Epsom Common

Local Nature Reserve

Management Plan 2016 – 2116

First Review 2016 –2026

Final Draft - Produced by:

EPSOM & EWELL BOROUGH COUNCIL

COUNTRYSIDE TEAM

CONTENTS

INTRODUCTION

This management plan succeeds the 2005-2015 plan and aims to update and build on the progress made during the implementation of the previous plan which was the first to be agreed formally and implemented by both Epsom & Ewell Borough Council and the governments statutory advisory organisation Natural England. The previous plan succeeded in guiding and completing the re-introduction of summer cattle grazing, significantly improving biological monitoring, increasing volunteer input and cooperation with the Epsom Common Association and City of London (Ashtead Common National Nature Reserve), commencing a programme of veteran tree management, improving public access and interpretation, attaining both Green Flag and Green Heritage Awards, restoring path surfaces and securing the substantial external funding required to achieve the above.

Subject to ten year reviews this plan aims to describe the important features of Epsom Common and set out an agreed approach for the continued management of the site to benefit both the people and wildlife of Epsom & Ewell for the next one hundred years. This plan prescribes in detail how the site will be managed from 2016 to 2026, ensuring that Epsom Common continues to provide excellent access to nature whilst at the same time providing a home for wildlife of national and international importance.

The plan has been updated following additional site surveys carried out during the lifetime of the previous plan with consequent re-appraisal of available data. Liaison with a number of individuals and representatives of relevant organisations (e.g. Epsom and Ewell Borough Council, the Epsom Common Association Natural England, City of London and the Lower Mole Countryside Partnership) has again taken place. Objectives and outline prescriptions set out in consultation drafts have been agreed by all parties concerned.
As with the 2005-2015 plan the format of this plan remains based on that produced for Ambersham Common, West Sussex (Ryland, 2002)

A PLAN FOR THE NEXT 100 YEARS

Over the last 100 years Epsom Common has undergone great change. A once largely treeless heath resulting from local economic pressure to provide subsistence to local people through grazing, fuel and fodder, today provides local people with fresh air, exercise and protection for wildlife. As readers of this plan will discover Epsom Common is of both national and international importance for its wildlife and maintaining that value requires an informed, consistent, systematic and long term approach to habitat management and public access.
For example, trees live for hundreds of years, the ecological benefits of re-introducing grazing will take many decades to be fully realised, and biological monitoring often yields really valuable information after many years of recording effort.

This plan provides a regularly reviewed (10 years) 100 year approach to the management of Epsom Common to ensure the protection, maintenance and enhancement of the wildlife and heritage of Epsom Common whilst also ensuring good public access to a wonderful place!

The key components in managing Epsom Common which are unlikely to change in the next one hundred years are as follows:

- Managing and maintaining the features of the Site of Special Scientific Interest in 'favourable' condition.
- Ensuring the protection, maintenance, monitoring and enhancement of biodiversity and cultural heritage of Epsom Common.
- Ensuring good public access via a network of well-maintained and signed paths and bridleways.
- Encouraging and supporting the work of the Epsom Common Association and volunteers.
- Interpreting Epsom Common to the public
- Maintaining a close working relationship with the owners of Ashtead Common (City of London) and other partners through the Epsom & Ashtead Commons SSSI Forum
- Maintaining Great Pond Dam under the terms of the Reservoirs Act.
- Working towards the attainment of National Nature Reserve Status for the whole of the Epsom & Ashtead Commons Site of Special Scientific Interest.

Acknowledgements

We remain very grateful to consultant ecologists Giles Groome and Karl Crowther whose excellent work in writing the 2005-15 plan still provides much of the content and structure for this succeeding plan.

Thanks are also due to all the staff and volunteers from Epsom & Ewell Borough Council, The Lower Mole Countryside Partnership, Natural England, the Epsom Common Association and the City of London whose work in implementing the previous plan so successfully has made the production of this new plan a much more straightforward task.

STAGE ONE - DESCRIPTION

1.1 Introduction

Epsom Common provides and important nature reserve and recreational resource for the Borough of Epsom & Ewell and the wider environs of Surrey and Greater London. The site is recognised nationally for its wildlife with some insect species of international importance present.

Mentioned in William the Conqueror's Doomsday Book, Epsom Common is an important part of the cultural history of Epsom and is a surviving remnant of medieval feudal agricultural practice under the Lord of the Manor of Epsom. Epsom Common is the original source of Epsom salts (Magnesium Sulphate) from which the Town first prospered during the Spa period of the 17th & 18th centuries, before the current international fame of the Derby horse race on the Epsom Downs, originally a part of Epsom Common, took over in the 19th century.

During the first half of the 20th century the common started to experience a period of profound change. A once largely treeless area of heath used for hundreds of years by local people with commoner's rights to graze and collect firewood was transformed by the impact of the industrial revolution on local livelihoods. Increasing prosperity saw the common begin to meet the recreational need of local people for free air and exercise rather than provide vital subsistence to the local economy. A major change occurred in 1941 when much of the common was ploughed (See Map 1) for the first time to grow crops for the war effort, completely removing the heath that had existed for perhaps as long as a thousand years or more.

Today Epsom Common is owned by Epsom & Ewell Borough Council and managed in partnership with the Epsom Common Association, The Lower Mole Countryside Management Project and the City of London with guidance provided by the government body, Natural England, reflecting the sites national importance for wildlife.

In human terms the past has seen Epsom Common shaped almost solely by economic pressures. Today our increased prosperity and recognition of the importance of and access to nature, has opened a new era in Epsom Commons long history where managing Epsom Common requires a balance to be found between good public access and interpretation combined with protecting and enhancing nature through the creation of a diverse mosaic of interconnected habitats all guided by a regularly updated management plan.

Epsom Common covers a total area of approximately 175ha and is split into a number of separate units by a variety of roads and a railway line. It forms the easternmost portion of a larger site that includes Ashtead Common and Newton Wood.

A major part of the Common (c.120ha) lies within the Epsom and Ashtead Commons Site of Special Scientific Interest (SSSI). This was first notified in 1955 and subsequently re-notified, with a number of boundary alterations, under the 1981 Wildlife and Countryside Act in 1984. Most of the remaining non-SSSI portion lies within a Site of Nature Conservation Importance (SNCI) identified under the Local Plan (c.50ha). The whole area of Epsom Common was designated as a Local Nature Reserve (LNR) in 2001. The entire site lies upon land designated in the Local Plan as Metropolitan Green Belt.

Epsom Common comprises a mosaic of habitats that includes woodland of varying maturity and composition, together with scrub, grassland and several small areas of relict heathland. There are also a number of ponds, the most extensive of which are the Great Pond and Stew Pond, situated in the north-western part of the Common.

Epsom Common has open public access (see Section 1.5.3.3) and forms an important local amenity for informal recreation.

1.2 Location

Epsom Common, together with the adjacent Ashtead Common, lies to the south-west of Epsom and north of Ashtead village. The northern boundary of Epsom Common is formed by Christchurch Road, whilst to the south and west it is adjoined by Newton Wood, Ashtead Common and farmland. To the east, Epsom Common is bounded by the residential areas adjacent to Epsom town centre. See Map 1.

County: Surrey

District/Borough: Epsom & Ewell

Local Planning Authority: Epsom & Ewell Borough Council

National Grid Reference: TQ 189 605 (centre of site)

Map Coverage:

First Edition of the Ordnance Survey (1871 – available from www.old-maps.co.uk).

Ordnance Survey Landranger series at 1:50,000 scale, sheet number 187.

Ordnance Survey Explorer series at 1:25,000 scale, sheet numbers 146 and 161.

Ordnance Survey 1:10,000 series sheets TQ16, TQ15 and TQ25.

Ordnance Survey map at 1:2500 series sheets TQ1861, TQ1860-1960, TQ1859-1959, TQ1958-2058.

Ordnance Survey map at 1:1250 scale.

The site lies within the London Basin Natural Area. Natural area profiles can be obtained from English Nature.

Services:

Crossing beneath the Common are a major gas pipeline, a high-pressure aviation fuel line and an oil-cooled electricity cable. In addition, roads bounding the Common have a number of water, telephone and other cable services passing beneath them.

1.3 Land Tenure & Associated Statutory Requirements

All of the land covered by this plan is in the ownership of Epsom and Ewell Borough Council and was purchased from the Strange Estate in 1935 for the sum of £4000. The conveyance documents can be found in the Town Clerk and Chief Executives Department of the Council. The land originally consisted of the "waste" of the manor of Epsom. The common rights for the site were purchased separately from the land itself in the 1950s.

Epsom Common is a ‘Metropolitan Common’ as defined by the Metropolitan Commons Acts 1866-98, being those commons which lie within the Metropolitan Police District (MPD) as then defined. Meaning all commons in the Greater London area. Although Epsom Common came out of the Metropolitan Police District in 2002 it is thought to remain a ‘Metropolitan Common’

Under the 1965 Commons Registration Act, Epsom Common was registered as two separate land units (Aitchison & Crowther, 2000). The major proportion (162.75ha) comprises CL unit 359, whilst several smaller parcels of land (total = 5.29ha), mainly along the eastern fringe, but also including the Stew Pond, are registered as CL 453. The Great Pond was excluded from either unit. Under the 1965 Act, a single right of estover is registered for CL 359, along with two claims to rights of access, plus an easement in respect of electricity cables. There are no rights registered for CL 453.

Most of the adjacent land is owned by a variety of individuals and organisations the largest of which is the City of London (Ashtead Common).

Epsom & Ewell Borough Council like all public bodies who own a SSSI has a duty under section 28G of the Wildlife and Countryside Act 1981 as amended by the Countryside & Rights of Way Act 2000 (CROW), to further the conservation and enhancement of the SSSI. In addition the Natural

Environment and Rural Communities Act 2006 (NERC) places a requirement in law on all public bodies to take reasonable measures to enhance the aesthetic, cultural, historical and biological interest of its open spaces.

Epsom Common is the quoted national example of the restoration of an SSSI in the government's guidance to local authorities in implementing the Biodiversity Duty (Page 28) http://www.lbp.org.uk/downloads/Publications/NERC/NERC_LA.pdf

1.4 Photographic Coverage

There are a series of aerial photographs that have been taken of the Common over the past 40 years in the following years - 1949, 1968, 1971, 1981, 1988, 1998,2003, 2009, 2011 and 2013. Not all of the photographs show the whole of the Common but sufficient detail can be made out to provide useful management information. These photographs are held in a number of locations, including Surrey County Council, Epsom and Ewell Borough Council and the Surrey Records Office.
Epsom & Ewell Borough Council have obtained old aerial photographic coverage that shows, in particular, areas that were ploughed during WW2. More recent aerial photographs of the site are available online from Google Maps, Apple Maps and Bing Maps.

A number of views of Epsom Common can be seen in postcards from the beginning of the 20th Century and a number of views have been taken by local residents in the past.

The Lower Mole Countryside Management Project has a large collection of photographs showing progress with management work in recent decades. In addition, a number of fixed-point photographic stations were established in 1996.

1.5 Summary Description

1.5.1 Physical

1.5.1.1 Climate

Meteorological Office data (1981-2010 averages) for Wisley (approximately 10km due west), show an annual rainfall average of 656.6mm per year (no measurements have been taken on Epsom Common itself). During this period, there was an average of 112.2 days per year with more than 1mm of rainfall recorded. An average total of 1564.2 hours sunshine were recorded per year, along with 47.7 days of air frost. The average monthly maximum temperature was 15.0^{o}C (July being the hottest, at 23^{o}C), whilst the average monthly minimum temperature was 6.5^{o}C (with February being the coldest at 1.7^{o}C).

Such climatic conditions are typical for a lowland site in this part of the country. It is interesting to note that the previous plan used 1961 -1990 data and the average monthly maximum temperature has increased by 0.8 ^{o}C.

1.5.1.2 Geology

The greater portion of Epsom Common is situated on London Clay. In places, there are surface gravel deposits; the most extensive in this locality being the 'ridge top' around the north of Newton Wood. However, there are further deposits around Epsom Common itself. Working of these during the last century may help to explain the presence of a number of ponds and the uneven topography found in some parts of the Common. Gravel was also exposed during recent silt clearance of Stamford Green Pond. Areas of alluvium occur in the region of the Great Pond, Stew Pond and adjacent to the Rye Brook. Sections of the Common south of the Leatherhead to Epsom railway line are situated upon the Thanet, Woolwich & Reading Beds. In general, these comprise a narrow but variable band of fine sands, clays and loams.

Further details of the geology can be seen in the Geological Survey maps for the area, although these do not show in sufficient detail the changes in geology which are important for detailed land management.

1.5.1.3Topography and Hydrology

The site is gently undulating, the highest point (70m approx.) being in the region of the "top crossroads" (TQ 191 604). As already highlighted, some local irregularities in the ground surface are thought to relate to past gravel workings.

The clayey nature of the soils across much of the Common means that most rainfall runs off this relatively impermeable substrate. Movement of water is generally away from the high ground of the "crossroads" in all directions. Standing water is mainly confined to three large ponds, Great Pond, Stew Pond and Baron's Pond. The former two are fed from surface water run-off; the catchment area being a basin centred around Great Pond, in the north-western part of the Common. Their outflow subsequently forms one of the tributaries of the River Hogsmill.

There are a number of smaller temporary ponds, which tend to dry-out in the summer. In addition, there are many large ditches throughout the site, which may have served an agricultural drainage purpose in the past, and a number of smaller ditches, which have served to drain wet areas for land management purposes; for example, footpath maintenance. There are also ditches dug around some peripheral parts of the Common, principally in the vicinity of Church Side. Their purpose is to prevent vehicular access onto the Common.

The most significant watercourse is the Rye Brook a tributary of the River Mole. This forms a section of the south-western boundary against Ashtead Common, but does not actually cross Epsom Common itself.

1.5.1.4 Soils

The predominant soil types are Windsor pelo-stagnogleys, comprising heavy clay to medium clay loams. The presence of such soils leads, in many parts of the Common, to waterlogging during the winter months, whereas in summer, the ground surface dries hard. Locally, clayey soils are replaced or mixed with gravels and/or alluvial silts.

During WW2 some areas of the Common were ploughed. This inevitably had a marked impact upon the soil characteristics of these areas. The approximate extent of ploughed land on Epsom Common has been ascertained from examination of aerial photographs and is shown in Map 3.

Analysis by a number of groups has shown soils to be slightly acidic (pH 5.5 to 6.5). This data has not been collected in a systematic way and there is a need to identify the distribution of, for example, sandy and gravelly soils. Therefore, a detailed and systematic survey should be carried out in the future.

