape link within the overall BOA network. Although not a statutory designation, BOAs are protected under Epsom and Ewell's Local Plan and are material considerations in planning applications.

1.5 SNCI Reason for selection

Nonsuch Park and Warren Farm contain a mosaic of habitats supporting rare species. It has species-rich meadows reaching the required score of over 15 of the listed species, including two of the higher rated ones. A study of slow worms in the Cherry Orchard Farm area found a high count of +20, which indicates an exceptional population of the species. Small Blue butterfly is regularly recorded through the Butterfly Monitoring Scheme in association with Butterfly Conservation and is on List A in the butterfly criteria. The full SNCI report can be found in Appendix 1.

1.6 Photographic Coverage

Aerial photographs taken in 2003, 2009, 2011, 2013, 2016 and 2019 are held by the EEBC GIS Section. More recent aerial photographs of the site are available online from Google Maps, Apple Maps and Bing Maps.

1.7 Summary Description

1.7.1 Physical

1.7.1.1 Geology

A detailed geological map has been reproduced with kind permission from June Chatfield from the London Naturalist Report No 73 (1994) (Map 1). It is in this report that there is a detailed discussion of the geology. There is a band of Chalk in the south-east section over Warren Farm and into the south-east corner of Nonsuch and Cheam Park, including the Mansion House and gardens, which is sometimes overlain by sandy soil. The influence is clearly seen at Warren Farm with species such as Greater Knapweed, Wild Basil and Kidney Vetch. Sands and clays cover the rest of Nonsuch Park. In the northern section, there is London Clay and the land slopes down to Woolwich and Reading Beds followed by Thanet Sands. The western part of Cherry Orchard Farm and the Banqueting House site are on Woolwich and Reading Beds. There is also a small strip of Alluvium, from an old post glacial stream, which occurs between the outcrops of London Clay and the Woolwich and Reading Beds in the western part of Nonsuch Park on the line of New Pond.

New information has come forward and it is recommended that a new map of the geology of the site be produced to reflect the findings. This has been added as an action in the Management Recommendations.

1.7.1.2 Topography and Hydrology

Nonsuch Park comprises remnant parkland which is fairly level, with variations in topography being gently undulating. Ground level is in the order of 190ft above sea level at its greatest and around 130ft at its lowest. There are two ponds within the park, New Pond and Round Pond. New Pond is situated on the north-western edge, constructed in the mid-1980s to absorb run off from the park protecting London Road from flooding and is fed by the main ditch running through the centre of the

park. Round Pond is in the middle of the park and is seasonal, fed by subsurface water issuing from the gravel/sand at its eastern edge. There is a network of ditches, crossing the park and also three remnant ponds along their lines, Brown, Sanctuary and Ostracod Ponds.

1.7.2 Biological

1.7.2.1 Priority Habitats

The importance of the site is indicated by the fact the site includes three habitats: Hedgerows, Lowland Mixed Deciduous Woodland and Ponds, which are Habitats of Principal Importance in England under the Natural Environment and Rural Communities Act. See Map 3. Full habitat classifications can be found at <https://jncc.gov.uk/our-work/uk-bap-priority-habitats/>.

Hedgerows

The hedgerows that are present within Nonsuch Park have largely developed in to treelines and consist of species such as Oak, Elm, Hawthorn, Blackthorn, Ash, Elder and occasionally Hornbeam, Cherry, Field Maple and Sycamore. They are often associated with margins of brambles and nettles and have generally grown up along the ditch lines.

Lowland mixed deciduous woodland

There are eleven woodlands within Nonsuch Park consisting of one ancient woodland (The Ancient Wood) and plantation woodland. They are found around the margins of the site, with three larger copses within the meadows.

All generally contain a mix of native species with some containing some exotic planting, which would be expected in a parkland site. Unfortunately, some invasive species have taken hold in some areas such as Cherry Laurel. The main canopy species found within the woodlands include Oak, Ash, Sycamore, Norway Maple and Horse Chestnut.

Ponds

There are two ponds within the park, New Pond and Round Pond, the latter being particularly interesting due to the presence of Great Crested Newts. The three remnant ponds, Sanctuary Pond, Ostracod Pond and Brown Pond have all silted up and scrubbed over. Brown Pond is fed by a ditch which the Nonsuch Voles have cleared a couple of times and it does hold a low level of water in the wetter months.

1.7.2.2 Other important habitats

Veteran/Mature trees

There are a number of veteran trees across the park, mainly oak. The ones identified during the writing of this management plan are marked on the habitat map (map 3).

Grasslands

Grassland, largely mesotrophic, make up the majority of the habitat within Nonsuch Park. The majority of meadows are currently either cut once a year in September, or regularly mown amenity grassland. Nonsuch Park is characterised by large wide-open spaces and far-reaching views.

Scrub

A very important habitat for birds and invertebrates and is found within Nonsuch in Russet Field, Cherry Orchard Farm and along the some of the woodland edges.

1.7.2.3 Species groups

These important habitats within Nonsuch Park support a wide variety of plant and animal species, including some interesting chalk grassland plants, fungi, lichens, bryophytes, birds, mammals, a wide range of invertebrates, reptiles and amphibians including 34 priority species as identified in the NERC Act.

1.8.3 Cultural

1.8.3.1 Archaeology

Nonsuch Park is a grade two historic landscape containing the site of Nonsuch Palace, the Palace garden (known as The Wilderness) and Banqueting House. These areas are a scheduled ancient monument and of great archaeological importance. (See map 4). The site of the Palace is marked on the ground within Nonsuch Field by stone columns and is closely mown. The Palace garden is in the area known as Cherry Orchard Farm. The site of the Banqueting House is marked by a low wall within a grassland area known as Five Acres Piece on the edge of the Banqueting House Woodland.

The site of the Tudor stable in the area known as Old Stable Ground is also archaeologically significant. The Mansion gardens are an important historic landscape specifically referred to in the listing statement for the park. London Road follows the general line of Stane Street – the London to Chichester Roman Road. The park management should seek to preserve both the historic landscape and the archaeological remains.

It was previously thought that the south-east portion of Pottery Wood was a likely site for the ‘Grove of Diana’ a site of major archaeological importance. However, this is now not certain and more work needs to be done to confirm the correct location.

1.8.3.3 Public Access and Recreation

The park can be accessed by bus and train with stations at Cheam, Ewell East and Ewell West. Two car parks can be accessed from London Road and two from Ewell Road. There is pedestrian access from the Ewell Bypass, Bluegates, Wickham Avenue, Cheam Park, Castle Avenue and Beaufort Way. There is access for people with disabilities along the main path from the Mansion House.

Despite the large number of paths throughout the park, there are relatively few rights of way. A few of the paths are surfaced but the majority are grass mown. Many visitors, mostly dog walkers and pedestrians use the park, but cyclists are also allowed. Horse riding is not allowed. There are three areas where dogs are not allowed near the three car parks.

There are varieties of organised groups who use the park including fitness groups and Park Run, as well as people using the site for informal recreation. Routes through the southern end of the park form part of the London Loop and also the Round the Borough Hike and Bike.

There is a Forest School, ‘Little Oaks,’ situated in the buildings near the Mansion House. The children use the park for some of their activities. It is advised that their activities are monitored to ensure they do not impact negatively on the habitats within the park.

The site has limited interpretation with no organised guided walks and few notice boards. There is an information board on the history of Nonsuch Palace near the London Road car park and The Nonsuch Voles have put up panels explaining the work they have been carrying out within the woodlands. The Voles in conjunction with Epsom & Ewell Borough Council have also added an interpretive sign within the Mansion House Gardens.

Where back gardens adjoin the park directly, there is associated dumping issues, particularly in Banqueting House Woodland. It would be advisable to communicate with these residents to highlight the problem of green waste and the potential for garden escapes to impact on native wildlife.

STAGE TWO – EVALUATION

2.1 Evaluation criteria

Size

Nonsuch Park is a public park covering approximately 131 hectares (321 acres). The majority of the site is composed of mesotrophic grassland with some marginal secondary woodlands including one area of ancient woodland. Other habitats present include, scrub, copses, hedges, parkland trees, some veteran avenues of trees, field boundary trees, bare ground, wall & buildings, open water ponds and ditches.

It also includes the area known as Cherry Orchard Farm and Cherry Orchard Nursery, which is approximately 8 hectares and is predominantly rough grassland, scrub and woodland. It also comprises the Mansion House formal gardens, approximately 4 hectares, which are excluded from this management plan.

Naturalness

There are few, if any areas left in Great Britain, which can be described as entirely natural and this site is no exception. Humans have at some point in their history, influenced most landscapes. However, it is generally accepted that the closer to 'natural' a site is then the more nature conservation value it has. With its location and history, it is of no surprise to realise how much Nonsuch Park has been influenced by people, culture and its urban location.

During the 1930s-1940s, the London Clay was used for cereal crops, soft fruit growing and allotments. According to records and personal anecdotes there used to be a small flock of sheep in the late 1940s, just east of Nonsuch Park Café. This was the only animal husbandry known for the parks except for Cherry Orchard Farm, where pigs were kept in the 1940s and 50s. Sparrow Farm Gate Field was never cultivated. Arable farming petered out in the 1960s. (Although Warren Farm was in cultivation until 1987 and is still regularly rotovated via the management programme set out by the Woodland Trust.) Round Pond Field had been given a hay cut in late summer.

From these agricultural fields the now current meadows have formed. It is thought that some (if not all) of the small ponds were artificially created to be used by farm animals. The New Pond was created in the mid-1980s to protect London Road from flooding due to the run off from the park.

The names of the perimeter woodland belts, North Plantation, London Road Plantation etc. suggest that they were planted. However, they may have incorporated some existing trees as there are some veteran specimens amongst them. In other areas such as along the line of the abandoned road (construction was abandoned due to World War II,) self-seeded secondary woodland is present. This area was open until about 1960 (June Chatfield pers. comm.). Nonsuch Pottery Wood is on an area of former clay extraction (June Chatfield pers. comm.).

Whilst the majority of the vascular plant species are native species there are a few that have been deliberately planted or accidentally found their way onto the site which are non-native and invasive. These include Cherry Laurel, Sycamore (although not considered a major problem at the moment, and in fact can have a benefit to the overall diversity of the woodland canopy), as well as Turkey Oak.

Non-native herbs include Canadian Goldenrod (particularly a problem over in Warren Farm, which is being managed as part of the Woodland Trust Management Plan), Japanese Knotweed (highly invasive and found at Warren Farm) and *Crassula helmsii* (highly invasive and currently dominating parts of the New Pond). Care needs to be taken that Canadian Goldenrod and Japanese Knotweed do not escape in to Nonsuch Park.

Diversity and Rarity

A very comprehensive review of the species recording at the site has been carried out by Dr June Chatfield for the London Natural History Society, as a report for the London Naturalist published in 2014. She provides a very thorough overview of the Park and its natural history, reviewing its development over 20 years. Her findings and more recent survey information is summarised below.

Habitats – Nonsuch Park has a wide range of habitats with the potential to support a great variety of wildlife. This diversity of habitats means the park is rich in both plant, fungi and animal life.

Fungi and myxomycetes (slime moulds) - A total of 140 have been recorded at Nonsuch. The latest surveys have concentrated on the smaller species – rusts, mildews and slime moulds. In 2013, Dr Brian Spooner joined a Nonsuch Watch field meeting and made some great discoveries, including *Asteromella arbuticola* and *Septoria ornithogali*, both new to Great Britain; *Phanerochaete jose-ferreirae*, new to England and two possible new species, one belonging to the *Chaetomium* genus and one to the *Sirococcus* genus.

Lichens

A total of 84 different lichen species were found in 1993, 1995 and 2003. The surveys were led by Frank Dobson. Some of the records are from the Mansion House Gardens looking at habitats such as the urns, walls and sculptures. The willows at Round Pond were looked at carefully which resulted in the discovery of *Parmelia perlata*, a good sign of improved air conditions. A notable find in 2003 was *Cyphelium notarisii*, the third record for Surrey, growing on the benches within the gardens of the Mansion House.

Bryophytes – A total of 88 bryophyte species have been recorded here. Pete Howarth and June Chatfield carried out the most recent survey in 2013. The major change since 1993, noticed by June Chatfield, was the great recovery in epiphytes. The list of bryophytes includes one that is nationally scarce and one has local status. The wall of the Mansion House formal gardens is good for *Porella platyphylla*, an uncommon liverwort in the south-east.

Vascular plants

455 species have been recorded in total, which compares well with other sites in Epsom and Ewell. Around 500 species have been recorded on Epsom Common and only 350 species in Horton Country Park. In the past, Common spotted orchids have flowered around the New Pond, and in 2018, Brackish Water-crowfoot *Ranunculus baudotii* was recorded in Round Pond by members of Surrey Botanical Society, which has not been seen in many years and is uncommon.

Pepper saxifrage *Silaum silaus* was recorded in 2005 in Russet Field but unfortunately has been lost to scrub invasion. Spurge laurel is an interesting component of The Ancient Wood along with the Goldilocks buttercup being the most significant woodland flower. Mistletoe is common in the trees within Field next to the lane.

Grassland flora varies according to the soil type. In Nonsuch the chalk is largely overlain by Thanet Sand and chalkland plants tend not to occur apart from lady's bedstraw *Galium verum*, found in good quantities in Great Meadow. However, chalk and rubble from the excavation of Nonsuch Palace in 1958 was spread across Nonsuch Field and some field scabious *Knautia arvensis* that was first found there in 1993 is still present in 2020.

Smooth Rupturewort, *Herniaria glabra* was found by Jovita Kaunang, which was a new vice-county record for Surrey.

The largest habitat type found within Nonsuch is the semi-improved meadows and this is a relatively restricted habitat in south-east England. Here there is frequent Meadow Barley, which is relatively rare grass species and known to be declining in Surrey. Across the country, we have lost 97% of our

hay meadows. The potential to manage the grasslands as hay meadows is one that should be thoroughly investigated.

Oligochaetes (Earthworms)

June Chatfield highlighted in her review in 2014, that until relatively recently, there had not been a great deal of surveying of this group of animals nationally. She suggests it remains a project for Nonsuch and assistance from the Earthworm Society of Britain should be encouraged. Incidental records have been made of the lob worm *Lumbricus terrestris* and the yellow-green earthworm, *Allobophora chloritica*.

Molluscs (Slugs, snails, mussels)

A total of 46 species of mollusc have been recorded and there have been few changes noted in June Chatfield's report. The most notable new arrival was the Irish Slug *Limacus maculatus*. Although the terrestrial molluscs have been relatively stable, the freshwater fauna has shown more changes. New Pond has a colony of Pfeiffer's amber snail *Oxyloma elegans* and the Ramshorn snail, *Planorbis planorbis*. Bladder snails were found in Round Pond.

Arachnids

A total of 70 species have been recorded. In 2013, surveying focussed on the northern perimeter tree belts, The Wood and The Ancient Wood. In 1993, attention was focussed on Warren Farm and Cherry Orchard Farm. *Philodromus albidus* is rather rare in the south and east but does seem to be spreading northwards as so many other species of spiders and insects are too.

Insects -

A key improvement concerning the population of insects, identified within the 20 year review by June Chatfield, has been the management of the grassland. Roger Hawkins was asked by Nonsuch Watch to carry out a survey of insects within the grasslands in 2004. Regularly mown grassland was almost devoid of wildlife but since 1991, the grasslands have been allowed to flower and set seed, which has been hugely beneficial for insect life.

Lepidoptera

- Butterflies – a transect route has been walked since 2016 as part of Butterfly Conservation's Butterfly Monitoring Scheme. 29 species have been recorded seen since the transect began, including four NERC priority species. (There are also old records of 4 more species which do have potential to be seen again.) Three species on the NERC Act list, Brown and White-letter Hairstreak are found in Nonsuch Park. Elm, Wych Elm and young Blackthorn are needed for the life cycle of these species. Small Heath is also found and needs fine grasses to be present. Nonsuch Park has good habitat potential for them. The Small Blue is found on Warren Farm but without Kidney Vetch, this species will not cross over in to Nonsuch to breed. Perhaps with improved grassland management and scattering of seed, kidney vetch could be established, for example in Nonsuch Field and Great Meadow.
- Moths – Paul Wheeler, who was invited by Nonsuch Watch to carry out nocturnal surveys in 2006/7, carried out the most comprehensive survey so far of the moths found in Nonsuch Park. A total of 175 species have been recorded, including 5 NERC priority species.

Coleoptera – Beetles, 148 species of beetles have been recorded, the most recent survey taking place in 2004. Ladybirds are particularly well recorded as Roger Hawkins undertook some of his research for his book, Ladybirds of Surrey, at Nonsuch. An interesting find in 2004 was the Golden-bloomed grey longhorn beetle, *Agapanthia villoviridescens*, which is very local in Surrey. The Stag

Beetle *Lucanus cervus* is present on site, which is a NERC priority species. Further surveying will certainly increase the species list for the site.

Diptera – True Flies, 134 species recorded with the most recent survey taking place in 2004

Hemiptera – True Bugs, 135 species recorded with the most recent survey taking place in 2004

Hymenoptera – Ants, Bees and Wasps, 103 species recorded with the most recent survey taking place in 2004. June Chatfield notes that there have been two new species of bee arriving naturally in the British Isles from the Continent and both seen at Nonsuch. The tree bumblebee, *Bombus hypnorum* and the Ivy Bee, *Colletes hederæ*.

Orthoptera – Grasshoppers and Crickets, 8 species recorded, with the most recent survey taking place in 2004. A question posed by June Chatfield was whether the green grasshopper, *Omocestus viridulus*, not found in 1993, would come to Nonsuch with the change in grassland management. Not much change was noticed in 2014 but worth resurveying to check now.

Odonata – Dragonflies and Damselflies, 11 species recorded with the most recent survey taking place in 1993.

Other Invertebrates – 1 Dermaptera (Earwig), 2004; 6 Isopods (Woodlice), 1993; 1 Mycoptera (Scorpion Fly) and 7 Neuroptera – (Lacewings), 2004.

Plant galls

28 plant gall species were recorded from before 1993 -2014. The organisms that form the galls recorded include mites, wasps, midges, bacteria, true bugs, fungus and flies.

Herptiles – 7 species have been recorded:

- Reptiles - In 2012 a survey of Cherry Orchard Farm revealed a significant population of Slow Worms, probably the best site in the Borough for these species. Other reptiles present include Grass Snakes and Common Lizards. All reptiles are protected under UK law. Common Lizards, Slow Worms and Grass Snakes are NERC priority species.
- Amphibians - Natural England carried out eDNA testing on a selection of ponds within the Epsom and Ewell to test for presence of Great Crested Newts (GCNs). The results came back as positive for Round Pond, so Countryside Team Ecologist, Pete Howarth, carried out an egg search for GCNs in April 2020 and GCN eggs were found. (An egg search was also carried out around New Pond, newt eggs were found but no GCN eggs. A small bottle trapping survey was carried out on both ponds but no adults were found in either pond. Surveying was restricted due to the Covid 19 pandemic) Further bottle trapping continued in 2021 and adult GCNs were found in Round Pond. GCNs are a European protected species and are protected by law. The park is also home to Frogs, Toads and Smooth Newts. GCNs and Toads are priority species under the NERC Act.

Birds -

83 species were recorded during 2000 including 15 NERC priority species, 20 on the red list (species of high conservation concern) and 16 on the amber list (species of medium conservation concern.)

In 2019 – Stephen Hewitt carried out a nest survey, which resulted in the discovery of 48 blackcap territories, 3 of which were in Warren Farm. Essentially they were all over the park in every copse and woodland. It also discovered 31 nests made by 11 different species. These figures are only a small subsection of the actual numbers of breeding birds in the park.

Hobbies nested in Nonsuch 2018 in the Scot's Pine Trees bordering Plantation Field. They have returned every year and are now nesting in the Pinetum.

No formal breeding bird survey has been carried out as yet.

Mammals – 11 mammal records dating from 1993 and one record of rabbits dating back to 1949. However, rabbits and hares no longer occur. Hedgehogs have been recorded in the past, which are a NERC priority species. Bats were surveyed in 2012 by Alison Fure following a planning application to develop an area of Nonsuch Girls School. Common Pipistrelle, Noctule and Leisler were seen. Alison Fure also carried out a survey on the western side of the park using hand held and static bat detectors. Common and Soprano Pipistrelles and Brown Long-eared bats were recorded. All bats are protected under UK law, and the Noctule, Soprano Pipistrelle and Brown Long-eared bats are NERC priority species. There are foxes present but no formal survey of large or small mammals has been carried out. A survey using longworth traps would be highly recommended.

Pond life – 70% of ponds have been lost from the UK Countryside over the last century. The ponds that still exist in Nonsuch are extremely important in that context and great work has begun on the restoration of Round Pond.

Fragility

The most important natural factor influencing the management is vegetation succession. When management is curtailed, key habitat dependant species can be lost. Due to lack of financial and human resource, many of the habitats are being lost in this way. In the absence of any management, grassland will decrease in diversity as coarse grasses and eventually scrub and woodland take over. Two areas, Black Shed Field and Red Barn Field, are no longer fields but have succeeded to woodland. The majority of Russett Field has also been lost to scrub and woodland. The grassland area within Cherry Orchard Farm is decreasing and scrub is encroaching in from the perimeter. This succession can clearly be seen by looking back over aerial photographs.

The New Pond is already experiencing problems from vegetation succession, even though a substantial amount of work has been carried out in the past to open up the water. The other smaller ponds that were once present, have already become susceptible to drying and shading out to the extent that they have been subsumed into the surrounding copses.

Although woodland is more stable, management is required to ensure that the biodiversity is retained and enhanced. A continuity of decaying wood is required in a variety of stages of decay. Glades and rides should also be managed to create varying light levels within the woodlands to promote the ground flora and regeneration of the trees themselves. Another concern within the park's woodlands and trees are diseases such as Ash Die-Back and Oak Processionary Moth infestations.

Invasive species pose a threat to the habitats within the park. In the grasslands there is a threat from Canadian Goldenrod, which is prevalent in Warren Farm, although this is being addressed. In the woodlands, it is important to manage and ideally eradicate the Cherry Laurel and Turkey Oak to ensure they do not take over. Crassula and Parrot's Feather have found their way into New Pond and have now become highly dominant and very difficult to remove.

Visitor pressure can conflict with strict management for nature conservation and pressure can come from direct disturbance to wildlife. Disturbance may also be an area of conflict for wildlife within the grassland and woodlands, for example breeding birds are unsettled by noise, rapid movement and

the proximity of people and their dogs. Nutrients from dog excrement can change the soil chemistry promoting rank vegetation.

The New Pond is subject to high public pressure, particularly from dogs jumping in and disturbing the water. Round Pond has been protected from dogs to a large extent by being fenced off and has seen a good increase in vegetation within the pond. New studies into the toxicity of flea and tick treatment used on dogs and cats has highlighted a huge impact on the aquatic invertebrate life in our ponds and rivers across England. Roaming cats from nearby housing estates on the peripheries of the open space can also decrease small mammal, bird, bat and reptile populations.

Traffic noise can disturb wildlife as well as reducing human enjoyment. There are parts of Nonsuch where one can escape from traffic noise and sights of buildings and this is much-valued (June Chatfield pers. comm.)

There have been no studies relating to air-borne pollution levels. However, it seems highly likely that exhaust emissions will be depositing relatively high NO_x and SO_x given the site's proximity to major roads. Roadside shelterbelts can be a very useful feature in ameliorating the impact of such pollutants.

Light pollution also has a potentially deleterious impact. The perimeter woodland is useful in limiting light pollution within the park, as is the closure at night. There may be a problem with the lighting to the sports field at the school (June Chatfield pers. comm.)

The climate is predicted to dramatically change over the next 50 - 100 years. It is thought that South East England will see warmer weather, with hotter summers and winters less severe. These changes and change in precipitation will mean the loss of cold loving species and a gradual shift in habitat north. Monitoring systems will help to recognise these changes and enable changes in management techniques.

Typicalness

Surrey has a large number of parklands and they are often in broadly urbanised surroundings, as Nonsuch Park is. However when compared with the vicinity of North Cheam, Worcester Park and the north of Epsom, these habitats and scenic features are not common and there are few large open spaces such as this.

History of biological recording

There has been a long history of surveying and monitoring of the wildlife within Nonsuch Park. Aside from the surveys carried out as part of writing the management plans, Nonsuch Watch has also commissioned many surveys including a reptile survey of Cherry Orchard Farm revealing the presence of a significant population of Slow Worms.

Naturalists, over the years, have found great interest in the park and the breadth of species groups recorded is testament to that. June Chatfield's 2014 review of Nonsuch Park and adjacent open spaces, collates all the recording carried out over the last twenty years. It must be noted that often, surveys carried out also include Warren Farm. Location of species is not always noted so within the species list in the appendix, some are noted as being on Warren Farm, however, it may be that these species were also found in Nonsuch Park. It is likely that the species associated with chalk grassland, were only found on Warren Farm, e.g. Kidney Vetch and Pyramidal Orchid.

Stephen Hewitt carried out bird nesting surveys in accordance with the British Trust for Ornithology guidelines in 2019.

Butterfly surveying is ongoing with Butterfly Conservation's Butterfly Monitoring Scheme transects both on Nonsuch Park and Warren Farm.

There is a long list of people who have contributed records over the years, which goes to show how interesting the site is to have engaged the number of people involved. Many thanks go to; Dick Alder, Tristan Bantock, Elizabeth Bennett, Peter Camber, Graham Collins, Howard Davies, Peter Denny, Frank Dobson, Bill Downey, Richard Fitter, Mike Fox, Alison Fure, Jack Gardiner, Isobel Girvan, John Glasgow, Eric Groves, Roger Hawkins, Stephen Hewitt, Peter Holland, George Hounsome, Peter Howarth, Roy Hurr, Doris Hutchings, Jovita Kaunang, Ian Kitching, David Lonsdale, Mick Massie, Ian Menzies, Frances Murphy, John Owen, Ron Parker, Bryan Radcliffe, John Sankey, Brian Spooner, Eileen Taylor, Mark Turner, Tom Thomas, Peter Trew, E.J. and P.Wakeham, Paul Wheeler, Pam Wilson, Frances Wright and Jean Wright.

All the records on file have been collated in to the list found in Appendix 2.

Position in an Ecological Unit

Sites entirely surrounded by urban development usually score very badly, even so Nonsuch Park scores quite well as it has been maintained as a park for many centuries. Although surrounded by houses, two green corridors to open country are present by the railway line and open land through Ewell to Epsom and Ashted Commons. It is also part of Surrey's North Downs Biodiversity Opportunity Area and links should be sought to connect to Howell Hill and Priest Hill to Epsom and Walton Downs.

Potential Value

If management recommendations outlined in the management plan are followed, the potential to increase the biodiversity value of the park is huge. Chalk grassland could be restored, which is an internationally important habitat and the management of the great mosaic of habitats will support a very diverse range of plants and animals. Biodiversity and functioning ecosystems also bring benefits to tackle climate change and will improve visitors' experience.

Intrinsic Appeal

Given its urban fringe location, Nonsuch Park represents an important and well-used recreational facility, forming a green oasis in a heavily urbanised area. The park has many visitors, has good access for local residents, and is well served by public transport. The landscape of specimen trees, woodlands, far reaching views over large areas of grasslands are an attractive place where people and wildlife come together. The site also has a long history with well-known links to Henry VIII.

2.2 Management compartments

The tables below contain information on all the management compartments, with a description of the current habitat status, current management regime, and future management prescriptions. Some of the descriptions have not changed since the last management plan written by Peter Howarth, which were very thorough and remain accurate, so these have been used again. The species listed use scientific and common names, along with the abundance in some circumstances, using the DAFOR system. This is a way of describing the abundance of a plant and uses the following key: Dominant, Abundant, Frequent, Occasional, Rare.

2.2.1 Hedgerows

General principles:

- Hedges provide shelter and create microhabitats and the longer, larger and more dense it is, the more benefits it provides for wildlife such as birds, bats and other mammals. Bats and mammals will not cross a gap as small as 10m.
- Regular annual trimming prevents flowering and berry production, reducing valuable food for birds and mammals.
- If cutting with a tractor and side arm, ideally a maximum of one third of the length of any given hedge should be managed in a single year. The hedge should be cut on rotation over three to five years depending on the size of the hedge.
- The hedgerows, which have become larger lines of scrub banks should be scalloped in to the centre, in sections. This should be done using volunteers rather than machinery. Each section should be roughly 20m or so and then 20m should be left before another scalloped section begins. This way you create age structure but retain the length of the hedge. On the opposite side, the scalloped section should be opposite a section that is not cut. This results in a zig-zag shape if viewed from above.
- Cutting and trimming should take place preferably in winter, ideally January, and never during the main nesting season of March to August. This minimises the risks of nests being destroyed and food supplies being reduced. Autumn trimming removes valuable seeds and berries. Most of the berries of Hawthorn and Blackthorn, for example, tend to be on the outermost twigs and cutting these before they are eaten means depriving birds of an important food source.
- Ground cover at the base of a hedge should be retained over winter for ground-nesting birds.
- Planting in hedge gaps should be undertaken during the winter, when the ground is warm and some moisture is available. It is suggested that the species used include Hawthorn, Blackthorn, Buckthorn, Holly, Dogwood, Guelder Rose, Field Maple and Hazel. Fencing and protection may be required. If vandalism is a problem then use less conspicuous spiral guards.
- Mature trees in hedgerows, including dead ones, should be left in-situ (wherever public safety constraints permit) as potential nest sites, with consideration being given to erecting nest-boxes in suitable trees lacking large enough holes.
- It is always worthwhile considering planting native broad-leaved trees to become standard trees and fill suitable gaps in hedgerows. These should ideally be unevenly spaced. It is suggested that distances between them should exceed 8m to 9m. Even when trees stretch just a few metres above the main body of a hedge they are used by birds as song-posts.

	Description	Management requirements and potential
A	Known as Cherry Orchard Slip, this is a line of trees bordering Cherry Orchard Farm and the rest of Nonsuch Park. It has become wide and scrubby in places and forms a valuable wildlife corridor. It contains species such as Ash, Elm (many of	Retain hedges, gap up, widen and extend this hedgerow where possible as they provide a valuable wildlife corridor. It is important to open up a gap to allow access for the tractor to be able to manage Cherry Orchard Farm.

	<p>which are dead), Sycamore, Horse Chestnut, bramble, nettle.</p> <p>There is also a line of trees bordering the path, mainly Horse Chestnuts</p>	<p>The line of Horse Chestnuts is starting to succumb to the leaf miner. As they die, they are replaced with sweet Chestnut.</p>
B	<p>Leading around from the car park is a line of trees/hedge consisting of a mix of Ash, Horse Chestnut, Elder, Elm with a margin of nettles, burdock etc.</p>	<p>Consider planting up with Hawthorn/Blackthorn to make it a denser hedgerow and more appealing to wildlife.</p>
C	<p>This is the beginning of what is known as Diana's Dyke, which is interpreted as a Tudor drainage or ornamental feature. At first there is an area of dense dominant Blackthorn with a sparse ground flora consisting of the moss <i>Kindbergia praelonga</i>. The herb layer was also sparse consisting of Ivy and Nettles. Along the edge of the scrub species such as Smaller Cats Tail, Common Cleavers, Ground Ivy and Field Ivy are found.</p>	<p>This small section should be scalloped as described above, to ensure a good age structure and prevent encroachment in to Nonsuch Field.</p>
D	<p>As the dyke continues the habitat changes to an area of large trees including Norway Maple, English Oak, Horse Chestnut and Ash with a developed shrub layer consisting of English Elm, Blackthorn and Elder. The herb layer contains species such as Ivy mainly, Bramble, Common Nettle, Herb Robert, Ground Ivy, and Wood False Brome.</p>	<p>Plant up gaps left by dead Elms. As much dead wood should be left in situ as possible. Scalloping will encourage age structure and a better density.</p>
E	<p>This is a clipped Hawthorn hedge running along the western side of Red Gate Field.</p>	<p>This hedge should be trimmed to ensure no encroachment in to the car park or Red Gate Field, which is a picnic/no-dog area.</p>
F	<p>The area to the east of Red Gate Field is a wide scrub/tree line. It is 15m wide and contains mainly Elm and also Hawthorn, English Oak, Ash, Hornbeam and Cherry, with a margin of brambles and nettles.</p>	<p>This should be scalloped to create age structure. Its depth should be maintained as it is a very valuable scrub line. The Red Gate Field side should be trimmed more regularly to ensure it doesn't encroach.</p>
G	<p>The northern edge of Red Gate Field is a very gappy hedge/dotted trees including Elm, English Oak and nettles.</p>	<p>Plant to fill gaps with suggested species mentioned above. Retain Oaks at appropriate spacing to become larger trees.</p>
H	<p>This scrub bank has grown up along the ditch line leading to Round Pond. It is mainly Blackthorn with standard trees consisting of English Oak and Ash.</p>	<p>Scallop as described above to maintain good age structure and prevent it from becoming just a tree line. Ensure the ditch itself does not become blocked with vegetation.</p>
I	<p>Running parallel to H, this scrub line consists mainly of Blackthorn with standard trees consisting of English Oak and Ash.</p>	<p>Again, scallop to create age structure. The Nonsuch Voles regularly clear the ditch itself, to ensure it does not become blocked, which should continue.</p>
J	<p>Clipped Hawthorn hedge running alongside the Dog Socialisation area and the tarmac path leading to the Mansion House.</p>	<p>Trimmed regularly with hedge cutter to prevent encroachment on to the path and in to the dog socialisation field.</p>

K	Tree line including English and Turkey Oaks, Hawthorn, Elm, Hornbeam, Dog Rose, and Bramble. There is a veteran oak tree on this hedge line.	There is a desire line in from Sparrow Farm Car Park Field in to Six Acre Field, through this hedge line, which runs at the base of the veteran oak tree. Access here should be discouraged, as it will eventually have a detrimental impact on the tree and its roots. A combination of planting up with suggested species and scalloping to create age structure will benefit this hedge. Remove and treat all Turkey Oaks.
L	Tree line including English Oak, Ash, Hawthorn and Bramble.	This hedge has grown up and is now really a tree line with bramble underneath. Planting up with suggested species to create a hedge and keep appropriate larger trees within the hedge line.
M	Tree line including some veteran Oak trees, Ash, Hawthorn, Elm and Field Maple.	This is very similar to L and is really a treeline with bramble at the base. Planting up with suggested species to create a hedge and keep appropriate larger trees within the hedge line.
N	Tree line, which has grown up along the main ditch through the park. It includes Willow sp, English Oak, Hawthorn, Blackthorn, Sycamore, Elder and Elm.	It links hedge I and Red Barn Field. The ditch is maintained currently by the Nonsuch Voles, which should continue. The vegetation is currently quite young and scrubby. As the trees mature, the understorey species such as the Hawthorn and Blackthorn should be scalloped to retain age structure.
O	Clipped Hawthorn hedge.	This should be regularly trimmed to ensure no encroachment in to Pit Field of Reads Field.
P	Line of trees/shrubs including Elder, Sycamore, Hawthorn, Cherry with a margin of Brambles and Nettles.	Plant up with suggested hedgerow species and scallop on rotation in years to come.

2.2.2 Mixed deciduous woodland

General principles:

- The overall aim is to create a more diverse woodland structure both in terms of its vertical structure and in terms of age. A woodland should have a canopy (taller trees), understorey (smaller trees/shrubs, which can grow in shadier conditions), field layer (flowers, grasses) and ground layer (mostly mosses). It should also contain plants of different ages, as animals need woodland in all its successional stages. Management should seek to maintain a continuous supply of young growth and protect and enhance mature features such as veteran trees and decaying wood. This can be achieved by opening up the woodland in targeted locations by coppicing or thinning, creating glades, creating rides, managing ride edges and the perimeter edge of the woodland, or by halo releasing mature specimens.
- Suitable trees should be selected to become the next veterans.
- Ivy growing on trees is a very important part of the woodland ecosystem. The foliage and flowers provide food, the stems and evergreen foliage are used for hibernating insects as well as bats and other wildlife and this outweighs any damage it may do to the tree.
- Avoid damage to wood banks & other historical features
- Woodland operations should adhere to the [UK Forestry Standard](#) and only 5m³ can be felled in any one calendar quarter unless a felling license is agreed with the Forestry Commission.

Decaying Wood

- Decaying wood is an extremely important habitat type within a woodland ecosystem, and yet is often the most overlooked. It allows much-needed nutrients back into the soil through decomposition. Lying wood decomposes from the outside in and dead standing wood decays from the inside out and both provide considerable opportunities for saproxylic (deadwood) invertebrate specialists and other wildlife. A combination of lying and standing decaying wood should be retained.
- During thinning operations, dangerous trees posing health and safety risks will have to be cut down. However, if safe to do so, tree surgeons should be asked to monolith some trees in the thinning programme by cutting off the branches and leaving the trunk upright. Ideally, they should be broken or cut jaggedly to mimic a natural break. Artificial bat hibernaculums could be cut into the trunk as well. If this is not possible then the trunk should be cut down and left on the ground in situ. The bigger the better as the trunks are buffered from drying out and the greater the number of organisms it will support. If this proves impracticable then the branches and trunk should be cut and stacked into habitat piles to rot down.
- Tree protection zones should be considered to keep the public away from an area where a tree might fall to allow it to die naturally.
- Tight as well as loose habitat piles provide different conditions. Leave the logs as large as possible to deter vandals moving them or setting fire to them, or wire them together with steel cables. If possible, some of the log habitat piles should be put just under the ground and the turf replaced, which will provide habitat for invertebrates such as stag beetles.
- Ring barking (deep and wide) can be considered as part of thinning works, to provide additional decaying wood. Any actions should first be fully assessed for health and safety implications. Tree surgeons could also be asked to make holes in live standing trees to initiate rot and drill holes in forks and crowns to increase water retention.
- Root plate and stumps from fallen trees should be retained for solitary bees and wasps and other invertebrates, unless it constitutes a safety hazard.

Woodland edge creation/management

- Woodland edge is an extremely important part of a woodland ecosystem. A gradation of habitat between short to longer grass, to scrub, to woodland is very important and is particularly important for birds and invertebrates.

- This can be achieved by pushing back the edge of a woodland by 10-20 metres and managing the regrowth on rotation, not allowing it to grow back to the height it was and encouraging species such as hawthorn and blackthorn.
- It can also be created naturally by not cutting right up to the edge of the woodland from adjacent meadows. By stopping cutting the grass, it will gradually scrub up.
- It can also be achieved by planting up along the edge of a woodland with shrub/smaller tree species such as Hawthorn, Blackthorn, Hazel, Dogwood, Guelder Rose, Field Maple, Privet etc. 10-20m wide plantings should be established using locally native shrub species. To give a scalloped effect avoid planting in straight lines. Again, once established, this should then be managed in sections, on rotation to ensure a good age structure.
- Woodland edge that is already present should be managed by scalloping to create a wavy, longer edge, in roughly 10-20 m sections, 1-3m deep. Alternate section should be cut. Only once they have grown up to the same height as before, should the non-cut sections be cut. This ensures a good age structure.
- Having a variety of age classes will result in supporting the greatest variety of wildlife.
- Habitat piles should be created as mentioned above or should be disposed of by burning or chipping. Due to the urban nature of the park, any fires used to dispose of vegetation should be taped off clearly to warn members of the public.

Minimum Intervention

- Allowing a woodland to develop naturally and be subject to natural processes is also important to allow within a site. Having a variety of management adds to the variety of habitats a site can support and in turn, the variety of wildlife. For example, some of the rare woodland bats prefer a woodland that is dense with less glades/rides etc.
- Most of the woodland within Nonsuch is relatively young, so can be left to develop naturally. However, it is important to monitor the woodland to ensure there is good regeneration potential. As mentioned previously, it is important to have a variety of ages class within a woodland, so it is important there is room for saplings to develop in to mature trees.
- Minimum intervention concentrates on tree safety works and removal of non-natives.

Non-native/Invasive species

- Non-native species should be removed and treated to prevent them growing back. However, where tree specimens are very mature, for example a Turkey Oak within the Banqueting House Woodland, these should be retained. Sycamore should be kept as part of the woodland composition, particularly due to the threat Ash Die Back poses to the composition of our woodland (see Threats below).

Timing of work

- Woodland work is best carried out during November to February, when the trees are dormant and to avoid the bird nesting season (March to August) and unsuitable times for bats and other important wildlife.

Threats

- Ash die back/ *Chalara fraxinea* is a fungal disease, which kills Ash trees. There are large amounts of Ash within the woodland in Nonsuch Park so they will be impacted. The Ash trees need to be monitored for presence of Ash Dieback and removed if necessary, on a risk-based approach based on public safety considerations.
- Oak Processionary Moth also poses an issue for the management of the woodland within the park. If large infestations occur, it can pose a threat to the tree itself through defoliation. However, currently the main concern is for human health, due to the toxic nature of the hairs of the caterpillars, resulting in rashes if they come in to contact with skin, or breathing problems if

inhaled. The current policy is to survey the oak trees during the nest building season (June and July) and remove those which are head height or below, or are in a dangerous location e.g. above a bench. Costs implications will need to be planned for.

- Other tree diseases have not been discovered as yet but care should be taken to look out for them e.g. sudden oak death.
- Events like running, bmx and parking pressure needs to be managed to stop root damage/compaction.

1). The Ancient Wood

Description - This area of woodland is Ancient Woodland and was confirmed as such in the 2011 Inventory of Ancient Woodland in Surrey. The canopy is made up predominantly of English Oak and Ash. Towards the northern end has a well-developed shrub layer composed of frequent Hawthorn, Midland Hawthorn, Wild Cherry, Crab Apple, Field Maple, Elder, Wild Privet, Yew, English Elm and Spurge Laurel. The herb layer was composed of Cow Parsley in places, with Wood False Brome, Hairy Brome, Wood Millet, Giant Fescue, Wood Dock, Remote Sedge, Wood Sedge, Hedge Woundwort and Garlic Mustard. The Ancient status is reinforced by the presence of a bank and ditch line on the north-eastern edge. The south-western edge has a dense margin of blackthorn.

Comments on past management – Management has largely been prioritised on The Wood to the south and management in The Ancient Wood has been minimum intervention. However, the Blackthorn in the south-western corner was scalloped by the Nonsuch Voles and a small area of coppicing/glade creation took place.

Future management – Management will mainly take place in conjunction with halo release of mature oaks with veteran characteristics, and safety management of ash trees. Towards the North of the woodland, oaks are more dominant and are of relatively even age. They are quite densely packed and have grown very tall. Many have good veteran tree characteristics, so picking which ones to keep and which to thin will need to be considered carefully. Where the Ash trees become more common, towards the south of the ancient wood, they should be preferentially thinned rather than the oaks.

There is an area of large Ash trees where the Ancient Wood meets The Wood. These will ultimately become a safety issue due to Ash Die-Back. To ensure the right trees are felled, after assessing which trees should go, an assessment of their health should take place and also their habitat potential in terms of bat roosts and bird nesting. Sickly trees and those which provide less biodiversity value should be favoured to remove.

There is an area of Ash running alongside the footpath adjacent to Cheam Park, which will ultimately become a safety issue. These should be cleared and replaced with local provenance Oak and Hazel planting.

Ride side management should be carried out either side of the main path running through the middle of the woodland, creating woodland edge within, by creating scallops on alternating sides. Natural regeneration of Oak should be monitored and supplemented with planting if necessary, along with Hazel as an understory. In some areas there is a good shrub layer of wild privet and in others it is very sparse. These sparse areas where light is an issue would favour thinning of the canopy.

Spanish bluebells should be dug out and Turkey Oak removed and chemically treated.

Aim to create glades where trees have already fallen naturally and created small open areas.

The south-western and western edge of the woodland is an area to create woodland edge, by stopping the mowing regime of Hill Field from meeting the edge of the woodland and allowing natural regeneration of scrub and woodland edge.

The south-western corner, already has a good bank of blackthorn. This should continue to be scalloped on rotation to maintain good age structure. This is particularly important for the Brown

Hairstreak *Thecla betulae*, which is a priority species. They will only lay their eggs on young blackthorn, so it is essential to maintain this resource for them, as they are present on site. The proposed work will give rise to limited numbers of oak butts which could be milled on site using a mobile sawmill with use of timber on EEBC estate and public education value of milling work being used to offset felling and extraction costs. Harvesting to be by hand (chainsaw) felling with judicious use of low ground-pressure forwarders/skidgers for extraction of timber.

2). The Wood

Description - This is an area of woodland with a canopy of mainly Ash and English Oak but has much more Horse Chestnut, Beech, Lime and Sycamore than the ancient section to the north. It has a well-developed shrub layer including Hawthorn, English Elm, Wych Elm, Holly, Field Maple, Elder, Wild Privet, Goat Willow, Hornbeam, Silver Birch and Blackthorn. The herb layer was composed with Wood False Brome, Herb Robert, Nettle, Brambles, Cleavers, Cow Parsley and Garlic Mustard. The Ancient Woodland survey makes note that there are obvious differences in the structure and flora influenced by the underlying geology (The Ancient Wood is on clay, The Wood is on Woolwich and Reading Beds and Thanet Sand), which may mask the ancient status by resulting in a field layer with less Ancient Woodland Indicator Species.

Comments on past management – Work first started within this woodland during 2011/12 by thanks to funding secured by John Armitage of Future Woodlands and EEBC. The Wood (along with Cheam Slip aka Boundary Copse) received funds through a Woodland Improvement Grant from the Forestry Commission. The Lower Mole Partnership Volunteers helped kick-start the first coppicing task and carried out the path resurfacing and also improved the ditch and culvert bordering Cheam Park. The grant funding also paid for some interpretation panels explaining the work being carried out.

The work that has been carried out since 2011, has been guided by the management plan written for the purposes of the grant proposal and has involved coppicing the woodland in sections, (see map 5) whilst retaining well-spaced standard trees and managing the vegetation alongside the paths, which has been pushed back/ thinned. The Ash and Sycamore have been thinned out and Oak and Hazel trees planted. Some Sycamore has had a second rotation of coppicing carried out. All the large tree felling and thinning work has been carried out by Future Woodlands, assisted by the Nonsuch Voles.

The main path leading up from the Mansion House towards Cheam Park is managed regularly by the Nonsuch Voles and was replanted with a mix of native tree species, which are now managed annually to promote growth. In section 2b, a hazel coppice demonstration area has been planted and is managed annually to control bramble regrowth. All trees that have been planted were from UK provenance. The ride management and opening up of the woodland by coppicing carried out by Future Woodlands and the Nonsuch Voles has promoted a better understory and herb layer. All snowberry that was present has been removed by digging up.

Future management suggestions –

The coppice cycle that has begun should continue on a 7-15 yr cycle. Adjacent cants should not be cut in consecutive years, to avoid disturbance to wildlife. Suggested order would be A, C, E, B then D. Hazel stools should have a 3-5m spacing. Supplementary planting of UK provenance or locally grown Hazel trees should occur if spacing is not dense enough. Coppice and natural regeneration will be the primary restocking methods apart from the enrichment of Hazel.

The Wood has been noted as a high priority area for ash die back management. The Ash trees need to be monitored for presence of Ash Dieback and removed if necessary on a risk-based approach based on public safety considerations. Replacement planting with Hazel could assist with mitigating the effect of losing Ash affected by *Chalara* and as mentioned previously,

Sycamore could start to take the place of Ash although care will still need to be taken to ensure Sycamore does not dominate the woodland.

Ride side management should continue to allow good access to manage the woodland and manage where visitors walk. Opening up alongside paths and creating glades where appropriate will benefit wildlife by allowing more light to the woodland floor encouraging a better diversity of plant and animal life.

Halo release mature specimens by gradually thinning out surrounding trees. It should be noted that Sycamore does not make good timber for firewood unless the bark is stripped, which is labour intensive. More funds may be needed to ensure the coppicing and thinning work to account for the reduced value of Sycamore.

Turkey Oak should be removed by felling or ring barking if safe to do so and treated to prevent re-growth. Any other non-natives should also be removed and treated. Spanish bluebells should be dug up and native bulb planting could improve the herb layer of the woodland.

On the eastern edge of Plantation Field (adjacent to The Wood,) there are avenues of Birch, Poplar, Ash and red/pin Oak trees. The Ash trees will succumb to Ash Die-Back and should be removed if necessary on a risk-based approach based on public safety considerations. The Poplars are not the best specimens so it is suggested that these avenues of trees are removed and supplementary planted with Oak and Hazel understory, which will have the effect of extending The Wood and creating a good woodland edge habitat.

The southern edge of Plantation Field has a line of Scot's Pine trees and underneath it was once mown but has now been allowed to scrub up. This area could be planted up with Hazel to create a shrub layer.

3). Cheam Park Woodland

Description - This woodland is composed of a mix of trees including Sycamore, Horse Chestnut, Pedunculate Oak, Ash, Hornbeam and Beech. In some areas, there is a developed shrub layer of, Hawthorn, and English Elm, with some Holly, Yew and Hazel. There is a very large Horse Chestnut on the boundary with Cheam Park. In other areas, the shrub layer is absent or dominated by Bramble. Generally the wood has an open canopy and open understorey. The herb layer is dominated with Ivy and some Wood Avens.

Comments on past management – Minimum intervention. Work identified included tree safety works, removal of Snowberry and Cherry Laurel, fell and treat or ring-bark Sycamore, Turkey Oak and Norway Maple. Over the last 5 years, no work has been carried out within this woodland.

Future management – Previous management suggested should be carried out, prioritising removal of Snowberry, Cherry Laurel and Turkey Oak. Start with removing any Turkey Oaks/Cherry Laurel in the vicinity of large mature trees such as the Horse Chestnut on the boundary with Cheam Park. As the woodland is thinned of non-natives, natural regeneration should be the primary restocking method.

4). Walnut Grove

Description – The Walnut Grove was planted in December 2015 and there were 21 trees originally. The trees were provided by Mike Ford of the Epsom & Ewell Tree Advisory Board. About 2 years after planting, they were hit by a late frost which blackened the emerging leaves.

Comments on past management – Unfortunately, several have had to be replaced by Mike due to vandalism or failure to establish. Quite recently one had been snapped and almost pulled from the ground. Unfortunately the Walnut Grove is struggling to establish because they are in a vulnerable position and of course Walnuts are slow to grow. The Nonsuch Voles committed to water and weed around the walnut trees for 2 years, but this has continued and the Voles often weed them annually. The trees were also watered during the very dry spell of 2020. The grass around the trees is left uncut.

Future management – Light shade is tolerated at the early stages of development but full sun is ideal, so their location is perfect. As the trees are still struggling, watering should continue during dry spells if possible. It would be advisable to add a layer of mulch of well-rotted compost around the base of the trees to help feed the trees and retain moisture. The Tree Advisory Board members would be willing to assist in on-going care and assist with tasks to mulch around the base of the trees.

Regular pruning is unnecessary but, if required, remove dead or crossed branches. Pruning should be undertaken between mid-summer and early autumn as walnuts are prone to 'bleeding' (sap oozing from the pruning cut). Hard pruning is not tolerated.

The grass will need cutting to prevent scrub encroachment. This should be done annually using brushcutters, being careful not to damage the trees. Ideally the arising will be raked up and removed.

5). Nonsuch Girls School Boundary Woodland

Description – This a very thin strip of woodland with standard trees including Horse chestnuts, Sycamore and Ash with very little understory. The ground layer is sparse with mainly ivy and bramble covering the ground. The easternmost area near the gate has more understory and some regeneration of trees.

Comments on past management – None apart from tree safety works if necessary.

Future management – Minimum Intervention, allow natural regeneration. Remove non-natives if they appear. It is likely that the Cherry Laurel could spread eastwards from Cheam Slip.

6). Red Barn Field

Description – As the name suggests, this once was an open field but has been allowed to scrub up and has become a woodland. The main ditch starts here. It still has quite an open canopy and a grassy herb layer with cow parsley and some bramble. Trees include mainly Ash and Lime, and also Larch, Oak saplings, Beech, Hawthorn, Hornbeam, Horse Chestnut and Yew.

Comments on past management – The ditch that starts within this woodland is managed annually by staff and Nonsuch Voles to ensure it remains clear and flowing.

Future management – In previous plans it has been suggested to interplant this woodland with shrub species. If funding and resources allow, this would be advantageous, however allowing it to regenerate naturally would be interesting to monitor.

7). Great Meadow Plantation

Description – An area of Great Meadow has been planted with memorial trees to create this plantation. Trees include Field Maple, Rowan, Ash, Common Lime, Sweet Chestnut, Larch, Beech, Silver Birch, Cherry sp, Oak, and Hornbeam.

However, these trees are growing amongst quite diverse mesotrophic grassland with a tall sward. Species found here include Smaller cats-tail, Creeping bent, abundant False Oat-grass, frequent Yorkshire Fog, Cocksfoot, rare occasional patches of Horseradish, Creeping Thistle, Common Nettle, Black Knapweed, Red Bartsia, Meadow Vetchling, Lady's bedstraw, Ribwort Plantain, Germander Speedwell, Common Ragwort, Field Bindweed, Burnet Saxifrage and Birdsfoot Trefoil.

Comments on past management – The grass is cut around the trees in September. Memorial tree planting that was mainly organised by Sue and the grounds staff before her.

Future management – The grass should be kept mown around the trees (not directly under their canopy), ideally with arisings removed. The trees themselves are at a good spacing and no more should be planted other than to replace any that are currently there. Condition of the trees should be monitored to ensure longevity.

8). Larch Triangle

Description – This is an area of mesotrophic grassland with Larch trees planted amongst it.

Comments on past management – The grass is cut around the trees in September.

Future management – The grass should be kept mown around the trees (not directly under their canopy), ideally with arisings removed. The trees themselves are at a good spacing and no more should be planted other than to replace any that are currently there. Condition of the trees should be monitored to ensure longevity.

9). Cheam Slip (aka Boundary Copse)

Description – This woodland has self-seeded in between the main path called ‘The Avenue’ and the partly constructed roadway, abandoned in World War II. It was open until about 1960 (June Chatfield pers. comm.) and has slowly developed in to a strip of woodland.

In the more open areas, species such as Hemlock, Guernsey Fleabane, Herb Robert, White Dead Nettle and common cleavers occur. The main canopy trees are Sycamore, Norway Maple, Ash, some Birch, Oaks and Hornbeam. The thinning has allowed a more developed shrub layer composed of Hawthorn, Hazel, Elder and English Elm to develop. In places, the shrub layer is dominated by Cherry Laurel, which casts a heavy shade with large areas of bare ground beneath. There is a veteran oak tree close to the car park.

Comments on past management – As mentioned earlier, this woodland was part of a Forestry Commission Woodland Improvement Grant scheme, and management has been guided by this. Sub-compartments 4f,4g,4h (see map 4) were identified as coppice for firewood over 20 yr cycle retaining only selected oak, ash, crab apple as widely spaced canopy trees. The sycamore was retained as coppice. Removal of Cherry Laurel, Turkey oak and other exotics was begun. Sub-compartments 4i, 4j, 4k were identified to be retained as a screen between Nonsuch and Warren Farm. BUT: remove exotics over three years commencing with 10% thin of stand of mature Scots Pine and replant with English Oak and Hazel of UK provenance. This planting, the coppicing in f, g and h, along with natural regeneration, will be the re-stocking methods. The main activity so far has been to coppice the sycamore and subsequently re-coppice in f, g and h. The Scot’s Pine was also thinned by 10% in compartment i. Although the Cherry Laurel was thinned, follow up chemical treatment did not occur so this activity has been abandoned and the Cherry Laurel has since regrown. Any Canadian Goldenrod found has been removed by pulling. Oaks were planted by children from Ewell Castle in compartments 4I,4J, 4f and 4g during an activity organised by the Nonsuch Voles in 2016.

Future management – Continue with coppice rotation. 4h was coppiced first in winter 2013/14. 4i and 4f were managed in Winter 2014/2015. Within the next 5 yr plan, 4g should be coppiced in 21/22 and 4h in 23/24 and 4i in 25/26.

Between 4j and 4g is an avenue of oaks and limes which should be protected.

In cants i, j and k, focus should remain on felling and treating Turkey Oak and Norway Maple and replacement planting of UK native broad leaves such as English Oak and Hazel of UK provenance. Funds need to be found to treat the Cherry Laurel before any further cutting takes place.

Coppicing Laurel will just make it more vigorous. It rapidly regenerates from cut shoots, and frequently produces suckers from the roots. Cut material needs to be disposed of carefully as cut stems can root if left on the ground.

It is possible that grant funding can be applied for removal of Cherry Laurel and this should be investigated.

NB - Sycamore does not make good firewood therefore will need paying more to manage.

10). Castlemaine Slip

Description – As with Cheam Slip, this area of woodland has self-seeded and regenerated naturally. Starting at the eastern end, adjacent to Cheam Slip, it is an area of woodland with an open canopy composed of frequent Sycamore, occasional Ash and English oak and rare English Elm, Horse chestnut and Wild Cherry. Most of the trees are of an even age and size, with the exception of the Horse Chestnut trees which are larger. There is a dense bramble, nettle scrub/ruderal area along with some Cow Parsley, Cocksfoot and Broad leaved Dock. There was a moderately well-developed shrub layer composed of English Elm, Elder, Bramble, Holly, Yew and Cherry Laurel. The herb layer was poor, dominated by Ivy. The ground layer was also poor, restricted to a few patches of *Kindbergia praelonga* and *Brachythecium rutabulum*. The trees had poorly developed epiphytes with few species present such as *Bryum capillarre* and *Rynostegium confertum*.

Following the raised path and moving west within the compartment is a line of mature trees. These include Horse Chestnut, Sycamore, and English Oak. A number of these trees are multi-stemmed indicating they have been cut in the past. Scattered in this area are larger trees mainly Common Lime, Scots Pine and English Oak. There is little developed shrub layer with some Holly, Hazel, Hawthorn and Cherry Laurel. The herb layer is also poor with frequent Ivy and rare Wood False Brome. The ground layer is also poor with lots of bare ground and limited bryophytes. These include *Kindbergia praelonga*, *Fissedens taxifolius* and small patch of *Atrichum undulatum*. Two rows of mature trees are present between 'The Avenue' and the main woodland. Trees here include Copper Beech (*Fagus sylvatica* 'purpurea'), Horse Chestnut and Common Lime.

Comments on past management – The mature Horse Chestnuts along The Avenue are replaced with Sweet Chestnut as they succumb to the leaf miner. Otherwise, no management has taken place.

Future management – This woodland could be sectioned up in a similar way to Cheam Slip. The difference in shrub and herb layer between the two woodlands is clear to see and Castlemaine Slip would benefit from similar management. If thinking of the woodland in thirds, it is dominated by Sycamore in its western and eastern third. The centre third has more oak and hawthorn. The Sycamore should be retained as coppice for firewood and Turkey oak and Norway maple felled and treated. There are some oaks here than need to be halo released. Where oaks are more common in the centre, favour the more mature specimens and thin out non-natives first. Retain some Hawthorn as understorey. Remove and treat Snowberry and Cherry Laurel. As resources may not allow for all the work to happen in these next five years, initial focus should be on coppicing the Sycamore and removing the Cherry Laurel. As the woodland is thinned of non-natives, natural regeneration should be the primary restocking method. The Ash trees need to be monitored for presence of Ash Dieback and removed if necessary on a risk-based approach based on public safety considerations.

11). Banqueting House Woodland

Description - The woodland here is similar to the rest of the woodland described in Cheam and Castlemaine Slip, although the ground flora is slightly more diverse. However, it is very shaded but quite a lot of dead wood present. The main canopy trees are Sycamore, Norway Maple, Cherry, Oak, Ash, with an understorey of Hawthorn, Hazel, Elder, Holly, Yew. Nettles and bramble dominate the ground layer but amongst it, you can find Wood Avens, Male Fern, Lord's and Ladies, Germander Speedwell, Wood Dock and Wood False-brome. There are some hybrid Black Poplar to the west. Near the gardens there is some dumped garden waste. There are a couple of dead wood piles in this area of woodland, which will be beneficial to a number of species, including Stag Beetle which is known to use the dead wood in this area.

Comments on past management – No management of this area has taken place recently.

Future management – Improved access to manage this woodland needs to be the first priority. The path, which is also the route of the London Loop needs widening in places, particularly at the

eastern end and a small section of ground need levelling up. Due to the important nature of this path, grant funding should be investigated. There is also a path running along the southern edge of the woodland. Ride side vegetation management should occur along both of these paths. The woodland should be thinned by a maximum of 30% to create better age structure. The component of Ash in this woodland increases so they should be monitored for signs of Ash Die-Back and removed if necessary on a risk-based approach based on public safety considerations. Priority for thinning should be given to the Sycamore/Norway Maple surrounding Oaks, particularly those trees affecting the large oaks with veteran characteristics. Management should also focus on removal of Snowberry and Cherry Laurel. Fell and treat Turkey oak and Norway maple. There is more value to the timber of Norway Maple so may make it more cost effective to manage this woodland as it makes up a larger component than in others. As the woodland is thinned of non-natives, natural regeneration should be the primary restocking method.

An eye needs to be kept on the boundary encroachments from adjoining residential use and fly tipping.

The path leading from Cherry Orchard Scrub and Grassland, through the woodland to Five Acres Piece, needs to be opened up to allow better access for the management of the woodland and site of the Banqueting House.

12). Pottery Wood

Description - Secondary woodland. Comprising of mature Sycamore, Horse Chestnut and Oak forming an open canopy, and a well- developed shrub layer, much of which has grown up almost reaching canopy height, with Elm, Hawthorn and Wild Privet. The herb layer is mostly dominated by Bramble and Ivy, along with Common Cleavers, Cow Parsley, Dog Rose, False Oat Grass, Garlic Mustard, Hairy Brome, Herb Robert, occasional Nettle, Wood False Brome, Wood Dock, Wood Sedge, and Black Horehound. There are also areas of bare ground and a ground layer of mosses such as *Fissedens taxifolius*, *Rhynchostegiella pumila*. There is a variety of fallen dead wood. A wide area of this section of woodland has been used for mountain biking with lots of mounds and bare ground. There is also some rubbish dumped in this area. A small pond is present surrounded by bike jumps. At the northern end of the wood, some large mature Willows are present marking the rim of the former Bluegates pond (June Chatfield pers. comm.)

Comments on past management – It was supposed that the south eastern corner of this woodland was the historic site of the ‘Grove of Diana’. Creation of a glade here was identified in the previous management plan. Prior to work, The Nonsuch Voles met with John Phillips (Sutton Borough Council’s Heritage Project Manager) to review the site, but some doubt was expressed as to whether this was the actual historic site of the “Grove of Diana”. This work was therefore cancelled.

Future management – Due to the presence of the mountain biking it is very difficult to manage this woodland. It is therefore suggested that this woodland is managed with minimum intervention.

13). Cherry Orchard Nursery

Description - The hard standing is concrete left in situ from the demolition of the nursery building. Found here was Buddleia, Purple Toadflax, mosses such as *Brachythecium albicans*, *Ceratodon purpureus* and *Pseudoscrossidium hornschurchianum*. It is quite open along the northern section of the path leading in from Bluegates with patches of rough grassland and is very good for butterflies. These habitats together with other areas of grassland will provide good habitat for reptiles such as Slow Worm, which have been recorded in good numbers nearby. As you come south along the path, nearer to Cherry Orchard Farm, the trees and bramble dominate. The woodland area is very dense as the old nursery stock trees were planted close together for

eventual lifting to plant out in the Borough. Trees include Hornbeam, Sycamore, Poplar, Silver Birch, and a Eucalyptus. There is also cotoneaster, yew, willow herb, bramble and nettles. The section to the east of the path is more developed woodland containing Ash, Poplar, Beech, Hornbeam, Yew, Bramble, Nettles and Ivy. There is still a lot of plastic posts and other rubbish left over from the nursery days along with invasive periwinkle.

Comments on past management – Tree safety works only

Future management –Woodland edge should be managed/created alongside the path to ensure grassy areas are retained for butterflies and slow worms. Remove non-natives and plastic rubbish left from its tree nursery days. The eastern area of woodland should be monitored for regeneration potential and thinned if necessary over time. Probably not needed over the next 5 yrs of this plan. The line of trees on the southern edge of the nursery including old poplars with many beetle holes and woodpecker borings should be retained. This could potentially be an area to plant an orchard but any planting would have to be subject to an archaeological assessment first.

14). Black Shed Field

Description – As the name would suggest this once was a field. Over the years, it has scrubbed up and is now a young woodland. At the end of the ditch line, used to be Ostracod Pond, which has now scrubbed up and is now part of the woodland. Trees growing here include Ash, Beech, Oak, Sweet Chestnut, with mainly Hawthorn and Elm making up the shrub layer. In places, it is still developing scrub rather than woodland. Along the southern edge, there is a margin of brambles and nettles.

Comments on past management – None identified

Future management – The vegetation to the south of New Pond should be opened up to allow light in to the pond. If funds are found to restore Ostracod Pond, it will need opening up around the margins along with an access route for machinery to dig it out. The vegetation around the pond margins should continue to be managed, particularly from the southern side to allow light and prevent excessive leaf fall in to the pond, which will speed up silt deposition.

15). London Road Plantation

Description - This is a narrow strip of plantation woodland. The species found here include Sycamore, English oak, Norway Maple, Ash, Common Lime, Field Maple, Silver Birch, Wych Elm, Cherry, Blackthorn, Hawthorn, Dog Rose, Ivy, Bramble, Cocksfoot, Perennial Rye-grass, False Oat-grass, Wood False Brome, Wall Barley, and Wood Avens. In the very southern area near the car park, there is an area with mature hazel stools.

Comments on past management – No work has been carried out recently.

Future management – The Woodland Improvement Grant proposal management plan identified this woodland for minimum intervention with a priority to remove Snowberry, Cherry Laurel and ringbark if safe to do so or fell and treat Turkey Oak and Norway maple. This should begin. It also highlighted that removal of late-maturity conifers plus some individual ash and poplar on site boundaries will be necessary in future years and structural diversification is advised through planned group felling. It is suggested that consideration be given to this as part of EEBC planned tree safety works as proximity of highway and residential property boundaries indicate that sectional felling will be needed. Moving north, it moves in to medium priority and low priority nearer Sparrow Farm Car Park. The Ash trees need to be monitored for presence of Ash Dieback and removed if necessary on a risk-based approach based on public safety considerations. Also in the southern area is a section of Hazel. It was identified to coppice this stand of Hazel, along with the first 1-2 trees of the plantation. Unfortunately, this did not happened due to

difficulties in disposing of the brash. However, it is now possible to have fires to burn the brash as long as the fire is subsequently fenced with heras panels, supplied by on site staff, until the fire is safe.

The eastern margin north of New Pond borders Russet Field, which has now scrubbed up quite considerably. This border should be managed as woodland edge. (See Russet Field)

There are over-mature Poplars opposite Briarwood Road in the London Road Plantation that should also be subject to phased removal.

16). North Plantation

Description - This is a linear strip of woodland running along the boundary of the site. The main trees are Ash, Sycamore, Oak, Common Lime, Field Maple and Norway Maple. Understorey trees include Hawthorn and Elm. The herb layer is generally sparse but with notable patches of the non-native bluebell and the Early Wood Violet. Wood dock, Bramble and Ivy is also present. There are quite a few mature/veteran English Oak trees spaced through the wood. Periwinkle has escaped from one of the gardens and is spreading.

Comments on past management – Tree safety work has taken place.

Future management – As with London Road Plantation, the Woodland Improvement Grant proposal management plan identified this woodland for minimum intervention with a priority to remove Snowberry, Cherry Laurel and ringbark if safe to do so or fell and treat Turkey Oak and Norway maple. Again, due to boundary issues, management should be coordinated with planned EEBC tree safety works. The Ash trees need to be monitored for presence of Ash Dieback and removed if necessary on a risk-based approach based on public safety considerations. Thinning of non-natives affecting larger trees should be prioritised. Diversification of age structure will be needed and can be created through planned group felling.

There is an existing margin of blackthorn, which should be scalloped and developed to create a good woodland edge/scrub margin on the boundary with Field next to the lane.

Alongside margin with Daisy Field, leave a wider margin of uncut grass to allow creation of woodland edge either by natural succession or planting.

17). Sparrow Farm Copse

Description – This is an area where the hedge line has been allowed to expand and has become a small copse. Trees include Oak Hawthorn, Hornbeam, many dead Elms, Ash and Scots Pine. The ground layer is quite grassy with brambles and nettles.

Comments on past management - None

Future management –The copse should be enhanced by interplanting with some shrub species including Blackthorn, Hawthorn, Holly, Field Maple and Dog Rose. It is also suggested that a small number of pines are replanted here in order to provide a continuing host for the Saffron Milkcap fungus that occurs here.

18). Oak Wood

Description – A small woodland consisting of Oak including some very mature specimens, Sycamore, Scots Pine and Ash. The understorey consists of Field Maple, Elder, Blackthorn, Wild Privet, Holly, Yew, Rose and unfortunately Cherry Laurel and Turkey Oak. The herb layer is predominantly bramble and Ivy. The ground is undulating and a ditch line flows through here, which used to fill Sanctuary Pond. The pond is dry for most of the year and there has been an interesting assemblage of mosses noted here in the past on the surrounding trees. The pond has silted and scrubbed up and has become part of the woodland; however it still gets very wet in winter (Peter Steel pers comm). An oak has fallen within the wood providing good decaying wood

habitat. A large tree has also fallen out of the wood, in to the meadow at the northern edge, which also provides good habitat. The grassland it has fallen in to will inevitably scrub up which should be managed to provide good woodland edge habitat.

Comments on past management – Tree safety work.

Future management – The bulk of the woodland should be managed as minimum intervention and focus on removal of non-natives. Along the southern boundary, woodland edge should be created by pushing back the woodland by felling and canopy lifting. Over the years, the woodland has grown out and the grass path has moved steadily in to the meadow.

19). Old Stable Ground Wood

Description - This is a small area of woodland, with an open canopy and little shrub layer and a sparse herb layer. Species found here include Horse Chestnut, Common Lime, Swedish Whitebeam, Scots Pine, Elder, Hawthorn, Nettle, Ivy, Hogweed, and Herb Robert. There was a glade at the edge of the wood comprised of species such as Yorkshire Fog, False Oat- grass, Cocksfoot and Field Bindweed.

Comments on past management - None

Future management – Minimum intervention focusing on removal of Cherry Laurel. There is potential to leave an uncut margin around this copse to create woodland edge. In previous plans, it was suggested to plant up to join up with Hedge F. However, if the meadow is to be cut of hay this is not advisable. The space between the copse and the hedge is of archaeological interest. John Phillips, Heritage Projects Manager, London Borough of Sutton Libraries should be consulted prior to any scrub planting in this area.

20). Old Stable Ground Copse

Description – A small copse consisting of canopy trees including Norway Maple, Ash, Poplar, Oak, Turkey Oak and Sycamore. Understorey consists of Elm, Hawthorn, Privet and Elder. Herb layer includes Wood False Brome, Ivy, Nettles, Cow Parsley and Wood Avens. The eastern end of the copse has a large depression. The Southern side has a bench alongside.

Comments on past management – No management has taken place recently

Future management – Minimum intervention. Ensure vegetation is kept back from the bench.

2.2.3 Ponds

General principles:

- Maintain good light levels entering the pond by thinning/managing vegetation and trees surrounding the pond.
- Ensure marginal vegetation does not completely dominate the water.
- Manage vegetation in autumn when water levels are low, outside of the bird nesting season and aquatic invertebrates and amphibians are less active. Only remove one third of the vegetation at a time. Leave vegetation at the edge of the bank for a few days, before disposing of, so any animals caught up can safely return to the water.
- Reduce dogs disturbing the pond – Not only can they disturb birds and aquatic life, there is also a chemical problem, recently highlighted in a study published in ‘Science of The Total Environment.’ Highly toxic insecticides used on cats and dogs to kill fleas are poisoning rivers and ponds across England. The discovery is “extremely concerning” for water insects, and the fish and birds that depend on them, the scientists said, who expect significant environmental damage is being done.

21). New Pond

Description – Dug out in 1984 as a balancing pond to prevent the flooding of London Rd. The pond vegetation is dominated by Reed Mace and Yellow Flag Iris, with some Water Mint, Brooklime, Marsh Marigold, Lesser Water Parsnip, Hard Rush, *Glyceria maxima* and *Glyceria fluitans*. The pond also has a number of invasive species such as *Crassula helmsii* (New Zealand Stonecrop) and Parrot’s Feather. The bare mud area is the location for plants such as Marsh Cudweed, Trifid Bur marigold and Toad rush, in addition there was also the liverwort *Riccia fluitans* and the moss *Aphanorrhagma patens*. This pond is on the site of the Great Pond shown on the 1731 map of Nonsuch (June Chatfield pers. comm.).

Comments on past management - Reedmace is a key problem at this pond and during 2003 major management work to enhance the pond took place. This included the dredging of approximately one third of the reeds. However, they are still a dominating feature of the water and left alone they will continue to encroach on the rest of the vegetation where it is fast becoming a reedmace monoculture.

Future management – Although it is good practice to only clear up to one third of a pond’s vegetation at any one time, the previous attempt did not work and it is suggested that further dredging work should attempt to control up to 40% of the reedmace vegetation. This should come from the centre of the pond and work out, that way the emergent and marginal vegetation will be left relatively undisturbed. This also means that further reed management can be controlled more easily from the outside of the pond. Whilst this dredging process is undertaken a deepening of the pond depth should also be considered, to help stop the reedmace establishing again.

Dredging and de-silting the pond will come at quite a cost so budget implications will have to be considered.

Due to the invasive nature of the work it is recommended that an ecological survey take place prior to this work being undertaken to ensure that no rare or protected species will be harmed. Please note that there is a large fallen tree in the pond which is an important habitat in itself and if possible this should be retained.

The pond must not be allowed to completely silt up, or it will lose its function as a balancing pond. Whilst dogs should not be encouraged to jump into the water (it inevitably will happen), it is helping to keep part of the reedbed swamp open by disturbing the water. Dogs currently mostly use the eastern side of the pond whereas the western side has abundant reeds and this is where most birds nest.

Positive signage should be employed to ask dog owners to be considerate of nesting birds by not letting their dogs into the water and especially during the bird nesting season between March and August. Renewed fencing will help to protect the bird nesting area.

The surrounding vegetation has become quite dense and would benefit from being thinned, particularly along the southern edge, to encourage more light in to the pond. This thinning work should be carried out in autumn/winter, outside of the bird nesting season.

The drainage channels leading in to and out of the pond should be maintained and monitored. The area between the pond and London Road is often very boggy so possibly the culvert is blocked or the drainage channel needs attention.