1.5.2 Biological

It is important to recognise that Epsom Common forms one element of a larger suite of sites that incorporates Ashtead Common and Newton Wood and is thus important to the integrity of this larger site.

Up to 2005 there have been a number of biological surveys (most on an informal basis), and Epsom Common was considered to be poorly-recorded, especially in comparison with the neighbouring Ashtead Common. Since 2005 there has been a significant increase in the extent of recording with the improvement of biological monitoring an important aspect of the 2005-2015 management plan. The following two sub-sections outline some of the more important surveys and other biological recording undertaken. Appendix III lists species considered to be of particular interest (either because of their nature conservation interest or the threat that they pose to the ecology of the site). Due to the still significant number of biological records involved, there is insufficient space to list every taxon recorded on Epsom Common. However, all of the appropriate surveys are referenced in the text.

1.5.2.1 Flora and Vegetation Communities

The site has a varied vascular plant flora, with around 500 taxa recorded (including non-native species), reflecting the variety of habitats present (see below). The earliest botanical description of Epsom Common is provided by Dorling's 'History of Epsom' of 1825. Subsequent records relate primarily to the last quarter of the twentieth century, reflecting the efforts of individuals such as R.C. Stern, R.T. Stein, K. Buckley and also the Epsom Common Association (including S.J.D Gibson, J. Hodge, N. Owen and E. Taylor). Much of this information has been collated into a database prepared by Epsom & Ewell Borough Council and the original sources have not been consulted.

A major portion of Epsom Common comprises an intricate mosaic of open grassland, relict heathland, scrub and secondary woodland vegetation. In addition the re-introduction of grazing from 1997 to date has seen the creation of three large areas of wood pasture, characterised by a mosaic of mature and semi-mature trees, open grassland, relict heathland and scrub. Grassland is predominantly neutral in character, but is locally more acidic (this probably being more extensive in the past). Much has developed on land ploughed during WW2, but at least one area of 'ancient' grassland with old ant-hills, survives south-west of the Wells Estate. Outside of the grazed areas a lack of recent management means the grassland tends to be rank and tussocky in character and has in the last 30-years or so seen extensive scrub colonisation - Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Gorse (*Ulex europaeus*) Bramble (*Rubus fruticosus* agg.) and more locally Bracken (*Pteridium aquilinum*). Elsewhere there has been a development of secondary Oak (*Quercus* spp.)-Birch (*Betula* spp.) woodland over a Bramble-dominated field layer. However, in the north-western part of the Common are older-

established woodland stands containing some larger, pollarded Oak trees that probably represent areas of former wood pasture. These veteran trees represent a feature of significant ecological interest on Epsom Common.

Associated with some of the grassland areas (and confined to areas that were not ploughed during WW2- See Map 1) are small remnants of heathland vegetation as indicated by the presence of Heather (*Calluna vulgaris*). The grasslands support a number of notable plant species such Corky-fruited Water Dropwort (*Oenanthe pimpinelloides*) – considered rare in Surrey; Saw-wort (*Serratula tinctoria*) – scarce in Surrey; and various orchids, including Southern Marsh Orchid (*Dactylorhiza praetermissa*) –local/scarce in Surrey.

Grassland mown frequently for amenity use (generally species-poor) occurs mainly around the north-eastern periphery of the Common, but also along some of the main rides and along the south-western fringes of the Wells Estate. One such area at Stamford Green supports the formerly nationally scarce species (Stewart *et al.,* 1994) Chamomile (*Chamaemelum nobile*) – also considered to be rare in Surrey.

The Common includes a number of ponds and associated wetland habitat, some of which appear to have developed in old gravel workings. In addition, there are a variety of smaller, seasonal features that are wet for only part of the year. The largest area of open water is the Great Pond, which is believed to be a former mediaeval fish pond. It was drained in the 19th century, but was reinstated in the mid-1970s. A significant colony of Adder's Tongue Fern (*Ophioglossum vulgatum*) occurs near to Blake's Pond, a species considered to be local/scarce in Surrey and is also now present in the largest grazing area known as Highlow Meadow.

The vegetation of the Epsom and Ashtead Commons was surveyed during 2001 (Groome, 2001) and again in 2012 (Groom, 2012)using a description of plant communities based upon the National Vegetation Classification (Rodwell, 1991a, 1991b, 1992, 1995 & 2000) and taking into consideration the transitional/mosaic classifications of 2001 where these were still relevant. Map 3 shows the distribution of the principal vegetation community types in 2012 as defined by major habitat-type.

A number of invasive alien species occur on Epsom Common. They include New Zealand Pigmyweed (*Crassula helmsii*) Water Fern (Azolla filiculoides)– present in many of the ponds, along with Japanese Knotweed (*Fallopia japonica*), Cherry Laurel (*Prunus laurocerasus*), Rhododendron (*Rhododendron ponticum*), Sycamore (*Acer pseudoplatanus*) and Turkey Oak (*Quercus cerris*).

Bryophytes

Epsom Common was poorly recorded in this regard up to 2009. Previously a list of mosses and liverworts recorded from Epsom Common was drawn up by R.C. Stern in 1972/73 (information obtained from the Epsom & Ewell database). In addition, there are some records available from the

Surrey Bryophyte Register (NCC, 1986). In 2009 H. Wallace carried out a survey which identified that the bryophyte ground flora is generally limited to very common and widespread species with one exception, leafy liverwort *Lophocolea semiteres*, very rare in Surrey, and found growing on soil at the side of a footpath, only the second record for Surrey since 1950. Epiphytes were very good for Surrey with three Ulota species (*U. bruchii, U. crispa and the much rarer U. phyllantha*), four Orthotrichum species (*O. affine, O. diaphanum*, and the rarer *O. lyelli*, and *O. pulchellum*), as well as *Zygodon conoideus, Dicranoweisia cirrata*, and the liverworts *Frullania dilatata, Metzgeria furcata, Radula complanata* and the tiny *Microlejeunea ulicina*.

In 2012 P. Howarth carried out a further survey bringing the total number of species recorded to 117. A further notable species found was *Ptilidium pulcarium* which is only the third recent record in Surrey. -------

Fungi

Fungi have not been studied in any detail, although the EEBC database lists over 130 species. The source of this information is given as “Epsom Common Fungi”, although the origin and date of this survey are unknown, as is the status of any species on this list. In the autumn of 2010, two surveys were carried out, one by Mary Smith and one by Ray Tantrum which has brought the total to 171.

Lichens

A lichen survey of Epsom Common was conducted by F. Dobson in 2003. This found a total of 42 epiphytic species, which was considered ‘good for east Surrey’ and similar to that recorded on the adjacent Ashtead Common. Fewer saxicolous species were found, reflecting the lower incidence of suitable substrates for this group. All of the species found fall within the IUCN ‘least concern’ category.

1.5.2.2Fauna

Invertebrates

The Epsom and Ashtead Commons SSSI as a whole, is notable both nationally and internationally for its invertebrate assemblage. Historically the two sites have often been (correctly) regarded as a single unit, although in fact a greater proportion of recording effort (and thus recorded taxa) relate specifically to Ashtead, rather than Epsom Common.

For both Commons, the most well-recorded group appears to be the beetles (Coleoptera), primarily those associated with the large population of veteran/pollarded Oak trees. These trees occur mainly on Ashtead Common, although there are notable examples on Epsom Common, primarily in the north west of the common (see Map 3).

A survey of beetles in 2002 (Booth, 2002) found a total of 267 species, of which 29 are notable. A provisional list of beetles was prepared by

I.S. Menzies and R.G Booth, which includes a total of 401 species, of which 5 are nationally rare and 54 are nationally scarce. In 2012 a further survey of saproxylic Coleoptera identified 167 species and indicated that the population is of international importance. Further surveys are recommended as there is still a possible disparity with Ashtead Common most likely as a result of under-recording. For example, a total of 239 beetle species that have been identified from Ashtead Common..

Other elements of the habitat mosaic appear to be of value to additional groups of invertebrates, although recording effort to date has been on a less formal basis with the exception of a butterfly transect commenced in 2011. The Epsom Common Association produced a summary of biological records in 2000 made during that year (Gibson, 2000). In addition to beetles, there are records for the following invertebrate groups: dragonflies (Odonata), grasshoppers (Orthoptera) and butterflies/moths (Lepidoptera) (Records were provided by S.J.D. Gibson, I.S. Menzies, J. Sinclair, A. Quinn and J. Porter).

There are good populations of Purple Emperor (*Apatura iris*), Purple Hairstreak (Neozephyrus quercus) and White Admiral (*Ladoga camilla*), whilst the recent reintroduction of grazing on part of Epsom Common is thought to have encouraged the Silver-washed Fritillary (*Argynnis paphia)* and establishment of a colony of Roesel's Bush Cricket (*Metrioptera roeseli*).

Vertebrates

Birds

Birds have been well-recorded across the Ashtead and Epsom Commons SSSI over the years and are particularly well represented on Epsom Common. In part this is due to the diversity of habitat conditions. Thus, there is a rich community of breeding birds, in addition to a variety of winter and other visitors, together with spring and autumn passage migrants. A number of 'Red' and 'Amber' listed species have been recorded (see Appendix III).

Scrub is thought to represent an especially valuable bird habitat. The SSSI is notified in part for its breeding bird assemblages of Scrub and Woodland habitats. Around 30 years ago, the extent and condition of the scrub appears to have been near 'optimal', supporting species such as Grasshopper Warbler (*Locustella naevia*) and Nightingale (*Luscinia megarhynchos*). However, since this time, the scrub has become more closed and less diverse in structure, and its overall value to birds has almost certainly declined, with some species, including the above, not recorded in recent years.

In addition to resident and/or breeding summer visitors, there are a number of important birds that visit the Common as passage migrants, or during the winter months, or just as occasional or scarce visitors at any time of year. Again, these depend upon the mosaic of habitats present on the Common, and some of the areas of open water are important in this regard.

Up to 2006 recording was on an informal basis, with records collated by the Epsom Common Association (contributors include T. Gibbs, S.J.D. Gibson, B. Godbold, M. Panichelli, R. Panichelli, C. Poole and A. Quinn). There is also recording by the Surrey Bird Club. From 2006 a more formally co-ordinated bird monitoring programme has been undertaken as part of the SSSI monitoring with breeding bird surveys carried out in 2006, 2007, 2008, 2009, 2012 and 2013

Reptiles and Amphibians

Up to 2011 there has been no systematic survey of reptiles and amphibians on Epsom Common. From 2011 in cooperation with the Surrey Amphibian and Reptile Group (SARG) there have been regularly monitored reptile refuges initially across the common and from 2013 concentrated in the grazing areas. Monitoring has indicated the current importance of the grazing areas for both Grass Snake (Natrix natrix) and Adder (Vipera berus) with Adder appearing to thrive in parts of the largest grazing area. From 2014 a programme of systematically surveying ponds has been introduced for newts which has identified the presence of Great Crested Newts in Blakes's Pond. During a survey of Blake's Pond in 2015, a count of 29 Great Crested Newts was recorded, constituting a medium population. Prior to this the Epsom Common Association has collated much of the known information (e.g. Gibson, 2000 - incorporating observations by S.J.D. Gibson and R. Panichelli). Of the reptiles, Grass Snake (*Natrix natrix*) and Common Lizard (*Lactera vivipara*) appear quite widespread, whilst Adder (*Vipera berus*) is much more localised. Individuals of the introduced Red-eared Terrapin (*Pseudemys scripta elegans*) have been seen in Great Pond in recent years. Amphibians have been recorded primarily in the vicinity of the various ponds. Native species include Smooth Newt (*Triturus vulgaris*), Common Frog (*Rana temporaria*) and Common Toad (*Bufo bufo*), whilst introduced species could include American Bullfrog (*Rana catesbeiana*) – Great Pond (Gibson, 2000), and what is believed to be Marsh Frog (*Rana ridibunda*) – Baron's Pond.

Mammals

Up to 2012 the surveying and recording of mammals present on Epsom Common has been fairly limited. For example a survey of small mammals in a part of the grazing area was undertaken in the late 1990s (Newman, 1998). During January-March 2004, a survey of Harvest Mouse nests (*Micromys minutus*) was undertaken on Epsom and Ashtead Commons (Derbyshire, 2004). This found the presence of nests in *Molinia*-dominated vegetation within Bramble Heath and Horton Heath. In 2010 a survey of bats was carried out (Fure, 2010) around the area of Great Pond and Stew Pond, which recorded 7 species, these included:- the two species of Pipistrelle (*Pipistrellus pipistrellus*

and *P. pygmaeus*), Daubenton's (*Myotis daubentoni*), Noctule (*Nyctalus noctula*), Leisler's bat *Nyctalus leisleri* and Brown Long-eared (*Plecotus*

auritus). In addition Natterer's bat *Myotis nattereri and* whiskered/Brandts *Myotis mystaacinus/brandti were possible recordings during the survey.*

In February 2012 a chance discovery of a Dormouse *Muscardinus avellanarius* by volunteers resulted in the placing of 50 boxes and in October 2013 Dormice were confirmed in one box and suspected in another. This result is somewhat unusual as the habitat of blackthorn scrub is considered atypical for the species, It should be noted that this area is succeeding to woodland and consideration should be given to maintaining the scrub component. In addition two surveys for small mammals took place in September and November 2012 coordinated by Surrey Wildlife Trust with a focus in November 2012 and again in September 2013 on Harvest Mice *Micromys minitus*. Weather conditions inhibited both surveys with respect to Harvest Mice but good populations of Wood Mice *Apodemus sylvaticus* and Field Vole *Microyus agrestis* were found.

There are casual records of a variety of different species, again being compiled by the Epsom Common Association (Gibson, 2000) – with records from T. Claxton, D. Fawcett, S.J.D. Gibson, B. Howes, M. Oakshott and R. Panichelli.

Roe Deer (*Capreolus capreolus*) are frequently seen, often in close vicinity to housing, but they are present throughout the site. Deer can have a significant influence upon tree regeneration. The Surrey Badger Group do not have any records of Badger (*Meles meles*) setts on the Common, but they are known to visit parts of the site (they have been seen crossing the B280 Christchurch Road from Horton Country Park, via West Park Hospital). In late 2012 seeral sightings of Mink *Mustela vison*were confirmed around Stew Pond and Great Pond

1.5.3 Cultural

1.5.3.1Archaeology

There is evidence of a considerable history of activity on the Common, outlined in a publication produced 'Epsom Common' by the Epsom Common Association, first published in 1981 by 'Living History Publications" Local Guide No.5. There is limited archaeological interest on the site (Kay-Currey, 1999). The adjacent Ashtead Common has the remains of a Roman Villa and associated tile and brick works. Of more recent interest, is the old Epsom Salts well on the Wells Estate, which has recently been refurbished. The development of the wells on the Common has a long history and is again described in various publications (Anon, 1989; Anon., 1993).

1.5.3.2 Land Use

In the past the land would have formed the “waste of the manor” and was mainly used for grazing of cattle and sheep. This activity ceased in the early part of the 20th Century. Of historical interest is the use of the land for the drying of washing. A considerable cottage industry of laundries used to exist around the Common and some of the buildings still exist. There is also some evidence of mineral extraction and many clay pits remain on the eastern side of the common between Stamford Green and the Wells Estate.

Today, the Common is used primarily for recreational purposes, although the status of the Common as a Local Nature Reserve (LNR) (and in part as SSSI and SNCI), means that much emphasis is now given to nature conservation. In this context, there has been a recent (1997-)restoration of controlled grazing on part of the Common. Epsom & Ewell Borough Council Staff, with the assistance of the Lower Mole Countryside Management Project and Epsom Common Association volunteers have been undertaking conservation management on Epsom Common for many years. Recently, the Lower Mole Countryside Management Project, in conjunction with the Epsom Common Association volunteers (ECOVOLS) have commenced a small-scale charcoal-burning operation, thus re-introducing a traditional element of woodland management. The products from this are sold through a variety of local outlets as a sustainable supply of fuel for barbecues and provide a small income to the Epsom Common Association and the Lower Mole Countryside Trust.

1.5.3.3Public Access and Recreation

Under section 194 of the Law of Property Act, 1925 there is a right of access for the general public over the entire area of Epsom Common for "air and exercise". This applies to all commons registered under the 1965 Common Registration Act, in cases where these are situated in what were urban boroughs at the time of local government reorganisation in 1974. However, Epsom Common is probably unique in that it was originally, and may still be a Metropolitan Common (i.e. subject to the provisions of the Metropolitan Commons Act of 1866-98), even though it now lies outside the Metropolitan area.. Consequently the true legal status of Epsom Common is at present unclear and requires investigation.

As a consequence of being registered Common Land possessing a legal right of public access under the 1925 Law of Property Act, Epsom Common is now shown as “Registered Common Land” on “Access Land” maps prepared by the Countryside Agency under the provisions of the Countryside and Rights of Way Act, 2000 (refer to Countryside Agency website). Excluded from this category is the small parcel of land including and surrounding Great Pond (Compartment 5 of this management plan), which is not registered Common Land. Within this compartment, the area of land surrounding the pond is shown as “Open Country” on the Countryside Agency “Access Map”, whilst the water body of Great Pond itself is shown as having no right of public access.

Public access onto the Common is facilitated through a network of different routes, established over a number of years in response to the varying

recreational activities that are allowed to take place on the Common. These uses include in particular, horse riding, cycling and access on foot (see below).

This network includes Public Rights of Way that have legal standing ('definitive'), together with a range of other 'main routes' that have been developed to produce the situation shown in Map 2.

Main routes

Since the 1950's increasing scrub and secondary woodland encroachment tended to restrict access across the Common to public rights of way (mainly public footpaths). Recreational use of the Common increased during the 1970s, especially by horse riders. This, combined with the very wet nature of the clay soils, led to many paths becoming impassable in the winter months.

The situation regarding rights of access for horse riders on the Common is somewhat ambiguous. Section 194 of the Law of Property Act 1925 says nothing of a right to ride horses on common land. There is provision within the byelaws relating to Epsom Common to prevent the use of the Common by horse riders for the purposes of training or the breaking in of horses [this was a major issue in the 1970s as the area was used for racehorse training].

During the 1980s and in response to this situation, Epsom & Ewell Borough Council constructed a 4.5km all-weather (surfaced) track which became known as the 'all-weather track', forming a circular route around the perimeter of the main area of the Common. Originally, only a short section of this was formed by a Public Bridleway, with some other sections being Public Footpaths. However, in April 2004, the entire 'all-weather track' attained Public Bridleway status. The creation of the 'all-weather track' appears to have been largely successful and is a much used and popular route with visitors to the Common.

In 2007 Epsom & Ewell Borough Council and the City of London collaborated to restore one kilometre of the 'all weather track' that runs along the boundary of the two commons (Bridleways 38, 147 & 29. For Epsom Common this represented the restoration of 1 km of the 4km circular 'all weather track' In 2012/2013 funds were secured to restore the remaining 3Km. In addition the redevelopment of the former West Park Hospital immediately to the north of the common resulted in the developers paying to improve the 'all weather track' from Stew Pond car park all the way to Christchurch, with a new section of hard surfaced path leading around the rear of Christchurch to Stamford Green Road. This helps to provide improved pedestrian and cycle access from Epsom Station to the new 'Noble Park' development and has significantly improved the popular entrance on to the common at Stamford Green Road which gets very wet in winter.

Public and other rights of way

As discussed above, the entire circular 'all-weather track' is now designated as a Public Bridleway, which passes close to the Stew Pond. A further Public Bridleway adjoins the Common, running in a west/east direction along the southern boundary [partly within the administrative district of Mole Valley District Council].

By contrast, there are a significant number of Public Footpaths and other paths crossing over the Common. As mentioned above, a number of these form parts of the 'summer horse rides'. In some cases, footpaths on the ground did not appear to follow the precise route of the 'definitive' feature as shown on the Ordnance Survey map. This may have been either due to a 'desire' on the part of the public to follow a different route, or a deliberate re-alignment for some particular purpose. During 2001-2002, a survey of such deviations was undertaken and the definitive rights of way map has been updated to reflect the situation on the ground.

A number of formally-promoted routes cross the Common, namely the 'Round the Borough Hike & Bike route', the 'Thames-Downs Link' and Chessington Countryside walk.

Lesser routes

In addition to the maintained/official paths there are many other 'informal' paths. These routes tend to follow 'desire lines', but can also represent old routes and possibly even deer tracks. Some are quite well-defined and regularly used, whilst others are more obscure and used only occasionally.

Such paths sometimes lead into areas with fragile habitats such as pond margins, or 'sensitive' areas in terms of rare or important habitats/species they support. This could cause potential damage to these fragile habitats. These informal paths can provide an opportunity for more adventurous visitors to experience a sense wilderness away from the main paths. This is one example on the Common where public access/recreation and nature conservation could potentially conflict. The most sensitive areas should be identified and ways of preventing any potential damage whilst still encouraging use of informal paths should be investigated.

Access for people with disabilities

Access for visitors with disabilities is an important consideration in the management of Epsom Common. The 'all-weather' track is suitable for wheelchair use With access from Stew Pond car park and in recent years views of the grazing areas have arisen. The provision of a safe viewing and fishing platform at Stew Pond would be a significant improvement. The pond is the only fishing pond in the Borough of Epsom & Ewell and consequently very popular with a large number of swims leading off the adjacent pond side path.

Consequently, care is needed by all ages and abilities as there are no barriers around the pond.

Car parking

Two car parks are provided on the Common; one close to the Stew Pond and the other at Christ Church. To avoid encouraging too many visitors, these have been maintained as 'low key' features; thus, neither has been permanently hard-surfaced with tarmacadam. In an attempt to try and control traveller incursions and indecent behaviour in the vicinity of the Stew Pond car park, a gate (locked at night) and height barrier have been provided.

Site boundaries/security

The Common is accessible on foot around the majority of its perimeter, including from the rear gardens of the majority of houses that back on to the Common. The only effective barriers to access are the railway line and the boundary with Woodcote Stud in the south-west.

Open access is not without problems. The main recurrent phenomenon is illegal tipping. There have also been problems of unauthorised vehicular access. In an attempt to control this, various measures have been introduced, including locked gates at Stew Pond car park and the Wells access points, together with ditches created around most of the vulnerable boundary. However, some areas can still be crossed by vehicles – for example the Stamford Green cricket pitch.

Recreational use

Epsom Common is used for a number of recreational purposes. The most frequent activity is the exercising of dogs. Other significant activities include walking/jogging and viewing the Common's natural history, horse-riding, cycling and angling (restricted to Stew Pond and prohibited at any other pond on the Common). Conflicts can arise between these various uses. For example, cyclists and uncontrolled dogs can frighten and pose a danger to pedestrians and horses. In addition, uncontrolled dogs have also been known to chase and kill deer. A wider problem is the issue of fouling by dogs, which represents an obvious nuisance to everyone using the Common. This situation is to be addressed by the provision of a number of bins for the disposal of dog waste (see Section 2.8.9). Recently there seems to have been a significant increase in owners walking two or more dogs and dog walking businesses using the common. There is widespread debate over how controllable two or more dogs are, especially as is often the case they are off the lead. In addition there is growing concern from managers of open space about how sustainable current dog walking numbers and practices are. For example, the constant trampling of ground flora often many metres from the tracks is already showing signs of a significant impact with only species able to withstand constant disturbance flourishing. There is little or no prospect of ground nesting birds breeding anywhere on Epsom Common due to disturbance from dogs. The dog walking businesses currently operate without any overhead in respect of a contribution

to the maintenance of the facility that allows them to operate their business i.e. the common

Public use of the Common for recreational purposes tends to follow a distinct pattern. During most of the week, the Common is mainly used by local residents who are accessing the site from surrounding housing. However, during the weekend there is a marked increase in numbers using the Stew Pond car park, some of whom use the facility to gain access to Ashtead Common. These visitors come from a wider geographical area and not just the immediate vicinity of Epsom and Ewell.

Educational use and site interpretation

There are several good quality leaflets dealing with the Local Nature Reserve, the main site leaflet is co-ordinated with five notice boards on the Common. The leaflet provides a background to the ecology of the Common and highlights locations of interest. The latter are highlighted on-site by carved wooden 'landmark posts'. Walking routes on a plan of the site tie-in with coloured markers on the ground following the 'all-weather track'. Interpretation of the site is further aided through a combination of guided walks, web-pages, a history booklet, occasional open days, signage and sculptures. In 2008 a joint Epsom & Ashtead Commons leaflet was produced with a map that covers both commons and assists visitors who want to explore both sites. There is also a leaflet ('Common Sense Horse Riding & Cycling on Epsom Common Local Nature Reserve') which givers guidance to horse riders and cyclists about appropriate use of the paths and tracks

There are signs indicating Public Rights of Way, the closure of 'summer horse rides', together with others indicating the route of the 'Round the Borough Hike & Bike' route, 'Thames Down Link' path, 'Chessington Countryside Walk' route and in 2013 a signed route to the Epsom Well from Stew Pond car park.. Educational visits are catered for by EEBC.

1.5.3.4 Stake holders and partnerships

The management of Epsom Common currently involves the following stake holders in addition to the owners Epsom & Ewell Borough Council and residents.

-Natural England
-Epsom Common Association
-Lower Mole Countryside Partnership
-City of London
-Surrey County Council Public Rights of Way
-Keep Britain Tidy
-The Forestry Commission
-Merrist Wood College
-Surrey Amphibian & Reptile Group
-Butterfly Conservation

-Surbiton & District Bird Watchers
-Surrey Botanical Society

-Surrey Wildlife Trust
-EDG Matthews & Sons of Manor Farm Wotton Dorking
-Central Association of London and Provincial Angling Clubs
-Oil Pipeline Agency
-Southern Gas networks
-Southern Power Networks

STAGE TWO – EVALUATION AND OBJECTIVES

2.1 International and National Status

The majority of Epsom Common lies within the Epsom & Ashtead Commons SSSI (Map 1). All of this land lies north of the Epsom-Leatherhead railway line. Whilst Epsom Common does not have an international designation it should be noted that it has a dead wood invertebrate assemblage that scores within the range of international importance (Survey carried out by Peter Hammond 2012) and in addition the remnant lowland heathland present is a habitat of international importance.

2.1.1 SSSI Site Description

The following is taken from the SSSI citation (covering Epsom and Ashtead Commons). The full citation is given in Appendix 1.

These two Commons support a wide diversity of habitat types on the undulating terrain of the London Clay. The site [as a whole] carries four nationally rare invertebrates and several others which are uncommon in Surrey. The range of habitats present promotes a rich community of breeding birds.

Variations in drainage and the management history of the Commons are chiefly responsible for the diversity of habitats present. The site was once managed by stock grazing but the cessation of this activity has led to a natural succession from rough grassland to scrub, and finally to woodland. The present areas of open grassland are maintained by natural factors such as fire and rabbit grazing, and scrub clearance. Woodland dominates approximately half of the site and is variable in age and composition. The Stew Pond and the adjacent recently restored Great Pond (at TQ 184607) date from Medieval times; smaller woodland ponds and a stream, are also present.

Grassland in the southern parts of the site, and around Stew and Great Ponds, lies on poorly drained ground and is dominated by Tufted Hair-grass (*Deschampsia cespitosa)* with Cocksfoot (*Dactylis glomerata)*, Marsh Fox-tail (*Alopecurus geniculatus)* and rushes (*Juncus*) species. Drier ground on Ashtead Common is mainly dominated by Bracken (*Pteridium aquilinum)* but on Epsom Common dry grasslands include patches of remnant heath with Heather (*Calluna vulgaris)*, Bell Heather (*Erica cinerea*) and Creeping Willow (*Salix repens*). Scrub is scattered throughout the open grasslands and consists mainly of Hawthorn (*Crataegus monogyna*), Gorse (*Ulex europaeus*) and Sallow (*Salix cinerea*). The grassland and scrub supports breeding birds such as Lesser Whitethroat (*Sylvia communis*) and carries large populations of wintering thrushes and finches.

Two main types of woodland are present. Young Silver Birch (*Betula pendula*) - Pedunculate Oak (*Quercus robur*) woodland has recently colonised above Bracken or Tufted Hair-grass and has a high scrub content. More mature woodland, particularly on Ashtead Common and the southern part of Newton Wood, consists of Pedunculate Oak, Silver Birch, Holly (*Ilex aquifolium*) and coppiced Hazel (*Corylus avellana*). Of particular importance are several fine old pollards of Pedunculate Oak which are characteristic of former wood pasture, and of special importance for the rare insects associated with them [these are primarily associated with Ashtead Common]. The woodland carries a rich community of breeding birds including all three species of British woodpecker [Green (*Picus viridis*), Greater Spotted (*Dendrocopos major*), Lesser Spotted (*D. minor*)], Woodcock (*Scolopax rusticola*), Barn Owl (*Tyto alba*) and Tawny Owl (*Strix aluco*).