22). Round Pond

Description - The earliest map clearly showing Round Pond is dated 1731, published in Dent's Quest for Nonsuch, although it is likely to have been there well before this date. It may have had its origin as a watering hole for deer in the Tudor deer park. The pond was probably spring fed and used to be more open years ago. At the eastern end of Round Pond there is a sandy edge of thanet sand with some flints, possibly from the Bullhead Beds that could be the impervious layer enabling a pond to exist here – June Chatfield

The pond has in the past had an interesting flora including Brackish Water Crowfoot, a County Rarity. First recorded in 1995. It was recorded again in 2018 and seen again in 2020 and 2021. Also present here in is abundant Redshank (*Persicaria maculosa*) along the edges with occasional Greater Plantain, Gipsywort (*Lycopus europaeus*), Common Knotweed and rare Trifid Bur Marigold (*Bidens tripartitata*), Marsh Cudweed (*Gnaphalium uliginosum*), Cuckoo-flower and Lesser Swinecress (*Coronopus didymus*). Common Duckweed is often seen on the water's surface. Marsh Foxtail was found here in 2005 (June Chatfield pers. comm.). The trees around and in the pond were Crack Williow and had a good range of epiphytic bryophytes. These included the liverworts *Lophocolea bidentata*, *Metzgeria furcata*, *Metzgeria fruticulosa*, *Microlejeunea ulicina*, *Cololejeunea minutissima*, *Frullania dilatata* and the mosses *Orthotrichum lyellii*, *Zygodon conoides*, *Cryphaea heteromalla*. Other trees in the area of the pond include Ash, Poplar, Aspen and Hawthorn. Bramble and dock is also encroaching around the edges along the fenceline. There are also occasional outbreaks of Azolla first seen in 2008.

In order to further investigate future management possibilities, the freshwater invertebrates of the pond were examined in Sept 2014. The water was sampled and the invertebrates identified. The pond had a poor invertebrate fauna composed of a few copepods, a few chromatid midge larva and pea mussels. This poor result can be added to a similar result carried out by June Chatfield in May of the same year.

Comments on past management – The last management plan highlighted the desperate state this pond was in and a lot of work has gone in to restore it by both the Nonsuch Voles and Lower Mole Partnership Volunteers. A fence was put around the pond to discourage dogs from entering the pond. This is working to a large extent but unfortunately, there are still some people who allow their dogs in to the pond. The vegetation around the southern side of the pond has been drastically reduced, allowing in more light resulting in a great response. The submerged and marginal plant cover has increased quite considerably. The vegetation on the southern side of the pond is cut back annually by the Nonsuch Voles.

Natural England carried out eDNA testing on a selection of ponds within the Borough to test for presence of Great Crested Newts. The results came back as positive for Round Pond, so Countryside Team Ecologist, Pete Howarth, carried out an egg search for GCNs in April 2020 and GCN eggs were found. (An egg search was also carried out around New Pond, newt eggs were found but no GCN eggs. A small bottle trapping survey was carried out on both ponds but no adults were found in either pond. Surveying was restricted due to the Covid 19 pandemic) Surveying continued in 2021 and GCNs have been found, both male and female adults.

Future management – An aquatic invertebrate survey should be repeated since the restoration work has been carried out.

The pond is very shallow and would benefit from deepening. However, the pond has a gravel bottom so an expert should establish how best to go about this. Due to the presence of GCNs, it is

important that the pond does not completely dry out too early in the year. Deepening the pond would ensure that this remains a viable pond for the GCNs. As with the management prescription for New Pond, there is a considerable cost involved in de-silting/dredging ponds. Budget constraints must be considered. Grant funding should be investigated to carry out the work on both ponds as a package.

Continue with thinning out of vegetation around the edge of the pond on an annual basis, particularly focussing on the southern side. Poplar trees are suckering all around the pond, which need to be controlled. The leaf drop is causing the water to become high in tannins and aquatic invertebrate life is very low. The willows should be pollarded regularly as well. It would also be advisable to plant up with native marginal plants to assist with providing habitat for aquatic invertebrates and egg laying opportunities for the GCNs.

Due to the presence of GCNs, the fence should be made completely dog proof and positive signage put in place to educate visitors as to the damage that dogs can do to aquatic and bird life.

Re-creation/creation of ponds

It has been noted from reading previous management plans and talking to the on-site staff that there have been quite a few ponds that have been lost to natural succession. While natural succession of ponds does offer good alternative wildlife benefits, it would seem sensible to offset the loss and new ponds should be created elsewhere in the park, or recreated in original positions. There were two bomb crater ponds (North Plantation and Russet Field) that no longer exist (June Chatfield pers. comm.).

There are also three, which are nearly lost, all at the end of ditch lines. (June Chatfield thinks these ditch lines were associated with past farming practises).

44). Brown Pond is in Russet Field and still had some water beetles in 2014, along with copepods and ostracods. Brown Pond is fed by a ditch, which the Nonsuch Voles have cleared a couple of times and it does hold a low level of water in the wetter months. The Voles suggest this is probably the best candidate for recreation due to the volunteer input already undertaken and a good flow of water can be achieved in winter.

45). Sanctuary Pond is in Oak Wood. There is an overflow pipe running from Brown Pond towards Oak Wood. It is not clear where the pipe exits, but in very wet weather, water issues from the clay on the edge of Oak Wood and cascades down towards Sanctuary Pond, which occasionally is seen with water in it.

46). Ostracod Pond is in Black Shed Field, just south of new pond.

If grant funding could be found to manage the current ponds and recreate old or create new, it would be of great benefit to the biodiversity of the park. Ponds are quite a rare habitat these days and immensely valuable.

The creation of a new pond was started within compartment 35, the proposed Sparrow Farm Dog Socialisation Area. The creation of a new pond here could be very useful as a sacrificial pond to alleviate visitor pressure from the other two established ponds. Planning permission should be sought and the project continued.

Dogs and ponds:

Aside from the obvious disturbance to vegetation, bird life and invertebrates, there is also cause for concern due to the chemicals used in flea, tick and worming treatments. A recent study (Potential role of veterinary flea products in widespread pesticide contamination of English rivers, published in the journal Science of the Total Environment) has discovered the damaging effect to aquatic invertebrates from the toxic chemicals used to make these pesticides. They contain neonicotinoids, now banned in agriculture and horticulture, due to their damaging effects to invertebrates, including important pollinators such as bees. It will be important to keep up to date with science to see what further actions land managers should take to limit access to dogs in watercourses.

2.2.4 Veteran, Mature and Parkland Trees

These trees are extremely valuable and each tree should be carefully managed to ensure their longevity. The trees themselves provide habitat for birds, bats, and many other species and importantly, the decaying wood within the trees can be home to rare invertebrates.

A thorough survey of the park should be carried out and locations of all veteran trees or trees with veteran characteristics should be mapped and individual management plans written. Those noticed whilst surveying for the purposes of writing this management plan are noted on map 2.

Notes from the Tree Officer record that there is one in the parkland spine of trees along with 5 in the formal gardens. 10 are recorded in the park by the Ancient Tree Hunt (Woodland Trust). There are Oaks in the Banqueting House Woodland (about 3) near the By Pass, Horse Chestnuts in the grand avenue (about 4) and on the boundary with Cheam Rec area of the pond (about 5). There are a cluster of Oaks (about 5) in the middle of the central spine and one to the south (the best one) on the same hedgerow line. There are occasional veterans Oaks on the boundary with Wickham Avenue (4 or 5) and 2 or 3 Oaks in the wooded belt along London Road. Two of the Limes in the main open parkland area are veterans as well. Notes from the Nonsuch Voles mention that there is a very old coppiced Sycamore near the former site of the Palace.

Those found within the woodlands should have a gradual programme of clearing a space or 'halo' around them of competing species put in place, to ensure a healthy crown. Ultimately, competition should be removed to at least the circumference of the existing crown area per tree. Consideration should be given to the value of smaller surrounding trees as to whether they offer protection to vulnerable species and whether they could become future veterans.

The crown and end-weight of the trees should be assessed as to whether they are in need of reducing to ensure they are well balanced and do not pull themselves apart in high winds or shed limbs in times of drought.

All existing parkland trees should be retained. Many of the trees of the main avenue through the park are becoming physiologically mature/over mature - plans need to address phased removal (allowing for the retention of a good proportion of decaying wood) and succession planting. A planting scheme should be organised to ensure the future of these trees, creating a good age range to provide successional trees.

A target within the Borough Council's Climate Change Action Plan mentions investigating possibilities for tree planting within the Borough to help combat climate change and improve Biodiversity. Whilst it could be possible to plant up areas within Nonsuch Park, it is not advisable as the open landscape is key to the park and its grassland habitat extremely valuable. Parkland is not common in the area and should be protected. However, the planting of individual parkland specimens would be recommended and a plan for their longevity and succession should be established. Small copses could also be planted within some of the larger meadows, which would also have good biodiversity benefits. Due to the historic nature of the park, an archaeological assessment of the planting area would need to be carried out first along with consultation with Historic England due to it being a Grade II listed Park and Garden.

It should be noted, that planting trees will not solve climate change. It can be a small part of the solution but certainly not the whole. Any trees that are planted, must be of UK provenance for biosecurity reasons and ideally of local provenance. Seeds can be collected from the existing trees and brought on until mature enough to plant out.

2.2.5 Grasslands

General principles:

- The overall aim is to create a structured, diverse and spatially varied mosaic of habitats. Whilst a mosaic of different grassland types is important with some being allowed to be encroached by scrub, this should not be the general practice as the meadows are an important habitat in Surrey and support important assemblages of invertebrates and birds. Where scrub has established it is very difficult to restore it back to good quality grassland. The scrub enriches the soil and once it has been cleared again it often leaves bare patches of ground ready to be colonised by coarse grassland species and weed species such as Common Nettle. It should be noted that the complete openness of some of the fields at Nonsuch is a much valued aspect of the landscape.
- For optimal biodiversity benefit, grasslands that are being cut should be done so during late summer/early autumn.
- Not all of the grassland should be cut every year. Invertebrates that lay their eggs on grass, for example the Marbled White and Meadow Brown butterflies, need to complete their life cycle. Once the grass is cut, their eggs are lost. Small mammals also need longer grass for food and for cover and protection from predators. The invertebrates and mammals then provide a food source for birds.
- The grasslands should be cut and the arisings cleared. The build-up of thatch adds unwanted nutrients to the soil, resulting in the reduction of wildflowers and finer grasses and promotes coarser grasses and scrub. The build-up of thatch also damages the structure of the grassland. Seeds fail to reach the soil and germinate. Opportunities for the creation of patches of bare earth, beneficial for seed germination and burrowing invertebrates, is reduced.
- Removing the arisings can be done in two ways. The grass could be cut for hay if a local farmer/agricultural contractor could be found. However, by September, which is when the meadow are cut currently, a lot of the nutritional value of the grass has gone, so a compromise may have to be reached. Natural England recommend that grassland should not be cut until after 15th July so perhaps a late July/August cut may be possible. It is also important to note that Ragwort would need to be eradicated from the meadows if the hay were intended for horse feed, as it is toxic to horses. Too much scrub would also be undesirable.
 - Ragwort can be removed by hand pulling or using a ragwort fork. This can be carried out by volunteers.
 - Scrub could be removed by hand digging or chemically treated using hand held weedwipers, either in rope or sponge form, which allows for low-key targeted chemical treatment of the scrub to be followed by topping and removal of arisings.
 - Or you allow the scrub to grow taller than the grass (most easily done by grazing the grass). In autumn or early spring (when the scrub is in leaf) and the grass has died down/not grown too tall, the scrub should be at a good height difference. The meadows can then be weed-wiped using a tractor mounted weed wiper and the scrub will be killed off. The meadows can then be cut and cleared using a flail collector, and then subsequently cut for hay.
 - Excessive thistles is also not ideal within the sward if cutting for a hay crop. If the thistles are annuals, then cutting earlier in June, before they set seed, will eradicate the thistles after a couple of years.
- Alternatively, the cut grass is collected with a flail collector and the arisings taken away or piles created at the margins of the meadows, importantly not underneath the base of veteran trees. This can cause a build-up of nitrogen as the grass rots and could cause issues for older trees.
- It is important for the continuity of the flora that the cut is at the same time each year.
- The meadows identified to be cut, should be adjacent to meadows that are not cut, so invertebrates/small mammals have somewhere to retreat to.

- Alternating meadows, or areas of meadows or buffer zones could be left un-cut each year. Importantly, they would be cut on rotation to prevent scrub from encroaching. If buffer zones are the method chosen, they should be at least 3-5 m along the field edges and ideally, these edges should be wavy to increase the edge length. These sheltered sunny edges of the scrub interface with the longer grassland buffer zone vegetation, is of most value for invertebrates.
- Invertebrates must be able to recolonise managed areas when they reach a suitable condition, therefore each management plot should lie next to the plots managed before and after it in the rotation.
- The pattern of cut should avoid a spiral into the centre of the field as this drives mammals and birds into the middle. Instead cut in an up and down pattern to ensure their escape.
- Avoid mowing under the tree canopy of any parkland trees, as it can be counterproductive. It removes valuable cover, increases surface vegetation transpiration rates, thus depriving trees of moisture and often results in bark damage to trees. It is also important to avoid damaging the base of tree trunks as this may encourage fungal infections. Aim to leave 2-5m wide circumference around individual trees and 2-5m wide margin around copses and woodland edges. Scrub will need to be controlled within these margins however.
- Grazing is often the best management option for grasslands and consideration should be made as to the possibilities of this, even if only in a small area to begin with. However, due to the site being heavily used by dog walkers and its urban fringe location, it may not be appropriate but it should be considered.
- Footfall and trampling will restrict the diversity within the meadows.
- Invasive non-native plants should be removed. Bordering Nonsuch Park is Warren Farm, which unfortunately has a problem with Canadian Goldenrod. This plant's seeds can cross over in to the park and should be eradicated before it becomes a problem here as well. Hand pulling is the best way to get rid of it, particularly as it is currently in low numbers. Cutting does weaken the plant but it tends to come back stronger the next year.

Grassland Surveys

For the purposes of writing the previous management plan (2015-20), Pete Howarth (EEBC Countryside Team Ecologist) carried out a condition assessment of the meadows. Unfortunately, they were not found to be in favourable condition. This was mainly due to the infrequent occurrence of positive indicator species and the frequent occurrence of negative indicator species. However, they do have a good variety of species occurring (even if not quite at the right frequency) and with the correct management should improve in their floral diversity. The main change that is required is that after the meadows are cut, very importantly, the cuttings should be collected and removed.

Since 1991, the grasslands in Nonsuch have been left uncut throughout the summer months and cut just once a year in late summer/early autumn. In response to the condition assessment in 2014 and recommendations in all previous management plans to leave some areas of grassland uncut, in 2019, only half the meadows were cut in an attempt to move the meadows in to a rotational cutting cycle. It was felt that this was the simplest way of introducing the rotational method of cutting. Cut meadows were adjacent to uncut meadows, ensuring the invertebrates and mammals had somewhere to retreat. Ideally, the meadows would have been cut and cleared but unfortunately this did not happen.

During the summer of 2020 as part of writing this new management plan, four of the meadows were surveyed to provide a baseline to see what effects this change in management regime would bring.

Results

Between five and eight quadrats were placed across four different meadows, two of which were cut in 2019 and two that were not. One quadrat was also surveyed in nearby Warren Farm, known to be good chalk grassland, to enable us to get an idea of comparison. NB 15 species per quadrat would be considered species-rich and favourable condition.

Meadow name	Average of species per 1m quadrat	Management in 2019
Great Meadow	11	Left
Nonsuch Field	8	Cut
Field next the lane	6	Left
The Daisy Field	7	Cut
Warren Farm	13	Late season annual cut and clear.

These results are a baseline and further surveying will be required to see what effects the change in management brings. It is likely that in terms of species diversity, this will only increase if the arisings are removed. Invertebrate and small mammal surveys will indicate if the meadows are being improved for their benefit.

Management during 2020

All the meadows were cut in 2020. Unfortunately, only Field next to the lane, Daisy Field and part of Great Meadow were cut and cleared. These three meadows would be the priority to survey in 2021. It was noted that two of the meadows that were left uncut in 2019, Bottom Mead South and Six Acre Field, were heavily invaded by scrub encroachment. It is likely that when they were being cut annually, the amount of scrub within the sward was hidden and was being coppiced each time. Once left, it flourished, due to a strong root system and all the added nutrients from the thatch left from years of cutting and leaving.

Meadows to cut and clear on rotation

23). Field Next to The Lane

Description – This meadow was not cut in 2019 and therefore when surveyed, had a slightly more scrubby component with hawthorn, blackthorn and oak saplings. The grassland is considered to be mesotrophic grassland with abundant False Oat Grass and occasional Perennial Rye Grass, Rough Stalked Meadow Grass, Smooth Stalked Meadow Grass, Sweet Vernal grass, rare Tall Fescue, White Clover, Yorkshire Fog, Smaller Cats-tail, occasional Agrimony, Birdsfoot Trefoil, Black Knapweed, Cocksfoot, Common Bent, Common Couch, Common Mouse-ear, Common Sorrel, Common Vetch, Creeping Buttercup, Creeping Thistle, Crested Dogs Tail, Curled Dock, Dandelion, Germander Speedwell, Goats- beard, Hedge Bedstraw, Hoary Ragwort, Lesser Stitchwort, Meadow Barley, Meadow Fescue, Meadow Foxtail, Crow garlic, Meadow Vetchling, Red Clover, Ribwort Plantain. Mistletoe was present in some of the parkland trees. North of the main cluster of trees the grassland is very herb rich, roughly 75% herbs to 25% grass. The grassland is notably nutrient enriched adjacent to paths, presumably due to dogs.

Comments on past management – As mentioned this meadow was not cut in 2019 in an attempt to start rotationally cutting the grassland in Nonsuch Park, as suggested in previous management plans. However, for the first time in 2020, this meadow was cut and cleared. Piles of grass were left discreetly at the edges of the meadow and at the edge of a central clump of trees.

Future management – This meadow should be left uncut in 2021 then cut and cleared again in 2022. Going forward, it should be cut and cleared every other year. This meadow will be a priority to monitor botanically to see the effect the change in management is having on species diversity.

If this meadow is to be cut for hay, ideally the scrub component should be removed, by either hand digging or treated with pesticide (as described above) and any ragwort should be pulled.

24). The Daisy Field

Description - Mesotrophic grassland. Frequent False Oat Grass, occasional Perennial Rye Grass, Yorkshire Fog, rare Agrimony, Birdsfoot Trefoil, , Cocksfoot, Common Bent, Common Couch, Common Mouse-ear, Common Sorrel, Common Vetch, Creeping Buttercup, Creeping Thistle, Crested Dogs Tail, Dandelion, Germander Speedwell, Glaucous Sedge, Goats-beard, Hedge Bedstraw, Hoary Ragwort, Lesser Stitchwort, Meadow Barley, Meadow Foxtail, Meadow Vetchling, Red Clover, Ribwort Plantain, Rough Stalked Meadow Grass, Smooth Stalked Meadow Grass, White Clover, Red Bartsia, Smaller Cats-tail, Ox-eye Daisy, Meadow Buttercup, Red Clover

Comments on past management – This meadow was also cut and cleared in Sept 2020 with arisings left discreetly around the margins of the meadows.

Future management – This meadow should be cut and cleared in 2021 and then left un-cut in 2022. Going forward it should be cut and cleared every other year. If this meadow is to be cut for hay, ideally the scrub component should be removed, by either hand digging or treated with pesticide (as described above) and any ragwort should be pulled. Alongside the margin with North Plantation, leave a wider margin of uncut grass to allow creation of woodland edge either by natural succession or planting.

25). Hill Field

Description - This is an area of mesotrophic rough grassland with a tall sward. The species found here include Black Knapweed, Common Fleabane, Red Bartsia, Agrimony, Meadow Vetchling, Black Knapweed, Red Clover, Creeping Bent, Cocksfoot, False Oat-grass, Common Ragwort, Hoary Ragwort. Within this compartment, there is a small copse containing trees such as Scot's Pine, Oak Holm Oak, Blackthorn and nettles around the margin.

Comments on past management – Until 2019 this meadow was cut once a year in September with arisings left in-situ. In 2019, it was left long. This meadow, although left to grow, did not suffer from too much scrub invasion. In 2020 it was cut and arisings left in-situ.

Future management – Due to lack of scrub issues, this meadow should be left uncut in 2021 and then cut and cleared in 2022. Going forward it should be cut and cleared every other year. Due to the frequency of thistles, an earlier cut might assist in reducing their cover. Alongside the border with The Ancient Wood, leave a wider margin of uncut grass to allow creation of woodland edge either by natural succession or planting.

26). Six Acre Field

Description – Mesotrophic grassland with a high scrub component, containing False Oat Grass, Meadow Vetchling, Agrimony, Creeping Cinqfoil, Ragwort, Bramble, Hawthorn, Dog Rose and Blackthorn.

Comments on past management – This meadow was cut once a year in September up until 2019, when it was left un-cut. The scrub within the sward flourished. Due to this high scrub component, this meadow was cut in Sept 2020 and then again in Oct 2020. Unfortunately the arisings were left in situ.

Future management – Due to the high scrub component, this meadow will be unsuitable for a hay crop until the scrub component is much reduced. The scrub needs to be dug up or or treated with pesticide (as described above). If this isn't possible in the short-term, it will be a priority to cut annually and cleared using a flail collector with arisings piled discreetly around the margins. It will need monitoring to judge when the scrub is at a level that it could be put in to the rotational

management similar to the rest of the meadows. The adjacent Russett Field has already been lost to scrub and if not managed correctly, this meadow will go the same way.

27). Bottom Mead North

Description - Rough mesotrophic grassland. The grassland is composed of Meadow Vetchling, Meadow Barley, Cocksfoot, Agrimony, Red Clover, Field Bindweed, Smaller Cats-tail, Creeping Bent, Red Bartsia, Common Sorrel, abundant False Oat-grass, Creeping Buttercup, Hoary Ragwort, Tall Fescue, rare isolated plants of Grass Vetchling, rare Tufted Hair-grass occurring in a few scattered patches, Creeping Thistle, Black Knapweed. There was some scrub encroachment including Dog Rose and Hawthorn

Comments on past management – This meadow has been cut once a year in September, with arisings left in situ.

Future management – The scrub component within this meadow is similar to Bottom Mead South and Six Acre Field and will need removing either by digging up or or treated with pesticide (as described above). If this isn't possible in the short-term, it will be a priority to cut annually and cleared using a flail collector with arisings piled discreetly around the margins. It will need monitoring to judge when the scrub is at a level that it could be put in to the rotational management similar to the rest of the meadows.

28). Bottom Mead South

Description - This is rough mesotrophic grassland with a tall sward and a high amount of scrub encroachment. The scrub is composed of English Oak, Hawthorn, Blackthorn and Dog Rose. The wild flower species found include rare Meadow Vetchling, rare but widely distributed Black Knapweed, and rare Birds foot Trefoil occurring in scattered patches, rare Agrimony and rare isolated plants of Hoary Ragwort. The sward has a percentage of grasses including Meadow Fescue, Smaller Cats-tail, abundant False Oat- grass and frequent Yorkshire Fog. Common Spotted Orchids (*Dactylorhiza fuchsii*) have been recorded here in the past (June Chatfield pers. comm.)

Comments on past management - This meadow was cut once a year in September up until 2019, when it was left un-cut. The scrub within the sward flourished. This meadow was cut in Sept 2020 but unfortunately the arisings were left in situ.

Future management – As with Six Acre Field, this meadow will be unsuitable for a hay crop until the scrub component is much reduced. The scrub needs to be dug up or or treated with pesticide (as described above). If this isn't possible in the short-term, it will be a priority to cut annually and cleared using a flail collector with arisings piled discreetly around the margins. It will need monitoring to judge when the scrub is at a level that it could be put in to the rotational management similar to the rest of the meadows.

29). Old Stable Ground

Description - An area of mesotrophic grass with a tall sward and areas of saplings encroaching. This field is less species rich than the previous two. Species found here are False Oat Grass, Cocksfoot, Smaller cats tail, Greater plantain, Red Bartsia, Field Bindweed, Creeping Thistle, Hedgerow Cranesbill, Common Nettle, and Meadow Vetchling. Archaeological dig to west of copse.

Comments on past management – This meadow has been cut in Sept annually with arisings left in-situ.

Future management - This meadow should be cut and cleared in 2021 and then left un-cut in 2022. Going forward it should be cut and cleared every other year. If it is possible to cut this meadow for hay, the ragwort will have to be pulled beforehand.

30). Great Meadow

Description - Mesotrophic grassland. This is another area of rough grassland with a tall sward. There is a small amount of scrub saplings present including Hawthorn and Oak. Also there are scattered large trees and occasional ant hills. The grassland is dominated by tall grasses including False Oat Grass, Cocksfoot and Sweet Vernal Grass. The total species list of herbs is 30 including species such as Common Field Scabious, Wild mignonette, Lady's Bedstraw, Meadow Vetchling, Birds foot trefoil, Black knapweed, Burnet Saxifrage, Creeping Bent, Rd Fescue, Smaller Cat's Tail, Yarrow, Lady's Bedstraw, Red Bartsia, Ribwort Plantain, Agrimony, Lesser Stitchwort, Creeping Thistle, Germander Speedwell and Field Bindweed.

Comments on past management – Up until 2019, this meadow was cut once a year in September and arising left in-situ. In 2019 it was left uncut to begin the process of introducing rotational cutting of the grassland within Nonsuch Park. Encouragingly, the scrub component remained small despite being left uncut. In 2020, a good proportion of this meadow was cut and cleared as planned and some areas just cut and left.

Future management – Due to the fact that this meadow overlays chalk, it is a priority to cut and clear the grassland. Scrub encroachment is not so much of a problem here so can be added in to the rotational cutting programme. It should be left in 2021 and cut and cleared again in 2022. Due to the chalk soil, it is possible that this meadow could improve botanically. If this occurs and the plants become the priority, it may be advisable to cut and clear annually. The species mix should be monitored and management tailored accordingly. If cut for hay, the Ragwort will need to be pulled beforehand.

The potential for reduction in mowing paths should be assessed. In many areas but particularly across Nonsuch Field and Great Meadow, there are a large number of paths, These meadows have the greatest potential as they overlay chalk. It would be advisable to stop the mowing of at least two of these paths, which already run parallel to others. It would not reduce public access and would improve the diversity of the meadows.

31). Nonsuch Field

Description - Mesotrophic grassland. This grassland is generally species poor with a tall sward, dominated by the grasses False Oat Grass and Cocksfoot. Amongst the herbs are Hogweed, stands of Mugwort and Creeping Thistle. However, scattered through the sward were a number of herbs including rare but widely distributed Burnet Saxifrage, rare Meadow Vetchling, Agrimony, Lady's bedstraw, Black Knapweed, White Campion Poppy, Common Field Scabious, St John's Wort, Agrimony, Smaller Cat's Tail, Tufted Vetch, Wild Carrot, Hoary Ragwort and Red Bartsia. This area was dug up during the excavation of Nonsuch Palace in 1959. There were many Ox-eye Daisies in 1993, now depleted (June Chatfield pers. comm.)

Comments on past management - This meadow has been cut annually in September with arisings left in-situ. An area representing the footprint of the palace is mown regularly and kept short.

Future management – As with Great Meadow, due to the fact that this meadow overlays chalk, it is a priority to cut and clear the grassland. Scrub encroachment is not so much of a problem here so can be added in to the rotational cutting programme. It should be cut and cleared in 2021 and then going forward, every other year. Due to the chalk soil, it is possible that this meadow could improve botanically. If this occurs and the plants become the priority, it may be advisable to cut and clear annually. The species mix should be monitored and management tailored accordingly. If cut for hay, the ragwort will need to be pulled beforehand. Stop mowing two paths, which already run parallel to other paths, see notes in Great Meadow.

32). Cherry Orchard Farm Grassland

Description - Rough mesotrophic grassland with a tall sward, this area is composed of False Oat Grass, Nettles, Hogweed, Agrimony, Speedwell, Black Knapweed and patches of the non-native grass Californian Brome. In addition, there are stands of Wild Raspberry and Horseradish. There are scattered trees and areas of dense bramble scrub which is marching out in to the grassland.

Comments on past management – The previous management plan suggested that this area of grassland be divided in to four sections and one section cut each year. It was also suggested to use hand scythes. In September 2016, a group of volunteers from the Nonsuch Voles worked with Nonsuch Park staff to scythe an area of about 500 square metres, bounded by two paths, at Cherry Orchard Meadow (see map 5). Small tree saplings were also cut to ground level. Nonsuch Watch were informed that this would take place, due to the fact that the southern half of Cherry Orchard is the site of the Elizabethan garden (known as The Wilderness). Local historians agree that tree regeneration should be managed to ensure that root damage does not occur to any buried archaeology. The aim should be to manage the scrub to prevent it from encroaching any further.

In 2017, a similar sized area was scythed next to the path to the South East of the site marked. A quarter of the grassland area is too large to cut by hand in one year and although it was beneficial to use scythes to avoid damaging ant hills, it is too labour intensive.

Future management – A thorough survey of the grassland to mark where the anthills are, needs to happen before the grass is cut. It is likely that there are areas that could be cut by tractor and flail. If there are areas that have many anthills, brushcutters should be used to ensure their protection. Access through Cherry Orchard Slip or possibly from the London Loop footpath from the south, needs to be opened up and the paths widened through Cherry Orchard Grassland, to allow for management access, not only to Cherry Orchard but also Pottery Wood, Banqueting House Woodland and Five Acres Piece. The grassland needs to be cut and cleared on rotation. Dividing it in to 6 sections may prove more realistic, depending on how much could be cut by tractor.

33). Five Acres Piece

Description - This is a small area of mesotrophic grassland surrounded by woods on three sides and a road on the other. This grassland has a unique flora and is known for its profusion of Lady's-smock, *Cardamine pratensis*. It is a species rich area, less dominated by rank grasses with a much lower sward. These included the grasses Sweet Vernal Grass, Meadow Barley, Meadow Foxtail, Black Knapweed, Meadow Vetchling, Birdsfoot Trefoil, Lesser Stitchwort, Common Sorrel, Lady's Smock and Bulbous Buttercup. There was little ground layer composed of the common mosses *Kindbergia praelonga* and *Brachythecium rutabulum* present.

Within the grassland is the site of the Banqueting House, marked by a low wall.

Comments on past management – Due to the paths becoming overgrown to access this area of grassland, it has not been cut in some time. It used to be cut annually in September, along with all the other meadows. Thankfully, the scrub hasn't taken over too much as yet but it is beginning to encroach.

Future management – Access needs opening up to cut the grass. The path in from Bluegates has become overgrown and the canopy of trees need lifting. Access could also be improved from the Banqueting House Woodland and Cherry Orchard Farm. The grassland should be divided in to two sections, with each section cut and cleared in alternate years.

Scrub and brambles are encroaching from all sides, which needs pushing back. It is also starting to restrict access to maintain the fence at the top of the bank adjacent to the A24.

Weed tree growth needs to be controlled on the banqueting house ancient monument wall. The vegetation is starting to break the wall apart.

Cutting for Hay

The meadows currently most suitable for a hay crop are 29 Old Stable Ground, 30 Great Meadow and 31 Nonsuch Field as the only preparation required is ragwort removal, which is relatively simple to do. Within the lifetime of this management plan, these meadows should be the focus to get in to active hay management alongside dealing with the scrub and ragwort in the other meadows to prepare them for future years.

Amenity Grassland

34). Sparrow Farm Gate Field

Description – Close mown amenity grassland, with a section between Russet Field and Dog Socialisation field left longer as the tractor cannot get underneath the lower branches of the trees here. According to June Chatfield in previous management plans, this area was never cultivated.

Comments on past management – Majority is regularly mown grassland but left long under the trees.

Future management – June Chatfield has suggested that due to the fact this meadow was never cultivated, the area that is not regularly mown could benefit from being scarified and tilled over to see what is in the seedbank. This would require monitoring before and after. The area that is left long currently will need to be cut and cleared on rotation to prevent it from scrubbing up. There is a path leading through this area, through hedge K to Six Acre Field, which should be discouraged. The path goes past a veteran oak tree in the hedge, which is suffering from root compaction. There are opportunities to plant some individual native parkland trees in this meadow.

35). Sparrow Farm Dog Socialisation Area

Description – This is an area which used to be a dog free/picnic area, which was mown regularly. Currently it has been left and is quite interesting with species such as Meadow Barley within the sward.

Comments on past management – This meadow used to be a dog free/picnic area. However, the meadow has been left uncut with a view to changing its use. It was thought that this area could be used to help owners train their dogs and get them used to other dogs and people. To alleviate pressure of dog disturbance from the current ponds (particularly Round Pond), an addition of a sacrificial pond here could be advantageous. A small shallow in a known wet area of the field was dug to investigate the potential of creating a pond here.

Future management – Regularly cut the 2/3 of the meadow for dog training/socialisation/agility activities. Dig out pond and leave a margin around uncut to allow grasses and scrub to develop. Hopefully part of the pond might remain less disturbed by dogs and might have a value to wildlife. Cut and clear on rotation 1/3 of the meadow, adjacent to Sparrow Farm Copse and Hedge K.

36). Red Gate Field (Dog free/picnic area)

Description - Close mown amenity grassland. Species found in this area include Perennial Rye-grass, Yorkshire Fog, Cocksfoot, Yarrow, Ribwort Plantain, and Bird's Foot Trefoil. Along the edge of the area is longer vegetation which also contains Common Nettle, Cow Parsley and Ground Ivy.

Comments on past management – Regularly mown

Future management – Continue to maintain this as a regularly mown picnic/no dog area. There are opportunities to plant some individual native parkland trees in this meadow.

37). Red Gate Car Park Grassland

Description – This area was regularly mown like much of the other amenity grassland. However, due to bunds placed where the grassland meets the car park to restrict unauthorised access, it has

become longer and rougher. It consists of Perennial Rye Grass, Annual Meadow Grass, Greater and Ribwort Plantain but could potentially become more interesting if cut less often. Scrub will also start to encroach.

Comments on past management – Once cut regularly now less often.

Future management - Cut one half every other year and ideally remove arisings.

38). Round Pond Field

Description – Although this meadow is close mown amenity grassland, there remains within the sward, areas of finer grasses, including Common Bent, Red Fescue with Lesser Stitchwort , Sheep’s Sorrel, Common Sorrel, Smaller Cat’s Tail, Sweet vernal grass, Yorkshire Fog and Autumnal Hawkbit. The field also has a good selection of parkland trees.

Comments on past management – It is regularly mown amenity grassland but has in the past been cut for hay.

Future management – This meadow should be maintained as regularly mown grassland, but perhaps a margin of longer grass adjacent to Red Barn Field and Hedges N and I could be created. A wavy edge would increase the area available and also improve the aesthetics. This margin should then be cut and cleared on rotation to ensure the hedge/scrub does not encroach out in to the grassland.

There are opportunities to plant some individual native parkland trees in this meadow. Current parkland trees should be managed (See section on Veteran and Parkland Trees)

39). Plantation Field

Description - This is an area of close mown grassland with longer mesotrophic grassland around the edge. The species found here include Cocksfoot, Perennial Rye-grass, False Oat-grass, Yorkshire Fog, Creeping Bent, Smaller Cats-tail, Meadow Vetchling, Broad Leaved Dock, White Clover, Ribwort Plantain, Daisy, Meadow Buttercup, Field Bindweed, Black Knapweed, and Trailing Tormentil. On the eastern edge of Plantation Field (adjacent to The Wood,) there are avenues of Birch, Poplar, and Ash trees.

Comments on past management – This area is mown regularly although the area nearer the wood and around the avenue of trees less so.

Future management – Continue with current management and cut grass regularly. Allow woodland edge to develop from The Wood. (See management for The Wood.)

40). Pit Field (Dog free/picnic area)

Description – Close mown amenity grassland

Comments on past management – Regularly mown

Future management – Maintain as regularly mown picnic/dog free area. There are opportunities to plant some individual native parkland trees in this meadow.

41). Reads Field

Description – Close mown amenity grassland with some parkland trees/copses, including Cherry, Ash, Rowan, Oak, Horse Chestnut, Beech, Norway Maple, Hazel, Sycamore. The copse’s ground layer is dominated by Ivy. There is a line of Scot’s Pines lining the road up to the mansion house along the south western edge.

Comments on past management – Regularly mown

Future management – Continue to regularly mow. There are opportunities to plant some individual native parkland trees in this meadow.

2.2.6 Scrub

General principles:

- Scrub is an extremely important habitat, one that many animals depend on for their survival.
- It is a habitat in its own right but also can be a component of other habitats such as grassland and woodland.
- It is also successional and is the stage between grassland and woodland. It is valuable to a variety of wildlife in all its successional stages. For example, the Brown Hairstreak Butterfly lays its eggs on relatively young blackthorn. As scrub develops, it provides a nectar and food source for mammals, and birds. Once it is more mature and dense, it is attractive to birds to nest in.
- Open grasslands with sparse, scattered scrub are thinly populated in comparison to areas of thick scrub. However, isolated bushes in open sites can act as useful song-posts for species such as Whitethroat and Meadow Pipits. Due to the fast spread of Bramble, this species may need controlling.
- It is important to retain a scrub mosaic with different species and age classes to be of most benefit.
- It is often in the scrub ecotone between grassland and woodland where most diversity lies.
- Scrub can also be useful to deter human access to sensitive areas.
- Enhancement of the existing scrub mosaics can be achieved by managing existing stands on rotation to ensure age structure. It is vital that scrub is managed and not allowed to take over.
- Areas of grassland can be cut less regularly, allowed to scrub up and subsequently managed on rotation.
- Grassland areas can be planted up with scrub species (such as Hawthorn, Blackthorn, Guelder Rose, Hazel, Field Maple, Dog Rose, Privet etc,) particularly along severe woodland/grassland edges to create a gradual transition from grassland to woodland.
- Or the woodland can be pushed back by felling a 10m strip for example, then managing the regrowth. Interplanting with more suitable species if necessary.
- Cut scrub can either be disposed of at the site it is cut from by creating brush habitat piles or either burnt or chipped. NB, due to the urban nature of the park, any fires used to manage vegetation should be taped off clearly to warn members of the public.