Stew and Great Ponds are the most valuable of the open water habitats. The open aquatic flora of these two ponds includes Duckweeds (*Lemna* species), White Waterlily (*Nymphaea alba*) and Pondweeds (*Potamogeton* species) while the marginal fen flora includes Bulrush (*Typha latifolia*), Bogbean (*Menyanthes trifoliata*), Trifid bur-marigold (*Bidens tripartita*) and Narrow-leaved Water-plantain (*Alisma lanceolatum*). Around the Great Pond a belt of sallow is present above Greater Tussock Sedge (*Carex paniculata*), rushes and Tufted hair-grass. Breeding birds associated with open water at this site include Mallard (*Anas platyrhynchos*), moorhen (*Gallinula chloropus*), Little Grebe (*Tachybaptus ruficollis*) and Kingfisher (*Alecdo atthis*).

This site is one of the most important for invertebrates in Surrey. Of particular note are the species of coleoptera (beetles) and diptera (flies) that are associated with dead wood; these include a beetle *Rhizophagus oblongicollis* whose national existence is under threat. Three other dead wood species are regarded as nationally rare; the beetle *Bibloporus minutus* and the flies *Ctenophora bimaculata* and *Oedalea apicalis*. The fly fauna is further enhanced by the presence of two species which have their only Surrey locality here: *Trixia coerulescens* and *Servillia lurida*. Note that most of the above species have been recorded from Epsom Common. In contrast, two notable butterflies, the Purple Emperor (*Apatura iris)* and the Purple Hairstreak (*Quercusia quercus*) are also present in the woodland; both are known to be present at Epsom Common.

2.1.2 SSSI Conservation Objectives

During writing of the previous plan the former English Nature (Natural England) Conservation Objectives were under review. However, Site Objectives for the SSSI portion of Epsom Common had previously been outlined in a Site Management Statement submitted to Epson & Ewell Borough Council in 2001. The site objectives are outlined below and they remain a good summary of the overall aims of the now agreed Conservation Objectives which are listed in Appendix 2a

- To manage the site as a mosaic of grassland, scrub, woodland, heathland and open water habitats.

- To safeguard and manage the ancient woodland to maintain diversity, including features such as pollards and deadwood.

- To maintain the nationally important invertebrate fauna.

- To maintain and enhance the scrub/grassland mosaic, through managing the scrub component and the remnant heathland and acid grass/scrub mosaic.

- To maintain and enhance the communities of breeding birds.

In addition, the key objectives for Epsom & Ewell Borough Council have been identified as follows:

- To manage the site with nature conservation as the first priority.

- To pursue the objective of attaining National Nature Reserve (NNR) status for Epsom Common (SSSI Portion).

- To recognise the contribution the site makes to the local community by providing an opportunity for informal recreation.

- To balance the needs for visual amenity with the need to manage the site in a way that is sympathetic to nature conservation.

2.1.3 Operations Likely to Damage the Special Interest

The list of Operations Likely to Damage the Special interest of the SSSI (now termed Operations Requiring Natural England Consent) is given in Appendix 3. This is not a list of prohibited activities, but rather a list of activities which require the formal written consent/assent of Natural England. The owner or occupier is required to give a formal written notice to Natural England and wait until they receive formal written consent before they carry out any of the activities listed in Appendix 2b. Natural England can condition or refuse consent/assent should they consider the activity to be damaging to the SSSI interest features.

2.2 Other Designations

The entire area of Epsom Common was designated as a Local Nature Reserve in 2001.

Most of the non-SSSI portion of Epsom Common (50.5ha) lies within a 'Site of Nature Conservation Importance' ("Epsom Common South") selected by the Surrey Nature Conservation Liaison Group (re-affirmed October 2013) and identified in the Epsom & Ewell Borough Local Plan (Map 1). Included under this designation is the majority of land south of the Epsom-Leatherhead railway line, plus a smaller section immediately north of the railway line.

In 2007 Epsom Common achieved the Green Flag Award for the first time and has re-entered and retained this national green space management award in subsequent years with the flag being flown on the Epsom Common Club flag pole overlooking Stamford Green. The award scheme has eight criteria which taken together and along with the scrutinising function of the judging process has brought with it some significant improvements and a sense of pride for everyone involved. Whilst retaining the award does cost several hundred pounds annually and several days of officer time the overall benefits of being in the award scheme are such that it is recommended that the award is retained for the foreseeable future. The eight judging criteria are:

1. A welcoming place

When approaching or entering the park/green space, the overall impression for any member of the community - regardless of the purpose of their visit - should be positive and inviting. There should be:

• Good and safe access
• Good signage to and in the park/green space
• Equal access for all members of the community

2. Healthy, safe and secure

The park/green space must be a healthy, safe and secure place for all members of the community to use. Any issues that have come to light must be addressed in the management plan and implemented on the ground. New issues that arise must be addressed promptly and appropriately.

• Equipment and facilities must be safe to use
• It must be a secure place for all members of the community to use or traverse
• Dog fouling must be adequately addressed
• Health and safety policies should be in place, in practice and regularly reviewed
• Toilets, drinking water, first aid, public telephones and emergency equipment where relevant (e.g. life belts by water) should be available in or near the park/green space, and be clearly signposted.

3. Clean and well maintained

For aesthetic as well as health and safety reasons, issues of cleanliness and maintenance must be adequately addressed, in particular:

• Litter and other waste management
• The maintenance of grounds, buildings, equipment and other features

• A policy on litter, vandalism and maintenance should be in place, in practice and regularly reviewed.

4. Sustainability

Methods used in maintaining the park/green space and its facilities should be environmentally sound, relying on best practices available according to current knowledge. Management should be aware of the range of techniques available to them, and demonstrate that informed choices have been made and are regularly reviewed. Parks/green spaces should:
• Have an environmental policy or charter and management strategy in place, which is in practice and regularly reviewed
• Minimise and justify pesticide use
• Eliminate horticultural peat use
• Recycle waste plant material
• Demonstrate high horticultural and arboricultural standards
• Have energy conservation, pollution reduction, waste recycling, and resource conservation measures

5. Conservation and heritage

Particular attention should be paid to the conservation and appropriate management of:
• Natural features, wildlife and fauna
• Landscapes
• Buildings and structural features
• These should serve their function well without placing undue pressure on the surrounding environment

6. Community involvement

The park/green space management should actively pursue the involvement of members of the community who represent as many park/green space user groups as possible. The following should be demonstrated:
• Knowledge of user community and levels and patterns of use
• Evidence of community involvement in management and/or developments and results achieved
• Appropriate levels of provision of recreational facilities for all sectors of the community

7. Marketing

• A marketing strategy should be in place, which is in practice and regularly reviewed
• There should be good provision of information to users, e.g. about

management strategies, activities, features, ways to get involved
• The park/green space should be promoted as a community resource

8. Management

• A management plan or strategy should be in place
• This should clearly and adequately address all of the above criteria and any other relevant aspects of the park/green space's management
• The plan must be actively implemented and regularly reviewed
• A financially sound management of the park/green space must also be demonstrated

2.2.1 Byelaws and Other Statutory Information

Epsom Common and Clay Hill Green are subject to the provisions of Section 193 of the Law of Property Act, 1925, under which members of the public have rights of access to the land for air and exercise. However, this right of access is subject to the byelaws relating to the Common (see Appendix IV).

However, if Epsom Common remains a 'Metropolitan Common' the legal status of the existing byelaws created in the 1950's under the Law of Property Act is unclear. Byelaws for Metropolitan Commons should be created as defined by the Metropolitan Commons Acts 1866-98. This matter requires clarification.

The existing byelaws remain reasonably comprehensive in defining actions likely to harm the common and its wildlife or cause a danger or disturbance to people. However they were last agreed in 1975 with a maximum fine set at £20. There is a case for improving the definitions within the byelaws to assist in deterring activities that were unforeseen in 1975.

2.2.2 SNCI Description (From SNCI re-survey 2013 by P Howarth)

Site description

This site is part of the overall site of Epsom Common Local Nature Reserve (LNR) (175Ha), which in turn is part of the larger Epsom & Ashtead Commons Site of Special Scientific Interest (SSSI). This report concerns the area of Epsom Common that falls outside the boundary of the SSSI The site lies to the south-west of Epsom and to the north of Ashtead. The land is owned by Epsom and Ewell Borough Council. Epsom Common LNR has open public access, with a number of rights of way crossing the site. The majority of the site is situated on London Clay. The predominant soil types are Windsor pelo-stagnogleys, these comprise heavy clay to medium clay loams.

Previous reason for selection
Large site with secondary native broadleaved woodland, scrub, underscrub and unimproved rough mesotrophic and acid grassland as well as wet grassland and ponds, a total of 48 hectares

Reason for selection:
The selection criteria are the presence of veteran trees, there are a total of 15 veteran trees. Acidic grassland there is an area of Sheep's Fescue, Common Bedstraw, Heath Bedstraw grassland (U4). Over the site the patches of grassland contain a total of 27 of the species of conservation importance including 6 of the priority species in bold (see table under species lists below). Butterflies, the site supports the butterfly White Admiral which is on the list A of the lists of butterfly species of importance within Surrey.

2.3 Criteria for Evaluation

Size

The Epsom and Ashtead Commons SSSI as a whole covers an area of 358.4ha, of which approximately 119.6ha occur within Epsom Common. Of the remaining non-SSSI portion (54.9ha), a total of 50.5ha has been designated as SNCI. All 174.5ha of Epsom Common has LNR status.

For the most part, Epsom Common forms a continuous swathe of land contiguous with Ashtead Common and Newton Wood. However, the Common is somewhat fragmented within its southern portion. Any further fragmentation or losses of land would reduce the nature conservation value. Epsom Common sits within the Ashtead & Epsom Woodland, Prince's Coverts & Horton Country Park biodiversity opportunity area.

Diversity

Epsom Common supports a high overall biodiversity. Woodland, scrub, grassland, relict heath, wetland and open water habitats are present. Over

500 vascular plant species have been recorded, along with more than 550 invertebrates (mainly beetles), at least 90 birds and over 130 species of fungi. During the lifetime of the previous plan there was a significant improvement in recording. However, there has been a limited amount of systematic recording of many groups, and the current lists should be regarded as incomplete.

In the previous plan it was stated that there is evidence of a decline in overall biological diversity, especially relating to birds, in recent decades as tree cover has expanded and canopies have become denser. Addressing this decline is one of the principal aims of nature conservation management. During the lifetime of the previous plan a great deal of habitat restoration work has taken place aimed at addressing the decline and evidence from regular breeding bird surveys has shown no decline of breeding birds and increases in both the diversity and abundance of both plant and insect species has been recorded.

Naturalness

Historically, the Common formed part of the waste of the manor of Epsom. It was grazed by livestock, and probably possessed a mosaic of open grassland (including grass-heath) and heath, with patches of woodland and scrub and perhaps also wood-pasture. Some older stands of woodland may date back to this period, although none are thought to be of ancient (i.e. pre-1600) origin.

A major proportion of the woodland on Epsom Common has developed through a process of secondary succession, following an abandonment of grazing from around the start of the Twentieth Century. Other stands are even more recent, having developed upon parts of the Common ploughed for cultivation during WW2, up until 1955.

The larger ponds are man-made, whilst some of the smaller ones have developed ‘naturally’ in old mineral workings.

A majority of species recorded from Epsom Common are believed to be site-native. However, a significant number of accidentally or deliberately introduced non-native (neophtye) plant species are known, some of which are highly invasive - e.g. New Zealand Pigmyweed/Australian Swamp Stonecrop (*Crassula helmsii*) and Japanese knotweed (*Fallopia japonica*).

Rarity

The relic lowland heathland present is an internationally rare habitat. A number of the habitats and species present on Epsom Common are also important in a national context, and are listed below. The Natural Environment and Rural Communities (NERC) Act came into force on 1st Oct 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of

biodiversity in England. The national list has been drawn up in consultation with Natural England, as required by the Act. For Epsom Common Habitats include Lowland Heathland, Lowland Acidic Grassland, and Lowland Wood Pasture and Parkland.
With regard to species rarity Epsom Common includes:-

There are no records for any nationally rare vascular plant species for Epsom Common. Chamomile (*Chamaemelum nobile*) has in the past been listed as nationally scarce (Stewart *et al*., 1994) [i.e. it was formerly thought to be confined to 16-100 ten km OS grid squares]. However, in the recently published "New Atlas of the British and Irish Flora" (Preston *et al*., 2002), it is now shown to be present in 148 ten km squares. A total of seventeen species are regarded as rare in Surrey (Lousley, 1976; Leslie, 1987). These include Chamomile, as well as Corky-fruited Water Dropwort (*Oenanthe pimpinelloides*), Orange Foxtail (*Alopecurus aequelis*) and Short-styled Field-rose (*Rosa stylosa*). As well as the above, around twenty species are considered to be either local or scarce in Surrey, e.g. Saw-wort (*Serratula tinctoria*). In addition to the nationally scarce plants listed above, the Surrey rare plants register lists as scarce the following plants also found on Epsom Common; Purple Willow *(Salix purpurea)*, Floating Club-rush *(Eleogiton fluitans)* and Black Poplar *(Populus nigra)*.(see Appendix 3).

Approximately 60 nationally rare (Red Data Book) and scarce invertebrates have been recorded, mainly beetles. Most significantly, the Red Data Book 1 category includes the Box Bug *Gonoceras acuteangulatus*, which, only a few years ago was thought confined to Box Hill, along with the 'dead-wood' beetle *Rhizophagus oblongicollis* (recorded during 2004 near to an old oak close to the Stew Pond car park).Three more were found in the 2012 vane trapping survey, *Microscydmus minimus*, *Batrisodes delaporti* and *Stichoglossa semirufa*. As well as these, there are a further four species of beetle amongst the other RDB categories. Nine species of invertebrate are currently regarded as nationally scarce - Notable A (16-30 ten km squares); three of these (Oak Jewel Beetle *Agrilus pannonicus*, Hawthorn Jewel Beetle *A. sinuatus* and Sallow Jewel Beetle *A. viridus*) were formerly nationally rare RDB2 and two (the rove beetle *Batrisodes venustus* and the tumbling flower beetle *Tomoxia bucephala*) RDB3. Nationally scarce - Notable B (31-100 ten km squares) species include the dance fly *Oedalea apicalis* and the rove beetle *Bibloporus minutus*; both of which were formerly regarded as RDB3.