42). Russet Field

Description - Russet Field was under cereals until about 1960 (mostly Wheat and Oats) (June Chatfield pers. comm.). This was the location for the plant Pepper-Saxifrage and was described in 2005 as comprising semi- improved tall vegetation with abundant False-oat grass and frequent Meadow Barley with young patches of scrub in north eastern and south western corners of Hawthorn, Blackthorn, Dog Rose and Bramble. These patches of scrub have expanded and have taken over the area. There are now only small patches of open vegetation and lots of the species occurring in the 2005 have been lost or are of a much smaller abundance including Pepper-saxifrage which could not be found.

Comments on past management – This meadow has not been managed aside from mowing the paths. The scrub has now spread up to these paths and a hedge cutter side arm is used to cut the high vegetation to keep the paths open.

Future management – Whilst most of the field has scrubbed up, there are opportunities to open it up. The border with Six Acre Field still has areas of grassland along it. The scrub should be prevented from encroaching any further in to the is area and pushed back to increase the grassland area. The grassland should be cut and cleared on rotation. Along the mown paths, the scrub should be scalloped, creating grassy areas, which should be subsequently cut and cleared on rotation. Areas with younger scrub should be prioritised as it will be easier to bring this back to grassland. Looking at the aerial photos can assist with choosing which areas to focus on.

More mature stands of the scrub should be coppiced on rotation to ensure a good age structure. Along the southern edge where it meets Bottom Mead North, there is a large bank of blackthorn, ideal for scalloping.
Ensure paths are kept mown and scrub edges cut using a side arm until they are able to be managed by scalloping.

43). Cherry Orchard Farm Scrub

Description - In this area there is a good mosaic of rank and tall grassland, with dense scrub and trees. It has been pointed out that this area is important from an archaeological point of view as well as for wildlife. The southern part of the area is the site of the Wilderness – a key part of the Elizabethan garden. On the edge of this area is a very large hazel coppice stool. This has a diameter of over two meters. It is difficult to age coppice stools but its size indicates it is of significant age.

Comments on past management – Very little management to the scrub and brambles has happened within Cherry Orchard. The Nonsuch Voles did cut down some small saplings when managing the grassland but other than that, nothing has happened.

Future management - Any further encroachment by scrub and trees could threaten possible archaeological remains as a result of root damage. The aim in the first management plan written in 2006 was to manage the scrub to prevent it from encroaching any further. Over the intervening years, it has encroached in to the grassland and needs to be pushed back to levels in 2006. It is possible to see the scrub has encroached between 10 to 30 metres by looking back at aerial photographs. It is a priority to open up access for tractors/cut and clear machinery. The majority of the scrub here is Bramble and it is suggested that the larger areas are rotationally cut on a 5 year basis, along with other shrub species present, at varying angles to the vertical; this will increase the angle to the sun and overall surface area of the scrub margin edge. It will also have the advantage of creating suntraps, enhancing the microclimate and combat wind tunnel effects, important for invertebrates. The trees that have grown up need to be felled. This should be carefully monitored to ensure that both archaeological and nature conservation needs are met.

2.3 Surveying and monitoring of species groups

Having reviewed in detail June Chatfield's report and suggestions from previous management plans, below are recommendations for surveying the wildlife found within Nonsuch. It should be noted that all surveys should prioritise areas that are to be actively managed.

Although the surveying has been pretty comprehensive over the years and many groups have been studied, all the surveys are quite old now and could be repeated. The only regular surveying that currently takes place is the butterfly transect as part of Butterfly Conservation's monitoring scheme.

2.3.1 Fungi and myxomycetes (slime moulds)

This group was last surveyed in 2013, focussing on smaller fungi. Experts should be encouraged to visit again, 10 years on perhaps this time focussing on larger fungi. If experts could be found a regular fungal foray could be organised.

2.3.2 Lichens

The stone-work, walls and benches of the mansion house garden are particularly important for their lichen flora. The willows by the Round Pond are a good habitat for bark living lichens (June Chatfield pers. comm.) Monitoring of lichens can be useful in monitoring air quality. It has been some time since the last surveys so further surveying would be advisable to investigate how the park will have been recolonised by lichens. Trees should be the major habitat to focus on.

2.3.3 Bryophytes

A fungi, lichen and mosses survey over the autumn months. This is an area that has not been fully investigated and would provide useful information on woodland management. Winter to early spring is best for Bryological field work, with the bryophytes looking their best when damp and extra light is provided by the lack of leaves on the trees. Further surveys would be advisable as bryophytes, along with lichens are good indicators of air and soil condition and could show variations as air quality changes. Pete Howarth, Countryside Officer – Ecologist for EEBC, could carry this survey out.

2.3.4 Vascular plants

Out of all the groups, plants have been recorded most comprehensively, with an impressive species list for the site. The most useful survey to focus on now would be the condition assessment of the grassland, particularly in the meadows where the management regime is to change. The change in vegetation should be seen over the years if cutting and clearing is maintained as a management tool. Each meadow should be surveyed using quadrats evenly spaced across the fields, roughly 6-8 areas depending on the size of the meadow. The quadrats should be randomly placed so as not to encourage bias of recording the nicer areas to get a true reflection of condition. Number of different species per quadrat should be counted. Ideally the species should be noted, but the number of different species is indicative of quality, so it is possible to use volunteers who are not botanical experts to do this as well and cover more ground. Volunteers could be trained to look for key quality indicator plants to as well as negative indicators. These species are shown in table 1 on the following page.

Table 1 Lowland Grassland Positive/Negative Indicator Species for Condition Monitoring	
Positive indicator	Negative indicators
Achillea ptarmica	Anthriscus sylvestris
Agrimonia eupatoria	Cirsium arvense
Ajuga reptans	Cirsium vulgare
Calthus palustris	Pteridium aquilinum
Carex flacca	Rumex crispus
Carex ovalis	Rumex obtusifolius
Centaurea nigra	Senecio aquaticus
Euphrasia officinalis agg	Senecio jacobaea
Filipendula ulmaria	Urtica dioica
Galium palustre	
Galium uliginosum	
Galium verum	
Genista tinctoria	
Lathyrus linifolius	
Lathyrus pratensis	
Leontodon autumnalis	
Leucanthemum vulgare	
Lotus tenuis	
Lotus pedunculatus	
Lotus corniculatus	
Lychnis flos-cuculi	
Mentha aquatica	
Ophoglossum vulgatum	
Orchids	
Pimpinella saxifraga	
Polygala spp	
Primula veris	
Rhinanthus minor	
Senecio erucifolius	
Succisa pratensis	
Valeriana dioica	

The meadows should also be monitored as a whole to complete their condition assessment. The categories are as follows

- **Extent.** This attribute is one that is measured as the condition monitoring continues. The first time an area is monitored sets a base line. Aerial photographs are a good way to assess this and the meadows are not encroached upon by scrub/trees.
- **Sward composition** – grass/herb ratio. In general semi-natural swards that are in good condition have a much greater broad-leaved herb component than agricultural grassland. It is thought that

for neutral and calcareous grassland the broadleaved herb component should fall within the range 40-90%. It should be borne in mind that some of the broadleaved plants such as creeping thistle that may be present are not a good indicator of positive condition.

- **Sward composition (using information from quadrat sampling)**
 - frequency of positive indicators. There are for the type of grassland examined, a list of species that are regarded as positive indicators. The site is traversed and these species are recorded. It is recommended that 2 to 6 of these species should be frequent, found 41-60% of the time.
 - frequency of negative indicators. These should not make up more than 10% of an area individually and combined not more than 20% of the area.
 - frequency of shrub/trees. To be favourable, there should be no more than 5% cover of woody species
- **Sward structure:**
 - average height of sward, recorded in summer visit period only, should be 5cm or above.
 - Litter i.e build up of thatch should be in no more than 25% of the sward.
 - extent of bare ground (not rock) distributed through the sward, visible without disturbing the vegetation should be no more than 5%.

Components of chalk species in Great Meadow and Nonsuch Field should be thoroughly assessed. If through cutting and clearing more chalk grassland species occur, then annual cutting and clearing should be carried out. Depending on how these meadows respond will indicate how regularly the meadows are cut and if they should be managed primarily for the chalk grassland flora or for the benefit of invertebrates and mammals.

Within the woodlands, priority should be given to the woodland areas that are to be managed, ideally before and after to see the difference the management regime is having. Key categories to focus on to assess the condition of the woodlands are:

- Extent – Area of woodland
- Structure and natural processes
 - Canopy Cover – canopy trees should cover 30-75% (unless put into coppice management and then should be 25-50%)
 - Understory composition – a good mix of shrub species present.
 - Ground flora composition – are there woodland flowers or merely ivy and brambles.
 - Age structure – there should be at least three different age classes.
 - Percentage of decaying wood.
 - Open spaces for example glades and rides, should cover at least 10%.
- Regeneration Potential – Are there young trees growing up to become the next canopy trees.
- Composition – 95% should be native plants.

Within the ponds, the vegetation revival on the margins of Round Pond should be recorded to show how managing light levels and controlling disturbance benefits the plant life. As the margins of New Pond are managed, the vegetation recovery should be monitored. If new ponds are created/restored, again, the vegetation succession should be recorded.

Photo monitoring can be an extremely good way of showing the changes a management regime can have. Before and after photos are recommended as well as fixed point photo monitoring. Take six or seven photographs at each point. The compass bearing on which each photograph should be noted to allow that angle of view to be repeated subsequently. Note in detail the description of where the fixed photographic point is and record the Global Positioning System (GPS) reading. Wooden posts could be used if there is not a suitable landmark.

The importance of smaller seemingly insignificant habitats should not be underestimated. For example, the Ivy on the wall around the gardens should not be allowed to take over, as the wall is home to a number of mosses and lichens some of which are rare. The wall is also important from an historic point of view. However, it is also acknowledged that Ivy can be very beneficial to a variety of wildlife. Therefore, up to 50% of the wall should be kept free of Ivy.

2.3.6 Oligochaetes (Earthworms)

There is a greater understanding now of the importance of the contribution soils have in maintaining Biodiversity. A good population of earthworms is indicative of the quality of the soil. They improve the structure of the soil allowing for better plant growth, they are important in decomposition and release nutrients back into the soil, they have a positive effect on bacteria and fungi, which also release nutrients back into the soil to assist plants to grow. They are also an important food source for other animals. Nonsuch has not been farmed now for many years so hopefully any remnants of pesticides will be very low. A baseline survey of earthworms is recommended. Advice can be gained from the Earthworm Society of Britain to find a local expert.

2.3.7 Molluscs

June Chatfield recommends prioritising aquatic species as the terrestrial species are fairly stable.

2.3.8 Arachnids

70 out of a possible 650 species so more scope for surveying in a range of habitats such as under logs, behind loose bark, in leaf litter and pitfall trapping as well as beating trees and shrubs, sweep netting in grassland. June Chatfield suggests walking the park in early morning autumn weather or on frosty days, which will highlight distinctive webs and provide areas in which to target fieldwork.

2.3.9 Insects

Monitoring the insects within the various management compartments will help to identify whether management is enhancing the overall biodiversity of the Park. Surveying the scrub mosaic, rotationally managed grassland and woodland coppiced/thinned area will be a priority to focus on. An aquatic invertebrate survey is also recommended especially as ponds are opened up and vegetation managed.

Specific surveys of particular groups of insects is also recommended.

- Butterflies - The volunteer/s that walk the butterfly transect as part of the Butterfly Monitoring Scheme should be supported.
- Moths - A night-time moth trapping session should be repeated, the last survey was in 2006/7.
- Beetles, Flies, Hymenoptera, Hemiptera will require an ecologist to be employed to carry out a survey. Again focusing on areas that are to be actively managed. Surveys are well overdue as the last time was 2004.
- Orthoptera and Odonata are reasonably easy to survey as there are limited potential species. Try and encourage local experts or volunteers together with staff to survey these animals. These animals were last looked at in 2014 and 1993 respectively, so well overdue a survey.

2.3.10 Plant galls

An expert ecologist will be required to resurvey the park. Records date between before 1993 to 2014. A focused survey has not been carried out, rather they have been spotted whilst surveying for other species.

2.3.11 Herptiles

The reptile surveying has been focused around Cherry Orchard Farm, last carried out in 2012 so well overdue a repeat survey. It is recommended that more of the scrub/grassland mosaic is surveyed using felt mats or onduline or metal corrugated tins.

Due to the presence of Great Crested Newts confirmed in Round Pond, this pond should be surveyed for newts using bottle traps by licensed ecologist. Torching can also be a useful tool to indicate presence of GCNs.

2.3.12 Birds

A full BTO bird survey to enable mapping of the breeding territories and provide further information on how management is affecting the bird populations is recommended. Importantly the standard methodology used would provide scientifically valid comparisons to be made in the future. It is understood that a full BTO breeding bird survey has not been carried out at the park and the total in the species list (Appendix 2) does not reflect the total recording that has gone on over the years.

It would be also useful to record winter visitors and summer migrants as Nonsuch Park will be providing these birds with vital habitat needs

Due to birds being particularly popular with local enthusiasts, it may be possible to encourage volunteers to help with bird surveying.

There are relatively few mature trees in the woodlands, instead there are large areas of fairly young, single-age and noticeably thin trees. There are, therefore, relatively few breeding opportunities for hole-nesting species, and limited foraging opportunities. Installing nest boxes in the woodlands could help with any nest deficiencies, as has been done in Oak Wood. The Nonsuch Voles also put up four bird boxes in The Wood in 2017. Nest-boxes offer acceptable alternatives to natural holes in trees, brick walls, etc. for many species of bird. In fact, more than 60 species have used them in Great Britain. Which species uses a particular box depends on a number of factors including its design, size, and location. It would be useful to carry out a bird survey prior to putting up nest boxes in order to assess the need.

2.3.13 Mammals

A full bat survey should be carried out at the appropriate time of year to include emergence work in selected parts of the park. It is recommended that prior to any tree work, a bat survey is conducted to grade for potential of bat roosts. Installing bat boxes in the woodlands may also help with any roost deficiencies as with bird boxes.

Small mammal surveys have not been carried out in the park so a system of small mammal trapping using longworth traps or footprint tunnels is recommended to help bring together a more detailed picture of the types of mammals using the site. Focus should be made in the grassland areas rotationally managed to help prove whether this form of management is beneficial. It should also be indicative as to whether the woodland management is beneficial as well by focusing on those areas to be managed. Jon Whitehead has spotted Weasels in the Mansion House Gardens and The Wood.

2.3.15 Invasive species

Woodlands

- Turkey Oak, is non-native and cross fertilises with our native Pedunculate (English) Oak giving rise to Turkey Oak hybrids. This results in a reduced insect fauna as Turkey Oak supports less insect species than the native oak does. Therefore, it should be preferentially thinned and then

the stumps treated. The large Turkey Oak by the north edge of the grass to the west of the Banqueting house should be preserved as an interesting historic tree.

- Cherry Laurel – Clear and treat stumps of the invasive and non-native Cherry Laurel during summer when the up-take into the roots is at its strongest. NB important not to confuse the spurge laurel found in The Wood as Cherry Laurel.
- Rum Cherry - To the north side of Warren Farm within a strip of planted trees and shrubs, two trees of Rum Cherry (*Prunus serotina*) are present. These were possibly planted by mistake and have spread. They should be removed (R. Hawkins, pers.comm.)
- Snowberry – The Nonsuch Voles have eradicated this plant within the woodland they manage. This should continue around the rest of the woodlands within the park.

Ponds

- Found within New Pond, there are several non-native and highly invasive species in the water such as Parrot's Feather and Australian Stonecrop or *Crassula helmsii*. This species can grow all year in shallow and deep water and from a small fragment of the plant. It was introduced into Britain in the 1920's and is now only sold at garden centres. It is through accidental and deliberate discardment into water courses and ponds that it has been able to spread so rapidly in many of our water habitats. Control is extremely difficult. Currently the best ways to deter its spread is to cover the offending area with black polythene sheeting or chemically treat.
- Azolla has been seen in Round Pond since 2008. It tends to develop in late Summer and reach a peak in Autumn, so the pond should be surveyed again this year to see if it is still a problem.

Grasslands

- Canadian goldenrod. It is a problem on neighbouring Warren Farm. If seen with Nonsuch, it should be pulled by hand immediately. Nonsuch Voles have been keeping on top of this and should be supported to continue.

All invasive species should be carefully monitored to ensure they do not spread any further and to assess whether their management is being successful.

2.4 Landscape

It is suggested that Nonsuch Park should be designated as a Local Nature Reserve. As June Chatfield notes in her review, it would help promote the wildlife image to a wider audience and highlight it as an open space that is just as important for wildlife as it is for recreation. Local Nature Reserve status could also assist in accessing grant funding.

Any benefits resulting from the park's inclusion in Surrey's North Downs Biodiversity Opportunity Area should be maximised. If developments happen locally and mitigation is needed, opportunities to enhance Nonsuch Park should be considered using the management plan as a guide on how best to use the funding. Any adverse impacts a development may have (e.g. increased visitor pressure, lighting issues) should be considered when deciding in planning applications to begin with. Opportunities to create a better link to the wider countryside to the south of the park via back gardens to Howell Hill, Priest Hill and on to Epsom Downs, will benefit the wildlife within.

The true location of the Grove of Diana should be investigated to help focus any management that may be required.

2.5 Promoting the Site's Value and Visitor Management

Visitor Provision - Install more benches, in line with the policy approved by the JMC for only 'rustic' style benches in the Parkland and no plaques. Formal Benches with Plaques are permitted in the Formal Gardens. A number of rustic style benches have recently been provided through the memorial bench scheme and this has already improved the visitor provision in the Park.

- There are many paths available to visitors and in places some could have their mowing regime stopped to discourage their use. It may be that footfall keeps them open but trying to increase the areas of meadow that are not trampled would be advantageous, particularly in Nonsuch Field and Great Meadow.
- Ensure the London Loop and Round the Borough Hike and Bike routes are well maintained.
- The Forest School is a great asset to the residents and their use of the park to educate the children is highly valuable. It is important that good communication exists with site managers and the school, to ensure their activities are not detrimental to any sensitive habitats. EEBC staff may also be able to lead sessions for the children e.g. habitat studies.
- There are also opportunities to promote the site as an educational resource to the many schools nearby.
- There are concrete pillars leading visitors to the Banqueting Site in Five Acres Piece. However, there is no interpretation of this and should be improved.

Dog Issues - The dog free zones do offer important recreational areas used by many of the visitors with young children. Perhaps to further encourage good dog management more waste bins could be installed.

Site Reporting - Try to ensure that locals who use the site are known to the Team and feel comfortable in coming forward with information, such as reporting anti-social behaviour.

- Better communication with residents that back on to the park should be encouraged. There is a dumping and encroachment issue, particularly in the Banqueting House Woodland and the residents there should be written to, warning of the danger of garden escapes to the natural habitats and species in the park.

Interpretation - Ensure that good interpretation of the site is available to inform the public of the biodiversity value of the site. This could include explaining what sort of wildlife is present in their park, why conservation management techniques are being used and why it is of positive benefit to the park. Sensitive information on species should not be advertised.

- Continue the use of information panels relating to the work carried out by the Nonsuch Voles. The Nonsuch Voles also provide education information to the public via Facebook and by giving talks at local events.
- Guided walks would be a very good way of engaging with the public as well and could be on a range of topics for example history, wildlife and site management.
- Explore the use of social media to interpret the site's value for wildlife and recreation

Visitor Surveys - Visitor surveys can be used to ascertain the views of the public about the management, either on a volunteer basis, using the Nonsuch Team or specialist contractors. This would depend on budget, time and required outcome of the assessment.

2.6 Identification/Confirmation of Important Features

Site Features	National Importance	Regional Importance	Local Importance
1. Habitats Hedgerows Lowland mixed deciduous woodland Ponds Veteran/mature trees Grasslands Scrub	* * *	*	* *
2. Species groups Plants – Meadow barley and chalk grassland plants Bird assemblage 20 Red and 16 Amber Listed 20 NERC priority species Mammal assemblage Bats – All protected under UK law with 3 NERC priority species. Hedgehog – NERC priority species Invertebrates: Butterflies - 3 NERC priority species. Moths – 5 NERC priority species Herptiles: Amphibians – GCN European protected species and also NERC priority species as is Toad. Reptiles – Common Lizard, Slow Worm and Grass snake, all protected under UK law and are NERC priority species. Insects: Stag Beetle – NERC priority species	* * * * * * *		*

Site Features	National Importance	Regional Importance	Local Importance
3. <u>Culture and amenity</u>			
Public recreation			*
Educational opportunities			*
Historical, landscape and cultural features	*		

2.7 Ideal Long-term Management Objectives for Nature Conservation

- Enhance the biodiversity of the site as a whole, including better links between habitats.
- Managing the grasslands by cutting and clearing the arisings is the most important management needed across the whole site, with particular focus needed in the areas overlying chalk. Ensuring scrub does not encroach in to them is also vital.
- Manage the woodland and hedges for both nature conservation and access (where not harmful to wildlife), enhancing biodiversity where possible by creating a diverse age and structure.
- Retain where possible a variety of decaying wood in the woodlands and encourage wood decay to enhance overall biodiversity.
- The veteran trees should be managed by arboricultural specialists to ensure longevity.
- Manage the scrub for nature conservation by creating age structure and controlling dominance over other habitats.
- Control undesirable species of plants to maintain and enhance biodiversity of site.
- Manage the ponds to improve biodiversity and for the New Pond, visual amenity. The vegetation surrounding the ponds should be cut back to allow more light to reach the water leading to a greater diversity of marginal and submerged plants and in-turn, the animals will return.
- Continue valuable collection of records for the site by commissioning a variety of ecological surveys. Share information with local record centre.
- Encourage grounds maintenance contractors to undertake good management practice to assist nature conservation. Increase awareness of the wildlife value of the Park.
- Encourage and support conservation volunteers and local wildlife groups.
- Promote the work carried out by volunteers, particularly the Nonsuch Voles.
- Protect the archaeological sites and historic landscape within the park especially the scheduled ancient monument.
- Interpret the site's wildlife and historical importance to the public.
- Promote the site as an educational resource.
- Continue to work with all stakeholders.
- Designate Nonsuch Park as a Local Nature Reserve.

2.8 Identification of Operational Objectives and Outline Prescriptions

Habitat/Species	Prescriptions
Hedgerows	<ul style="list-style-type: none"> • Create age structure by scalloping • Plant up gaps (local/UK provenance) • Retain canopy trees • Annual trim of selected hedges • Remove/treat non-natives
Woodland	<ul style="list-style-type: none"> • Halo release of retained standards/veterans • Manage Ash trees and monitor Ash Die-back within the population • Ride side management along paths within the woodland • Woodland edge/scrub creation through felling/coppicing • Woodland edge/scrub creation through planting • Manage existing woodland edge • Continue coppice rotation • Supplementary planting of Hazel/Oak (local/UK provenance) • Remove (treat) non-natives. • Ensure presence of decaying wood within the woodlands • Thin out woodlands to a maximum of 30% to create age structure • Minimum intervention – Tree safety work, removal of non-natives, monitor regeneration potential • Walnut Grove management • Investigate grant funding to assist with management
Ponds	<ul style="list-style-type: none"> • Remove 40% of reedmace from centre of New Pond and deepen pond to beyond the level that reedmace can grow. • Monitor drainage channels leading in to and out of New Pond • Thin out trees along the southern edge of the ponds. • Manage vegetation regrowth along southern side of the ponds. • Use positive signage to educate dog walkers about the need to keep dogs out of the pond during bird nesting season (March – August) • Investigate grant funding opportunities (CIL bid) for the management of current ponds and recreating/creation of new ponds.
Veteran Trees	<ul style="list-style-type: none"> • Survey and map all existing veteran and near veteran trees and create individual management plans for them. • Assess opportunities to plant more individual parkland native trees from local/uk provenance. • Collect seed from current trees and bring on until mature enough to plant out in the park. • Create planting scheme for new parkland trees and future successional planting.
Grassland	<ul style="list-style-type: none"> • Cut and clear identified non-amenity grasslands, ideally to produce a hay crop. • Cut and clear one sixth of Cherry Orchard Grassland every year • Cut and clear one half of Five Acres Piece • Cut back scrub encroaching on the perimeter of the grassland and on the Banqueting House Wall. • Stop mowing some paths • Regularly mow amenity grasslands leaving margins around copses where possible. Cut and clear these margins on rotation. • Investigate the possibility of scarifying and tilling Sparrow Farm Gate Field

Scrub	<ul style="list-style-type: none"> • Push back scrub between 10 and 30 m • Scallop scrub edges • Coppice mature stands on rotation to create age structure
Biological monitoring	<ul style="list-style-type: none"> • Geology mapping update • Employ a specialist ecologist to continue surveying across the park for Fungi, Lichens, Bryophytes, Oligochates, Moths (Paul Wheeler), Arachnids, Beetles, Flies, Hymenoptera, Homoptera, Plant Galls, Aquatic Invertebrates, Aquatic plants, Great Crested Newts (Pete Howarth), Mammals and Birds. • Encourage and support volunteer involvement in surveying Butterflies (as part of Butterfly Conservation's UKBMS), Reptiles and Birds. • Condition assessment of grasslands and assess success of management change • Survey managed areas of woodland
Invasive Species	<ul style="list-style-type: none"> • Map invasive species. • Remove and treat Cherry Laurel. • Preferentially thin Turkey Oak. • Dig up Snowberry • Pull Canadian Goldenrod • Control Parrot's Feather and Reed Mace • Control Azolla
Landscape	<ul style="list-style-type: none"> • Investigate true location of Grove of Diana • Designate as Local Nature Reserve • Maximise opportunities associated with being part of Surrey's North Down Biodiversity Opportunity Area.
Promoting the Site's Value	<ul style="list-style-type: none"> • Carry out a Visitor survey • Begin a programme of guided walks • Increase number of Notice boards/site notices/benches • Encourage and support volunteers to report issues/interesting findings • Liaise with Forest School and local schools • Communicate with residents backing on to the park

Key management to start/volunteerable/quick wins:

- Cutting and clearing grassland
- Ragwort removal from grasslands to be cut for hay
- Stop mowing some paths
- Scrub management by volunteers in Cherry Orchard, Russet Field and potential hay meadows
- Ride management in The Wood
- Collect seed and bring on trees for planting in hedgerows, woodlands and parkland
- Open up/maintain open vegetation around the southern side of the ponds
- Communicate with neighbouring residents and Forest School managers
- Monthly meetings with volunteers and Future Woodlands to review and plan activities outlined in the management plan

STAGE THREE – PRESCRIPTIONS

It is recommended that for each year, an individual Annual Work Plan should be drafted including an outline of costs and personnel to be used.

Recommendations not covered by this report, but which must also be considered for each Annual Work Plan includes a health and safety review. All management tasks need to be the subject of a health and safety risk assessment.

Financial, labour and equipment constraints

Proposals have not been budgeted in terms of labour and financial inputs, largely because these are unknown. However, formulation of the proposals has taken into account what are likely to be limited resources and most tasks should readily be achievable by conservation volunteer teams. It is hoped that prescriptions requiring greater inputs of resources can be undertaken as part of the programme of contractual work that already exists and outside contractors, without the need for unduly increasing costs. Priorities have been attributed to the suggested management tasks.

A rough idea of cost would be:

Contractors	£175/person/day
Volunteers	£7/person/day
Ecological Consultants	£275/person/day
Arboricultural Contractors	£275/person/day

Notes:

- The outline costs are estimation for guide/planning purposes and may vary significantly from the actual costs.
- Volunteers: In addition, use of volunteer machinery (e.g. chainsaw/brush cutters) is £50/day and the hire of heavier equipment (e.g. mini excavator/dumper) is approx. £100/day.
- Where the term volunteer/contractors is used, the deciding factor will be availability of volunteers, who would normally be the first choice. It should be noted that a significant amount of the crucial volunteer input to site management would be at no direct cost to the Council.

Sustainable Management

The work detailed in this document tries to find a balance between meeting the needs of our current generation while conserving natural resources and protecting the environment for the benefit of future generations. These new opportunities for sustainable management include improving the pond environment by greatly improving the quality of the emergent and marginal plant species, protecting the wildlife through a variety of methods such as further enhancing the meadows as well as the woodland, scrub and hedgerows. Increasing the public knowledge about the ecology of the Park will also help them to understand why it is necessary to carry out essential management work in the Park.

Volunteering Opportunities

The management recommendations table below contains much that is suitable for volunteers to carry out. This gives the opportunity for new members of the public and existing volunteers to carry out a variety of tasks at the Park. This then enables the Park Team to commit to a variety of work they would not be able to complete on their own and gives opportunities to create links with local visitors to the Park who can help with 'policing' if any trouble occurs and assist with wildlife recording. The Nonsuch Voles are already very active carrying out practical conservation work in the Park in both the woodland and the Mansion House gardens. Sutton Conservation Volunteers undertook clearance of the New Pond in the past. The table will note which tasks are appropriate for volunteers and which will need outside contractors.

Prescription tables

The compartments can be seen in Map 2

HEDGEROWS							
Compartment	Management Prescriptions	Year					Workforce
		23/24	24/25	25/26	26/27	27/28	
A	Open up access in to Cherry Orchard Farm Grassland						Staff/Vols
A, B, D, G, K, L, P	Plant up gaps (and widen A) (to stop access past veteran oak in K)	A	B,D	G	K,L	P	Staff/Vols
C, D, F, H, I, K N, P	Scallop on rotation to create/maintain age structure		C,D,F	H,I	K	N, P	Staff/vols
E, F, J, O	Hedge cutter trim	E, F, J, O	E, F, J, O	E, F, J, O	E, F, J, O	E, F, J, O	Staff
K	Remove Non-Native Turkey Oaks and treat		K				

MIXED DECIDUOUS WOODLAND							
Compartment	Management Prescriptions	Year					Workforce
		23/24	24/25	25/26	26/27	27/28	
1, 2, 10, 11	Halo release of retained standards/veterans		x			x	Contractor
All woodland compartments	Selectively thin Ash trees. The Ash trees need to be monitored for presence of Ash Dieback and removed if necessary on a risk-based approach based on public safety considerations.	x	x	x	x	x	Staff/ Contractor
1, 2, 11, 13	Ride side management along paths within the woodland	x	x	x	x	x	Contractor/ Staff/ Volunteer
2, 13	Woodland edge/scrub creation through felling/coppicing	x		x			Contractor
1, 16	Woodland edge/scrub creation through natural regeneration/planting		x	x	x	x	Staff/ Volunteers
1, 2, 13, 16	Woodland edge management	x	x	x	x	x	Staff/ volunteers

2, 9, 10, 15	Coppicing (Cant H 26/27; Cant B 27/28; D 29/30)	A	F	C 15	G	E	Staff/ volunteers
2, 9,	Supplementary planting of Hazel (local/UK provenance)	x	x	x	x	x	Staff/ Volunteers
9	Supplementary planting of Oak (local/UK provenance)		x		x		Staff/ volunteers
All woodland compartments	Remove (treat) invasive/non-natives. (Apart from very mature specimen trees)						Staff/ volunteers
9, 10,	Investigate grant funding for removal of invasive/non-natives	x					Staff
11	Investigate grant funding for improved management access		x				Staff
11, 15, 16	Thinning, maximum 30% thin to create age structure and improve regeneration of herb, shrub and canopy layer.			x	x	x	Contractor
3, 12	Minimum intervention – Tree safety work, removal of non-natives, monitor regeneration potential	x	x	x	x	x	Contractors/ Staff/ volunteers
4, 7, 8	Cut (and ideally clear) grass around the base of trees	x	x	x	x	x	Grounds maintenance
4	Walnut Grove management						Volunteers/ staff

PONDS							
Compartment	Management Prescriptions	Year					Workforce
		23/24	24/25	25/26	26/27	27/28	
21	Remove 40% of reedmace from centre of New Pond and deepen pond to beyond the level that reedmace can grow.					x	Contractors
21	Monitor drainage channel leading from New Pond to London Road.	x	x	x	x	x	Staff

21	Thin out trees along the southern edge of the pond.	x		x			Contractors/ Staff/ Volunteers
21	Manage vegetation regrowth along southern side of the pond.					x	Staff/ Volunteers
21, 22	Use positive signage to educate dog walkers about the need to keep dogs out of the pond during bird nesting season (March – August)	x	x	x	x	x	Staff
22	Manage regrowth of vegetation along the southern side of the pond.	x	x	x	x	x	Staff/ Volunteers
21, 22, 35, 44, 45 46.	Investigate grant funding opportunities (CIL bid) for the management of current ponds and recreating/creation of new ponds.	x	x	x	x	x	Staff

VETERAN, MATURE AND PARKLAND TREES							
Compartment	Management Prescriptions	Year					Workforce
		23/24	24/25	25/26	26/27	27/28	
All	Survey and map all existing veteran and near veteran trees and create individual management plans for them.	x					Staff
23, 24, 25, 26, 29, 30, 31, 34, 36, 38, 40, 41	Assess opportunities to plant more individual parkland native trees from local/uk provenance.	x					Staff
All	Collect seed from current trees and bring on until mature enough to plant out in the park.	x	x	x	x	x	Staff/ Volunteers
23, 24, 25, 26, 29, 30, 31, 34, 36, 38, 40, 41	Create planting scheme for new parkland trees and future successional planting.		x				Staff

	Plant trees					x	Staff/ Volunteers
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GRASSLANDS - Cut and clear							
Compartment	Management Prescriptions	Year					Workforce
		23/24	24/25	25/26	26/27	27/28	
23, 25, 30	Cut and clear in even years.		x		x		Grounds maintenance or contractor cutting for hay.
24, 29, 31	Cut and clear in odd years	x		x		x	Grounds maintenance or contractor cutting for hay.
26, 27, 28	Cut and clear annually	x	x	x	x	x	Grounds maintenance
23, 24, 26, 27, 28	If cutting for hay, remove scrub by digging up or weed-wiping	x	x	x	x	x	Volunteers/ Staff/ Contractor
23, 24, 25, 26, 27, 28, 29, 30, 31	If cutting for hay, pull ragwort	x	x	x	x	x	Staff/ Volunteers
32	Cut and clear one sixth of Cherry Orchard Grassland	x	x	x	x	x	Grounds maintenance/ Staff/ Volunteers
33	Cut and clear one half of Five Acres Piece	x	x	x	x	x	Grounds maintenance
33	Cut back scrub encroaching on the perimeter of the grassland and on the Banqueting House Wall.	x	x	x	x	x	Grounds maintenance/ Staff/ Volunteers
30, 31	Stop mowing some paths	x	x	x	x	x	Grounds Maintenance

AMENITY GRASSLAND							
34-41	Cut regularly.	x	x	x	x	x	Grounds maintenance
34-41	Leave margins around copses, hedges or woodland edges where possible and subsequently cut on rotation. (In the case of 35 – Dog socialisation field, cut 2/3 regularly and 1/3 cut and clear on rotation)	x	x	x	x	x	Ground maintenance

34	Investigate possibility of scarifying and tiling the ground.		x				Grounds maintenance
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SCRUB							
Compartment	Management Prescriptions	Year					Workforce
		23/24	24/25	25/26	26/27	27/28	
42, 43	Push back scrub between 10 and 30 m	x	x	X	x	x	Staff/ GM Volunteers/ Contractor
42, 43	Scallop scrub edges	x	x	X	x	x	Staff/ Volunteers
42, 43	Coppice mature stands on rotation to create age structure	x	x	X	x	x	Staff/ GM Volunteers

BIOLOGICAL MONITORING							
Compartment	Management Prescriptions	Year					Workforce
		23/24	24/25	25/26	26/27	27/28	
All	Geology mapping update		x				Expert
All	Fungi - employ specialist ecologist to continue surveying across the park.		x				Ecologist
All	Lichens - employ specialist ecologist to continue surveying across the park.			X			Ecologist
All	Bryophytes - employ specialist ecologist to continue surveying across the park.	x					
All	Plants - Condition assessment of grasslands - Survey managed areas of woodland - Marginal vegetation in ponds						Staff/ Volunteers/ Ecologist
All	Oligochaetes (earthworms) carry out baseline survey				x		Ecologist
All	Butterflies – Support volunteer/s to walk the transect as part of Butterfly Conservation’s	x	x	X	x	x	Staff/ Volunteers

	Butterfly Monitoring Scheme.						
All	Moths – carry out night-time moth trapping sessions.	x				x	Ecologist
All	Arachnids, Beetles, Flies, Hymenoptera, Homoptera, Plant Galls – employ specialist ecologist to continue surveying across the park.						Ecologist
21,22	Aquatic Invertebrates - employ specialist ecologist to continue surveying across the park.	x				x	Staff/ Ecologist
Scrub/grassland mosaics	Reptiles – Survey for presence of Slow worms, grass snakes and common lizards across the park.	x	x	X	x	x	Staff/ Volunteers/ Ecologist
21/22	Amphibians – GCN survey of Round Pond and New Pond	x	x	X	x	x	Staff/ Licensed Ecologist/ Volunteers
All	Birds – BTO breeding bird survey, record winter visitors and summer migrants					x	Staff/ Volunteers/ Ecologist
All	Mammals – Prioritise survey for Bats and also Small mammals in grassland and woodland					x	Staff/ Ecologist/ Volunteers

INVASIVE SPECIES							
Compartment	Management Prescriptions	Year					Workforce
		23/24	24/25	25/26	26/27	27/28	
All	Map invasive species.	x	x				Staff/ Volunteers
Woodland	Remove and treat Cherry Laurel.			X	x	x	Contractor/ Staff/ Volunteers
Woodland	Preferentially thin Turkey Oak.	x	x	X	x	x	Contractor
Woodland	Dig up Snowberry	x	x	X	x	x	Staff/ Volunteers

Grassland	Pull Canadian Goldenrod	x	x	X	x	x	Staff/ Volunteers
Ponds	Control Parrot's Feather and Reed Mace					x	Contractor
Ponds	Control Azolla					x	Contractor

LANDSCAPE

Compartment	Management Prescriptions	Year					Workforce
		23/24	24/25	25/26	26/27	27/28	
12	Investigate true location of Grove of Diana					x	Staff
All	Designate as Local Nature Reserve		x				Staff
All	Seize any opportunity to enhance biodiversity due to Nonsuch Park being part of Surrey's North Down Biodiversity Opportunity Area.	x	x	X	x	x	Staff

PROMOTING THE SITE'S VALUE

Compartment	Management Prescriptions	Year					Workforce
		23/24	24/25	25/26	26/27	27/28	
All	Visitor survey					x	Staff/ Contractor
All	Guided walks		x	X	x	x	Staff/ Volunteers
All	Improve interpretation of the history of the site and trail from the Site of the Palace to the Banqueting House. Increase number of Notice boards/site notices/(maybe benches)	x	x	X	x	x	Staff
All	Increase the use of social media	x	x	X	x	x	Staff/ Volunteers
All	Encourage Volunteers and regular users to be eyes and ears	x	x	X	x	x	Staff
All	Forest School liaison	x	x	X	x	x	Staff
16, 11	Letters to residents re dumping	x					Staff/legal

MAPS

Map 1 – Geology

Map 2 – Habitat and compartments

Map 3 – Scheduled Ancient Monuments

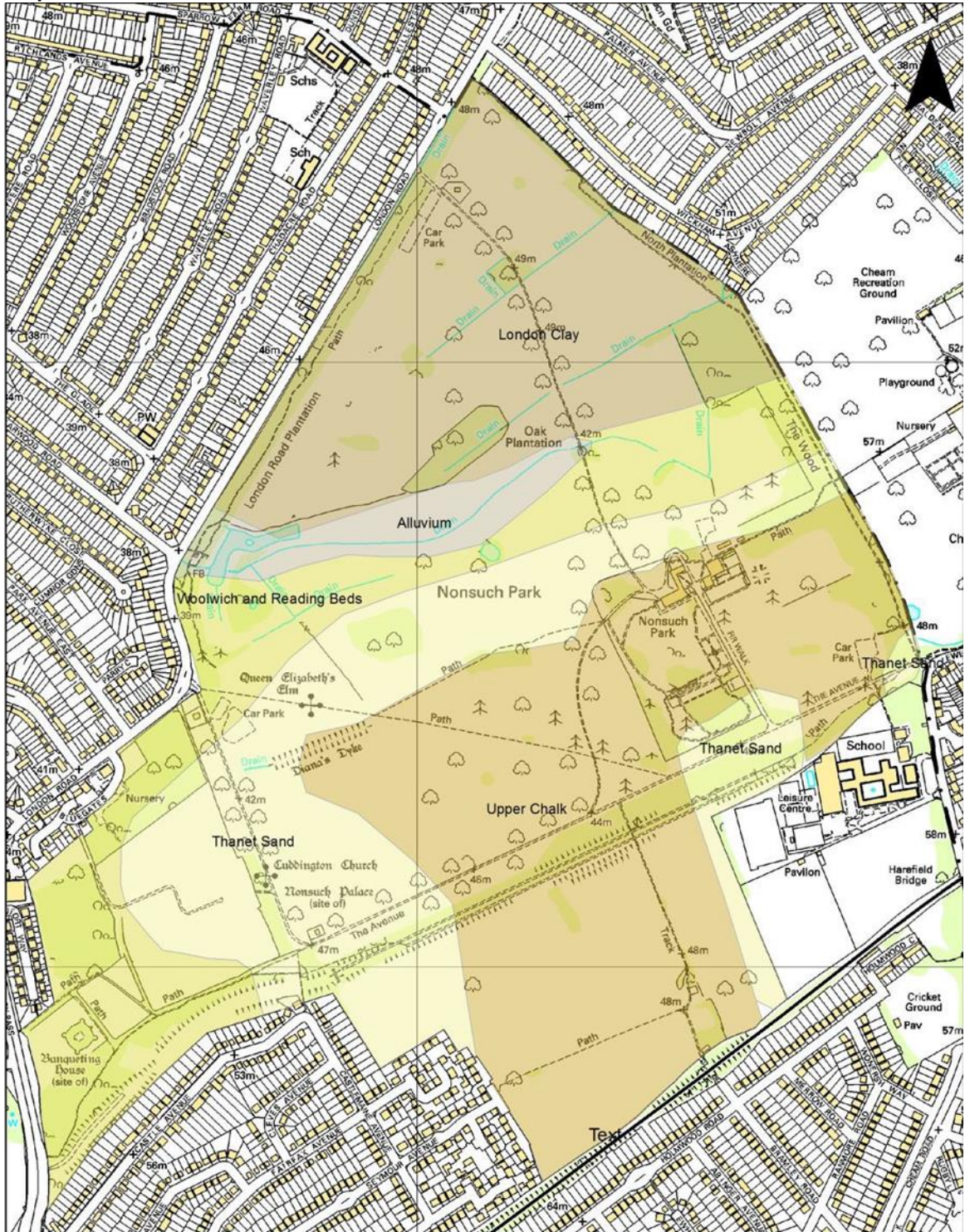
Map 4 – Woodland management compartments

Map 5 – Grassland Management

Map 6 – Area worked on in Cherry Orchard Grassland

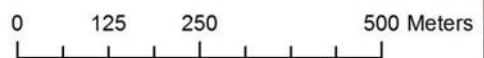
Map 7 – Nonsuch Access Map

Map 1



Nonsuch Park geology

Created by P Howarth, Nov 2014



Map 2

Nonsuch Park Habitat Map with Management Compartment Numbers

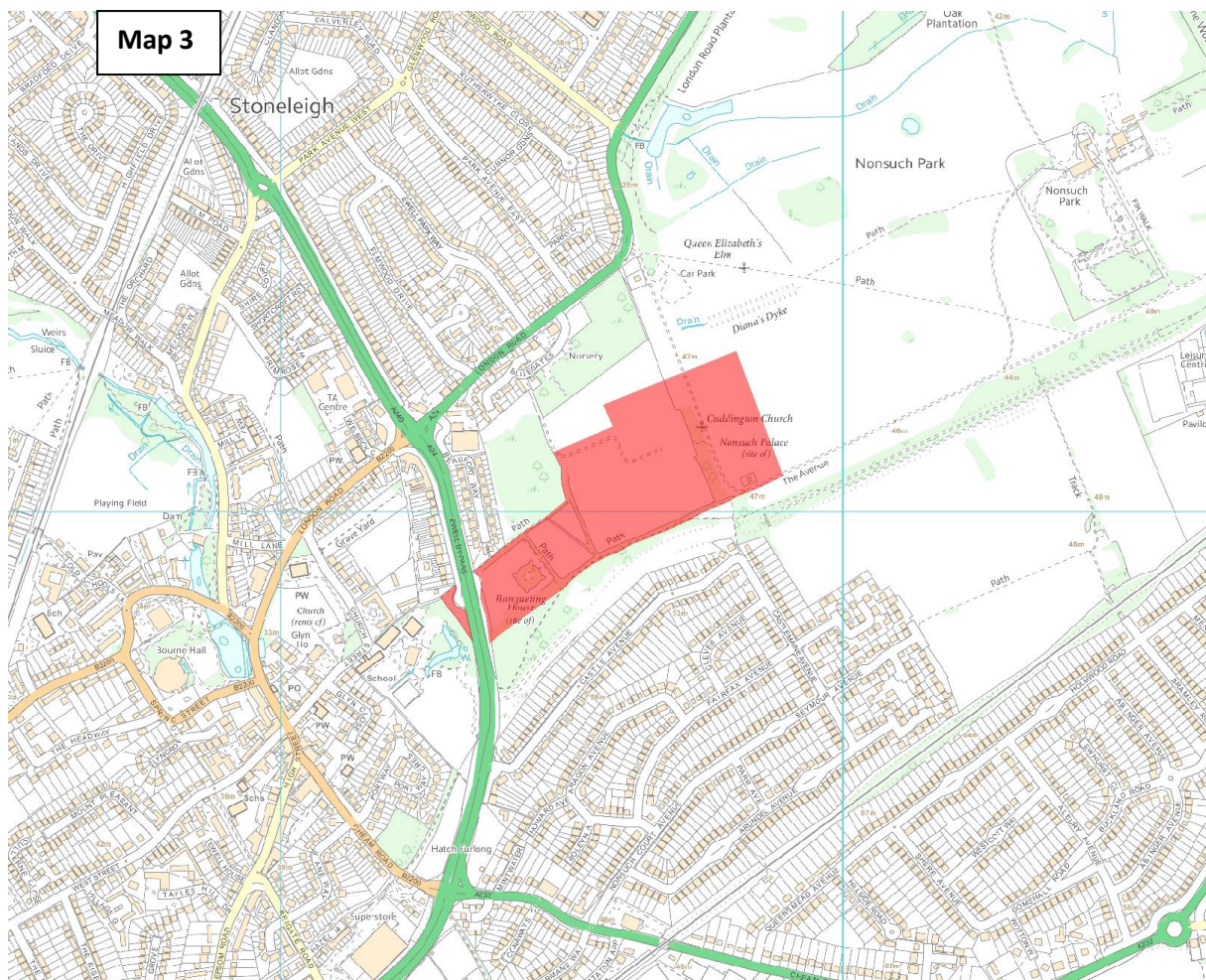


Created by: Sarah Clift

Date: 25/05/2021

Management Compartment Names

1. The Ancient Wood
2. The Wood
3. Cheam Park Woodland
4. Walnut Grove
5. Nonsuch Girls Woodland
6. Red Barn Field
7. Great Meadow Plantation
8. Larch Triangle
9. Cheam Slip
10. Castlemain Slip
11. Banqueting House Woodland
12. Pottery Wood
13. Cherry Orchard Nursery
14. Black Shed Field
15. London Road Plantation
16. North Plantation
17. Sparrow Farm Copse
18. Oak Wood
19. Old Stable Ground Wood
20. Old Stable Ground Copse
21. New Pond
22. Round Pond
23. Field Next to the Lane
24. The Daisy Field
25. Hill Field
26. Six Acre Field
27. Bottom Mead North
28. Bottom Mead South
29. Old Stable Ground
30. Great Meadow
31. Nonsuch Field
32. Cherry Orchard Farm Grassland
33. Five Acres Piece
34. Sparrow Farm Gate Field
35. Sparrow Farm Dog Socialisation Area
36. Red Gate Field
37. Red Gate Car Park Grassland
38. Round Pond Field
39. Plantation Field
40. Pit Field
41. Reads Field
42. Russett Field
43. Cherry Orchard Farm Scrub
44. Brown Pond (lost)
45. Sanctuary Pond (lost)
46. Ostracod Pond (lost)



Heritage Category:

Scheduling

List Entry No : 1017998

County: Surrey

District: Epsom and Ewell

Parish: Non Civil Parish

Each official record of a scheduled monument contains a map. New entries on the schedule from 1988 onwards include a digitally created map which forms part of the official record. For entries created in the years up to and including 1987 a hand-drawn map forms part of the official record. The map here has been translated from the official map and that process may have introduced inaccuracies. Copies of maps that form part of the official record can be obtained from Historic England.

This map was delivered electronically and when printed may not be to scale and may be subject to distortions. All maps and grid references are for identification purposes only and must be read in conjunction with other information in the record.

List Entry NGR: TQ 22618 63074

Map Scale: 1:10000

Print Date: 21 October 2018

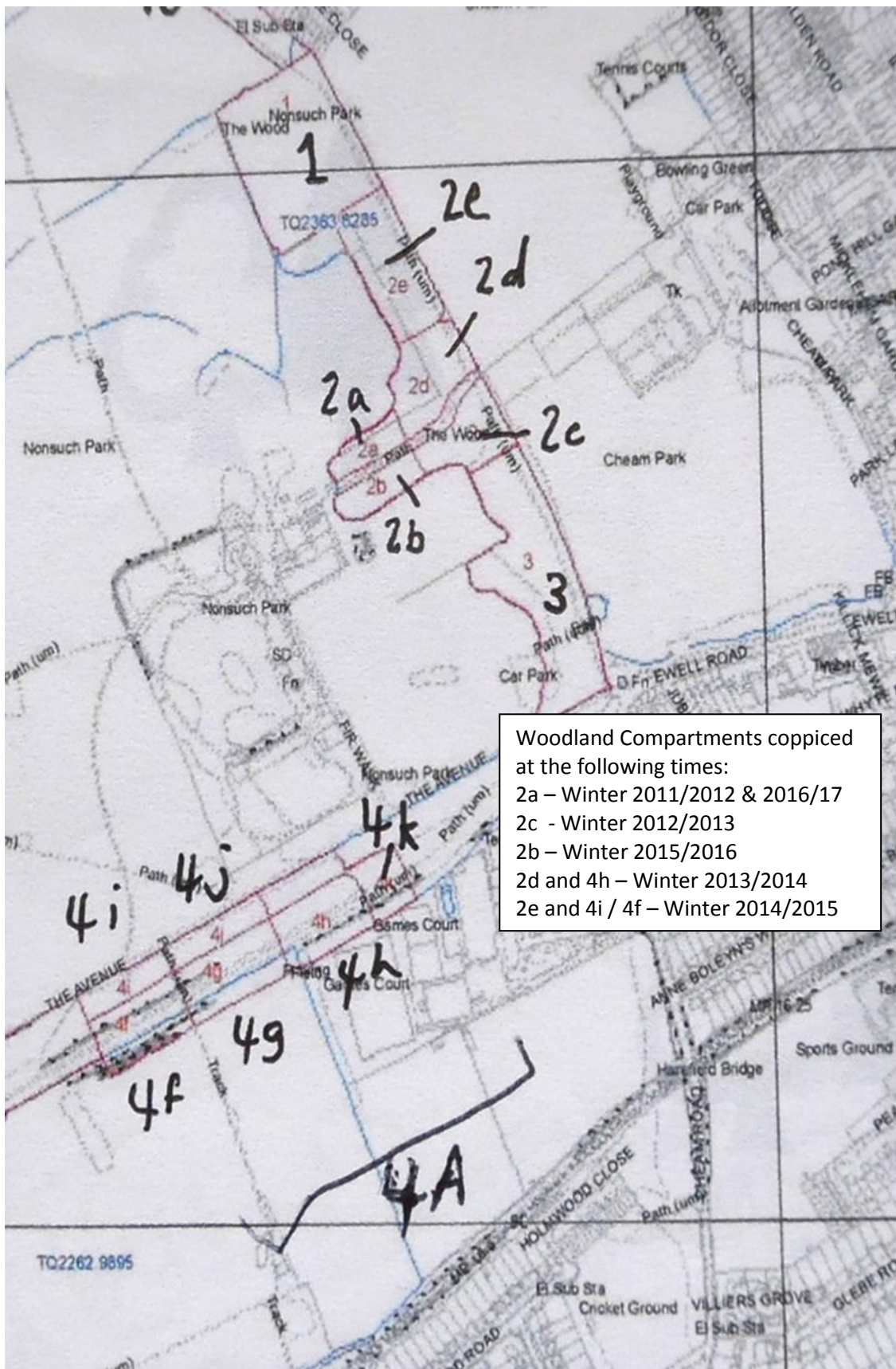
Modern Ordnance Survey mapping: © Crown Copyright and database right 2018. All rights reserved. Ordnance Survey Licence number 100024900. Marine mapping: © British Crown and SeaZone Solutions Ltd 2017. All rights reserved. Product licence number 102006.006.

Nonsuch Palace, its formal gardens and associated remains, and Cuddington medieval settlement. This is an A4 sized map and should be printed full size at A4 with no page scaling set.

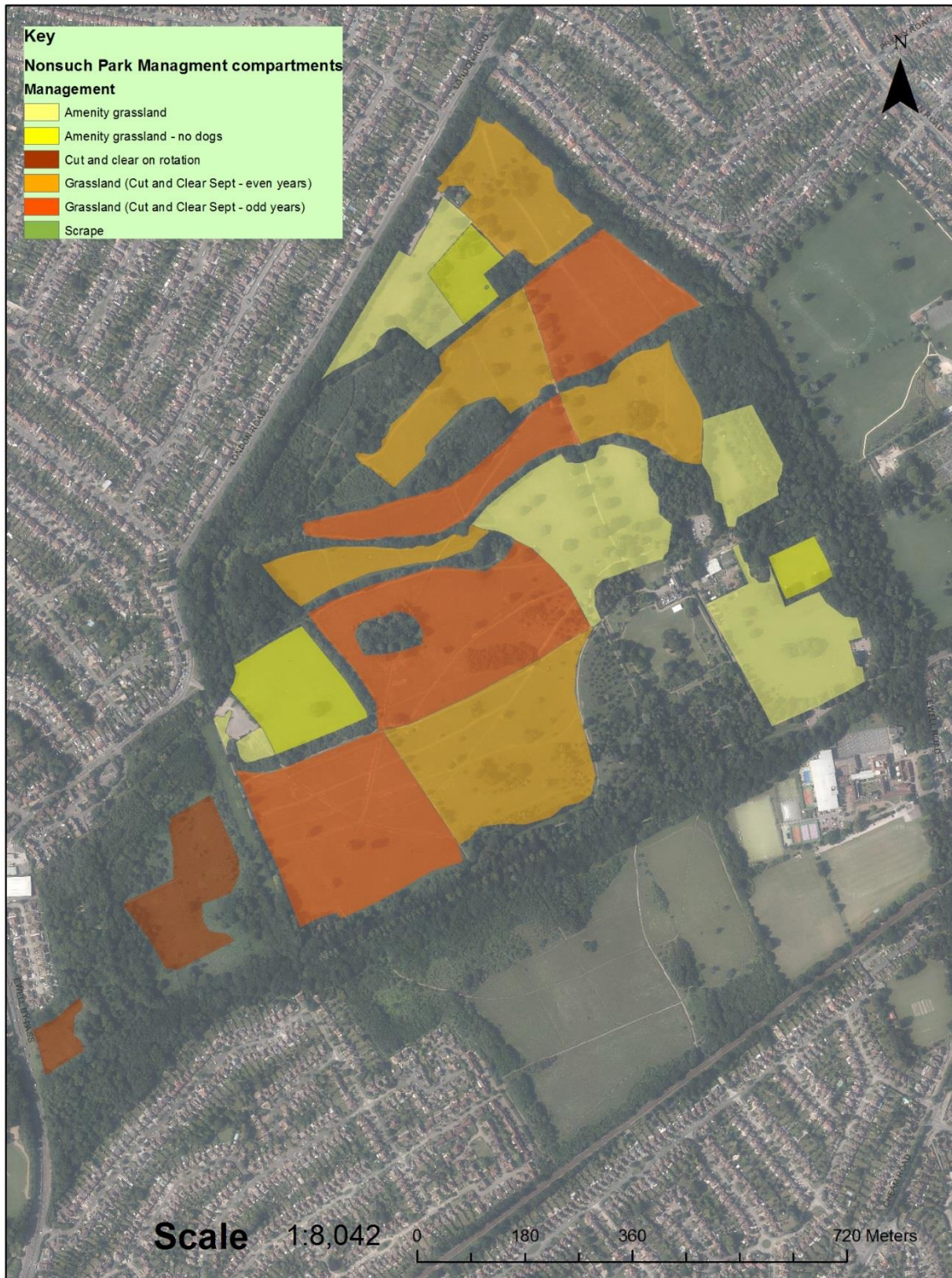
Name:

HistoricEngland.org.uk

Map 4 Coppice cants in The Wood and Cheam Slip



Nonsuch Park Grassland Management Map



Created by: Sarah Clift

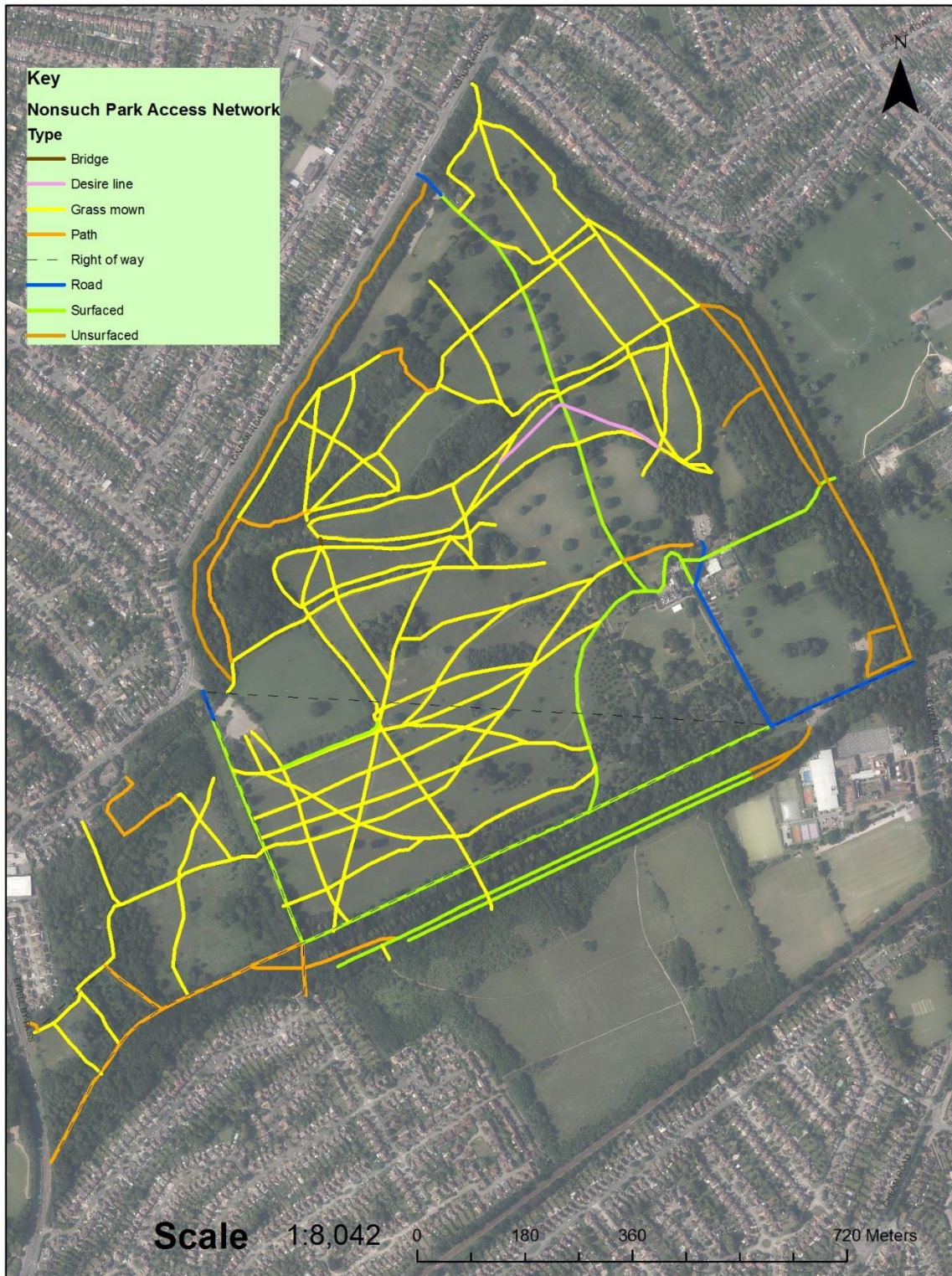
Date: 25/05/2021

Map 6

Area cut using hand scythes in Sept 2016 within Cherry Orchard Grassland



Nonsuch Park Access Map



Created by: Sarah Clift

Date: 25/05/2021

REFERENCES AND BIBLIOGRAPHY

- Previous management plans, 2006 and 2015
- Surrey Nature Partnership Biodiversity Opportunity Area statements <https://surreynaturepartnership.org.uk/our-work/>
- Potential role of veterinary flea products in widespread pesticide contamination of English rivers; Rosemary Perkins, Martin Whitehead, Wayne Civil, Dave Goulson; Science of The Total Environment; Accepted 31 October 2020, Available online 7 November 2020.
- Nonsuch Park and adjacent open spaces in Ewell, Surrey – and update twenty years on, The London Naturalist, No93, 2014, June Chatfield.
- RHS guidance on management of Walnut Trees – www.rhs.org.uk

APPENDICES

SNCI Report

Site name: Nonsuch Park & Warren Farm

Current status: SNCI (most of site)

Grid ref: TQ230635

Area: 149ha

Date of previous survey: 19/08/1998

Date of current survey: 10/08/2013

Surveyor: P Howarth

Site description: The site is situated in north-east Epsom and Ewell, thirteen miles south of central London. It is a large open space containing a variety of semi natural habitats including secondary broadleaved woodland, mesotrophic grassland, ditches, ponds, scattered trees, shrubs and hedgerows. The site lies mainly over London Clay but areas of upper chalk partially overlain with Thanet sand are present centrally and in the south. Also a band of alluvium runs centrally west to east across the site.

Previous reason for selection

Site contains a mosaic of habitats supporting rare species.

Reason for selection: The site contains species rich meadows reaching the required score of over 15 of the listed species including 2 of the higher rated one(See species lists below). Slow worms a recent study found had a highest count of +20 which indicates an exceptional population of the species. Small Blue butterfly was recorded during this survey and is on List A in the butterfly criteria.

Habitat description:

Abundance is based on the DAFOR scale and refers to the specific section of the site. The overall abundance across the site is provided in the Species List

DAFOR ratings for certain species, notably annual, can change throughout the year. The DAFOR scale uses the following key:- **D**ominant; **A**bundant; **F**requent; **O**ccasional; **R**are: Nomenclature follows Stace (2010) for vascular plants.

Target note 1:- Mesotrophic grassland, including Hairy Oat Grass, Greater Knapweed, Agrimony, Yellow Rattle, Yorkshire Fog, Common sorrel, Birdsfoot trefoil, Kidney vetch, Ox-eye daisy, Yarrow, Smooth Meadow grass, False Oat Grass Grass Vetchling, Common Broomrape, Pyramidal Orchid, Canadian Goldenrod.. Some developing scrub including Sycamore and Hawthorn saplings. Some areas were more diverse with greater species evenness, being less dominated by the ranker grasses such as False Oat Grass. At the time of the survey Small Blue, Marbled White, Meadow Brown butterflies were seen in flight.

Target note 2:- Some areas of the grasslands are dominated by Canadian Goldenrod.

Target note 3:- An area of tall ruderals, including Common Nettle and Greater Burdock.

Target note 4:- Developing planted woodland, with Ash, Bramble, Cocksfoot, Cow Parsley, English Elm, Field Maple, False Oat Grass, Hawthorn, Holm Oak, Wild Cherry, Wayfaring Tree.

Target note 5:- Secondary woodland. Comprising of frequent Sycamore, Horse Chestnut and Oak, and a shrub layer with frequent Elm and Hawthorn. The ground layer is mostly dominated by Bramble and Ivy. Along with Common Cleavers, Cow Parsley, Dog Rose, False Oat Grass, Garlic Mustard, Hairy Brome, Herb Robert, Nettle, Wood False Brome, Wood Dock, Wood Sedge, Black Horehound.

Target note 6:- Rough mesotrophic grassland this area is composed of frequent False Oat Grass, Nettles and patches of the non-native grass Californian Brome. Also there stands of Wild Raspberry and Horseradish.

Target note 7:- Mesotrophic grassland. This was a species rich area less dominated by rank grasses with a much lower sward. These included Sweet Vernal Grass, Meadow Barley, Meadow Foxtail, Black Knapweed, Meadow Vetchling, Birdsfoot Trefoil, Lesser Stitchwort, Common Sorrel and Bulbous Buttercup.

Target note 8:- Amenity grassland, throughout the site there are areas of close mown grassland consisting of Perennial Rye Grass, Annual Meadow Grass, Greater and Ribwort Plantain.

Target note 9:- Pond. The pond vegetation is dominated by Yellow Flag Iris, with some Water Mint, Brooklime, Marsh Marigold, Hard Rush, Glyceria maxima and Glyceria fluitans. Frog tadpoles were in evidence.

Target note 10:- Scrub. Throughout the site there are a number of areas of scrub including Blackthorn, Hawthorn and Bramble scrub.

Target note 11:- Mesotrophic grassland. Frequent False Oat Grass, occasional Perennial Rye Grass, Yorkshire Fog, rare Agrimony, Birdsfoot Trefoil, , Cocksfoot, Common Bent, Common Couch, Common Mouse-ear, Common Sorrel, Common Vetch, Creeping Buttercup, Creeping Thistle, Crested Dogs Tail, Dandelion, Germander Speedwell, Glaucous Sedge, Goats-beard, Hedge Bedstraw, Hoary Ragwort, Lesser Stitchwort, Meadow Barley, Meadow Foxtail, Meadow Vetchling, Red Clover, Ribwort Plantain, Rough Stalked Meadow Grass, Smooth Stalked Meadow Grass, White Clover, Red Bartsia, Smaller Cats-tail, Ox-eye Daisy, Meadow Buttercup, Red Clover.

Target note 12 Mesotrophic grassland, abundant False Oat Grass, occasional Perennial Rye Grass, Rough Stalked Meadow Grass, Smooth Stalked Meadow Grass, Sweet Vernal grass, rare Tall Fescue, White Clover, Yorkshire Fog, Smaller Cats-tail, occasional Agrimony, Birdsfoot Trefoil, Black Knapweed, Cocksfoot, Common Bent, Common Couch, Common Mouse-ear, Common Sorrel, Common Vetch, Creeping Buttercup, Creeping Thistle, Crested Dogs Tail, Curled Dock, Dandelion, Germander Speedwell, Goats-beard, Hedge Bedstraw, Hoary Ragwort, Lesser Stitchwort, Meadow Barley, Meadow Fescue, Meadow Foxtail, Meadow Vetchling, Red Clover, Ribwort Plantain.

Target note 13:- Ancient Woodland. This woodland was composed of Pedunculate Oak and Ash, with Wood False Brome, Wood Dock and Wood Sedge found.

Target note 14:- Amenity grassland, throughout the site there are areas of close mown grassland consisting of Perennial Rye Grass, Annual Meadow Grass, Greater and Ribwort Plantain.

Target note 15:- Mesotrophic grassland. This grassland is generally species poor, dominated by the grasses False Oat Grass and Cocksfoot. Amongst the herbs are Hogweed, stands of Mugwort and Creeping Thistle and rare but widely distributed Burnet Saxifrage

Target note 16:- Scrub. This is an area of dense dominant Blackthorn.

Target note 17:- Pond, this was completely overshadowed by trees and was devoid of any aquatic vegetation

Target Note 18:- An area of grassland dominated by fine grasses, including Common Bent, with Lesser Stitchwort and Sheep's Sorrel

Target note 19:- Walls. The walls around the garden of the house are home to the liverwort *Porella platyphylla* and the mosses *Didymodon vineales*, *Didymodon ridigulus*, *Didymodon inslanus*, *Pseudocrossidium revolutum*. These are interesting species typical of calcareous stone.

Target note 20:- Hard standing this was concrete left in situ from the demolition of the nursery building, found here was *Buddleia*, *Purple Toadflax*, mosses such as *Brachythecium albicans*, *Ceratodon purpureus* and *Pseudocrossidium hornschurchianum*. Also in this area are patches of rough grassland. These habitats together with other areas of grassland, will provide good habitat for reptiles such as Slow Worm, which have been recorded in good numbers nearby.

NVC types present

MG1a *Arrhenatheretum elatioris* grassland, *Festuca rubra* sub-community
MG1e *Arrhenatheretum elatioris* grassland, *Centaurea nigra* sub-community
OV25 *Urtica dioica*-*Cirsium arvense* community
W8 *Fraxinus excelsior*-*Acer cmapestre-mercurialis perennis* woodland
W10 *Quercus robur*-*Pteridium aquilinum*-*Rubus fruticosus* woodland
W21 *Crataegus monogyna*-*Hedera helix* scrub
W22 *Prunus spinosa*-*Rubus fruticosus* scrub
W24 *Rubus fruticosus*-*Holcus lanatus* underscrub

Current management:

Goldenrod pulling
Woodland management of ancient woodland area

Management advice:

Continue existing management, dealing with the problem of Goldenrod is important, however, this should be in the context of general grassland management. This should involve the cutting and clearing of meadows on a regular. Woodland management to improve structural diversity is needed across the site, the recent management plan should be implemented and continuation of the recently commenced work funded by the English Woodland Grant Scheme is to be commended.

Pond management is needed as the pond are quite over shaded by trees, some tree works are needed to open the pond up and encourage the development of more aquatic and marginal vegetation.

Species of conservation interest

Scientific name	Common name
Allium vineale	Wild Onion
Anacamptis pyramidalis	Pyramidal Orchid
Anthoxanthum odoratum	Sweet Vernal Grass
Anthyllis vulneraria	Kidney Vetch
Centaurea scabiosa	Greater Knapweed
Crepis biennis	Rough Hawk's-beard
Daucus carota	Carrot
Helictotrichon pubescens	Downy Oat-grass
Lathyrus pratensis	Meadow Vetchling
Leucanthemum vulgare	Oxeye Daisy
Lotus corniculatus	Common Bird's-foot-trefoil
Odontites vernus	Red Bartsia
Phleum bertolonii	Smaller Cat's-tail
Phleum pratense	Timothy
Picris hieracioides	Hawkweed Oxtongue
Pimpinella saxifraga	Burnet-saxifrage
Poa pratensis	Smooth Meadow-grass
Rhinanthus minor	Yellow-rattle
Rumex acetosa	Common Sorrel
Trisetum flavescens	Yellow Oat-grass

NB Full species list is incorporated into the management plan species list.