The most significant breeding birds in terms of rarity are six 'Red-listed' species; lesser spotted woodpecker, song thrush, yellowhammer, reed bunting, house sparrow and starlingwhich have been recorded breeding on the Common at some time in recent years. In addition to the 'Red-listed' Skylark (*Alauda arvensis*) seen as a passage migrant (Gibson, 2000). Of the 'Amber-listed' category there are twelve species with breeding records, in addition to 17 species that have been recorded as visitors or seen on passage. Appendix III gives the full list of rare and scarce species.

With regard to mammals, in 2012 a Dormouse (*Muscardinus avellanarius*) was discovered by volunteers near Rye Meadow. This has led to a large scale volunteer led survey involving 50 boxes which has confirmed the presence of a breeding dormouse population on Epsom Common. A similar discovery has also occurred on Ashtead Common. Surveying of bats from 2010 onwards has indicated that there are at least 8 species of the 17 British species present; Daubenton's, Common pipistrelle and Soprano pipistrelle, Noctule, Leisler's, Serotine, Brown long-eared and Whiskered/Brandts/Alcathoe.

Recent surveys have confirmed the presence of Great crested newts (*Triturus cristatus)*, a European protected species along with Palmate newts (*Lissotriton helveticus)* and Smooth newts *(Lissotriton vulgaris)* in Blake's Pond.

There is also a notable population of Adders and Grass snakes, particularly in the grazed areas.

Fragility

The mosaic of open grassland, remnant heath, scrub and woodland habitats is fragile in terms of its susceptibility to vegetation succession. Without appropriate management intervention, this would succeed eventually to secondary woodland with a consequent loss of its structural diversity. As a result, the existence of many of the rare and scarce species (which are often associated with these declining habitats) can be regarded as fragile.

Ancient pollarded trees and their associated specialised invertebrate fauna are also extremely susceptible to environmental changes. The trees themselves are vulnerable to influences such as overshading by taller maiden trees, a lack of recent pollarding (rendering them top-heavy and susceptible to collapse) and the risk of fire. The specialised invertebrate fauna are each dependent upon particular conditions of temperature and humidity, and require a continuity of decaying timber in all stages of decay with appropriate lighting conditions. The combined resource of mature and decaying timber habitat at Epsom and Ashtead Commons is finite, and so the continued existence of the above spectrum of environmental conditions is a matter of concern. During the lifetime of the previous plan substantial halo release work c2006/7/8 was carried out to veteran trees located in the North West corner of the common, veteran tree surveys were carried out in 2009 and 2011, along with a subsequent site wide programme of crown reduction and further halo release. The programmed works are currently set to continue in to the 2020's

The aquatic habitats are also susceptible to vegetation succession. Over time, without continued maintenance, they would become silted-up and develop into terrestrial habitats – ultimately woodland. In addition, water bodies are also vulnerable to pollution. For example, there has been a past incident where oil found its way into the surface water drainage system and subsequently into Stamford Green Pond. There is also a threat from eutrophication (e.g. related to inappropriate fish stocking in Stew Pond).

A further threat to habitats present on the Common is that posed by the spread of non-native species. Of most concern are New Zealand Pigmyweed, Japanese Knotweed, Sycamore, Turkey Oak and Cherry Laurel. Appropriate control strategies for these species are included within this management plan.

Typicalness

Epsom Common is characteristic of a number of formerly open areas of manorial waste in the London Basin that have been colonised by secondary woodland as a result of the decline in traditional grazing and other management activities.

Scattered pockets of relict grassland and heath are typical of the few sites where woodland has not been allowed to encroach or where open grassland and heath habitat has been restored. These semi-natural grasslands on the London Clay are now uncommon, whilst heathland vegetation is even rarer. Thus Epsom (and Ashtead) Commons retain elements of habitat conditions that were formerly probably much more extensive.

Recorded history

There is an early record of the botanical composition of Epsom Common in Dorling (1825), but this does not say anything about the nature of the habitats present. There has been sporadic recording on the Common since the formation of the Epsom Common Association in 1975, with the earliest records for invertebrates apparently relating to this period. The draft Epsom Common Management Proposals (Davy, 1982) attempts to show the distribution of different habitats, with an indication of their species composition. Epsom & Ewell Borough Council maintains a database of biological records relating to the Common, however for most taxa the common remains under recorded. Most records of site management relate to the period after the formation of Epsom & Ewell Borough council in 1937.

A useful source of more general historical information are the Epsom Common Association Book (Anon., 1993), whilst the various references to biological records on the Common have been outlined under Section 1.5.2 above.

Position in ecological unit

Epsom Common forms one element of a larger site that incorporates Ashtead Common (mainly NNR) and Newton Wood. The relative importance of these three sites is difficult to quantify, as they are quite distinct and have been subjected to different past management regimes. The scrub/grassland mosaic is most extensive on Epsom Common (although there are smaller areas on Ashtead Common) and it thus contributes to the overall diversity of habitats present across all three sites as a whole. There are no similar examples of heath and grassland on the London Clay in the local area, with the exception of small areas of similar habitat at Bookham Common.

To the south and east, the Epsom/Ashtead Common complex is largely adjoined by urban or suburban land. To the north-west lies agricultural land, whilst to the north of Epsom Common lies Horton Country Park Local Nature Reserve (on similar soils and managed as public open space by Epsom & Ewell Borough Council). The south-eastern portions of Epsom and Ashtead Commons were crossed by the Epsom & Leatherhead Railway in 1859. Close to this lies the main A24 Dorking Road; this southern portion of Epsom Common is further fragmented by a number of other minor roads. Despite this fragmentation, the occurrence of such a large area of semi-natural habitat in an urban fringe environment is significant.

In a wider context, the Epsom and Ashtead Commons complex forms one of a cluster of common land sites occurring in the central-north-eastern part of Surrey. These include Headley Heath and the Banstead Heath complex, both around 7km away to the south and south-east respectively. To the south-west lies Ranmore Common on the South Downs, around 10km away, with the Great Bookham Common complex somewhat nearer, at around 7km. Due west is the Ockham/Wisley Commons complex, a little over 10km away, whilst the Esher Commons complex lies to the north-west, around 6km distant.

During the lifetime of the 2005-2015 plan a targeted landscape scale approach to conserving and enhancing biodiversity has emerged termed Biodiversity Opportunity Areas (BOAs). In Surrey a number of BOAs have been identified one of which is Ashtead and Epsom Woodland (Commons), Princes Coverts and Horton Country Park. The BOA is described as follows:-

The site is located to the north of Ashtead and Leatherhead.

Joint Character Area: Thames Basin Lowlands, North Downs

Geology: London Clay, River Terrace Deposits, Blackheath

Topography: To follow

Soils: Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. Loamy soils with naturally high groundwater

Biodiversity:
Lowland Mixed Deciduous Woodland
Wet Woodland
Wood Pasture and Parkland
Ancient Semi-Natural Woodland
The Opportunity Area includes one SSSI (Epsom and Ashtead Commons) and nine SNCIs

Access:
Ashtead Common; Corporation of London, Epsom Common; Epsom and Ewell Borough Council, Leatherhead Common; Mole Valley District Council,

Ashtead Park; Mole Valley District Council/SWT, Princes Coverts; Crown Estates, Horton Country Park; Epsom and Ewell Borough Council

Archaeology: Camp in Ashtead Forest and Roman villa in Ashtead Forest

The creation of BOAs highlights the need for individual site management to maintain links with neighbouring sites and to assist and play a part in wider landscape scale approaches to managing biodiversity.

Potential for enhancement

The most significant potential for enhancing the nature conservation value of Epsom Common is the on-going restoration of the open habitat mosaic. In the longer term, this should continue to be sustained through the low-intensity grazing to a large part of the Common, to maintain restored areas and create an intimate mosaic of open grassland, scrub and woodland. To a large extent the aims of the previous plan have been achieved with three large areas grazed from May to September annually. The full proposed extent was curtailed due to issues with crossing main paths and a desire at Bramble heath to gauge the impact over a decade or more of grazing at nearby Horton Heath which also has an area of existing heather. Plans to jointly graze across the Rye brook in cooperation with the City of London have so far not proved practical but remain a possibility. Whilst most of Highlow Meadow and Horton Heath lie to a large extent on land ploughed during WW2 (Map 3), Rye Meadow is situated on relict un-ploughed ancient grassland supporting old ant hills. In addition, Horton Heath has been integrated into one of the new grazing compartments (via a linking corridor) and its area has been expanded. There is still potential to extend the areas of all three grazing areas but there are issues involving the practicality of daily checks for the cattle, the cost of further secondary woodland clearance and the need to monitor the success of the re-introduction of grazing for a time before extending further.

Whilst early stages of the important grassland-scrub succession are maintained within the grazed compartments, outside the grazing areas, some stands of dense scrub will continue be managed on rotation to improve their value to breeding birds. It is also proposed to continue to enhance woodland management operations, especially to encourage existing pollarded trees and create new ones. This will ensure a continuity of dead and decaying timber habitat including standing dead wood to sustain the associated invertebrate fauna. There is still a need to manage the extensive areas of secondary woodland through selective thinning, glade creation and the control of invasive alien species such as Turkey Oak, Sycamore and Cherry Laurel.

There is an opportunity to enhance the nature conservation value of many of the ponds and other water bodies on the Common – for example through the clearance of encroaching vegetation and control of New Zealand Pigmyweed. In addition, the habitat mosaic could be further enhanced by the creation of new ponds within the areas proposed for grazing.

The Rye Brook which forms part of the boundary with Ashtead Common is currently the focus of a major restoration plan implemented by the City of London in consultation with the Environment Agency to help alleviate local flooding in Ashtead and to gain biodiversity enhancements..

Intrinsic appeal

Epsom Common forms an important component of the Epsom/Ashtead/Newton Wood complex and the mosaic of open habitats on Epsom Common adds to the overall intrinsic appeal of this greater site. Despite some initial reservations, the reintroduction of grazing livestock to a part of Epsom Common has been well-received by the local population. The reintroduction of grazing across additional has served to further enhance the intrinsic appeal of the Common. Grazing at this site gives an urban fringe population the chance to see traditional commons management providing excellent cultural, historical and conservation education opportunities.

Demonstration of excellence

The restoration of a mosaic of open habitats upon previously open, registered common land provides an opportunity to demonstrate best practice management for nature conservation, particularly if this involves the restoration of common land grazing to part of the area. In addition, a carefully executed strategy of woodland and parkland management will encourage the continued existence and further development of mature/veteran trees and decaying timber habitat in recognition of the site's importance for the associated beetle fauna. Careful planning of restoration management should also allow the enhancement of the landscape and amenity value of the Common.

National Nature Reserve status

Given appropriate, integrated management of both Epsom and Ashtead Commons as a single ecological entity, there is the possibility that, like Ashtead Common at present, the SSSI portion of Epsom Common could in the future attain National Nature Reserve (NNR) status thereby including the whole of the Epsom & Ashtead Commons SSSI in an extended Epsom & Ashtead Commons NNR. This possibility has been identified by both Natural England and EEBC, and it was agreed as as a key objective of the 2005-2015 plan.

Unfortunately a series of delays caused by changes within Natural England mean that the application process which commenced once 'Favourable' condition status was attained in 2010, remains on going. A letter from EEBC to Natural England requesting approved body status has been submitted and awaits a formal response from Natural England. Feedback from Natural England remains very positive and consequently this plan aims to continue pursuing the aim of attaining NNR status which should act as a catalyst to maintaining high standards of management and close cooperation with the

City of London (who own and manage Ashtead Common), Natural England and the Epsom Common Association

The criteria for approved body status and the NNR management standard are set out in Appendix V with accompanying references to EEBC's and Epsom Common's position set against the criteria.

2.4 Natural Area Context

Epsom Common is a large, formerly grazed area of manorial waste within the London Basin Natural Area. The proposal to continue restoration of open grassland habitat (and small areas of heathland), including the provision to extend grazing, whilst maintaining management of areas of woodland and open water, is in line with the conservation objectives set out in the Natural Area Profile and addendum (English Nature 1998).

2.5 Ecological Impact Assessment

In the previous plan a Forestry Commission Felling Licences were required for the planned tree and scrub clearance work. The scale of the proposal meant that the need for an Ecological Impact Assessment (EIA) had to be considered. Following consultation with various 'key players' (e.g. English Nature, Environment Agency and the local residents – through the Epsom Common Association), the Forestry Commission decided that a formal EIA was not required for the management plans proposed felling. For this plan the scale of proposed tree and scrub clearance work is significantly smaller, although a felling licence is likely to be needed to continue with the management of the secondary woodland areas by selective thinning. It should be noted that any future proposals for significant clearance of secondary woodland, scrub or de-silting of ponds should be preceded by an impact assessment that includes European protected species surveys for bats, Great Crested Newts and Dormice.

2.6 Identification/Confirmation of Important Features

Site Features	International Importance	National Importance	Local Importance

Site Features	International Importance	National Importance	Local Importance
1. Habitats/vegetation types			
• Lowland heathland	*	*	
• Lowland wood pasture & parkland (inc. veteran trees)			
• Grassland:		*	
• Unimproved acid grassland		*	
• Neutral grassland			*
• Broadleaved woodland			
• Scrub			*
• Open water/wetland			*
2. Species groups			
• Invertebrate assemblage (mainly dead wood Coleoptera)	*	*	
• Bird assemblage		*	
• Vascular plant assemblage			*
• Fungi assemblage			*

2.7 Ideal Long-term Management Objectives

Epsom Common represents part of a larger site that constitutes the Epsom & Ashtead Commons complex. The mosaic of open grassland, relict lowland heath, scrub and woodland habitat on Epsom Common is of national importance. This complex is most important for its wood pasture, veteran trees and associated assemblage of dead wood invertebrates and in addition for the population of birds it supports.

The ideal long-term management objectives outlined below, with a view to guiding the management of Epsom Common over the next 100 years, have been determined from English Nature SSSI objectives (English Nature 1997a & 1997b), the Natural England Conservation Objectives 2008, reviews of historical data and aerial photographs, liaison with various individuals and organisations and new information gained during recent site surveys.

- To maintain and enhance the mosaic of open grassland, scrub, relict heath and wood-pasture by the controlled clearance of further areas of scrub and recent secondary woodland, and restoration of controlled low-intensity grazing to appropriate areas within Epsom Common. Where grazing is not practicable, grassland, scrub, relict heath and wood-pasture mosaics will require management by other suitable means such as scrub removal/thinning and mowing.
- To maintain and enhance the mature woodland and wood pasture as part of the overall habitat mosaic. This should include the encouragement of veteran trees (including pollards) and the decaying timber resource, by appropriate veteran tree management, coupled with the thinning and control of undesirable species.

- To maintain and enhance aquatic and wetland habitats by appropriate marginal vegetation control and maintaining water quantity and quality.

- To control the spread of undesirable invasive species on the Common by appropriate cutting, mowing, grazing and chemical treatment.

- To maintain and enhance the outstanding invertebrate interest across all habitats present by ensuring habitat management meets with species requirements.

- To maintain and enhance the ornithological interest across all habitats present by ensuring habitat management meets with species requirements.

- To maintain and enhance the botanical interest across all habitats present by ensuring habitat management is compatible with species requirements.

- To manage public access and recreational use of the Common and to promote educational and research use and in a way that is consistent with maintaining the nature conservation value.

- To maintain and enhance the cultural and landscape value of the site by ensuring habitat management incorporates visual amenity benefits.

Possible sources of funding

Resources for management of the Common will be sought from the following principle sources:

- Epsom & Ewell Borough Council's approved budget provision
- Existing and new agri-environment grant aid schemes
- Heritage Lottery grants if appropriate
- Other grant aid schemes e.g. Land fill tax.
- Epsom Common Association

- Sale of charcoal
- Sale of timber from woodland management
- Guided walks and educational visits.
- Natural England through SSSI/LNR/NNR status

2.8 Rationale

This section describes how the long-term management objectives for Epsom Common set out above can be achieved, or modified, in view of the constraints identified. However, firstly, it is useful to take an overview of management work that has taken place in recent years.

The first formal management plan for Epsom Common was prepared in 1982 (Davy, 1982). For a number of reasons, but mainly the financial cost of implementation and the complexity of the plan, it was never implemented in full. However, it did initiate efforts at scrub clearance during the winter months by the Borough Council with the assistance of volunteers from the Surrey Wildlife Trust.

A second management plan was produced by Epsom & Ewell Borough Council in 1994 (Anon. 1994). However, this lacked a prescriptive programme of works. From the mid–1990s a programme of scrub-clearance was instigated, aimed at restoring an area of open grassland upon which grazing could be reintroduced. This goal was successfully achieved in 1997, with 2 head of cattle being present in this first season of grazing. This work was largely due to the efforts of the Epsom & Ewell Borough Council Ranger Service, working with the Lower Mole Countryside Management Project, the British Trust for Conservation Volunteers and the Surrey Wildlife Trust.

From 1997 to 2005 with funding assistance from a Countryside Stewardship agreement, a total of 10ha of open habitat was restored, and the number of grazing animals increased (to a maximum of 20 in any one year). In addition, a programme of botanical monitoring was also commenced to follow the effectiveness of grazing management.

Under the previous plan which commenced in 2005 further significant enhancements took place the area grazed increased to 18.1ha and up to 35 cows grazing three separate areas Highlow Meadow (20 animals), Rye Meadow (10 animals) and Horton Heath (5 animals).

The level of biological monitoring increased significantly under the guidance of the previous plan with regular breeding bird surveys, an NVC vegetation survey, a dead wood invertebrate survey, small mammal, bat and a bryophyte surveys. In addition a programme of veteran tree management work also commenced along with the removal of hundreds of Turkey oaks.

The rationale for the management of the 10-year plan contained within this document can now be considered for each of the stated objectives.

2.8.1 Open Grassland/Relict Heath/Scrub Mosaics Inclusive Of Wood Pasture

Historically, the 'manorial waste' of Epsom Common was grazed by the livestock of individuals who had commoner's rights to do so. For a variety of reasons, this practice fell out of favour toward the end of the 19th century and hence the only rights registered on the Common under the 1965 Commons Registration Act were for estover (i.e. there are no registered grazing rights today).

While the Common was being grazed in this way, it would have supported a diverse mosaic of grassland, scrub, heathland and woodland habitats, and also possibly areas of wood pasture. With the cessation of this management, there has been a gradual encroachment of scrub and secondary woodland across the Common, with a consequent decline of habitat diversity.

More recently, during WW2, parts of the Common were ploughed for agriculture. This area is clearly visible on an aerial photograph taken in 1949 (Map 3) and the Common was used in this way up until 1955. As of 1971, the ploughed areas were still largely devoid of tree cover. However, since this time, scrub and secondary woodland have developed rapidly, as can be seen on the 1981 photographs.

The first 10-year plan aimed to reinstate traditional grazing to several additional parts of the Common (totalling 30ha) and thereby restore the diverse habitat mosaic to a significant area (see Map 6). Whilst the plan was realised in terms of introducing grazing to two additional areas of the common it was felt that it was too complex in terms of public access issues and the resources available to manage the cattle, to extend to the planned 30ha. The total in 2015 is 18.1ha, there is scope to slowly expand all three grazing areas without creating public access issues but there is a need to consider the increased effort required to carry out daily checks which is very time consuming for both volunteers and staff. Where grazing is not a feasible option, a range of other techniques will be employed.

Clearance of scrub and secondary woodland

Once grassland has progressed to dense scrub it is very difficult to restore it back to good quality grassland habitat. Dense scrub cover deposits a deep layer of leaf litter, smothering all of the existing grassland vegetation and leads to nutrient enrichment of the underlying soil (especially Phosphorous). Thus, once scrub is cleared from such areas there is often a growth of weeds and rank vegetation that may out-compete any development of grassland species from an already impoverished seed bank.

The most successful approach to scrub management is to act before the canopy has become dense, whilst some of the original grassland vegetation is still remaining, and before significant accumulation of leaf and other organic

material has modified the nutrient status of the soil. Therefore, it is vital that management is focussed upon areas that still support elements of grassland vegetation before they are lost to scrub and secondary woodland.

Important elements of this scrub-grassland mosaic are as follows:

Grassland – A variation in sward conditions from areas of short turf through to areas of taller, tussocky vegetation (representing important invertebrate habitat). A moderate degree of localised poaching and trampling is valuable, especially around pond edges or seasonally wet soil, in providing suitable conditions for particular invertebrates or germination sites for plants.

Early successional scrub – Low-level grazing will allow colonisation by seedling scrub to take place, especially of the less palatable species (e.g. Blackthorn and Hawthorn). This pioneer scrub represents a wildlife-rich, but very short-lived part of the habitat mosaic. If un-checked it would develop sufficiently to shade-out existing grassland habitat (i.e. progress to closed-dense scrub). In order to maintain a continuity of young scrub-grassland habitat, eventual clearance of pioneer scrub needs to be balanced by allowing it to develop elsewhere.

Older scrub and mature trees – A degree of older/closed scrub is also a valuable component of the habitat mosaic. Scattered mature specimens of tree/shrub species such as Hawthorn, Blackthorn and Birch can be valuable for both birds and invertebrates (e.g. providing food, shelter, resting places/perches, hunting areas, hibernation sites, landmarks for swarming insects, as well as supporting their own communities of invertebrates). The management rationale for mature scrub is considered in more detail below.

Many species are dependent upon more than a single component of the habitat mosaic. For example, invertebrates such as the Purple Emperor butterfly, which requires a mixture of Oak and Grey Willow in conjunction with sunny glades with Willow scrub at various stages of maturity. In addition, scrub margins can provide habitat for a number of less common and grazing-sensitive vascular plant species that cannot survive within the grazed grassland sward. Therefore, the overall aim is to achieve and maintain a structurally diverse and spatially varied habitat mosaic that incorporates all stages of the full succession from open grassland through to scrub, to secondary woodland around the margins.

For scrub and secondary woodland clearance, the following general principles will be adopted:

- Tree felling and scrub should be done by chainsaw and scrubcutter.
- The use of heavy machinery should be avoided where possible, especially in sensitive areas.
- A small proportion of older trees and shrubs should remain.
- Cut scrub should be removed to avoid smothering the grassland and enriching the soil. It should ideally be burnt (either off-site or on an

area of no conservation importance) or chipped (All fire sites should be GPS tagged to enable future re-use).
- Scrub clearance should be followed up by stump treatment to limit re-growth, using an appropriate herbicide such as ‘Round-up’.

Once an area has been cleared, it should be 'rested' for one growing season before grazing or cutting and clearing is reintroduced. Monitoring of subsequent vegetation development will reveal if the required grassland/scrub mosaic is being maintained.. It is likely there will be a need for further scrub management in subsequent years to create the ideal mosaic conditions (see under following heading).

Management of non-grazed scrub habitat

Outside the grazed compartments priority will again be given to more open areas that still retain an element of the original grassland vegetation (Maps 3 and 6). In addition, areas of more dense scrub will be managed on a rotational basis, to maximise the grassland/scrub interface and thereby improve structure for birds, invertebrates and small mammals and in particular Dormice. Managing scrub for Dormice adjacent to Rye Meadow is a priority. Using the same general techniques as for the initial scrub and secondary woodland clearance, the following principles will apply:

- Create a scalloped edge to scrub margins (creating ‘bays’ – these being of particular value to invertebrates when south-facing). [Invertebrates]
- Allow the development of taller grassland and herbs along these fringes. [Invertebrates and plants]
- Create glades at intervals. [Invertebrates]
- Only a small proportion of each block, say one third, should be removed in a single operation.
- Gradually clear scrub around features such as remnant grassland or ponds.
- Retain a proportion of old scrub and decaying timber (e.g. Hawthorn) [dead wood invertebrates and fungi].
- Allow some of the canopy to grow into trees (but not enough to shade out the ground flora or prevent shrub flowering).
- Retain (where present) some trees of Oak, Birch, Hazel, Hawthorn, Apple and Cherry, plus Bramble and Rose (maximise shrub and tree species diversity). [Invertebrates]
- Pollard some of the younger (under 10 years) trees. [Invertebrates]
- Coppice some of the scrub. [Invertebrates and birds]
- Create occasional ‘brash’ piles. [Invertebrates]
- Encourage a complex three-dimensional structure, with shrubs of varying height, shape, age and spacing [Invertebrates and birds].
- See also specific recommendations with regard to Nightingale (Section 2.8.7).

Some or all of these techniques will also be used as appropriate for any subsequent follow-up management within the grazed compartments of the Common, in order to achieve the ideal habitat mosaic.

Grazing

Subsequent maintenance of the restored grazing areas will continue through low-intensity cattle-grazing during the period of May-October (depending on weather conditions). Much of the available evidence shows that for invertebrates in particular, grazing is the preferred option for grassland maintenance (Kirby, 1992). Thus, for example, whilst grazing can maintain a wide variety of structural elements to the sward, mowing produces a uniform sward lacking in structural diversity, which produces a sudden, drastic modification of habitat conditions that many invertebrates will be unable to survive. In addition, low intensity grazing, in allowing the development of tall/tussocky grassland, represents habitat suitable for small mammal populations such as harvest mice (Perrow & Jowitt, 1995), animals which could not survive in mown grasslands.

The existence of a number of separate compartments will allow flexibility in managing and achieving the ideal grazing regime. Thus, different compartments could be grazed at slightly different intensities, or could be rested for a time if necessary (e.g. in case of drought which may effectively stop plant growth). In addition, should the management of any one compartment prove damaging to invertebrate populations, there is a good chance they will survive in other areas. As a further safeguard against over-grazing in periods of drought, emergency stock-holding is available at Horton Country Park, so that livestock could be removed from the site altogether.

'Stew Pond Meadow'

In recent years a rabbit population has established itself, living along the path margin leading from the car park to Stew Pond. The meadow was initially cut for hay becoming unsuitable after several years, due to nutrient depletion and subsequently received an annual cut and clear, aiming to encourage a broader range of flowering plants. However, since 2013 the annual cut has been suspended as the impact of rabbit grazing is such that a cut would destroy what seems to be the development of an interesting mosaic of close cropped areas and longer tussocky areas. It is recommended that the impact of rabbit grazing is observed for a number or years, before a decision is taken on future long-term management.

Treatment of intestinal parasites

Domestic livestock are routinely treated with a variety of chemicals, in particular those for gastrointestinal parasites ('anthelminics'), principally nematodes. Many of these chemicals are long-lived in the environment and have an adverse effect on invertebrates, especially coprophilous ones that break down animal dung (principally Diptera, Coleoptera and Hymenoptera). One of the most damaging chemicals in this regard, and generally the preferred agent of choice by farmers, is Ivermectin. This is commonly

administered to cattle using a ‘bolus’ system, which releases the chemical slowly over a period of time. In addition to the above groups of insects, Ivermectin is also toxic to other groups such as molluscs, spiders, crustaceans and earthworms, whereas it has no significant antibacterial, antifungal or antiprotozoal activity (Cox, 1999).

Little is known about whether Ivermectin can accumulate to toxic levels within the surrounding soil over a prolonged period of usage. However, it is recommended that Ivermectin should not be used in situations where rare or endangered elements of the coprophilous fauna occur (Cox, 1999). In such situations, there are less toxic drugs available.

Therefore, ideally, Ivermectin should not be administered to stock grazing Epsom Common – if possible alternative, less toxic drugs should be used instead. If Ivermectin use is unavoidable, it should be administered by injection or drench, when the animals are brought in for the winter, and not as a slow-release bolus. In addition, the stock should be allowed a period for the chemical to pass through their system before being released onto the Common each year. As well as this, treatments using anthelminic drugs should ideally be undertaken in a rotation, as it has been shown that repeated dosages of the same drug can lead to a build-up of resistance in the target organisms. If Ivermectin is used and a risk of contamination of dung and soil is identified, monitoring of the coprophilous fauna will be required.

In 2015 the current grazier in place since 2006 uses oxfendazole which is claimed to be insect and in particular dung beetle friendly. Ensuring that the use of non-anthelminic compounds in the grazing of Epsom Common should remain as an important aspect of the long-term grazing strategy. .

Grazing Stock

The above discussion assumes that Epsom Common will continue to be grazed under the existing stock-provision arrangements – i.e. an external grazier. Whilst this has proven satisfactory, the use of such an arrangement does pose constraints. In addition to the issue of parasite treatment, experience to date has shown that there is little scope to influence the actual type of stock available in any given year and there is always a concern about the continuation of the existing arrangement which is maintained on an annual basis. The daily checking of the cattle and grazing areas represents a considerable challenge both in terms of the scale of the current operation and the increasing constraints on local authority funding. For example, originally the Ranger Service carried out checks six days a week with the Lower Mole Project covering one day. In 2015 the Ranger Service covers three days and volunteers help cover four days with some assistance from the Countryside Team at weekends. There are a number of options that either have and/or could be explored further to try and address identified issues.