Species lists

Bird records

Scientific name	Common name	Date last recorded
Accipiter nisus	Sparrowhawk	2000
Aegithalos caudatus	Long-tailed Tit	2000
Alauda arvensis	Skylark	2000
Alcedo atthis	Kingfisher	-1993
Anas platyrhynchos	Mallard	2000
Anser anser	Greylag Goose	2000
Anthus pratensis	Meadow Pipit	2000
Apus apus	Swift	2000
Ardea cinerea	Grey Heron	2000
Athene noctua	Little Owl	-1993
Branta canadensis	Canada Goose	-1993
Carduelis cannabina	Linnet	2000
Carduelis carduelis	Goldfinch	2000
Carduelis chloris	Greenfinch	2000
Carduelis flammea	Redpoll	-1993
Carduelis flavirostris	Twite	1998
Carduelis spinus	Siskin	-1993
Certhia familiaris	Treecreeper	2000
Columba oenas	Stock Dove	2000
Columba palumbus	Woodpigeon	2000
Corvus corone agg.	Carrion Crow	2000
Corvus monedula	Jackdaw	-1993
Cuculus canorus	Cuckoo	-1993
Cygnus olor	Mute Swan	-1993
Delichon urbica	House Martin	-1993
Dendrocopos major	Great Spotted Woodpecker	2000
Dendrocopos minor	Lesser Spotted Woodpecker	2000
Emberiza citrinella	Yellowhammer	-1993
Emberiza schoeniclus	Reed Bunting	2000
Erithacus rubecula	Robin	2000
Falco subbuteo	Hobby	?
Falco tinnunculus	Kestrel	2000
Fringilla coelebs	Chaffinch	1999
Fringilla montifringilla	Brambling	1998
Fulica atra	Coot	-1993
Gallinago gallinago	Snipe	1998
Gallinula chloropus	Moorhen	2000
Garrulus glandarius	Jay	2000
Hirundo rustica	Swallow	2000

<i>Larus argentatus</i>	Herring Gull	2000
<i>Larus canus</i>	Common Gull	2000
<i>Larus fuscus</i>	Lesser Black-backed Gull	1999
<i>Larus fuscus graellsii</i>	British Lesser Black-backed Gu	1998
<i>Larus ridibundus</i>	Black-headed Gull	2000
<i>Locustella naevia</i>	Grasshopper Warbler	1998
<i>Motacilla alba</i>	White/Pied Wagtail	-1993
<i>Motacilla cinerea</i>	Grey Wagtail	-1993
<i>Motacilla flava</i>	Yellow Wagtail	-1993
<i>Muscicapa striata</i>	Spotted Flycatcher	1998
<i>Parus ater</i>	Coal Tit	1999
<i>Parus caeruleus</i>	Blue Tit	2000
<i>Parus major</i>	Great Tit	2000
<i>Parus montanus</i>	Willow Tit	-1993
<i>Passer domesticus</i>	House Sparrow	2000
<i>Passer montanus</i>	Tree Sparrow	1998
<i>Phasianus colchicus</i>	Pheasant	-1993
<i>Phylloscopus collybita</i>	Chiffchaff	2000
<i>Phylloscopus trochilus</i>	Willow Warbler	2000
<i>Pica pica</i>	Magpie	2000
<i>Picus viridis</i>	Green Woodpecker	2000
<i>Prunella modularis</i>	Dunnock	2000
<i>Psittacula krameri</i>	Ring-necked Parakeet	2000
<i>Pyrrhula pyrrhula</i>	Bullfinch	2000
<i>Regulus regulus</i>	Goldcrest	2000
<i>Saxicola rubetra</i>	Whinchat	2000
<i>Saxicola torquata</i>	Stonechat	2000
<i>Sitta europaea</i>	Nuthatch	2000
<i>Streptopelia decaocto</i>	Collared Dove	-1993
<i>Streptopelia turtur</i>	Turtle Dove	-1993
<i>Strix aluco</i>	Tawny Owl	2000
<i>Sturnus vulgaris</i>	Starling	2000
<i>Sylvia atricapilla</i>	Blackcap	2000
<i>Sylvia borin</i>	Garden Warbler	-1993
<i>Sylvia communis</i>	Whitethroat	1999
<i>Sylvia curruca</i>	Lesser Whitethroat	-1993
<i>Troglodytes troglodytes</i>	Wren	2000
<i>Turdus iliacus</i>	Redwing	2000
<i>Turdus merula</i>	Blackbird	2000
<i>Turdus philomelos</i>	Song Thrush	2000
<i>Turdus pilaris</i>	Fieldfare	2000
<i>Turdus viscivorus</i>	Mistle Thrush	2000
<i>Tyto alba</i>	Barn Owl	1999
<i>Vanellus vanellus</i>	Lapwing	1998

Vascular Plants

Scientific name	Common name	Date last recorded
<i>Abies procera</i>	Noble Fir	1982
<i>Acer campestre</i>	Field Maple	2020
<i>Acer platanoides</i>	Norway maple	2020
<i>Acer pseudoplatanus</i>	Sycamore	2020
<i>Acer pseudoplatanus</i> Purpureum group	Purple Sycamore	2005
<i>Achillea millefolium</i>	Yarrow	2020
<i>Adoxa moschatellina</i>	Moschatel or townhall clock	
<i>Aegopodium podagraria</i>	Ground Elder	2013
<i>Aesculus hippocastanum</i>	Horse Chestnut	2020
<i>Agrimonia eupatoria</i>	Agrimony	2020
<i>Agrostis capillaris</i>	Common Bent	2013
<i>Agrostis gigantea</i>	Black Bent	1993
<i>Agrostis</i> sp.	a bent-grass	1997
<i>Agrostis stolonifera</i>	Creeping Bent	2020
<i>Ajuga reptans</i>	Bugle	2013
<i>Alliaria petiolata</i>	Garlic Mustard	2015
<i>Allium ursinum</i>	Ramsons	2013
<i>Allium vineale</i>	Wild Onion	2020
<i>Allium triquetrum</i>	Three-cornered Garlic	2014
<i>Alnus glutinosa</i>	Alder	2005
<i>Alopecurus geniculatus</i>	Marsh foxtail	2007
<i>Alopecurus pratensis</i>	Meadow Foxtail	2014
<i>Amelanchier lamarckii</i>	Juneberry	1982
<i>Anacamptis pyramidalis</i>	Pyramidal orchid (WF)	2013
<i>Anagallis arvensis</i>	Scarlet pimpernel	2015
<i>Anemone nemorosa</i>	Wood Anemone	2013
<i>Angelica sylvestris</i>	Wild Angelica	1993
<i>Anisantha sterilis</i>	Barren Brome	2013
<i>Anthoxanthum odoratum</i>	Sweet vernal grass	2020
<i>Anthriscus sylvestris</i>	Cow Parsley	2015
<i>Anthyllis vulneraria</i>	Kidney Vetch	2013
<i>Apium nodiflorum</i>	Fool's Water-cress	2005
<i>Arabidopsis thaliana</i>	Thale Cress	1993
<i>Araucaria araucana</i>	Monkey-puzzle	2005
<i>Arctium lappa</i>	Greater Burdock	2013
<i>Arctium minus</i>	Lesser Burdock	2015
<i>Arctium minus</i> ssp. <i>minus</i>	a lesser burdock	2015
<i>Arctium minus</i> ssp. <i>pubens</i>	a lesser burdock	1993
<i>Arenaria serpyllifolia</i> ssp. <i>leptoclados</i>	Small Thyme-leaved Sandwort	1993
<i>Armoracia rusticana</i>	Horse-radish	2013

<i>Arrhenatherum elatius</i>	False Oat-grass	2020
<i>Artemisia vulgaris</i>	Mugwort	2015
<i>Arum maculatum</i>	Lords-and-Ladies	2014
<i>Asparagus officinalis</i>	Asparagus (WF)	2013
<i>Asplenium adiantum-nigrum</i>	Black Spleenwort	2014
<i>Asplenium trichomanes</i>	Maidenhair spleenwort (WF)	2014
<i>Aster novi-belgii</i>	Confused Michaelmas-daisy	2015
<i>Aster x salignus</i>	Michaelmas Daisy (<i>A. lanceolatus</i> x <i>novi-belgii</i>)	2015
<i>Atriplex patula</i>	Common Orache	1993
<i>Atropa belladonna</i>	Deadly nightshade (WF)	2010
<i>Avena fatua</i>	Wild Oat	2013
<i>Avena sativa</i>	Oat	2005
<i>Avenula pubescens</i>	Downy Oat-grass	2013
<i>Azolla filiculoides</i>	Water fern	2007
<i>Ballota nigra</i>	Black horehound	2015
<i>Bellis perennis</i>	Daisy	2015
<i>Berberis vulgaris</i>	Barberry	2015
<i>Berula erecta</i>	Water parsnip	2011
<i>Betula pendula</i>	Silver Birch	2020
<i>Bidens tripartita</i>	Trifid bur-marigold	2005
<i>Brachypodium sylvaticum</i>	False Brome	2013
<i>Brassica napus</i>	Rape	1993
<i>Brassica oleracea</i>	Cabbage	1993
<i>Bromopsis ramosa</i>	Hairy-brome	2015
<i>Bromus hordeaceus</i>	Soft brome	2020
<i>Bryonia dioica</i>	White Bryony	2015
<i>Buddleja davidii</i>	Butterfly-bush	2013
<i>Buxus sempervirens</i>	Box	2013
<i>Callitriche</i> sp.	a water-starwort	2005
<i>Caltha palustris</i>	Marsh marigold/kingcup	2014
<i>Calystegia sepium</i>	Hedge Bindweed	2005
<i>Calystegia silvatica</i>	Large Bindweed	2015
<i>Campanula persicifolia</i>	Peach-leaved bellflower (WF)	2011
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	2013
<i>Cardamine hirsuta</i>	Hairy Bitter-cress	2013
<i>Cardamine pratensis</i>	Cuckoo flower	2014
<i>Carduus crispus</i>	Wetted Thistle	1993
<i>Carex divulsa</i>	Grey sedge	2005
<i>Carex echinata</i>	Prickly sedge	2020
<i>Carex flacca</i>	Glaucous Sedge	2020
<i>Carex hirta</i>	Hairy sedge	2005
<i>Carex muricata</i> ssp. <i>Lamprocarpa</i>	Prickly Sedge	2005
<i>Carex nigra</i>	Common sedge	2005
<i>Carex otrubae</i>	False fox-sedge	2005

<i>Carex paniculata</i>	Greater tussock sedge	2005
<i>Carex pendula</i>	Pendulous sedge	2015
<i>Carex pseudocyperus</i>	Cyperus Sedge	2005
<i>Carex remota</i>	Remote sedge (WF)	1997
<i>Carex</i> sp.	a sedge	1993
<i>Carex sylvatica</i>	Wood sedge	2014
<i>Carpinus betulus</i>	Hornbeam	2020
<i>Castanea sativa</i>	Sweet Chestnut	2020
<i>Cedrus libani</i>	Cedar-of-Lebanon	2014
<i>Centaurea montana</i>	Perennial Cornflower	1993
<i>Centaurea nigra</i>	Common Knapweed	2020
<i>Centaurea scabiosa</i>	Greater Knapweed	2013
<i>Centaurium erythraea</i>	Common Centaury	2005
<i>Cerastium fontanum</i>	Common Mouse-ear	2020
<i>Cerastium glomeratum</i>	Sticky Mouse-ear	2013
<i>Ceratochloa carinata</i>	Californian Brome	2020
<i>Chaerophyllum temulum</i>	Rough Chervil	2003
<i>Chamerion angustifolium</i>	Rosebay Willowherb	2015
<i>Chelidonium majus</i>	Greater Celandine	1997
<i>Chenopodium album</i> agg.	Fat Hen	2015
<i>Circaea lutetiana</i>	Enchanter's-nightshade	2015
<i>Cirsium arvense</i>	Creeping Thistle	2020
<i>Cirsium palustre</i>	Marsh Thistle	2013
<i>Cirsium vulgare</i>	Spear thistle	2015
<i>Claytonia peifoliata</i>	Spring beauty	
<i>Clematis vitalba</i>	Traveller's-joy	2015
<i>Clinopodium vulgare</i>	Wild basil (WF)	2010
<i>Conium maculatum</i>	Hemlock	2013
<i>Convolvulus arvensis</i>	Field Bindweed	2020
<i>Conyza canadensis</i>	Canadian Fleabane	2013
<i>Conyza sumatrensis</i>	Guernsey Fleabane	2013
<i>Cornus sanguinea</i>	Dogwood	2013
<i>Coronopus didymus</i>	Lesser Swinecress	2005
<i>Corylus avellana</i>	Hazel	2020
<i>Crassula helmsii</i>	New Zealand Pigmyweed	2020
<i>Crataegus laevigata</i>	Midland hawthorn	2014
<i>Crataegus monogyna</i>	Hawthorn	2020
<i>Crataegus</i> x <i>media</i>	<i>C.monogyna</i> x <i>laevigata</i>	2015
<i>Crepis biennis</i>	Rough hawkbit (WF)	2011
<i>Crepis capillaris</i>	Smooth Hawk's-beard	2014
<i>Crepis vesicaria</i>	Beaked Hawk's-beard	2015
<i>Crocus tommasinianus</i>	Early Crocus	2003
<i>Cyclamen hederifolium</i>	Sowbread	2011
<i>Cymbalaria muralis</i>	Ivy-leaved Toadflax	2013

<i>Cynosurus cristatus</i>	Crested Dog's-tail	2013
<i>Cyperus longus</i>	Galingale	2007
<i>Cytisus scoparius</i>	Broom	1993
<i>Dactylis glomerata</i>	Cock's-foot	2020
<i>Dactylorhiza fuchsii</i>	Common spotted orchid	2007
<i>Daphne laureola</i>	Spurge-laurel	1993
<i>Daucus carota</i>	Wild Carrot	2005
<i>Digitalis purpurea</i>	Foxglove	2015
<i>Diplotaxis tenuifolia</i>	Perennial Wall-rocket	1993
<i>Dipsacus fullonum</i>	Wild Teasel	2015
<i>Dipsacus fullonum sens. Lat.</i>	Wild Teasel	2005
<i>Dryopteris filix-mas</i> agg.	Male Fern	2014
<i>Echinops bannaticus</i>	Blue globe-thistle (introduced)	2015
<i>Echinops sphaerocephalus</i>	Globe-thistle (introduced)	2000
<i>Elytrigia repens</i>	Common Couch	2014
<i>Epilobium ciliatum</i>	American Willowherb	1993
<i>Epilobium hirsutum</i>	Great Willowherb	2015
<i>Epilobium montanum</i>	Broad-leaved Willowherb	2013
<i>Epilobium parviflorum</i>	Hoary Willowherb	2005
<i>Epilobium roseum</i>	Pale Willowherb	2005
<i>Epilobium tetragonum</i>	Square-stalked Willowherb	1993
<i>Equisetum arvense</i>	Field Horsetail	2015
<i>Erigeron acer</i>	Blue Fleabane	1993
<i>Erodium cicutarium</i>	Common stork's-bill	2005
<i>Erophila verna</i>	Whitlow grass	2014
<i>Erysimum cheiranthoides</i>	Treacle Mustard	1993
<i>Eschscholzia californica</i>	Californian Poppy	2015
<i>Euonymus europaeus</i>	Spindle (WF)	2010
<i>Eupatorium cannabinum</i>	Hemp-agrimony	1993
<i>Euphorbia peplus</i>	Petty Spurge	2015
<i>Fagus sylvatica</i> 'purpurea'	Copper Beech	2005
<i>Fagus sylvatica</i>	Beech	2014
<i>Fallopia baldschuanica</i>	Russian Vine	1993
<i>Fatsia japonica</i>	Fatsia	2015
<i>Festuca arundinacea</i>	Tall fescue	2005
<i>Festuca rubra</i>	Red fescue	2020
<i>Ficaria verna</i>	Lesser Celendine	2014
<i>Filipendula vulgaris</i>	Dropwort (WF)	2010
<i>Fraxinus angustifolia</i>	Narrow-leaved ash (planted)	2011
<i>Fraxinus excelsior</i>	Ash	2020
<i>Galanthus nivalis</i>	Snowdrop	2003
<i>Galega officinalis</i>	Goat's-rue	2005
<i>Galeopsis tetrahit</i> agg.	Common Hemp-nettle [agg.]	1993
<i>Galinsoga parviflora</i>	Gallant Soldier	2015

<i>Galium aparine</i>	Cleavers	2015
<i>Galium mollugo</i>	Hedge Bedstraw	2013
<i>Galium verum</i>	Lady's Bedstraw	2020
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	2020
<i>Geranium lucidum</i>	Shining crane's-bill	2015
<i>Geranium molle</i>	Dove's-foot Crane's-bill	2015
<i>Geranium pusillum</i>	Small-flowered crane's-bill (WF)	2010
<i>Geranium pyrenaicum</i>	Hedgerow Cranesbill	2015
<i>Geranium robertianum</i>	Herb Robert	2015
<i>Geum urbanum</i>	Wood Avens	2015
<i>Ginkgo biloba</i>	Maidenhair tree (MHG)	2009
<i>Glechoma hederacea</i>	Ground Ivy	2015
<i>Glyceria declinata</i>	Small Sweet-Grass	2018
<i>Glyceria fluitans</i>	Floating Sweet-grass	2013
<i>Glyceria maxima</i>	Reed Sweet-grass	2013
<i>Glyceria</i> sp.	Sweet-grass	2014
<i>Gnaphalium uliginosum</i>	Marsh Cudweed	2005
<i>Hedera helix</i>	Ivy	2020
<i>Helminthotheca echinoides</i>	Bristly Oxtongue	2015
<i>Heracleum sphondylium</i>	Hogweed	2015
<i>Herniaria glabra</i>	Smooth rupturewort	2011
<i>Hirschfeldia incana</i>	Hoary Mustard	2013
<i>Holcus lanatus</i>	Yorkshire-fog	2020
<i>Hordeum murinum</i>	Wall Barley	2014
<i>Hordeum secalinum</i>	Meadow Barley	2020
<i>Hyacinthoides hispanica</i>	Spanish Bluebell	2005
<i>Hyacinthoides non-scripta</i>	Bluebell	2005
<i>Hyacinthoides</i> spp.	Garden/Spanish bluebell and hybrids	2014
<i>Hyacinthoides x massartiana</i>	Hybrid Bluebell (H. non-scripta x hispanica)	2015
<i>Hypericum androsaemum</i>	Tutsan	2015
<i>Hypericum calycinum</i>	Rose-of Sharon	2015
<i>Hypericum maculatum</i>	Imperforate St John's-wort	2005
<i>Hypericum perforatum</i>	Perforate St John's-wort	2015
<i>Hypochaeris radicata</i>	Cats-ear	2015
<i>Ilex aquifolium</i>	Holly	2020
<i>Impatiens glandulifera</i>	Himalayan balsam (CP)	2005
<i>Inula conyzae</i>	Ploughman's-spikenard	2000
<i>Iris foetidissima</i>	Stinking iris	2001
<i>Iris pseudacorus</i>	Yellow Iris	2005
<i>Juglans regia</i>	Walnut	2021
<i>Juncus bufonius</i>	Toad Rush	2018
<i>Juncus effusus</i>	Soft rush	2013
<i>Juncus inflexus</i>	Hard Rush	2014
<i>Juncus tenuis</i>	Slender Rush	2013

<i>Kickxia spuria</i>	Round-leaved Fluellen	2015
<i>Knautia arvensis</i>	Field Scabious	2013
<i>Lactuca serriola</i>	Prickly Lettuce	2013
<i>Lactuca virosa</i>	Great lettuce (WF)	2011
<i>Lamiastrum galeobdolon</i> subsp. <i>argentatum</i>	Garden Yellow-archangel	2015
<i>Lamium album</i>	White Dead-nettle	2014
<i>Lamium amplexicaule</i>	Hen-bit Dead-nettle	1993
<i>Lamium purpureum</i>	Red Dead-nettle	2014
<i>Lappula squarrosa</i>	Bur Forget-me-not	1993
<i>Lapsana communis</i>	Nipplewort	2014
<i>Larix decidua</i>	Larch	2005
<i>Larix decidua</i>	European larch	2014
<i>Larix japonica</i>	Japanese larch	2009
<i>Larix kaempferi</i>	Japanese Larch	1982
<i>Lathyrus latifolius</i>	Broad-leaved everlasting-pea (WF)	2010
<i>Lathyrus nissolia</i>	Grass Vetchling	2013
<i>Lathyrus pratensis</i>	Meadow vetchling	2020
<i>Laurus nobilis</i>	Bay	2014
<i>Lemna gibba</i>	Fat Duckweed	1993
<i>Lemna minor</i>	Common Duckweed	2018
<i>Lemna minuta</i>	Least duckweed	2005
<i>Lemna trisulca</i>	Ivy-leaved duckweed	2014
<i>Leontodon autumnalis</i>	Autumnal Hawkbit	1993
<i>Leontodon hispidus</i>	Rough hawkbit	2013
<i>Leontodon saxatilis</i>	Lesser Hawkbit	2013
<i>Lepidium draba</i>	Hoary Cress	1993
<i>Leucanthemum vulgare</i>	Oxeye daisy	2020
<i>Ligustrum vulgare</i>	Wild Privet	2005
<i>Linaria purpurea</i>	Purple Toadflax	2015
<i>Linaria vulgaris</i>	Common Toadflax	2013
<i>Lolium perenne</i>	Perennial Rye-grass	2020
<i>Lonicera periclymenum</i>	Honeysuckle	2013
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	2020
<i>Lotus pedunculatus</i>	Large Bird's-foot-trefoil	1993
<i>Lunaria annua</i>	Honesty	1993
<i>Lupinus arboreus</i>	Tree Lupin	1993
<i>Luzula campestris</i>	Field Woodrush	2014
<i>Lycopus europaeus</i>	Gypsywort	2005
<i>Lysimachia nummularia</i>	Creeping Jenny	2007
<i>Lysimachia vulgaris</i>	Yellow Loosestrife	2005
<i>Lythrum salicaria</i>	Purple-loosestrife	2013
<i>Malus domestica</i>	Apple	1993
<i>Malus sylvestris</i>	Crab Apple	2013
<i>Malva sylvestris</i>	Common Mallow	2014

<i>Matricaria discoidea</i>	Pineappleweed	2013
<i>Matricaria recutita</i>	Scented Mayweed	1997
<i>Medicago arabica</i>	Spotted Medick	1993
<i>Medicago lupulina</i>	Black medick	2015
<i>Medicago sativa</i>	Lucerne	2005
<i>Medicago sativa</i> ssp. <i>Sativa</i>	Lucerne	2005
<i>Melica uniflora</i>	Wood Melick	2015
<i>Melilotus albus</i>	White Melilot	2000
<i>Melilotus officinalis</i>	Ribbed Melilot	1993
<i>Mentha aquatica</i>	Water mint	2013
<i>Mentha spicata</i>	Spear Mint	1993
<i>Menyanthes trifoliata</i>	Bogbean	2007
<i>Mercurialis perennis</i>	Dog's Mercury	2014
<i>Milium effusum</i>	Wood Millet	2013
<i>Mycelis muralis</i>	Wall Lettuce	2013
<i>Myosotis arvensis</i>	Field Forget-me-not	2013
<i>Myosotis scorpioides</i>	Water Forget-me-not	1993
<i>Myriophyllum aquaticum</i>	Parrot's-feather	2011
<i>Narcissus</i> agg.	a garden daffodil	2005
<i>Narcissus pseudonarcissus</i>	Dafodill	2013
<i>Nigella damascena</i>	Love-in-a-miast	2015
<i>Nymphaea alba</i>	White Water-lily	2005
<i>Nymphoides peltata</i>	Fringed Water-lily	1993
<i>Odontites vernus</i>	Red Bartsia	2020
<i>Oenothera biennis</i>	Common Evening-primrose	1993
<i>Ophrys apifera</i>	Bee orchid (WF)	2010
<i>Origanum vulgare</i>	Marjoram (WF)	2013
<i>Ornithogalum nutans</i>	Drooping Star-of- Bethlehem (MHG)	2010
<i>Ornithogalum umbellatum</i>	Star-of-Bethlehem	2006
<i>Orobanche elatior</i>	Knapweed Broomrape	1993
<i>Orobanche minor</i>	Common Broomrape	2013
<i>Oxalis acetosella</i>	Wood-sorrel	1993
<i>Oxalis debilis</i>	Large-flowered Pink-sorrel	1993
<i>Papaver dubium</i> ssp. <i>dubium</i>	Long-headed Poppy	1993
<i>Papaver hybridum</i>	Rough poppy (WF)	2010
<i>Papaver rhoeas</i>	Common Poppy	2020
<i>Parietaria judaica</i>	Pellitory-of-the-Wall	1993
<i>Pentaglottis sempervirens</i>	Green Alkanet	2013
<i>Persicaria maculosa</i>	Redshank	2005
<i>Petasites fragrans</i>	Winter Heliotrope	1993
<i>Phleum bertolonii</i>	Smaller Cat's-tail	2020
<i>Phleum pratense</i>	Timothy	2013
<i>Phragmites australis</i>	Common Reed	2005
<i>Picris echioides</i>	Brisly oxtongue	2013

<i>Picris hieracioides</i>	Hawkweed oxtongue	2013
<i>Pilosella officinarum</i>	Mouse-ear-hawkweed	2013
<i>Pimpinella saxifraga</i>	Burnet saxifrage	2020
<i>Pinus contorta</i>	Lodgepole Pine	1982
<i>Pinus pinaster</i>	Maritime Pine	1982
<i>Pinus sylvestris</i>	Scots Pine	2005
<i>Plantago lanceolata</i>	Ribwort plantain	2020
<i>Plantago major</i>	Greater Plantain	2020
<i>Plantago media</i>	Hoary plantain (WF)	2010
<i>Platanus x hispanica</i>	London Plane	2005
<i>Poa annua</i>	Annual meadow grass	2014
<i>Poa nemoralis</i>	Wood Meadow-grass	2016
<i>Poa pratensis</i>	Smooth stalked meadow grass	2013
<i>Poa trivialis</i>	Rough stalked meadowgrass	2013
<i>Polygonatum multiflorum x odoratum</i>	Garden Solomon's-seal	1993
<i>Polygonum aviculare</i>	Knotgrass	2013
<i>Polypogon viridis</i>	Water bent (introduced)	2011
<i>Populus tremula</i>	Aspen (WF)	2010
<i>Populus alba</i>	White Poplar	2005
<i>Populus canadensis</i>	Hybrid black poplar	2005
<i>Populus nigra italica</i>	Lombardy poplar	1999
<i>Potentilla anglica</i>	Trailing Tormentil	2013
<i>Potentilla anserina</i>	Silverweed	2013
<i>Potentilla erecta</i>	Tormentil	2013
<i>Potentilla reptans</i>	Creeping Cinquefoil	2020
<i>Primula veris</i>	Cowslip	2013
<i>Prunella vulgaris</i>	Selfheal	2005
<i>Prunus avium</i>	Wild Cherry	2015
<i>Prunus cerastifera</i>	Cherry plum	2005
<i>Prunus domestica</i>	Wild Plum	1993
<i>Prunus laurocerasus</i>	Cherry Laurel	2020
<i>Prunus serotina</i>	Rum cherry (WF)	2010
<i>Prunus sp.</i>	a planted cherry	2005
<i>Prunus spinosa</i>	Blackthorn	2020
<i>Pseudotsuga menziesii</i>	Douglas Fir	2005
<i>Pulicaria dysenterica</i>	Common Fleabane	2013
<i>Pyrus communis sens. str.</i>	Pear	1993
<i>Quercus cerris</i>	Turkey Oak	2020
<i>Quercus ilex</i>	Evergreen/Holm oak	2015
<i>Quercus petraea</i>	Sessile Oak	1982
<i>Quercus robur</i>	Pedunculate Oak	2020
<i>Quercus rubra</i>	Red Oak	2013
<i>Ranunculus acris</i>	Meadow Buttercup	2020
<i>Ranunculus auricomus</i>	Goldilocks Buttercup	1993

<i>Ranunculus baudotii</i>	Brackish water crowfoot	2018
<i>Ranunculus bulbosus</i>	Bulbous buttercup	2013
<i>Ranunculus ficaria</i>	Lesser Celandine	2005
<i>Ranunculus lingua</i> (CR)	Greater Spearwort	2005
<i>Ranunculus repens</i>	Creeping Buttercup	2012
<i>Ranunculusp eltatus</i>	Round-leaved water crow-foot	2007
<i>Raphanus raphanistrum</i>	Wild Radish	1993
<i>Resda luteola</i>	Wild Mignonette	2013
<i>Rhamnus cathartica</i>	Buckthorn	1993
<i>Rhinanthus angustifolius</i>	Greater yellow-rattle (WF)	2014
<i>Rhinanthus minor</i>	Yellow rattle (WF)	2013
<i>Ribes sanguineum</i>	Flowering currant	2014
<i>Ribes uva-crispa</i>	Gooseberry	2000
<i>Robinia pseudoacacia</i>	False-acacia	2013
<i>Rosa arvensis</i>	Field Rose	2005
<i>Rosa canina</i>	Dog-rose	2013
<i>Rosa rubiginosa</i>	Sweet-briar	2013
<i>Rosa</i> sp.	a rose (unidentified)	2005
<i>Rubus caesius</i>	Dewberry	2014
<i>Rubus cockburnianus</i>	White-stemmed bramble (planted)	2011
<i>Rubus fruticosus</i> agg.	Bramble	2020
<i>Rubus idaeus</i>	Raspberry	2020
<i>Rumex acetosa</i>	Common Sorrel	2020
<i>Rumex acetosella</i>	Sheep's Sorrel [agg.]	2005
<i>Rumex conglomeratus</i>	Clustered Dock	2013
<i>Rumex crispus</i>	Curled Dock	2014
<i>Rumex hydrolapathum</i>	Water Dock	2005
<i>Rumex obtusifolius</i>	Broad leaved dock	2014
<i>Rumex pulcher</i> (CR)	Fiddle Dock	2005
<i>Rumex sanguineus</i>	Wood Dock	2014
<i>Runiex pulcher</i>	Fiddle dock	2005
<i>Sagina procumbens</i>	Procumbent Pearlwort	1993
<i>Sagittaria latifolia</i>	Duck-potato	2011
<i>Sagittaria sagittifolia</i>	Arrowhead	2005
<i>Salix babylonica</i>	Weeping Willow	2005
<i>Salix caprea</i>	Goat Willow	2013
<i>Salix cinerea</i>	Grey Willow	2013
<i>Salix cinerea</i> ssp. <i>oleifolia</i>	a willow	2016
<i>Salix fragilis</i>	Crack Willow	2015
<i>Salix</i> sp.	a sallow	1993
<i>Salix viminalis</i>	Osier	1993
<i>Sambucus nigra</i>	Elder	2020
<i>Schedonorus arundinaceus</i>	Tall fescue	2020
<i>Schedonorus giganteus</i>	Giant Fescue	2014

<i>Schedonorus pratensis</i>	Meadow Fescue	2013
<i>Scirpus sylvaticus</i>	Wood Club-rush	2005
<i>Scorzoneroides autumnalis</i>	Autumn hawkbit	2013
<i>Scrophularia nodosa</i>	Common Figwort	2013
<i>Sedum rupestre</i>	Reflexed stonecrop (introduced) (WF)	2011
<i>Senecio erucifolius</i>	Hoary Ragwort	2020
<i>Senecio jacobaea</i>	Common Ragwort	2020
<i>Senecio squalidus</i>	Oxford ragwort	2013
<i>Senecio vulgaris</i>	Groundsel	2014
<i>Sequoia sempervirens</i>	Coastal Redwood	1982
<i>Silaum silaus</i> (CR)	Pepper-saxifrage	2005
<i>Silene dioica</i>	Red Campion	2013
<i>Silene latifolia</i>	White campion	2013
<i>Silene vulgaris</i>	Bladder Campion	1993
<i>Sinapis arvensis</i>	Charlock	2013
<i>Sisymbrium officinale</i>	Hedge Mustard	2014
<i>Solanum dulcamara</i>	Bittersweet	2014
<i>Solidago canadensis</i>	Canadian Goldenrod	2013
<i>Solidago gigantea</i>	Early goldenrod (introduced) (WF)	2011
<i>Sonchus arvensis</i>	Perennial Sow-thistle	1993
<i>Sonchus asper</i>	Prickly sow thistle	2014
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	2014
<i>Sorbus aria</i>	Whitebeam	2014
<i>Sorbus aucuparia</i>	Rowan	2010
<i>Sorbus torminalis</i>	Wild Service Tree	2013
<i>Sparganium erectum</i>	Branched bur-reed	2013
<i>Spergula arvensis</i>	Corn spurrey (WF)	2010
<i>Spergularia rubra</i>	Sand spurrey	2011
<i>Stachys sylvatica</i>	Hedge Woundwort	2015
<i>Stellaria graminea</i>	Lesser Stitchwort	2020
<i>Stellaria holostea</i>	Greater Stitchwort	2013
<i>Stellaria media</i>	Common Chickweed	2014
<i>Stellaria pallida</i>	Lesser chickweed	
<i>Symphoricarpos albus</i>	Snowberry	2013
<i>Symphytum officinale</i>	Common Comfrey	2013
<i>Symphytum</i> . 'Hidcote Blue'	Hidcote comfrey	2015
<i>Tamus communis</i>	Black bryony	2013
<i>Taraxacum officinale</i> agg.	Dandelion	2005
<i>Taraxacum</i> spp	Dandelion	2020
<i>Taxus baccata</i>	Yew	2014
<i>Thuja plicata</i>	Western Red-cedar	1982
<i>Tilia cordata</i> (CR)	Small-leaved Lime	1993
<i>Tilia cordata</i> x <i>platyphyllos</i>	Lime	2005

<i>Tilia cordata</i> x <i>platyphyllos</i> (<i>T. x vulgaris</i>)	Lime	1993
<i>Tilia platyphyllos</i>	Large-leaved Lime	2013
<i>Tilia</i> sp.	a lime	1993
<i>Tilia. X europaea</i>	Lime	2014
<i>Torilis japonica</i>	Upright hedge parsley	2015
<i>Tragopogon pratensis</i>	Goat's beard	2013
<i>Tragopogon pratensis minor</i>	Goat's-beard (native)	2015
<i>Tragopogon pratensis pratensis</i>	Goat's-beard (introduced)	2011
<i>Trifolium campestre</i>	Hop Trefoil	2013
<i>Trifolium dubium</i>	Lesser Trefoil	1993
<i>Trifolium pratense</i>	Red clover	2020
<i>Trifolium repens</i>	White Clover	2014
<i>Trifolium arvense</i>	Haresfoot clover	
<i>Tripleurospermum inodorum</i>	Scentless mayweed	2013
<i>Tripleurospermum maritimum</i> agg.	Scentless Mayweed	2005
<i>Trisetum flavescens</i>	Yellow Oatgrass	2013
<i>Triticum aestivum</i>	Bread Wheat	2015
<i>Tsuga heterophylla</i>	Western Hemlock	1982
<i>Tussilago farfara</i>	Colt's-foot	1993
<i>Typha angustifolia</i>	Lesser reedmace	2007
<i>Typha latifolia</i>	Reedmace	2011
<i>Ulmus glabra</i>	Wych Elm	2005
<i>Ulmus procera</i>	English Elm	2020
<i>Urtica dioica</i>	Common Nettle	2020
<i>Verbascum thapsus</i>	Great Mullein	2015
<i>Verbena bonariensis</i>	Argentinian Vervain	2015
<i>Veronica arvensis</i>	Wall Speedwell	1993
<i>Veronica beccabunga</i>	Brooklime	2014
<i>Veronica chamaedrys</i>	Germander Speedwell	2020
<i>Veronica filiformis</i>	Slender Speedwell	1993
<i>Veronica hederifolia</i>	Ivy-leaved Speedwell [agg.]	1993
<i>Veronica montana</i>	Wood speedwell	2001
<i>Veronica persica</i>	Common Field-speedwell	2015
<i>Viburnum lantana</i>	Wayfaring-tree	2013
<i>Viburnum opulus</i>	Guelder Rose	2005
<i>Vicia cracca</i>	Tufted Vetch	2013
<i>Vicia hirsuta</i>	Hairy Tare	2013
<i>Vicia sativa</i>	Common Vetch	2020
<i>Vicia sativa</i> subsp. <i>segetalis</i>	Common Vetch	2014
<i>Vicia sepium</i>	Bush Vetch	2013
<i>Vicia tetrasperma</i>	Smooth tare (WF)	2010
<i>Vinca minor</i>	Lesser Periwinkle	2012
<i>Viola arvensis</i>	Field Pansy	2005
<i>Viola odorata</i>	Sweet Violet	1993

<i>Viola reichenbachiana</i>	Early wood violet	2000
<i>Viola riviniana</i>	Common Dog-violet	1993
<i>Viola</i> sp.	a violet	2005
<i>Viscum album</i>	Mistletoe	2013
<i>Vulpia bromoides</i>	Squirrel-tail Fescue	1993

Lichens

Scientific name	Date last recorded
<i>Agonimia tristicula</i>	1995
<i>Bacidia sabuletorum</i>	1995
<i>Buellia punctata</i>	1993
<i>Caloplaca holocarpa</i>	1995
<i>Caloplaca citrina</i>	1993
<i>Caloplaca flavescens</i>	1995
<i>Caloplaca flavovirescens</i>	1995
<i>Caloplaca teicholyta</i>	1995
<i>Candelariella reflexa</i>	1993
<i>Candellariella aurella</i>	1995
<i>Candellariella medians</i>	1995
<i>Candellariella vitellina</i>	1995
<i>Catillaria chalybeia</i>	1995
<i>Cladonia chlorophaea</i>	1993
<i>Cladonia coniocraea</i>	1993
<i>Cladonia fimbriata</i>	1993
<i>Cladonia pocillim</i>	1995
<i>Cladonia pyxidata</i>	1993
<i>Cladonia squamosa</i>	1993
<i>Cliostomum griffithii</i>	1995
<i>Cyphelium notarisii</i>	1995
<i>Diploicia canescens</i>	1993
<i>Diploschistes muscorum</i>	1993
<i>Evernia prunastri</i>	1993
<i>Foraminella ambigua</i>	1993
<i>Hyperphyscia adglutinata</i>	1993
<i>Hypocenomyce scalaris</i>	1995
<i>Hypogymnia physodes</i>	1993
<i>Lecania erysibe</i>	1995
<i>Lecanora albescens</i>	1993
<i>Lecanora campestris</i>	1995
<i>Lecanora chlarotera</i>	1993
<i>Lecanora conizaeoides</i>	1993
<i>Lecanora dispersa</i>	1993

Lecanora expallens	1993
Lecanora muralis	1993
Lecanora polytropa	1995
Lecanora saligna	1995
Lecanora symmicta	1995
Lecidella elaeochroma	1995
Lecidella scabra	1995
Lecidella stigmatea	1995
Lepraria incana	1993
Lepraria lesdainii	1995
Leptogium teretiusculum	1995
Micarea denigrata prasina	1995
Micarea prasina	1993
Mycoblastus sterilis	1995
Parmelia caperata	1993
Parmelia perlata	1995
Parmelia revolute	1993
Parmelia subaurifera	1993
Parmelia subrudecta	1995
Parmelia sulcata	1993
Parmeliopsis ambigua	1995
Phaeophyscia orbicularis	1995
Physcia adscendens	1993
Physcia aipolia	1995
Physcia caesia	1995
Physcia dubia	1995
Physcia tenella	1993
Physconia grisea	1993
Psilolechia lucida	1993
Ramalina farinacea	1993
Rinodina gennarii	1995
Rinodina sophodes	1993
Sarcogyne regularis	1995
Scoliciosporum chlorococcum	1995
Scoliciosporum umbninum	1995
Toninia aromatic	1995
Trapelia coarctata	1995
Trapelia involuta	1995
Trapeliopsis flexuosa	1995
Usnea subfloridana	1995
Verrucaria glaucina	1995
Verrucaria hochstetteri	1995
Verrucaria macrostoma	1995
Verrucaria nigrescens	1993

Verrucaria viridula	1995
Xanthoria calcicola	1995
Xanthoria candelaria	1993
Xanthoria elegans	1993
Xanthoria parietina	1993
Xanthoria polycarpa	1993

Bryophytes

Scientific name	Common name	Date last recorded
Amblystegium riparium	a moss	1993
Amblystegium serpens	Creeping feather-moss	2013
Atrichum undulatum	a hair-moss	1993
Barbula convoluta var. commutata	a moss	1993
Barbula convoluta var. convoluta	a moss	1993
Barbula cylindrical	a moss	1993
Barbula fallax	a moss	1993
Barbula hornschurchiana	a moss	1993
Barbula revolute	a moss	1993
Barbula tophacea	a moss	1993
Barbula trifaria	a moss	-1980
Barbula unguiculata	a moss	1993
Barbula vinealis	a moss	1993
Brachythecium albicans	a moss	1993
Brachythecium rutabulum	a moss	1993
Brachythecium velutinum	a moss	-1980
Bryum argenteum	a moss	1993
Bryum bicolor sens. lat.	a moss	1993
Bryum caespiticium	a moss	-1980
Bryum capillare	a moss	1993
Bryum flaccidum	a moss	1993
Bryum microerythrocarpum	a moss	-1980
Bryum rubens	a moss	1993
Bryum ruderales	a moss	-1980
Calliergon cuspidatum	a moss	1993
Campylopus introflexus	a moss	1993
Cephaloziella divaricata	a liverwort	1993
Ceratodon purpureus	a moss	1993
Colojeunea minutissima	Minute pouncewort	2013
Cryphaea heteromalla	Lateral cryphaea	2013
Dicranella heteromalla	a moss	1993
Dicranoweisia cirrata	a moss	1993
Didymodon nicholsonii	Nicholson 's beard-moss	2013

<i>Eurhynchium praelongum</i>	a moss	1993
<i>Eurhynchium pumilum</i>	a moss	1993
<i>Eurhynchium swartzii</i>	a moss	-1980
<i>Fissidens bryoides</i>	a moss	1993
<i>Fissidens incurvus</i>	a moss	1993
<i>Fissidens taxifolius</i>	a moss	1993
<i>Fissidens viridulus</i>	a moss	-1980
<i>Frullania dilatata</i>	Dilated scalewort	2013
<i>Funaria hygrometrica</i>	a moss	1993
<i>Grimmia pulvinata</i>	a moss	1993
<i>Gyrowesia tenuis</i>	a moss	1993
<i>Hennediella macrophylla</i>	a moss	1993
<i>Homalothecium sericeum</i>	a moss	1993
<i>Hypnum cupressiforme</i> var. <i>cupressiforme</i>	a moss	1993
<i>Hypnum jutlandicum</i>	a moss	1993
<i>Hypnum resupinatum</i>	Supine Plait-moss	2013
<i>Isopterygium elegans</i>	a moss	-1980
<i>Leptodictyum riparium</i>	Kneiff 's feather- moss	2013
<i>Lophocolea bidentata</i>	a liverwort	-1980
<i>Lophocolea heterophylla</i>	a liverwort	1993
<i>Lunularia cruciata</i>	a liverwort	1993
<i>Metzgeria furcata</i>	Forked veilwort	2013
<i>Mnium hornum</i>	a moss	1993
<i>Orthodontium lineare</i>	a moss	-1980
<i>Orthotrichum affine</i>	a moss	1993
<i>Orthotrichum anomalum</i>	a moss	1993
<i>Orthotrichum diaphanum</i>	a moss	1993
<i>Phascum cuspidatum</i>	a moss	1993
<i>Plagiomnium affine</i>	a moss	-1980
<i>Plagiomnium undulatum</i>	a moss	-1980
<i>Plagiothecium undulatum</i>	a moss	1993
<i>Pohlia carnea</i>	a moss	1993
<i>Pohlia nutans</i>	a moss	-1980
<i>Polytrichum formosum</i>	a hair-moss	-1980
<i>Polytrichum juniperinum</i>	a hair-moss	1993
<i>Porella platyphylla</i>	a liverwort	1993
<i>Pseudoscleropodium purum</i>	a moss	1993
<i>Radula complanata</i>	a liverwort	1993
<i>Rhizomnium punctatum</i>	a moss	1993
<i>Rhychoستيgiella pumila</i>	Dwarf feather-moss	2013
<i>Rhynchostegiella tenella</i>	Tender feather-moss	2013
<i>Rhynchostegium confertum</i>	a moss	1993
<i>Rhynchostegium murale</i>	a moss	1993
<i>Rhytidiadelphus squarrosus</i>	a moss	1993

<i>Riccia fluitans</i>	Floating crystalwort	2013
<i>Schistidium apocarpum</i> sens. lat.	a moss	1993
<i>Syntrichia latifolia</i>	Water screw-moss	2013
<i>Syntrichia papillosa</i>	Marble screw-moss	2013
<i>Thamnobryum alopecurum</i>	Foxtail feather-moss	2013
<i>Tortula intermedia</i>	a moss	-1980
<i>Tortula marginata</i>	Bordered screw- moss	2013
<i>Tortula muralis</i>	a moss	1993
<i>Tortula ruralis</i> ssp. <i>ruralis</i>	a moss	1993
<i>Ulota bruchii</i>	Bruch's pincushion	2013
<i>Zygodon viridissimus</i>	Green yoke-moss	2013

Fungi

Scientific name	Common name	Date last recorded
<i>Acrocordia salweyi</i>	a fungus	1993
<i>Agaricus arvensis</i>	Horse Mushroom	1993
<i>Agaricus campestris</i>	Field Mushroom	1993
<i>Agaricus</i> cf. <i>silvicola</i>	Wood mushroom	1999
<i>Alternaria tenuissima</i>	fungi imperfecti	1993
<i>Ampulloclitocybe clavipes</i>	Club foot	2001
<i>Arcyria incarnate</i>	a slime mould	1993
<i>Armillaria mellea</i>	Honey Fungus	1993
<i>Asteromella arbuticola</i>	Ascomycete	2013
<i>Aulographum hederæ</i>	Ascomycete	2013
<i>Auricularia mesenterica</i>	Tripe Fungus	1993
<i>Bisporella citrina</i>	an ascomycete fungus	1993
<i>Bjerkandera adusta</i>	a basidiomycete fungus	1993
<i>Bolbitius vitellinus</i>	an agaric	1993
<i>Boletus cisalpinus</i> (= <i>Xerocomus chrysenteron</i>)	Red-cracked bolete	2010
<i>Bulgaria inquinans</i>	an ascomycete fungus	1993
<i>Caducirostrum foiiicola</i>	Ascomycete	2013
<i>Calocera cornea</i>	a basidiomycete fungus	1993
<i>Calocybe</i> (= <i>Tricholoma</i>) <i>gambosa</i>	St George's mushroom	2014
<i>Calvatia gigantea</i>	Giant puffball	1996
<i>Chaetomium</i> spp	Ascomycete	2013
<i>Chondrostereum purpureum</i>	a basidiomycete fungus	1993
<i>Claviceps purpurea</i>	Ergot	1993
<i>Clavulina coralloides</i>	Crested coral	2008
<i>Clitocybe dealbata</i>	a basidiomycete fungus	1993
<i>Clitocybe nebularis</i>	Cloud agaric	2013
<i>Collybia</i> (= <i>Rhodocollybia</i>) <i>butyracea</i>	Buttercap	2013
<i>Collybia confluens</i>	Clustered Tough-shank	1993

<i>Collybia erythropus</i>	a basidiomycete fungus	1993
<i>Collybia fusipes</i>	Spindlechank	2002
<i>Collybia peronata</i>	Wood Woolly-foot	1993
<i>Coprinus atramentarius</i>	Common Ink-cap	1993
<i>Coprinus lagopus</i>	Hare's-foot inkcap	2001
<i>Coprinus micaceus</i>	Glistening Ink-cap	1993
<i>Coprinus plicatilis</i>	an agaric	1993
<i>Crepidotus mollis</i>	Peeling oysterling (WF)	2013
<i>Crepidotus variabilis</i>	an agaric	1993
<i>Cryptostroma corticale</i>	Ascomycete - sooty bark disease of maple	2013
<i>Cumminsiiella mirabilissima</i>	a rust	1993
<i>Dacrymyces stillatus</i>	a basidiomycete fungus	1993
<i>Daedaleopsis confragosa</i>	a basidiomycete fungus	1993
<i>Daldinia concentrica</i>	Cramp-ball	1993
<i>Diatrypella favacea</i>	Ascomycete	2013
<i>Diatrypella</i> sp.	Ascomycete	2013
<i>Dictydiaethalium plumbeum</i>	a slime mould	1993
<i>Diplodia magnoliadae</i>	Ascomycete	2013
<i>Entoloma lividoalbum</i>	Pinkgill (WF)	2013
<i>Entyloma ficariae</i>	Celandine smut	2013
<i>Erysiphe depressa</i>	a conidial powdery mildew	1993
<i>Erysiphe heraclei</i>	a conidial powdery mildew	1993
<i>Erysiphe polygoni</i>	a conidial powdery mildew	1993
<i>Eutypa maura</i>	Ascomycete	2013
<i>Exidia thuretiana</i>	a basidiomycete fungus	1993
<i>Exosporium tiliae</i>	Ascomycete	2013
<i>Fistuliina hepatica</i>	Beefsteak bracket	2013
<i>Flammulina velutipes</i>	Velvet Shank	1993
<i>Handkea (=Lycoperdon) exculpiformis</i>	Pestle puffball (WF)	2010
<i>Hebeloma crustuliniforme</i>	Poison Pie	1993
<i>Hirneola auricula-judae</i>	Jew's Ear	1993
<i>Hygrocybe psittacina</i>	Parrot waxcap (WF)	2013
<i>Hygrocybe virginea</i>	Snowy waxcap (WF)	2013
<i>Hygrophoropsis aurantiaca</i>	False chanterelle	2013
<i>Hypholoma fasciculare</i>	Sulphur Tuft	1993
<i>Hypoxyton rubiginosum</i>	an ascomycete fungus	1993
<i>Inocybe geophylla</i>	an agaric	1993
<i>Inonotus dryadeus</i>	Oak bracket	2013
<i>Kretzschmaria deusta</i>	Ascomycete	2013
<i>Laccaria amethystina</i>	Amethyst deceiver (WF)	2013
<i>Laccaria laccata</i>	Deceiver	1993
<i>Laccaria proxima</i>	Surfy deceiver (WF)	2013
<i>Lacrymaria lacrymabunda</i>	Weeping Widow	1993
<i>Lactarius deliciosus</i>	Saffron milkcap	2005

<i>Lactarius pyrogalus</i>	Fiery milkcap (WF)	2013
<i>Laetiporus sulphureus</i>	Chicken-of-the-woods	1999
<i>Lepiota cristata</i>	Stinking Parasol	1993
<i>Lepista inverse</i>	Tawny Funnel Cap	1993
<i>Lepista nuda</i>	Wood Blewit	1993
<i>Lycogala terrestre</i>	Slime mould	2012
<i>Lycoperdon perlatum</i>	Common puffball (WF)	2004
<i>Macrolepiota rhacodes</i>	Shaggy Parasol	1993
<i>Marasmius alliaceus</i>	Garlic parachute	2001
<i>Marasmius oreades</i>	Fairy Ring Champignon	1993
<i>Melampsora capraearum</i>	a rust	1993
<i>Melanoleuca</i> sp.	Cavalier	1999
<i>Meripilus giganteus</i>	Giant Polypore	1993
<i>Meruliopsis corium</i>	a basidiomycete fungus	1993
<i>Microsphaera alphitoides</i>	a conidial powdery mildew	1993
<i>Mycena arcangeliana</i>	Angel's bonnet (WF)	2013
<i>Mycena glaericulata</i>	Common bonnet	2002
<i>Mycena galopus</i>	a basidiomycete fungus	1993
<i>Mycena maculata</i>	Bonnet (WF)	2013
<i>Mycena mairei</i>	a basidiomycete fungus	1993
<i>Mycena olivaceomarginata</i>	a basidiomycete fungus	1993
<i>Mycena vitilis</i>	Snapping bonnet (WF)	2013
<i>Myxarium nucleatum</i>	a basidiomycete fungus	1993
<i>Nectria cinnabarina</i>	Coral-spot Fungus	1993
<i>Orbilia leucostigma</i>	an ascomycete fungus	1993
<i>Otidea alutacea</i>	Tan ear (WF)	2013
<i>Paxillus involutus</i>	Brown rollrim	2011
<i>Phanerochaete jose-ferreirae</i>	Basidiomycete	2013
<i>Phellinus pomaceus</i>	Basidiomycete	2013
<i>Phragmidium violaceum</i>	a rust	2013
<i>Physarum nutans</i>	a slime mould	1993
<i>Piptoporus betulinus</i>	Birch Polypore	1993
<i>Platychora ulmi</i>	a fungus	1993
<i>Pleurotus dryinus</i>	Veiled oyster (WF)	2013
<i>Polyporus durus</i> (badius)	Bay polypore	1999
<i>Polyporus squamosus</i>	Dryad's Saddle	1993
<i>Pseudotrametes gibbosa</i>	a basidiomycete fungus	1993
<i>Puccinia caricina</i> var. <i>ribesii-pendulae</i>	a rust	1993
<i>Puccinia liliacearum</i>	a rust	2013
<i>Puccinia malvacearum</i>	a rust	1993
<i>Puccinia menthae</i>	a rust	1993
<i>Puccinia punctiformis</i>	a rust	1993
<i>Rhodotus palmatus</i>	Wrinkled peach (WF)	2013
<i>Rhytisma acerinum</i>	Tar-spot Fungus	1993

<i>Septoria ornithogali</i>	Ascomycete	2013
<i>Sirococcus</i> sp.	Ascomycete	2013
<i>Sphaceloma mattirolaanum</i>	Ascomycete	2013
<i>Stereum gausapatum</i>	Bleeding oak crust (WF)	2008 (2013)
<i>Stereum hirsutum</i>	a basidiomycete fungus	1993
<i>Stropharia aeruginosa</i>	Verdigris Agaric	1993
<i>Suillus grevillei</i>	Larch bolete	2010
<i>Suillus luteus</i>	Slippery Jack	1993
<i>Taphrina pruni</i>	Pocket plum	2014
<i>Trametes gibbosa</i>	Lumpy bracket	2013
<i>Trametes versicolor</i>	a basidiomycete fungus	1993
<i>Trichia decipiens</i>	a slime mould	1993
<i>Trichia varia</i>	a slime mould	1993
<i>Tricholoma argyraceum</i>	a basidiomycete fungus	1993
<i>Tricholoma scalpturatum</i>	Yellow knight (WF)	2013
<i>Trochila ilicina</i>	an ascomycete fungus	1993
<i>Tubaria autochthona</i>	an agaric	1993
<i>Uromyces ficariae</i>	Celandine rust	2013
<i>Ustilago avenae</i>	Loose smut	2002
<i>Ustilago violacea</i>	a rust	1993
<i>Volvariella gloiocephala</i>	Stubble rosegill (WF)	2013
<i>Xerula radicata</i>	Rooting shank (WF)	2013
<i>Xylaria hypoxylon</i>	Candle-snuff Fungus	1993
<i>Xylaria polymorpha</i>	Dead Man's Fingers	1993

Arachnid (Spiders, Harvestmen and Pseudoscorpians)

Scientific name	Common name	Date last recorded
<i>Achaearanea lunata</i>	a comb-footed spider	1993
<i>Agelenatea redii</i>	an orb-weaver spider	1993
<i>Amaurobius fenestralis</i>	a lace-webbed spider	1993
<i>Anelosimus</i> sp., juvenile A	Comb-footed spiders	2014
<i>Anelosimus vittatus</i>	Comb-footed spiders	2013
<i>Anypaena accentuata</i>	a buzzing spider	1993
<i>Araneus diadematus</i>	Garden Orb-web Spider	1993
<i>Araneus quadratus</i>	an orb-weaver spider	1993
<i>Araniella opistographa</i>	an orb-weaver spider	1993
<i>Araniella</i> sp., juvenile B	Cucumber spider	2013
<i>Atea triguttata</i>	an orb-weaver spider	1993
<i>Bathypantes parvulus</i>	a money spider	1993
<i>Chthonius</i> (<i>Chthonius</i>) <i>ischnocheles</i>	a false scorpion	1993
<i>Clubiona brevipes</i>	a foliage spider	1993
<i>Clubiona comta</i>	Foliage spiders	2013

<i>Clubiona reclusa</i>	a foliage spider	1993
<i>Cyclosa conica</i>	Orb-web spiders	2013
<i>Diaea dorsata</i>	Crab spiders	2013
<i>Dicranopalpus ramosus</i>	a harvestman	1993
<i>Dictyna arundinacea</i>	a mesh webbed spider	1993
<i>Dictyna uncinata</i>	a mesh webbed spider	1993
<i>Enoplognatha latimana</i>	a comb-footed spider	1993
<i>Enoplognatha ovata</i>	a comb-footed spider	1993
<i>Entelacara acuminata</i>	Money spiders	2013
<i>Heliophanus cupreus</i>	a jumping spider	2004
<i>Heliophanus flavipes</i>	a jumping spider	2004
<i>Lacinius ephippiatus</i>	a harvestman	1993
<i>Leiobunum rotundum</i>	a harvestman	1993
<i>Lepthyphantes</i> sp., juvenile C	Money spiders	2014
<i>Linyphia hortensis</i>	a money spider	1993
<i>Mangora acalypha</i>	an orb-weaver spider	1993
<i>Metellina menzei</i>	an orb-weaver spider	1993
<i>Micaria pulicaria</i>	a ground spider	1993
<i>Misumena vatia</i>	a crab spider	1993
<i>Neriere peltata</i>	Money spiders	2013
<i>Oligolophus tridens</i>	a harvestman	1993
<i>Opilio saxatilis</i>	a harvestman	1993
<i>Paidiscura pallens</i>	Comb-footed spiders	2013
<i>Pardosa amentata</i>	a wolf spider	1993
<i>Paroligolophus agrestis</i>	a harvestman	1993
<i>Phalangium opilio</i>	a harvestman	1993
<i>Philodromus albidus</i>	Running crab spiders	2014
<i>Philodromus aureolus</i>	a running crab spider	2004
<i>Philodromus cespitum</i>	a running crab spider	1993
<i>Philodromus collinus</i>	a running crab spider	1993
<i>Philodromus dispar</i>	a running crab spider	1993
<i>Philodromus praedatus</i>	a running crab spider	1993
<i>Pholcus phalangioides</i>	Daddy-long-legs spider	2014
<i>Pisaura mirabilis</i>	Tent Spider	1993
<i>Rilaena triangularis</i>	a harvestman	1993
<i>Salticus scenicus</i>	Zebra Spider	1993
<i>Sitticus pubescens</i>	a jumping spider	1993
<i>Stemonyphantes lineatus</i>	a money spider	1993
<i>Tetragnatha montana</i>	a long-jawed spider	1993
<i>Theridion bimaculatum</i>	a comb-footed spider	1993
<i>Theridion mystaceum</i>	Comb-footed spiders	2013
<i>Theridion mystaceum</i>	a comb-footed spider	1993
<i>Theridion pallens</i>	a comb-footed spider	1993
<i>Theridion sisyphium</i>	a comb-footed spider	1993

<i>Theridion tinctum</i>	a comb-footed spider	1993
<i>Theridion varians</i>	a comb-footed spider	1993
<i>Tibellus oblongus</i>	a running crab spider	1993
<i>Trochosa terricola</i>	Wolf spiders	2013
<i>Walckenaeria unicornis</i>	a money spider	1993
<i>Xysticus cristatus</i>	a crab spider	2004
<i>Xysticus cristatus</i>	a crab spider	1993
<i>Xysticus ulmi</i>	a crab spider	1993
<i>Xysticus ulmi</i>	a crab spider	1993
<i>Zilla diodia</i>	an orb-weaver spider	1993
<i>Zora spinimana</i>	a ghost spider	1993

Lepidoptera (Butterflies)

Scientific name	Common name	Date last recorded
<i>Aglais urticae</i>	Small Tortoiseshell	2020
<i>Anthocharis cardamines</i>	Orange Tip	2020
<i>Aphantopus hyperantus</i>	Ringlet	2020
<i>Argynnis paphia</i>	Silver-washed Fritillary	2018
<i>Aricia agestis</i>	Brown Argus	2018
<i>Callophrys rubi</i>	Green Hairstreak	-1993
<i>Celastrina argiolus</i>	Holly Blue	2020
<i>Coenonympha pamphilus</i>	Small Heath	2020
<i>Colias croceus</i>	Clouded Yellow	-1993
<i>Cupido minimus</i>	Small Blue	2019
<i>Gonepteryx rhamni</i>	Brimstone	2020
<i>Inachis io</i>	Peacock	2020
<i>Lycaena phlaeas</i>	Small Copper	2020
<i>Lysandra coridon</i>	Chalk-hill Blue	-1993
<i>Maniola jurtina</i>	Meadow Brown	2020
<i>Melanargia galathea</i>	Marbled White	2020
<i>Neozephyrus (Quercusia) quercus</i>	Purple Hairstreak	2020
<i>Nymphalis antiopa</i>	Camberwell Beauty	-1993
<i>Ochlodes sylvanus</i>	Large Skipper	2020
<i>Pararge aegeria</i>	Speckled Wood	2020
<i>Pieris brassicae</i>	Large White	2020
<i>Pieris napi</i>	Green-veined White	2020
<i>Pieris rapae</i>	Small White	2020
<i>Polygonia c-album</i>	Comma	2020
<i>Polyommatus icarus</i>	Common Blue	2020
<i>Pyronia tithonus</i>	Gatekeeper / Hedge Brown	2020
<i>Satyrrium w-album</i>	White-letter Hairstreak	2017
Small/Essex Skipper	Small/Essex Skipper	2020
<i>Thecla betulae</i>	Brown Hairstreak	2018

<i>Thymelicus lineola</i>	Essex Skipper	2020
<i>Thymelicus sylvestris</i>	Small Skipper	2020
<i>Vanessa (Cynthia) cardui</i>	Painted Lady	2019
<i>Vanessa atalanta</i>	Red Admiral	2020

Lepidoptera (Moths)

Scientific name	Common name	Date last recorded
<i>Abrostola triplasia</i>	Spectacle	2006
<i>Acentria ephemerella</i>	Water Veneer	2006
<i>Acleris forsskaleana</i>		2006
<i>Acleris xylostean</i>	Variegated Fruit-tree Tortrix	2006
<i>Acronicta megacephala</i>	Poplar Grey	2007
<i>Acronicta psi</i>	Grey Dagger	2006
<i>Adela fibulella</i>	a longhorn moth	1998
<i>Adela reamurella</i>	a longhorn moth	2004
<i>Agapeta hamana</i>		2006
<i>Agapeta zoegana</i>		2006
<i>Agnopterix alstromeriana</i>		2007
<i>Agriphila genicula</i>		2006
<i>Agriphila straminella</i>		2006
<i>Agriphila tristella</i>		2006
<i>Agrochola circellaris</i>	Brick	2006
<i>Agrotis clavis</i>	Heart and Club	2006
<i>Agrotis exclamationis</i>	Heart and Dart	2006
<i>Agrotis puta</i>	Shuttle-shaped Dart	2007
<i>Alcis repandata</i>	Mottled Beauty	2006
<i>Amphipyra berbera</i>	Svensson's Copper Underwing	2006
<i>Amphipyra pyramidea</i>	Copper Underwing	1998
<i>Anthophila fabriciana</i>	Nettle-tap	2004
<i>Apamea crenata</i>	Clouded -bordered Brindle	2006
<i>Batia lunaris</i>		2006
<i>Batia unitella</i>		2006
<i>Blastobastis decolorella</i>		2006
<i>Blastobastis lignea</i>		2006
<i>Bucculatrix ulmella</i>		2006
<i>Caloptilia semifascia</i>		2006
<i>Cameraria ohridella</i>	(leaf mines and adults)	2006
<i>Campaea margaritata</i>	Light Emerald	2006
<i>Camptogramma bilineata</i>	Yellow Shell	2006
<i>Carcina quercana</i>		2006
<i>Carpotelechia fugitivella</i>		2006

<i>Celypha lacunana</i>		2007
<i>Chrysoteuchia culmella</i>		2006
<i>Clavigesta purdeyi</i>	Pine Leaf-mining Moth	2006
<i>Clepsis consimilana</i>		2006
<i>Cnephasia incertana</i>	Light Grey Tortrix	2006
<i>Cochylimorpha straminea</i>		2006
<i>Cochylis hybridella</i>		2006
<i>Coleophora badiipennella</i>	a micro-moth	2004
<i>Colostygia pectinataria</i>	Green Carpet	2007
<i>Colotois pennaria</i>	Feathered Thorn	1998
<i>Conistra vaccinii</i>	Chestnut	2006
<i>Cosmia affinis</i>	Lesser Spotted Pinion	2006
<i>Cosmia trapezina</i>	Dun Bar	2006
<i>Crambus pascuella</i>		2006
<i>Craniophora ligustri</i>	Coronet	2006
<i>Cyclophora punctaria</i>	Maiden's Blush	2006
<i>Cydia fagiglandana</i>		2006
<i>Diachrysis chrysitis</i>	Burnished Brass	2006
<i>Diarsia rubi</i>	Small Square Spot	2006
<i>Dipleurina lacustrata</i>		2006
<i>Ditula angustiorana</i>	Red barred Tortrix	2006
<i>Drepena binaria</i>	Oak Hook Tip	2006
<i>Ectodemia subbimaculella</i>	(leaf mines)	2005
<i>Eilema complana</i>	Scarce Footman	2006
<i>Eilema luredeola</i>	Common Footman	2006
<i>Elophila nymphaeata</i>	Brown China-mark	2006
<i>Emmelina monodactyla</i>	a plume moth	2006
<i>Emmetia marginea</i>	(leaf mines)	2005
<i>Endotricha flammealis</i>		2006
<i>Epiblema scutulana</i>	a tortrix moth	2004
<i>Epinotia abbreviana</i>	(leaf damage)	2007
<i>Epinotia nisella</i>		2006
<i>Epinotia ramella</i>		2006
<i>Epiphyas postvittana</i>	Light Brown Apple Moth	2006
<i>Epirrhoe alternata</i>	Common Carpet	2007
<i>Erannis defoliaria</i>	Mottled Umber	1998
<i>Esperia sulphurella</i>		2007
<i>Euclidea glyphica</i>	Burnet Companion	2004
<i>Eucosma cana</i>		2006
<i>Eulithis pyraliata</i>	Barred Straw	2004
<i>Euphyia unangulata</i>	Sharp-angled Carpet	2007
<i>Eupithecia centaureata</i>	Lime-speck Pug	1998
<i>Eupithecia icerata</i>	Tawny-speckled Pug	2006
<i>Eupsilia transversa</i>	Satellite	1998

<i>Eurrhyncha hortulata</i>	Small Magpie	2006
<i>Gymnoscelis rufifasciata</i>	Double Striped Pug	2006
<i>Gypsonoma dealbana</i>		2006
<i>Habrosyne pyritoides</i>	Buff Arches	2006
<i>Hofmannophila pseudospretella</i>	Brown House moth	2006
<i>Hoplodrina ambigua</i>	Vine's Rustic	2006
<i>Hydrelia flammeolaria</i>	Small Yellow Wave	2006
<i>Hyloicus pinastri</i>	Pine Hawk	2006
<i>Hypena proboscidalis</i>	Snout	2006
<i>Hypsopygia costalis</i>	Gold Triangle	2006
<i>Idaea aversata</i>	Riband Wave	2006
<i>Idaea biselata</i>	Small Fan-footed Wave	2006
<i>Idaea dimidiata</i>	Single-dotted Wave	2006
<i>Idaea vulpinaria</i>	Least Carpet	2006
<i>Lymantria monacha</i>	Black Arches	2006
<i>Lyonetia clarkella</i>	(leaf mines)	2006
<i>Mesapamea didyma</i>	Lesser Common Rustic	2006
<i>Mesapamea secalis</i>	Common Rustic	2006
<i>Mesoligia furnuncula</i>	Cloaked Minor	2006
<i>Miltochrista miniata</i>	Rosy Footman	2006
<i>Mimas tiliae</i>	Lime Hawk	2007
<i>Mormo maura</i>	Old Lady	2006
<i>Mythimna conigera</i>	Brown-line bright-eye	2006
<i>Mythimna impura</i>	Smoky Wainscot	2006
<i>Mythimna pallens</i>	Common Wainscot	2006
<i>Noctua comes</i>	Lesser Yellow Underwing	2006
<i>Noctua fimbriata</i>	Broad-bordered Underwing	2006
<i>Noctua janthe</i>	Lesser Broad-bordered Yellow Underwing	2006
<i>Noctua pronuba</i>	Large Yellow Underwing	2006
<i>Nomophila noctuella</i>	Rush Veneer	2006
<i>Ochropleura plecta</i>	Flame Shoulder	2007
<i>Ocnerostoma freisei</i>		2006
<i>Oligia strigilis</i>	Marbled Minor	2004
<i>Operophtera brumata</i>	Winter Moth	1998
<i>Opisthograptis luteolata</i>	Brimstone	2007
<i>Orthosia cerasi</i>	Common Quaker	2007
<i>Orthosia cerasi</i>	Common Quaker	1998
<i>Orthosia gothica</i>	Hebrew Character	2007
<i>Orthosia incerta</i>	Clouded Drab	2007
<i>Orthosia munda</i>	Twin-spotted Quaker	2007
<i>Orthosia munda</i>	Twin-spotted Quaker	1998
<i>Ourapteryx sambucaria</i>	Swallow-tailed	2006
<i>Pammene fasciana</i>		2006
<i>Pandemis cerasana</i>	Barred Fruit-tree Tortrix	2006

<i>Pandemis heparana</i>	Dark Fruit-tree Tortrix	2006
<i>Panemeria tenebrata</i>	Small Yellow Underwing	2004
<i>Paradarisa consonaria</i>	Square Spot	-1993
<i>Paraswammerdamia albicapitella</i>		2006
<i>Paronix anglicella</i>	(leaf mines)	2005
<i>Pediasia contaminella</i>		2006
<i>Pelurga comitata</i>	Dark Spinach	2006
<i>Peribatodes rhomboidaria</i>	Willow Beauty	2006
<i>Phtheochroa inopina</i>		2006
<i>Phyllonorycter acerifoliella</i>	(leaf mines)	2005
<i>Phyllonorycter corylifoliella</i>	(leaf mines)	2006
<i>Phyllonorycter harrisella</i>	(leaf mines)	2005
<i>Phyllonorycter kleemannella</i>	(leaf mines)	2005
<i>Phyllonorycter lautella</i>	(leaf mines)	2005
<i>Phyllonorycter leucographella</i>	a micro-moth	1998
<i>Phyllonorycter maestingella</i>	(leaf mines)	2005
<i>Phyllonorycter oxycanthae</i>	(leaf mines)	2006
<i>Phyllonorycter quercifoliella</i>	(leaf mines)	2006
<i>Phyllonorycter rajella</i>	(leaf mines)	2005
<i>Phyllonorycter salicicolella</i>	(leaf mines)	2006
<i>Phyllonorycter schreberella</i>	(leaf mines)	2005
<i>Phyllonorycter tristrigella</i>	(leaf mines)	2006
<i>Piniphila bifasciana</i>		2006
<i>Pleuroptya ruralis</i>	Mother of Pearl	2006
<i>Plutella xylostella</i>	Diamond-back moth	2006
<i>Prays ruficeps</i>	Ash Bud Moth (black form)	2006
<i>Pterophorus pentadactyla</i>	White Plume Moth	2006
<i>Pterostoma palpina</i>	Pale Prominent	2007
<i>Rhyacionia pinicolana</i>		2006
<i>Rivula sericealis</i>	Straw Dot	2006
<i>Scorbipalpa costella</i>		2007
<i>Scorparia ambigualis</i>		2006
<i>Scorparia pyrella</i>		2006
<i>Semiothisa liturata</i>	Tawny-barred Angle	2006
<i>Spilonota ocellana</i>	Bud Moth	2006
<i>Stigmella aurella</i>	(leaf mines)	2006
<i>Stigmella basiguttella</i>	(leaf mines)	2005
<i>Stigmella hemargyrella</i>	(leaf mines)	2005
<i>Stigmella lemniscella</i>	(leaf mines)	2006
<i>Stigmella tityrella</i>	(leaf mines)	2005
<i>Stigmella ulmivora</i>	(leaf mines)	2006
<i>Strophedra nitidana</i>		2006
<i>Thalpophila matura</i>	Straw Underwing	2006
<i>Thera obeliscata</i>	Grey Pine Carpet	2006

<i>Tortrix viridana</i>	Green Oak Tortrix	-1993
<i>Tyria jacobaeae</i>	Cinnabar	-1993
<i>Xanthia aurago</i>	Barred Sallow	2006
<i>Xanthorhoe montanata</i>	Silver Ground Carpet	2007
<i>Xestia sexstrigata</i>	Six-striped Rustic	2006
<i>Xestia triangulum</i>	Double Square Spot	2006
<i>Xestia xanthographa</i>	Square-spot Rustic	2006
<i>Xylocampa aerola</i>	Early Grey	2007
<i>Zygaena filipendulae</i>	Six-spot Burnet	-1993

Coleoptera (Beetles)

Scientific name	Common name	Date last recorded
<i>Acanthephodus onopordi</i>	a seed weevil	2004
<i>Adalia bipunctata</i>	2-spot ladybird	2007
<i>Adalia decempunctata</i>	Ten-spot Ladybird	2004
<i>Agapanthia villosoviridescens</i>	Longhorn beetle	2012
<i>Agriotes acuminatus</i>	a click beetle	-1993
<i>Agriotes obscurus</i>	a click beetle	-1993
<i>Agriotes sputator</i>	a click beetle	2004
<i>Agrypnus murinus</i>	a click beetle	2004
<i>Altica palustris</i>	a leaf beetle	2004
<i>Amara aenea</i>	Common Sun Beetle	2004
<i>Amara bifrons</i>	a ground beetle	2004
<i>Amara communis</i>	a ground beetle	2004
<i>Amara ovata</i>	a ground beetle	2004
<i>Anacaena lutescens</i>	Water beetle	2007
<i>Anaspis maculata</i>	a tumbling flower beetle	2004
<i>Anatis ocellata</i>	Eyed Ladybird	2004
<i>Anisosticta novemdecimpunctata</i>	19-spot Ladybird	-1993
<i>Anobium punctatum</i>	Woodworm	-1993
<i>Anthonomus pedicularius</i>	a weevil	2004
<i>Anthonomus rubi</i>	Strawberry Blossom Weevil	2004
<i>Anthribus nebulosus</i>	a fungus weevil	2004
<i>Aphidecta oblitterata</i>	a ladybird	-1993
<i>Aspidapion (Koestilinia) aeneum</i>	a seed weevil	-1993
<i>Aspidapion radiolus</i>	a seed weevil	-1993
<i>Athous haemorrhoidalis</i>	a click beetle	2004
<i>Bruchus loti</i>	a seed beetle	2004
<i>Byturus ochraceus</i>	a raspberry beetle	2004
<i>Cantharis cryptica</i>	a soldier beetle	2004
<i>Cantharis decipiens</i>	a soldier beetle	2004
<i>Cantharis livida</i>	a soldier beetle	2004
<i>Cantharis nigricans</i>	a soldier beetle	2004

<i>Cantharis pellucida</i>	a soldier beetle	-1993
<i>Cantharis rufa</i>	a soldier beetle	-1993
<i>Cantharis rustica</i>	a soldier beetle	2004
<i>Cassida rubiginosa</i>	Thistle Tortoise Beetle	2004
<i>Centranthorhynchus barnevillei</i> (WF)	Weevil	1998
<i>Ceutorhynchus litura</i>	a weevil	2004
<i>Chalcoides aurea</i>	a leaf beetle	2004
<i>Chrysolina hyperici</i>	a leaf beetle	2004
<i>Chrysolina oricalcia</i>	a leaf beetle	2004
<i>Chrysolina staphylaea</i>	a leaf beetle	-1993
<i>Clytus arietus</i> (WF)	Wasp beetle	2004
<i>Coccidula rufa</i>	a ladybird	-1993
<i>Coccinella septempunctata</i>	Seven-spot Ladybird	2004
<i>Crioceris asparagi</i>	Asparagus Beetle	2004
<i>Cryptocephalus pusillus</i>	a leaf beetle	2004
<i>Curculio glandium</i>	Acorn Weevil	2004
<i>Dasytes plumbeus</i>	a malachite beetle	2004
<i>Donacia simplex</i>	a leaf beetle	2004
<i>Dorcus parallelipedus</i>	Lesser Stag Beetle	-1993
<i>Dorytomus rufatus</i>	a weevil	2004
<i>Dorytomus taeniatus</i>	a weevil	2004
<i>Dromius linearis</i>	a ground beetle	2004
<i>Dryophilus pusillus</i>	a wood boring beetle	2004
<i>Eutrichapion ervi</i>	a seed weevil	2004
<i>Exochomus quadripustulatus</i>	Pine Ladybird	2004
<i>Galeruca tanacetii</i> (WF)	Leaf beetle	1998
<i>Gastrophysa polygoni</i>	a leaf beetle	1993
<i>Grammoptera ruficornis</i>	a longhorn beetle	2004
<i>Gymnetron pascuorum</i>	a weevil	2004
<i>Halyzia sedecimguttata</i>	16-spot Ladybird	2004
<i>Harmonia axyridis</i>	Harlequin ladybird	2014
<i>Harmonia quadripunctata</i>	Four-spot Ladybird	2004
<i>Harpalus affinis</i>	a ground beetle	2004
<i>Harpalus latus</i>	a ground beetle	2004
<i>Hemicoelus fulvicornis</i>	a wood boring beetle	2004
<i>Hemicoelus nitidus</i>	a wood boring beetle	1989
<i>Hemicrepidius hirtus</i>	a click beetle	-1993
<i>Hippodamia variegata</i>	Adonis' Ladybird	2004
<i>Hydroporus angustatus</i>	Water beetle	2007
<i>Hypera nigrirostris</i>	a weevil	2004
<i>Ischnodes sanquinicollis</i>	Click beetle	1995
<i>Ischnomera caerulea</i>	a thick-legged flower beetle	1998
<i>Ischnopterapion loti</i>	a seed weevil	2004
<i>Isomira murina</i>	a darkling beetle	2004