- Continued support for the Epsom Common Association volunteer cattle checkers and an aim of having volunteer cover increase to five days per week.
- Addressing the issue of anthelminic drugs in dung needs to be continued. Ensuring, drugs less toxic than Ivermectin to coprophilous organisms continue be used (see above).
- Maintain close liaison with the City of London who currently graze part of Ashtead Common. There may be the possibility of developing closer co-operation with regard to grazing the two Commons.
- The option of owning a herd should remain as a possibility as a way of increasing control of breed/numbers and could perhaps be achieved as part of a local 'conservation brand',
- There should be no fertiliser applied to the sward (even farmyard manure) – the emphasis should be on creating a sward of low nutrient status.

Careful monitoring of the impacts of grazing upon the vegetation, breeding bird populations and invertebrate communities will be required.

Management of wood pasture

Old remnant wood pasture with veteran oak pollards remains in a relatively small area in the North West corner of Epsom Common bordering Ashtead Common. A survey in 2012 indicated that these trees are of international importance for their insects associated with dead wood. An on-going programme of veteran tree works commenced under the previous management plan is aimed at stabilising and prolonging the life of the veteran pollards and some maiden trees.

The new grazing compartments represent areas of developing wood pasture. Whilst one area, to the south-east of the Great Pond supports a number of larger 'open-grown' trees already identified by a recent veteran tree survey (see Map 3). the majority of trees are much younger (less than sixty years). These younger trees are however too old to be easily managed by pollarding and attempts to pollard such trees have so far failed. The indication is that success may be achieved by a much slower approach to pollarding such trees but the cost of prolonged tree surgery on a large number of trees is very high. An alternative approach recommended for initiation during this plan is to pollard much younger trees i.e. less than twenty years old which can then over a very long period be managed as pollards. Such trees do exist protected from grazing by scrub. This twenty first century approach to pasture woodland will ensure that a diverse age range of trees exist within the pasture woodland ensuring a future supply of suitable decaying wood habitats for invertebrates in particular.
A wood-pasture grazing regime has the advantage of maintaining open areas, free of younger woodland, around mature trees, thereby reducing competition for light. Higher light levels confer a range of benefits, such as encouraging a greater diversity and growth of epiphytic lichens and invertebrate species, and encourage better fruiting of wood-decaying fungi. It is important there are no

applications of artificial fertiliser, lime or farmyard manure as these can have an adverse effect on mycorrhizal fungi.

Grazing of wood pasture can create problems such as lack of tree regeneration, physical effects upon, or damage to trees by the animals, the effects of chemicals (such as wormers) and the risk of overgrazing. Depending upon circumstances there are a range of solutions to these problems, such as the use of tree guards or 'scrub-barriers' to protect young trees, careful management of the grazing regime and manipulating stock behaviour (e.g. provide alternative shelter and site watering points well away from vulnerable trees). To ensure these techniques can be implemented there must be careful monitoring of understorey vegetation diversity and other indicators.

Specific heathland management

Today, Epsom Common only supports small fragments of heathland vegetation (Map 3). It is believed that the habitat was formerly more extensive, but probably as part of a 'grass-heath' mosaic, rather than stands of pure dwarf shrub heath vegetation (Groome, 2001). The rationale for managing heathland habitat at Epsom Common is to maintain these remnant heathland stands as part of a mosaic of grassland, heathland, scrub and woodland (with the exception of Horton Heath all such stands are currently outside of the grazing area)As suggested by the previous plan three trial scrapes (two shallow and one deep) were carried out at Horton Heath in 2006. All three have proved successful with the deeper scrape now taking longer but with less competition for the heather from competing species such as Birch.

Management specifically aimed at heathland habitats is as follows:

- Continued removal of encroaching scrub and trees. This to be done by hand, followed by stump treatment (see general methods of scrub control).
- Control of Bracken (hand-pulling and continued loan of Ashtead Common Bracken roller) and *Molinia* (mowing).
- Maintain summer grazing by cattle which is beneficial in suppressing the dominance of tussocky *Molinia* and controlling Bracken but the impact on the heather needs to be closely monitored for signs of preferential grazing.
- Mowing of Heather. Much of the Heather is at present in a rather over-mature condition and will benefit from cutting to promote new growth. However, only a proportion of the total in any one area should be cut at any one time.
- Seed establishment continued small scale disturbance (e.g. turf removal/small scrapes) within the existing heathland areas should be attempted, to try and stimulate germination of a buried seed bank.
- Harvesting and spreading of seed from heather plants already growing on-site into disturbed/scraped areas.

As an additional experiment, and a key aim of this plan trial scrapes will be undertaken within an area of dense Bracken south of the Dorking Road (Map 6) to establish if any regeneration from a buried seed bank could be expected. If successful this trial could lead to the establishment of a much larger area of heathland over the course of this plan.

2.8.2 Management of mown (ungrazed) grasslands (rides and site margins)

This section considers all grasslands that are to be managed by mowing, rather than grazing. Thus it relates primarily to the vegetation alongside paths and rides crossing Epsom Common and areas of open and sometimes species rich grassland habitat, primarily on the north-eastern fringe of the Common. The existing management regime for these areas is shown on Map 5 and briefly outlined below, followed by a discussion of modifications that will be incorporated under this plan.

'Informal Grass'

These are areas of frequently-cut grassland, managed for amenity use and largely situated on the north-eastern fringe of Epsom Common (outside the SSSI). This includes the area known as Stamford Green Meadow which supports Chamomile within the sward (a species which benefits from very regular treatment). At present they are cut 16 times per year (GRS 003).

It is recognised that the focus for these areas has to be upon management for amenity purposes. However, some margins that adjoin scrub and woodland will be cut less frequently to allow a structurally more diverse grassland habitat to develop in these areas (see below).

'Rough Cut Grass' (including paths/horse rides)

This comprises areas of coarser grassland alongside paths and rides that are cut only 3-times per year, primarily to keep rights of way passable (GRS010).

The mowing regime set out under this 10-year plan aims to achieve a balance between the need to maintain open grassland habitat along rights of way etc., but also to improve the structural diversity for invertebrate populations. Therefore, the sward has to possess a diversity of structure, from short, open turf with areas of bare ground close to paths, giving way to coarser, tussocky grassland and, along rides for example, eventually to scrub margins. This will encourage a good overall diversity of invertebrate food plant species and a good range of growth stages, including flowering individuals to provide sources of nectar. It is also important to leave at least some un-mown areas each year (e.g. as potentially suitable habitat for grasshoppers and bush crickets and to allow nectar-producing plants to flower). Whilst the primary focus may be on invertebrates, other groups also have particular habitat requirements (e.g. Slow Worms require longer grass).

Therefore, the basic three annual cuts close to the path is appropriate, but further away, the frequency will be lower, with some areas towards edges (e.g. along the fringe of adjoining scrub-woodland) being cut only in alternate years to allow tussocky vegetation to develop.

Cutting will be on rotation, timed to take place at different times of the growing season, so that for a given set of habitat characteristics, a portion will remain uncut at any one time, thus providing continuity of environmental conditions. In addition, this retention of un-cut vegetation will accommodate the development of taller plants which will provide food and nectar during the main summer period of invertebrate activity. As part of good grassland management practice within these areas, all cut grass should be removed to prevent the build-up of nutrients and a deep layer of litter (which could, amongst other things, represent a fire hazard). It is recognised this will have cost implications over and above current expenditure levels.

Effective liaison with whoever is coordinating grass cutting is important with regard to the timing of cutting. In recent years, colonies of Glow-worms have been placed at risk due to the timing of grass cutting operations. Account needs to be taken of local circumstances before contractors are given the go-ahead to undertake mowing operations.

Minor modifications to this management regime have been made in the case of the 'summer horse rides', where a need to modify public use of these routes on grounds of safety has been identified (see Section 2.8.9).

'Conservation Meadow'

This comprises two areas of grassland overlooked by houses in Bramble Walk, Stamford Green Road and Bracken Path. Following a representation by the Epsom Common Association in the 1990's two large areas have received a single annual cut and clear to promote wildflowers and insect life. (GRS 014).

Due to many decades of regular mowing the sward was not of any great botanical value being predominantly MG6 in nature. However, Common Spotted-orchids (*Dactylorhiza fuchsii*) have returned to this area along with a significant increase in flowering plants such as Knapweed, Grass Vetchling and Birdsfoot Trefoil, along with insects such as the spectacular Burnett Moth.. There is some indication of a 'nutrient depletion effect' in the main body of the sward (S. Cocker, pers. comm.) which as well as encouraging flowering plant species has also meant that the cutting regime has had to be modified to an annual cut and clear by the Council rather than an annual hay cut carried out as part of the hay cutting arrangements with the Equus Equestrian Centre based at the nearby Horton Country Park Local Nature Reserve.

In summary he management regime for this grassland aims primarily to increase its value to invertebrates and encourage a recolonisation by hay

meadow plant species. Thus, some marginal areas of grassland will be allowed to become taller, perhaps being cut only once every two years, whilst the remaining areas will be cut on a rotational basis. Once again, all cut grass will be removed.

Isolated areas of species rich grassland

Following a repeat NVC survey of both Epsom and Ashtead Common in 2012 (Dr G Groome) several areas of species rich grassland were highlighted as being under threat from encroaching scrub. In 2013 a programme of restoration was instigated using the Countryside Team Volunteers with work on the areas at Churchside, Railway Meadow and Barons Pond to clear back encroaching scrub and bracken. It is proposed that each area receives further work to control encroaching scrub and to encourage a more diverse flora an annual cut and clear should take place for a minimum period of five years with a view to less frequent cutting subsequently to ensure scrub encroachment is prevented.

Bracken management

The most extensive stands of Bracken on Epsom Common lie outside the SSSI on land to the south of Dorking Road. Trial scrapes are to take place within one of these areas to establish what type of vegetation would develop if this Bracken were to be cleared. Larger areas of Bracken will then be cleared if the results of these trials indicated this to be appropriate.

Within the SSSI, there has been on-going Bracken clearance for a variety of reasons, for example, to maintain open habitat (e.g. a grassland glade in danger of being lost), and to reduce the risk of fire. This work has been done through a combination of a 'bracken basher' borrowed from Ashtead Common and volunteer labour (manual pulling). Chemical control is another alternative. Volunteers have also been busy in recent years at Horton Heath and Bramble Heath as part of conserving relict heath vegetation in these areas. There are further areas of grassland at risk from Bracken colonisation, although the eradication of all dense Bracken from the Common is not an objective since the habitat has value for the invertebrate communities it supports. It is worth noting that after more than ten years of annual bracken rolling at Lower West Heath the bracken is far less dominant and vigorous with an increase in grasses and in recent years the springtime appearance of Greater Stitchwort and Bluebells in significant numbers. Bracken rolling is also employed at Upper West Heath and more recently on the larger areas of bracken at what is now referred to as Woodcote Heath to the south of the A24.

2.8.3 Mature Semi-natural Woodland (including Veteran Trees)

Although much of the woodland on the Common is of a very recent, secondary origin, there are a number of longer-established stands, as suggested by the presence of some larger (veteran) Oak trees. It is also

possible that some of these woodlands might formerly have been managed as wood pasture (as indicated by the presence of old Oak pollards). It is important to consider the management of this valuable resource in the context of its relationship to Ashtead Common.

A series of , veteran tree surveys carried out under the previous plan has identified the locations of these larger trees, during which they have been tagged, their positions determined using differential GPS (Map 3)and individual action plans drawn up for each identified tree. It can be seen that the major locality for veteran trees is the north-western part of the Common, in the vicinity of the Stew Pond, with a further cluster to the south-east of the Great Pond. There are a number of veteran pollards associated with the Epsom/Ashtead Common boundary in this vicinity.

The priority of management here is to continue to conserve and enhance the veteran tree population in order to ensure a continuity of the decaying timber resource. Whilst the previous plan dealt with a timeframe of 10-years, this plan has a one hundred year vision that is very much intended to facilitate the continued and consistent management of trees which have lifespans of several hundred years. Thus in the shorter term, it is important to prolong the life of the existing veteran tree population. In the longer term, it is essential to ensure that the older woodland/wood pasture and indeed the Common as a whole, is managed to promote the dead wood resource of the future.

Managing existing veteran trees

Whilst the positions of veteran trees has been mapped, and the trees current state appraised on an individual basis, there is a concern that some trees may have been missed and this needs bearing in mind when carrying out condition assessments of the known veteran tree inventory. It should be noted that veteran tree survey work – includes other aspects of their ecology – e.g. the saproxylic beetle fauna, fungi and use by bats.

The primary reason for doing any work on a veteran tree should be to prolong its life. In many cases, if a veteran tree is stable and in good condition, there is no need to do anything to it. Any such work that may be required will generally fall under one of two broad objectives:

- To bring a lapsed pollard back into a regular pollarding cycle (only if it is considered that this would prolong tree-life – there is also a risk of killing the tree).
- One-off treatment to either deal with a tree where it poses a danger to public safety or to prevent an unstable tree from collapse.

Only once an assessment of individual trees has been made, can an overall strategy for any necessary tree-work be prepared. This should be undertaken by an appropriate specialist tree surgeon. A programme of veteran tree works as a result of surveys was commenced under the previous plan and is programmed to continue under this plan.

Whilst these actions are aimed at prolonging tree-life, once trees have finally expired, whether still standing or fallen, it is essential they are left *in situ* to decay naturally.

Managing surrounding woodland

Veteran trees do not exist in isolation and are influenced by the environment around them. Therefore, it is important that the surrounding woodland is managed appropriately (managing veteran trees in a grassland context is dealt with under Section 2.8.1 above). To some extent, what constitutes appropriate management depends upon the characteristics of the individual tree, although the primary concern is that of the veteran tree becoming deprived of light due to competition from younger trees growing up around them. However, the sudden exposure of a veteran tree that has been shaded for many years can cause undue stress and such a treatment should be carried out gradually. There are a number of measures which can be taken to alleviate such stresses, but once again, final strategies need to be drawn up for each individual tree following a detailed survey.

As part of any such management it is important to encourage shrub layer species such as Hawthorn and herbs such as Hogweed in the vicinity of old pollards/decaying trees etc. to provide nectar source for saprolyxic invertebrates (this is dealt with more fully under Section 2.8.6).