<i>Kibunea minuta</i>	a click beetle	2004
<i>Laricobius erichsoni</i>	a tooth-necked fungus beetle	2004
<i>Lochmaea crataegi</i>	Hawthorn Leaf Beetle	-1993
<i>Longitarsus luridus</i>	a leaf beetle	2004
<i>Ischnomera caerulea</i> (WF)		1998
<i>Lucanus cervus</i> (WF)	Stag beetle	1998
<i>Magdalis armigera</i>	Weevil	1998
<i>Malachius bipustulatus</i>	Malachite Beetle	2004
<i>Malachius viridis</i>	a malachite beetle	2004
<i>Malthinus balteatus</i>	a soldier beetle	-1993
<i>Malthinus flaveolus</i>	a soldier beetle	2004
<i>Malthinus seriepunctatus</i>	a soldier beetle	-1993
<i>Malvapion malvae</i>	a seed weevil	2004
<i>Megatoma undata</i>	a museum or larder beetle	1998
<i>Meligethes atratus</i>	a pollen or sap beetle	2004
<i>Microcara testacea</i>	a marsh beetle	2004
<i>Myrrha octodecimguttata</i>	18-spot Ladybird	-1993
<i>Nephus quadrimaculatus</i>	a ladybird	2004
<i>Nicrophorus vespillo</i>	Common Burying Beetle	2004
<i>Ochina ptinoides</i>	Ivy Boring Beetle	2004
<i>Ocypus winkleri</i>	a rove beetle	2004
<i>Oedemera lurida</i>	a thick-legged flower beetle	2004
<i>Oedomera nobilis</i> (WF)	Flower beetle	2005
<i>Onthophagus coenobita</i>	a dung beetle or chafer	2004
<i>Orthoperus mundus</i>	a minute fungus beetle	1998
<i>Otiorhynchus singularis</i>	Raspberry Weevil	2004
<i>Oxystoma pomonae</i>	a seed weevil	2004
<i>Perapion curtirostre</i>	a seed weevil	2004
<i>Phaedon tumidulus</i>	Celery Leaf Beetle	2004
<i>Phyllobius maculicornis</i>	Green Leaf Weevil	2004
<i>Phyllobius pomaceus</i>	a weevil	2004
<i>Phyllobius pyri</i>	Common Leaf Weevil	2004
<i>Phyllobius roboretanus</i>	Small Green Nettle Weevil	2004
<i>Phyllobius viridiaeris</i>	Green Nettle Weevil	2004
<i>Phyllodecta laticollis</i>	a leaf beetle	2004
<i>Phyllopertha horticola</i>	Bracken Chafer	2004
<i>Phyllotreta atra</i>	Turnip Flea Beetle	2004
<i>Phyllotreta nigripes</i>	Turnip Flea Beetle	2004
<i>Propylea quattuordecimpunctata</i>	14-spot Ladybird	2004
<i>Protapion apricans</i>	Clover Seed Weevil	2004
<i>Protapion assimile</i>	Clover Seed Weevil	2004
<i>Protapion fulvipes</i>	White Clover Seed Weevil	2004
<i>Protapion trifolii</i>	Clover Seed Weevil	2004
<i>Pseudoalosterna livida</i>	a longhorn beetle	2004

<i>Psyllobora vigintiduopunctata</i>	22-spot Ladybird	2004
<i>Pyrochroa serraticornis</i>	Common Cardinal Beetle	1998
<i>Quedius semiobscurus</i>	a rove beetle	2004
<i>Rhagonycha fulva</i>	Common red soldier beetle	2004
<i>Rhagonycha lignosa</i>	a soldier beetle	-1993
<i>Rhagonycha limbata</i>	a soldier beetle	2004
<i>Rhinoncus pericarpus</i>	a weevil	2004
<i>Rhynchaenus quercus</i>	a weevil	2004
<i>Rhynchites aequatus</i>	Apple Fruit weevil	-1993
<i>Rhyzobius litura</i>	a ladybird	2004
<i>Scaphidium quadrimaculatum</i>	a shining fungus beetle	-1993
<i>Sciaphilus asperatus</i>	Strawberry Root Weevil	2004
<i>Scymnus frontalis</i>	a ladybird	2004
<i>Sermylassa halensis</i>	a leaf beetle	-1993
<i>Sitona hispidulus</i>	Clover Weevil	2004
<i>Sitona lepidus</i>	a weevil	2004
<i>Sitona lineatus</i>	Pea and Bean Weevil	2004
<i>Stenocarus umbrinus</i>	a weevil	2004
<i>Stenus cicindeloides</i>	a rove beetle	2004
<i>Strangalia melanura</i>	a longhorn beetle	-1993
<i>Strophosoma faber</i>	a weevil	2004
<i>Strophosoma melanogrammum</i>	Nut Leaf Weevil	-1993
<i>Subcoccinella vigintiquattuorpunctata</i>	24-spot Ladybird	2004
<i>Tachyporus solutus</i>	a rove beetle	2004
<i>Trichosirocalus troglodytes</i>	a weevil	2004
<i>Tychius picirostris</i>	a weevil	2004
<i>Tychius stephensi</i> (WF)	Weevil	1998
<i>Tytthaspis sedecimpunctata</i>	16-spot Ladybird	2004
<i>Xantholinus longiventris</i>	a rove beetle	2004

Diptera (True Flies)

Scientific name	Common name	Date last recorded
<i>Beris chalybata</i>	a soldier fly	-1993
<i>Bibio anglicus</i>	a st mark's fly	2004
<i>Bibio marci</i>	St Marks Fly	2004
<i>Bibio nigriventris</i>	a st mark's fly	-1993
<i>Bicellaria vana</i>	a dance fly	-1993
<i>Bombylius major</i>	Bee-fly	2014
<i>Chaetorellia jaceae</i>	a gall fly	2004
<i>Cheilosia albitarsis</i>	a hoverfly	2004
<i>Cheilosia bergenstammi</i>	a hoverfly	-1993
<i>Cheilosia illustrata</i>	a hoverfly	2004
<i>Cheilosia laskai</i>	a hoverfly	1998

Cheilisia pagana	a hoverfly	1998
Cheilisia soror	a hoverfly	-1993
Chloromyia formosa	a soldier fly	2004
Chlorops scalaris	a fly	2004
Chorisops tibialis	a soldier fly	2004
Chrysotoxum cautum	a hoverfly	2004
Chrysotoxum festivum	a hoverfly	2004
Chrysotoxum verralli	a hoverfly	2004
Conops flavipes	a fly	2004
Conops quadrifasciata	a fly	-1993
Coremacera marginata	a snail-killing fly	-1993
Dasysyrphus albostriatus	a hoverfly	1998
Dasysyrphus venustus	a hoverfly	-1993
Didea fasciata	Hoverfly	1989
Dilophus bispinosus	a st mark's fly	2004
Dilophus femoratus	a st mark's fly	-1993
Dioctria atricapilla	a robber fly	-1993
Dioctria rufipes	a robber fly	2004
Elachiptera cornuta	a fly	-1993
Elgiva cucularia	a snail-killing fly	1998
Empis (Kritempis) livida	a dance fly	2004
Empis (Pachymeria) femorata	a dance fly	-1993
Empis (Pachymeria) tessellata	a dance fly	2004
Empis (Xanthempis) aemula	a dance fly	-1993
Empis (Xanthempis) stercorea	a dance fly	-1993
Empis (Xanthempis) trigramma	a dance fly	2004
Empis aestiva	a dance fly	-1993
Empis caudatula	a dance fly	-1993
Empis nigripes	a dance fly	-1993
Empis nuntia	a dance fly	-1993
Epistrophe diaphana	a hoverfly	-1993
Epistrophe eligans	a hoverfly	2004
Epistrophe grossulariae	a hoverfly	-1993
Episyrphus balteatus	a hoverfly	2004
Erioptera griseipennis	a crane fly	2004
Eriothrix rufomaculata	a parasitic fly	2004
Eristalinus sepulchralis	a hoverfly	-1993
Eristalis arbustorum	a hoverfly	2004
Eristalis intricarius	a hoverfly	-1993
Eristalis nemorum	a hoverfly	-1993
Eristalis pertinax	a hoverfly	2004
Eristalis tenax	a hoverfly	2004
Euleia heraclei	a gall fly	1998
Eumerus tuberculatus	Lesser bulb-fly	2004

<i>Eupeodes corollae</i>	a hoverfly	2004
<i>Eupeodes luniger</i>	a hoverfly	2004
<i>Ferdinandea cuprea</i>	a hoverfly	1998
<i>Glyptotaelius pellucidus</i>	a caddisfly	2004
<i>Gymnocheta viridis</i>	a parasitic fly	2004
<i>Gymnosoma rotundatum</i>	a parasitic fly	2004
<i>Haematopota pluvialis</i>	a horse fly	2004
<i>Helina tetrastigma</i>	a muscid fly	-1993
<i>Helophilus pendulus</i>	a hoverfly	2004
<i>Hilara clypeata</i>	a dance fly	-1993
<i>Hydrotaea similis</i>	a muscid fly	-1993
<i>Leucozona lucorum</i>	a hoverfly	-1993
<i>Limnia unguicornis</i>	a snail-killing fly	1998
<i>Limonia tripunctata</i>	a crane fly	2004
<i>Lonchoptera lutea</i>	a pointed-wing fly	-1993
<i>Lydella stabulans</i>	a parasitic fly	-1993
<i>Machimus atricapillus</i>	a robber fly	2004
<i>Macrocera stigmoides</i>	a fungus gnat	-1993
<i>Melangyna cincta</i>	a hoverfly	-1993
<i>Melangyna labiatarum</i>	a hoverfly	-1993
<i>Melanomya nana</i>	a fly	2004
<i>Melanostoma mellinum</i>	a hoverfly	2004
<i>Melanostoma scalare</i>	a hoverfly	-1993
<i>Meligramma trianguliferum</i>	Hoverfly	1990
<i>Merodon equestris</i>	Greater Bulb-fly	-1993
<i>Minettia longipennis</i>	a fly	2004
<i>Myathropa florea</i>	a hoverfly	2004
<i>Neoitamus cyanurus</i>	a robber fly	-1993
<i>Odontomyia tigrina</i>	a soldier fly	-1993
<i>Orella falcata</i>		1998
<i>Pachygaster atra</i>	a soldier fly	2004
<i>Parasyrphus punctulatus</i>	a hoverfly	-1993
<i>Parhelophilus versicolor</i>	a hoverfly	-1993
<i>Phaonia palpata</i>	a muscid fly	-1993
<i>Phaonia rufipalpis</i>	a muscid fly	-1993
<i>Pherbellia cinerella</i>	a snail-killing fly	1998
<i>Physocephala rufipes</i>	a fly	-1993
<i>Phytomyza ilicis</i>	Holly leaf-miner	2014
<i>Pipiza luteitarsis</i>	a hoverfly	1998
<i>Pipizella varipes</i>	a hoverfly	2004
<i>Pipizella virens</i>	a hoverfly	2004
<i>Platycheirus albimanus</i>	a hoverfly	2004
<i>Platycheirus angustatus</i>	a hoverfly	-1993

<i>Platycheirus clypeatus</i> agg.	a hoverfly	-1993
<i>Platycheirus scutatus</i>	a hoverfly	-1993
<i>Platypalpus agilis</i>	a dance fly	-1993
<i>Prosenia siberita</i>	a parasitic fly	2004
<i>Psila fimetaria</i>	a fly	-1993
<i>Rhamphomyia (Aclonempis) albohirta</i>	a dance fly	-1993
<i>Rhamphomyia (Pararhamphomyia) atra</i>	a dance fly	2004
<i>Rhamphomyia (Pararhamphomyia) tarsata</i>	a dance fly	-1993
<i>Sarcophaga carnaria</i>	a flesh fly	2004
<i>Sargus bipunctatus</i>	a soldier fly	-1993
<i>Scaeva pyrastris</i>	a hoverfly	2004
<i>Scaeva selenitica</i>	a hoverfly	2004
<i>Scathophaga furcata</i>	a dung fly	-1993
<i>Schwenckfeldina carbonaria</i>	a fly	-1993
<i>Sphaerophoria scripta</i>	a hoverfly	2004
<i>Suillia affinis</i>	a fly	2004
<i>Syrpitta pipiens</i>	a hoverfly	2004
<i>Syrphus ribesii</i>	a hoverfly	2004
<i>Syrphus torvus</i>	a hoverfly	-1993
<i>Syrphus vitripennis</i>	a hoverfly	2004
<i>Tachina fera</i>	a parasitic fly	2004
<i>Tetanocera elata</i>	a snail-killing fly	-1993
<i>Tipula (Lunatipula) fascipennis</i>	a crane fly	2004
<i>Tipula (Lunatipula) lunata</i>	a crane fly	-1993
<i>Tipula (Lunatipula) vernalis</i>	a crane fly	2004
<i>Tricholauxania praeusta</i>	a fly	2004
<i>Trixa caerulescens</i>	a parasitic fly	-1993
<i>Trixa conspersa</i>	a parasitic fly	-1993
<i>Volucella bombylans</i>	a hoverfly	2004
<i>Volucella inanis</i>	a hoverfly	-1993
<i>Volucella pellucens</i>	a hoverfly	-1993
<i>Volucella zonaria</i>	a hoverfly	-1993
<i>Xanthandrus comtus</i>	a hoverfly	-1993
<i>Xanthogramma citrofasciatum</i>	a hoverfly	1998
<i>Xanthogramma pedissequum</i>	a hoverfly	2004
<i>Xylota xanthocnema</i>	a hoverfly	-1993

Hemiptera (True bugs)

Scientific name	Common name	Date last recorded
<i>Acanthosoma haemorrhoidale</i>	Hawthorn Shieldbug	2004
<i>Adarrus ocellaris</i>	a leafhopper	2004
<i>Adelphocoris lineolatus</i>	a plantbug or grassbug	2004
<i>Aelia acuminata</i>	a shield bug	2004

<i>Alebra albostriella</i>	a leafhopper	2004
<i>Alloeotomus gothicus</i>	a plantbug or grassbug	2004
<i>Allygus mixtus</i>	a leafhopper	2004
<i>Amblytylus nasutus</i>	a plantbug or grassbug	2004
<i>Anthocoris confusus</i>	a flower bug or bloodsucking b	2004
<i>Anthocoris nemoralis</i>	a flower bug or bloodsucking b	2004
<i>Anthocoris nemorum</i>	Common Flower Bug	2004
<i>Aphrodes makarovi</i>	a leafhopper	2004
<i>Aphrophora alni</i>	a froghopper	2004
<i>Aptus mirmicoides</i>	a damsel bug	1993
<i>Aradus depressus</i>	a flat bark bug	2004
<i>Atractotomus mali</i>	a plantbug or grassbug	2004
<i>Berytinus hirticornis</i>	a stiltbug	2004
<i>Berytinus minor</i>	a stiltbug	2004
<i>Blepharidopterus angulatus</i>	Black-kneed Apple Capsid	2004
<i>Calocoris norvegicus</i>	a plantbug or grassbug	2004
<i>Calocoris quadripunctatus</i>	a plantbug or grassbug	2004
<i>Calocoris stysi</i>	a plantbug or grassbug	2004
<i>Campyloneura virgula</i>	a plantbug or grassbug	2004
<i>Capsus ater</i>	a plantbug or grassbug	1993
<i>Centrotus cornutus</i>	Tree Hopper	1993
<i>Cercopis vulnerata</i>	a froghopper	2004
<i>Charagochilus gyllenhali</i>	a plantbug or grassbug	1955
<i>Chilacis typhae</i>	a ground bug	1993
<i>Coreus marginatus</i>	a dock bug	2004
<i>Cyllecoris histrionicus</i>	a plantbug or grassbug	2004
<i>Cymus melanocephalus</i>	a stiltbug	1993
<i>Deraeocoris lutescens</i>	a plantbug or grassbug	2004
<i>Deraeocoris olivaceus</i>	a plantbug or grassbug	1993
<i>Deraeocoris ruber</i>	a plantbug or grassbug	1993
<i>Dicranocephalus medius</i>	a spurgebug	2004
<i>Dicranotropis hamata</i>	a planthopper	2004
<i>Dicyphus epilobii</i>	a plantbug or grassbug	1993
<i>Dolycoris baccarum</i>	a shield bug/sloe bug	2004
<i>Drymus sylvaticus</i>	a ground bug	1993
<i>Dryophilocoris flavoquadrimaculatus</i>	a plantbug or grassbug	2004
<i>Elasmotethus interstinctus</i>	a shield bug	1993
<i>Elasmotethus tristriatus</i>	Juniper Shieldbug	2004
<i>Elasmucha grisea</i>	Parent Bug	2004
<i>Eurydema oleracea</i>	a shield bug	2004
<i>Eurygaster testudinaria</i>	a shield bug	2004
<i>Euscelis incisus</i>	a leafhopper	2004
<i>Eysarcoris fabricii</i>	a shield bug	1993
<i>Gastrodes grossipes</i>	a ground bug	2004

<i>Gonocerus acuteangulatus</i>	Box bug	2004
<i>Grypotes puncticollis</i>	a leafhopper	2004
<i>Harpocera thoracica</i>	a plantbug or grassbug	1993
<i>Heterocordylus tibialis</i>	a plantbug or grassbug	2004
<i>Heterogaster urticae</i>	Nettle Groundbug	2004
<i>Heterotoma meriopterum</i>	a plantbug or grassbug	2004
<i>Himacerus apterus</i>	a damsel bug	2004
<i>lassus lanio</i>	a leafhopper	1993
<i>Idiocerus confusus</i>	a leafhopper	2004
<i>Idiocerus nitidissimus</i>	a leafhopper	2004
<i>Idiocerus vitreus</i>	a leafhopper	2004
<i>Idiocerus vittifrons</i>	a leafhopper	2004
<i>Ischnodemus sabuleti</i>	a ground bug	1993
<i>Issus coleoptratus</i>	a beetle bug	2004
<i>Kleidocerys resedae</i>	a ground bug	1993
<i>Kybos populi</i>	a leafhopper	2004
<i>Ledra aurita</i>	a leafhopper	1993
<i>Legnotus limbosus</i>	a shield bug	2004
<i>Leptopterna dolabrata</i>	a plantbug or grassbug	2004
<i>Liocoris tripustulatus</i>	a plantbug or grassbug	2004
<i>Lopus decolor</i>	a plantbug or grassbug	2004
<i>Lygocoris contaminatus</i>	a plantbug or grassbug	2004
<i>Lygocoris lucorum</i>	a plantbug or grassbug	2004
<i>Lygocoris pabulinus</i>	Common Green Capsid	1993
<i>Lygocoris populi</i>	a plantbug or grassbug	2004
<i>Lygocoris viridis</i>	a plantbug or grassbug	2004
<i>Lygus rugulipennis</i>	European Tarnished Plant Bug	2004
<i>Macropsis mendax</i>	a leafhopper	2004
<i>Malacocoris chlorizans</i>	Delicate Apple Capsid	1993
<i>Megacoelum infusum</i>	a plantbug or grassbug	2004
<i>Megaloceraea recticornis</i>	a plantbug or grassbug	2004
<i>Megalocoleus molliculus</i>	a plantbug or grassbug	2004
<i>Megophthalmus scanicus</i>	a leafhopper	2004
<i>Miridius quadrivirgatus</i>	a plantbug or grassbug	2004
<i>Nabica flavomarginata</i>	Broad Damselbug	2004
<i>Nabica limbata</i>	Marsh Damselbug	2004
<i>Nabis ferus</i>	Field Damsel Bug	2004
<i>Nabis rugosus</i>	Common Damselbug	1993
<i>Neophilaenus lineatus</i>	a froghopper	2004
<i>Notostira elongata</i>	a plantbug or grassbug	2004
<i>Oncopsis carpini</i>	a leafhopper	2004
<i>Oncopsis subangulata</i>	a leafhopper	2004
<i>Orius vicinus</i>	a flower bug or bloodsucking b	2004
<i>Orsillus depressus</i>	a ground bug	2004

<i>Orthocephalus coriaceus</i>	a plantbug or grassbug	1993
<i>Orthops campestris</i>	a plantbug or grassbug	1993
<i>Orthops cervinus</i>	a plantbug or grassbug	2004
<i>Orthotylus flavosparsus</i>	a plantbug or grassbug	1993
<i>Orthotylus marginalis</i>	Dark Green Apple Capsid	1993
<i>Orthotylus prasinus</i>	a plantbug or grassbug	2004
<i>Orthotylus viridinervis</i>	a plantbug or grassbug	1993
<i>Palomena prasina</i>	a shield bug	2004
<i>Pentatoma rufipes</i>	Forest Bug	2010
<i>Philaenus spumarius</i>	Cuckoo-spit Insect	2004
<i>Phoenicocoris obscurellus</i>	a plantbug or grassbug	2004
<i>Phylus melanocephalus</i>	a plantbug or grassbug	2004
<i>Phylus palliceps</i>	a plantbug or grassbug	2004
<i>Phytocoris dimidiatus</i>	a plantbug or grassbug	1993
<i>Phytocoris tiliae</i>	a plantbug or grassbug	1993
<i>Phytocoris varipes</i>	a plantbug or grassbug	2004
<i>Piezodorus lituratus</i>	Gorse Shieldbug	1993
<i>Pilophorus perplexus</i>	a plantbug or grassbug	2004
<i>Plagiognathus albipennis</i>	a plantbug or grassbug	2004
<i>Plagiognathus arbustorum</i>	a plantbug or grassbug	1993
<i>Plagiognathus chrysanthemi</i>	a plantbug or grassbug	2004
<i>Plesiodema pinetellum</i>	a plantbug or grassbug	2004
<i>Podops inuncta</i>	a shield bug/turtle bug	2004
<i>Psallus albicinctus</i>	a plantbug or grassbug	2004
<i>Psallus ambiguus</i>	a plantbug or grassbug	2004
<i>Psallus confusus</i>	a plantbug or grassbug	1993
<i>Psallus falleni</i>	a plantbug or grassbug	1993
<i>Psallus perrisi</i>	a plantbug or grassbug	2004
<i>Psallus varians</i>	a plantbug or grassbug	2004
<i>Psallus wagneri</i>	a plantbug or grassbug	2004
<i>Psammotettix confinis</i>	a leafhopper	2004
<i>Rhopalus subrufus</i>	a bug	2004
<i>Scolopostethus grandis</i>	a ground bug	2004
<i>Scolopostethus thomsoni</i>	a ground bug	1993
<i>Sehirus bicolor</i>	Pied Shieldbug	1993
<i>Stenodema calcaratum</i>	a plantbug or grassbug	2004
<i>Stenodema laevigatum</i>	a plantbug or grassbug	2004
<i>Stenotus binotatus</i>	Timothy Grassbug	2004
<i>Stictopleurus abutilon</i>	a bug	2004
<i>Stygnocoris rusticus</i>	a ground bug	2004
<i>Tachycixius pilosus</i>	a lacehopper	2004
<i>Tetraphleps bicuspis</i>	a flower bug or bloodsucking b	1993
<i>Tingis ampliata</i>	Creeping Thistle Lacebug	1993

Hymenoptera (Bees, Wasps, Ants)

Scientific name	Common name	Date last recorded
<i>Aglaostigma aucupariae</i>	a sawfly	2004
<i>Aglaostigma fulvipes</i>	a sawfly	-1993
<i>Ametastegia equiseti</i>	a sawfly	1998
<i>Ancistrocerus gazella</i>	a potter wasp or mason wasp	2004
<i>Andrena dorsata</i>	a solitary bee	2004
<i>Andrena flavipes</i>	Yellow Legged Mining Bee	1998
<i>Andrena fulva</i>	Tawny Mining Bee	1998
<i>Andrena haemorrhoa</i>	Early Mining Bee	2004
<i>Andrena labiata</i>	Girdled Mining Bee	1998
<i>Andrena minutula</i>	a solitary bee	-1993
<i>Andrena pubescens</i>	a solitary bee	2004
<i>Andrena saundersella</i>	a solitary bee	2004
<i>Andrena scotica</i>	a solitary bee	2004
<i>Andrena synadelpha</i>	a solitary bee	2004
<i>Andrena tibialis</i>	a solitary bee	1998
<i>Anthophora plumipes</i>	Hairy Footed Flower Bee	2004
<i>Apis mellifera</i>	Honey Bee	2004
<i>Arge cyanocrocea</i>	a sawfly	2004
<i>Athalia cordata</i>	a sawfly	1998
<i>Athalia glabricollis</i>	a sawfly	1998
<i>Athalia rosae</i>	a sawfly	2004
<i>Blennocampa pusilla</i>	a sawfly	1998
<i>Bombus hortorum</i>	Small Garden Bumble Bee	2004
<i>Bombus lapidarius</i>	Large Red Tailed Bumble Bee	2004
<i>Bombus lucorum</i>	White-tailed Bumble Bee	2004
<i>Bombus pascuorum</i>	Common Carder Bee	2004
<i>Bombus pratorum</i>	Early Bumble Bee	2004
<i>Bombus terrestris</i>	Buff-tailed Bumble Bee	2004
<i>Cephus cultratus</i>	a sawfly	2004
<i>Cerceris arenaria</i>	Sand Tailed Digger Wasp	2004
<i>Cerceris rybyensis</i>	Ornate Tailed Digger Wasp	2004
<i>Chelostoma campanularum</i>	Harebell Carpenter Bee	-1993
<i>Coelioxys elongata</i>	a solitary bee	2004
<i>Colletes hederæ</i>	Ivy bee	2012
<i>Crossocerus annulipes</i>	a solitary wasp	-1993
<i>Crossocerus quadrimaculatus</i>	4-spotted Digger Wasp	-1993
<i>Dolerus gonager</i>	a sawfly	2004
<i>Dolerus liogaster</i>	a sawfly	2004
<i>Dolerus nigratus</i>	a sawfly	-1993

<i>Ectemnius cavifrons</i>	a solitary wasp	-1993
<i>Ectemnius lituratus</i>	a solitary wasp	2004
<i>Entomognathus brevis</i>	a solitary wasp	-1993
<i>Formica cunicularia</i>	an ant	1993
<i>Gorytes bicinctus</i>	a solitary wasp	1993
<i>Halictus tumulorum</i>	a solitary bee	2004
<i>Halidamia affinis</i>	a sawfly	1998
<i>Hedychrum niemelai</i>	a rubytail wasp	2004
<i>Hoplocampa crataegi</i>	a sawfly	2004
<i>Hoplocampa pectoralis</i>	a sawfly	2004
<i>Hylaeus annularis</i>	a solitary bee	-1993
<i>Hylaeus brevicornis</i>	Short Horned Yellow-face Bee	-1993
<i>Hylaeus communis</i>	Common Yellow Face Bee	2004
<i>Hylaeus cornutus</i>	a solitary bee	-1993
<i>Hylaeus hyalinatus</i>	a solitary bee	2004
<i>Lasioglossum calceatum</i>	Slender Mining Bee	2004
<i>Lasioglossum laevigatum</i>	a solitary bee	-1993
<i>Lasioglossum leucopum</i>	a solitary bee	-1993
<i>Lasioglossum leucozonium</i>	a solitary bee	2004
<i>Lasioglossum malachurus</i>	a solitary bee	2004
<i>Lasioglossum morio</i>	Brassy Mining Bee	2004
<i>Lasius brunneus</i>	Brown Ant	2004
<i>Lasius flavus</i>	Yellow Meadow Ant	2004
<i>Lasius niger</i>	Small Black Ant	2004
<i>Leptothorax nylanderi</i>	an ant	1998
<i>Lindenius albilabris</i>	a solitary wasp	2004
<i>Lindenius panzeri</i>	a solitary wasp	2004
<i>Macrophya punctumalbum</i>	a sawfly	-1993
<i>Megachile willughbiella</i>	Willughby's Leaf-cutter Bee	-1993
<i>Melecta albifrons</i>	a nomad or mason bee	2004
<i>Melitta tricincta</i>	a solitary bee	2004
<i>Mellinus arvensis</i>	Field Digger Wasp	-1993
<i>Mesoneura opaca</i>	a sawfly	-1993
<i>Myrmica rubra</i>	Red Ant	2004
<i>Myrmica ruginodis</i>	an ant	2004
<i>Myrmica scabrinodis</i>	an ant	2004
<i>Nomada fabriciana</i>	Fabricius' Nomad Bee	1998
<i>Nomada flava</i>	a nomad or mason bee	2004
<i>Nomada flavoguttata</i>	a nomad or mason bee	-1993
<i>Nomada fucata</i>	a nomad or mason bee	2004
<i>Nomada marshamella</i>	Marsham's Nomad Bee	2004
<i>Nomada panzeri</i>	a nomad or mason bee	2004
<i>Nomada ruficornis</i>	Red-horned Nomad Bee	2004
<i>Osmia coerulescens</i>	Blue Mason Bee	1998

<i>Osmia rufa</i>	Red Mason Bee	2004
<i>Pachyprotasis rapae</i>	a sawfly	-1993
<i>Pemphredon lugubris</i>	Mournful Wasp	-1993
<i>Pemphredon morio</i>	a solitary wasp	-1993
<i>Philanthus triangulum</i>	Bee Wolf	2004
<i>Priophorus pallipes</i>	a sawfly	1998
<i>Priophorus rufipes</i>	a sawfly	1998
<i>Priophorus ulmi</i>	a sawfly	1998
<i>Rhadinoceraea micans</i>	a sawfly	2004
<i>Selandria serva</i>	a sawfly	-1993
<i>Sphecodes monilicornis</i>	a solitary bee	2004
<i>Stenamma westwoodi</i>	Westwood's Ant	1998
<i>Tenthredo atra</i>	a sawfly	-1993
<i>Tenthredopsis litterata</i>	a sawfly	-1993
<i>Tenthredopsis nassata</i>	a sawfly	1998
<i>Tiphia femorata</i>	a solitary wasp	-1993
<i>Trypoxylon clavicerum</i>	Club Horned Wood Borer Wasp	-1993
<i>Trypoxylon medium</i>	a solitary wasp	-1993
<i>Vespa germanica</i>	German Wasp	2004
<i>Vespa vulgaris</i>	Common Wasp	2004

Molluscs

Scientific name	Common name	Date last recorded
<i>Acanthinula aculeata</i>	a grass snail	1993
<i>Aegopinella nitidula</i>	a glass snail	1993
<i>Arion ater</i>	Great Black Slug	1993
<i>Arion circumscriptus</i> agg.	a roundback slug	1993
<i>Arion distinctus</i>	Common Garden Slug	1993
<i>Arion hortensis</i>	Southern Garden Slug	1993
<i>Arion intermedius</i>	Hedgehog Slug	1993
<i>Arion subfuscus</i>	Dusky Slug	1993
<i>Candidula intersecta</i>	a snail	1993
<i>Carychium tridentatum</i>	a hollow-shelled snail	1993
<i>Ceciliodes acicula</i>	a blind snail	1993
<i>Cepaea hortensis</i>	a snail	1993
<i>Cepaea nemoralis</i>	Brown Lipped Snail	2013
<i>Clausilia bidentata</i>	a door snail	1993
<i>Cochlicopa lubrica</i>	a moss snail	1993
<i>Deroceras caruanae</i>	Chestnut Slug	1993
<i>Deroceras reticulatum</i>	Netted Slug	1993
<i>Discus rotundatus</i>	a discus snail	1993
<i>Ena obscura</i>	a bulin snail	1993

<i>Helix aspersa</i>	a snail	1993
<i>Lauria cylindracea</i>	a moss snail	1993
<i>Limacus maculatus</i>	Green or Irish slug	2014
<i>Limax marginatus</i>	Tree Slug	1993
<i>Limax maximus</i>	Great Grey Slug	1993
<i>Lymnaea peregra</i>	Wandering Snail	1993
<i>Lymnaea stagnalis</i>	Great Pond Snail	1993
<i>Milax budapestensis</i>	Budapest Slug	1993
<i>Milax sowerbyi</i>	Sowerby's Slug	1993
<i>Monacha cantiana</i>	a snail	1993
<i>Nesovitrea hammonis</i>	a glass snail	1993
<i>Oxychilus alliarius</i>	Garlic Snail	1993
<i>Oxychilus cellarius</i>	a glass snail	1993
<i>Oxychilus draparnaudi</i>	a glass snail	1993
<i>Oxychilus helveticus</i>	a glass snail	1993
<i>Oxyloma elegans</i>	Pfeiffer's amber snail	2014
<i>Physa heterostropha</i>	a bladder snail	1993
<i>Pisidium personatum</i>	a pea mussel	1993
<i>Planorbarius corneus</i>	Great Ramshorn Snail	1993
<i>Planorbis planorbis</i>	a ramshorn snail	2014
<i>Punctum pygmaeum</i>	a discus snail	1993
<i>Sphaerium corneum</i>	an orb mussel	1993
<i>Sphaerium lacustre</i>	an orb mussel	1993
<i>Trichia hispida</i>	Hairy Snail	1993
<i>Trichia striolata</i>	a snail	1993
<i>Vallonia excentrica</i>	a grass snail	1993
<i>Vitrina pellucida</i>	a glass snail	1993

Orthoptera (Grasshoppers and Crickets)

Scientific name	Common name	Date last recorded
<i>Chorthippus brunneus</i>	Common Field Grasshopper	1993
<i>Chorthippus parallelus</i>	Meadow Grasshopper	2004
<i>Conocephalus discolor</i>	Long-winged Conehead	2004
<i>Leptophyes punctatissima</i>	Speckled Bush Cricket	2004
<i>Meconema meridionale</i>	Southern oak bush cricket	2013
<i>Meconema thalassinum</i>	Oak Bush Cricket	2004
<i>Metrioptera roeselii</i>	Roesel's Bush Cricket	2004
<i>Pholidoptera griseoptera</i>	Dark Bush Cricket	2004

Odonata (Dragonflies and Damselflies)

Scientific name	Common name	Date last recorded
<i>Aeshna cyanea</i>	Southern Hawker	1993
<i>Aeshna grandis</i>	Brown Hawker	1993
<i>Aeshna mixta</i>	Migrant Hawker	1993
<i>Anax imperator</i>	Emperor Dragonfly	1993
<i>Coenagrion puella</i>	Azure Damselfly	1993
<i>Ischnura elegans</i>	Blue-tailed Damselfly	1993
<i>Lestes sponsa</i>	Emerald Damselfly	1993
<i>Libellula depressa</i>	Broad-bodied Chaser	1993
<i>Orthetrum cancellatum</i>	Black-tailed Skimmer	1993
<i>Sympetrum sanguineum</i>	Ruddy Darter	1993
<i>Sympetrum striolatum</i>	Common Darter	1993

Other invertebrates

Scientific name	Common name	Date last recorded
<i>Forficula auricularia</i>	Common Earwig	2004
<i>Armadillidium vulgare</i>	Common Pill Woodlouse	1993
<i>Oniscus asellus</i>	a woodlouse	1993
<i>Philoscia muscorum</i>	a woodlouse	1993
<i>Platyarthrus hoffmannseggi</i>	a woodlouse	1993
<i>Porcellio scaber</i>	a woodlouse	1993
<i>Trichoniscus pusillus</i>	a woodlouse	1993
<i>Panorpa germanica</i>	a scorpion fly	2004
<i>Chrysopa carnea</i>	a green lacewing	2004
<i>Hemerobius humulinus</i>	a brown lacewing	2004
<i>Hemerobius lutescens</i>	a brown lacewing	2004
<i>Hemerobius micans</i>	a brown lacewing	2004
<i>Hemerobius stigma</i>	a brown lacewing	2004
<i>Micromus variegatus</i>	a brown lacewing	2004
<i>Wesmaelius nervosus</i>	a brown lacewing	1993

Plant Galls

Scientific name	English name	Last date recorded
<i>Aceria frax inivora</i>	Rust gall	2013
<i>Andricus aries</i>	Ram's-horn gall	2010
<i>Andricus fecundator</i>	Artichoke Gall	-1993
<i>Andricus grossulariae</i>	Hedgehog and blackcurrant gall	
<i>Andricus kollari</i>	Marble Gall	-1993
<i>Andricus lucidus</i>	Hedgehog gall	
<i>Andricus quercuscalicis</i>	Knopper Gall	-1993
<i>Biorhiza pallida</i>	Oak Apple	-1993
<i>Cynips longiventris</i>	Striped pea gall	2012
<i>Cynips quercusfolii</i>	Cherry Gall	-1993
<i>Dasyneura urticae</i>	Nettle blister gall	2012
<i>Diplolepis rosae</i>	Robin's Pin-cushion Gall	-1993
<i>Eriophyes pritzspznosa</i>		2010
<i>Eriophyes similis</i>	Pimple gall	2013
<i>Eriosoma lanuginosum</i>	Elm bladder gall	2013
<i>Jaapiella veronicae</i>	a gall midge	-1993
<i>Neuroterus numismalis</i>	Silk-button Spangle Gall	-1993
<i>Neuroterus quercusbaccarum</i>	Common Spangle Gall	-1993
<i>Orellia falcata</i>	a gall fly	1998
<i>Oxyna parietina</i>	a gall fly	2004
<i>Pseudomonas syringae</i> pv. <i>Savastanoi</i>	Canker	2013
<i>Psylla buxi</i>	Box sucker	2013
<i>Taphrina pruni</i>	Pocket plum	2014
<i>Taxomyia taxi</i>	a gall midge	-1993
<i>Tephritis neesi</i>	a gall fly	2004
<i>Tephritis vespertina</i>	a gall fly	-1993
<i>Urophora cardui</i>	Thistle gall	2004
<i>Urophora jaceana</i>	Fruit fly	2013

Reptile and Amphibians

Scientific name	Common name	Date last recorded
<i>Anguis fragilis</i>	Slow-worm	2012
<i>Bufo bufo</i>	Common Toad	-1993
<i>Zootoca vivipara</i>	Viviparous Lizard	-1993
<i>Rana temporaria</i>	Common Frog	-1993
<i>Triturus cristatus</i>	Great Crested Newt	2021
<i>Triturus vulgaris</i>	Smooth Newt	-1993
<i>Natrix natrix</i>	Grass Snake	2012

Mammals

Scientific name	Common name	Date last recorded
<i>Apodemus sylvaticus</i>	Wood Mouse	-1993
<i>Clethrionomys glareolus</i>	Bank Vole	-1993
<i>Erinaceus europaeus</i>	Hedgehog	-1993
<i>Mustela nivalis</i>	Weasel	2020
<i>Nyctalus leiseri</i>	Leisler's bat	2012
<i>Nyctalus noctula</i>	Noctule	-1993
<i>Oryctolagus cuniculus</i>	Rabbit	-1949
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	2015
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	2015
<i>Plecotus auritus</i>	Brown Long-eared bat	2015
<i>Sciurus carolinensis</i>	Grey Squirrel	1993
<i>Talpa europaea</i>	Mole	1993
<i>Vulpes vulpes</i>	Fox	-1993