Encouraging the next generation of veteran trees

A major threat to the population of veteran trees is the lack of 'near-veterans' to replace them when they eventually die. Coupled with this is the fact that the current veteran tree population on Epsom Common is relatively small and fragmented (although the total resource, when one takes Ashtead Common into account, is much greater). In the shorter term, the supply of decaying timber can be increased by inducing veteran tree characteristics in younger trees. In the longer term, new pollard trees need to be created and managed appropriately. Ideally, a new phase of regeneration needs to take place once every 10-years or so.

At present, the number of 'near-veteran' trees at Epsom Common is not known precisely and so the first requirement is for a survey to map the locations and condition of trees in this category. This information will help to inform decisions as to where new pollards should be created (see below). It is important that any 'near-veterans' are retained into old age.

Creating new pollards

The Lower Mole Countryside Management Project have carried-out some early experiments on creating new Oak pollards whilst clearing vegetation from within the existing grazing compartment. Whilst it is desirable to generate pollards on a wider area of the Common, the priority is to create new pollards in the immediate vicinity of the existing veterans. Once cut, suitable young trees will need regular re-pollarding on a 10-20 year cycle. Outside grazed 'wood-pasture' areas, these new pollards will need maintaining through clearance of competing trees, non-native shrubs, Bracken and Bramble.

Encouraging new generations of trees

Much of the more mature woodland at present possesses little in the way of natural regeneration and so there may currently be very few trees that could form new pollards. Natural regeneration of Oak will be encouraged by local group-felling in appropriate areas. It may also be desirable to undertake the planting of new Oak trees, or even translocations from other parts of the Common (as has been done on Ashtead Common). In the former case, these should be grown using acorns selected from existing veteran trees (in which case they are likely to have a predisposition for longevity). Again, new plantings should be sited in the vicinity of existing veterans, so they will ensure a continuity of decaying wood habitat.

Encouraging veteran tree characteristics in younger trees

As a short-term measure, a continued supply of decaying wood will be encouraged by inducing the characteristics of veteran trees in younger individuals of species such as Oak, Goat Willow, Hawthorn and Birch. Measures appropriate for use on this site include:

- Pollarding of more-mature trees. It is likely that trees so-treated will die – thereby providing new dead wood. If they survive, they will assume more of the character of a veteran tree. However, this should not be attempted on ‘near-veteran’ oak trees, which should be allowed to reach veteran status through natural means.
- Artificially inducing rot into live standing trees (e.g. breaking off branches, removing branches with ‘coronet cuts’, causing deliberate bark damage, drilling holes into crowns and forks to increase water retention).
- Ring-barking of Sycamore and Turkey Oak, whose control is required as non-native species. Ring-barking kills trees slowly, thus allowing rot to develop. Ring-barking should be undertaken in winter to prevent increased seed production which can be stimulated by cutting earlier in the season (L. Bardsley, pers. comm.).

Response to the threat of tree disease

There are a number tree diseases that currently threaten trees on Epsom Common LNR. The most serious in 2015 are Acute Oak Decline (AOD) and Chalara dieback of Ash. Currently there are no confirmed cases but it may well be just a matter of time before both are confirmed on the site. In the case of AOD there is concern that one of the rare beetles which the site is known to host, the native buprestid or oak jewel beetle (Agrilus biguttatus) may play a role in spreading the disease and research is ongoing. Detailed information on the full range of tree diseases and pests is available on the Forestry Commission website http://www.forestry.gov.uk/pestsanddiseases .The current approach is to work in cooperation with the City of London/Ashtead Common to monitor for the appearance of these diseases and this has included recently the use of trained volunteers who look for signs/symptoms. An additional measure being taken is to ensure that contractors carrying out tree works clean and disinfect their equipment/machinery.

Another current and serious pest threat is being caused by the non-native Oak Processionary Moth which whilst not a direct threat to oak trees is a serious public health concern and some of the treatments being suggested as ways to eradicate the caterpillars could have an impact on similar native moth and butterfly species for which Epsom and Ashtead Commons are important sites. Epsom & Ewell currently in 2015 lies just outside the control zone but recent reports suggest that infestations in the Borough are imminent. We will work with Natural England and the Forestry Commission to minimise the impact.

General woodland management

In addition to measures aimed specifically at the veteran tree population, there are a number of other management activities that will be undertaken in the more mature woodlands building the work that has taken place under the previous plan:

- Selective felling of non-native species such as Turkey Oak and Sycamore (where not targeted for ring-barking), plus Cherry Laurel and Rhododendron. However, if there are any veteran (and near veteran) Sycamores, they should be retained as they can also provide valuable habitat conditions. Under the previous plan arboriculture students from Merrist Wood College have been progressively working across the site using Turkey Oaks as practice trees for tree surgery and felling. A large proportion of the trees have four to five metres of trunk left as standing dead wood. Once complete there is an opportunity for the College to continue on native trees to selectively thin where needed.
- Management of the dense woodland along Christchurch Road (and possibly other areas) to enhance both the ecological and landscape value. This area would benefit from selective thinning to vary the age structure and scalloping the woodland margins. Under the previous plan the removal of Turkey Oaks in this area has also effectively

achieved a selective thin. In addition halo release around small stands of Scots Pine has opened up a significant glade. There are still future opportunities to create more glades and for more selective thinning.

- Continue to make charcoal using wood cut from the Common (but NOT using timber from veteran trees).
- Rides and glades are dealt with under other appropriate sections.

2.8.4 Pond and Wetland Management

The various ponds and smaller water bodies represents an important component of the habitat mosaic of Epsom Common. For all ponds there is the need for appropriate management of vegetation around the terrestrial margins. In addition there is an opportunity via the management of ponds, wetlands and drainage ditches for Epsom Common to reduce local flood risk by retaining water and releasing it more slowly in to the surrounding surface water drainage network. Specific management requirements for the main ponds and wetland features are considered in turn below:

Great Pond

This is the largest water body on Epsom Common, originating as a mediaeval fish pond. This was reinstated in the 1979, having been drained in the middle of the 19th Century. It is important for its bird populations and supports stands of marginal aquatic vegetation, which are still developing following the reinstatement of the pond. Like many of the other water bodies on Epsom Common, it now contains extensive colonies of the introduced alien, New Zealand Pigmyweed (*Crassula helmsii*). – see Section 2.8.5.

One of the main management issues is the stability of the dam, which sprung a leak in 2000 following a period of heavy rain and in combination with vandalism. In addition to preventative work to stop leakage from the dam, recent legislation required the Borough Council to construct a new spillway for the dam to replace the existing overflow pipe. This work completed in summer 2005 involved the successful pollarding of ten mature trees that grow along the top of the dam and also the regular maintenance of the restored downstream face of the dam which is now close mown grass to allow for easier engineering assessment of the dam which takes place on a weekly basis throughout the year..

To maintain the value of the pond-margin habitat, there is an on-going need to manage fringing scrub and stands of marginal aquatic vegetation (e.g. Bulrush) on a rotational basis. During the previous plan and where suitable the fringing scrub was maintained by volunteers from the Epsom Common Association (ECOVOLS). The intention is that they will continue to carry out conservation tasks in that area.

Dogs entering the pond is an issue which seems to have increased in recent years and is a threat to both bird and aquatic invertebrate life by increasing

water turbidity. In 2012, £20,000 was spent repairing erosion damage on the upstream face of the dam caused by dogs scrabbling out of the pond on a daily basis with the damage threatening the integrity of the dam. Following repairs the existing section of fence along upstream face of the dam was extended along the whole length of the dam. In addition from May to September the pond margin near to the grazing area is protected by electric fencing. Signs informing dog walkers of their need to control their dogs and protect wildlife are posted near the electric fencing and maintained.

Stew Pond

This pond is extensively used for angling, and overall is currently of low ecological value, although Greater Bladderwort (*Utricularia vulgaris*) was recorded from here in the past and the pond is currently used by Daubentons Bats. Currently the main issues with this pond are associated with managing its amenity usage, including fishing. In 1988 an annual lease was agreed with a fishing club (Central Association of London and Provincial Angling Clubs (CALPAC)) There is local demand for fishing and it was felt that by having a bailiffed pond issues associated with unregulated fishing would be addressed and it would make it easier to maintain Great Pond as an undisturbed nature reserve with no fishing permitted. This policy has by and large proved successful although there is an on-going need to supervise this part of the common more than others as along with the nearby Stew Pond Car Park it experiences the highest level of anti-social behaviour on the site. CALPAC have indicated their desire for the pond to be de-silted and have undertaken to try and find the funding necessary with support from EEBC, the Environment Agency, Natural England and the Epsom Common Association. The support from the other organisations is dependent on plans that envisage an outcome which improves the pond ecologically. A proposal of this plan is that the owners EEBC work with the lease holders of the pond to ensure that it is improved ecologically whilst at the same time providing the opportunity for still water angling and improved access including the possible provision of a small section of safety fencing for wheelchair users (see Section 2.8.9).

Baron's Pond

This pond was restored by the Lower Mole Countryside Project in 1989. However it is now dominated by extensive growth of several alien plant species New Zealand Pigmyweed, Azolla and Parrot Feather with mats/stands of the plant growing on the more terrestrial margins and within the pond itself (see Section 2.8.5). In addition to control measures aimed at New Zealand Pigmyweed, Azolla and Parrot Feather (together with growth of Japanese Knotweed and Snowberry – see Section 2.8.5), there is also a need to reduce the degree of shading from the marginal tree canopy.

Blake's Pond

This pond appears to lie within quite a deep depression and may have developed in an old mineral working. It was restored by the Lower Mole Countryside Project around 1990. There appears to be a good overall

botanical diversity [e.g. Lesser Marshwort (*Apium repens*), Blunt-leaved Pondweed (*Potamogeton obtusifolius*) and Thread-leaved Water Crowfoot (*Ranunculus trichophyllus*)]. New Zealand Pigmyweed continues to be treated The pond is also important for amphibians with populations of all three native Newt species (P. Howarth 2014) . The area surrounding the pond is generally open in character and this will be maintained during the course of this 10-year plan through periodic thinning of tree growth and marginal aquatic vegetation. This will be especially important in maintaining the adjacent colony of Adder's Tongue Fern (*Ophioglossum vulgatum*), which needs to be kept free of excessive overshadowing vegetation.

Dixies Pond

This pond was restored by the Lower Mole Countryside Project in 1994. In February 2013 the Countryside Team volunteers started work to open up the shaded shaded margins around the pond although the pond would still benefit from work to reduce some of the larger surrounding tree canopies which is beyond the current abilities of the volunteers . The entire water surface was covered by a film of *Lemna minuta* when the pond was visited in March 2004, probably an indication of high nutrient levels. Therefore, surrounding trees and dense Bramble scrub will be cleared back to create a greater diversity of pond-margin habitat and to increase light levels. The pond also appears to be choked with a dense layer of leaf litter and would thus benefit from being dredged. There does not appear to be a *Crassula* problem here and there are indications of some botanical interest (e.g. recorded site for *Potamogeton crispus*). Dixies Pond is also of interest as it represents the largest and most open of three ponds which extend in an evenly spaced line of 200m from the northern boundary of Woodcote Stud Farm. During 2013/14 the volunteers have progressively opened up the small valley and winter stream that connects the ponds in an effort to improve the ecology and there are plans to desilt and clear out the mid and upper ponds. It is not known why the three ponds were constructed with no obvious clues as to their use but they have the potential to provide significant ecological interest if managed.

Stamford Green Pond

This is largely an ornamental feature and any botanical value has been eliminated by high populations of ducks and Canada Geese. It lies outside the SSSI and will be managed for its amenity value only. This will include clearance of litter, management of marginal vegetation and the re-pollarding of willows.

New ponds/wetland

The previous plan proposed to create two new ponds within the main body of the Common, however this did not take place. The intention to create the ponds remains with one within the current grazing area (Map 6), within an existing zone of water movement, to the south-east of Great Pond. The second will be created in the new southern grazing area, encompassing un-

ploughed grassland close to the Rye Brook. The creation of ponds in grazed areas will permit the creation of trampled pond margins, a feature not currently in existence at Epsom Common, thereby further enhancing the variety of habitat conditions.

An opportunity for the creation/restoration of a pond and associated wetland area exists between Pepys Way and Summers Gate two paths which lead to Wells Road from Stamford Green. In this location there are a series of dips and hollows possible the result of former working for clay to make bricks that have standing water during the winter and wet summers. A more permanent water body could possibly be created following an investigation in local drainage and opening up this very over grown area would bring nature conservation benefits.

A further opportunity exists for the creation of a small wetland area using the grassed over site of a former pond that was used as a land fill site during the 1950's. Located immediately to the north of Stew Pond, this would be a major project involving the removal of the former land fill which grant funded testing in 2011 showed to be very contaminated. Removal from the SSSI would be desirable as would a reduction in the danger of contamination of the Hogsmill catchment in the event of Great Pond Dam bursting and stripping the earth cap that seals the waste. Additionally a wetland would give some downstream flood protection from issues with Great Pond Dam.
With *Crassula helmsii* present on the site there is an eventual risk of these new ponds being colonised by the plant (e.g. it could be spread on the hooves of cattle). Therefore, the new ponds will need continued monitoring for the presence of *Crassula*. Control is more likely to be successful if the plant has only just been found to be present.

Other water bodies

The large number of small, seasonal water bodies and various damp depressions are likely to be of great value to invertebrate populations. These will be mapped and assessed for their wildlife value, with periodic dredging and marginal scrub-thinning as appropriate.

Rye Brook

The Rye Brook is a stream that forms the south-western boundary, in places forming the boundary with Ashtead Common. As such, Epsom & Ewell Borough Council share the responsibility of managing this feature with other parties, including the City of London. Over the years, pressures from urban and agricultural development have had a negative effect upon the Rye Brook and it has lost many of its natural features. The City of London have taken the lead role in a project to restore the Rye to a more natural river system. This has involved the re-profiling of its bed, banks and surrounding land – essentially involving work on an 'engineering scale'.

As this project is being enacted by The City of London, no specific measures are being included under the Epsom Common Management Plan. However, actions under this plan have been made compatible with the Rye Restoration (e.g. grazing of adjacent areas and creation of a new water body) and continued liaison with The City of London is required.

Drainage ditches

There is a an existing network of drainage ditches running across the site, These ditches have broadly three functions, associated with drainage of the surrounding roads and internal paths, whilst some appear to be a relic of the World War Two period when the common was ploughed and used for growing crops. The ditches ultimately lead to the surrounding surface water drainage network with water making its way via tributaries to the Rivers Hogsmill and Mole. In the past ditches appear to have been much more regularly maintained across the whole site whereas today maintenance is focused on the perimeter ditches beside the metalled highways. Much of Epsom Common is bounded by roads so the water running off the common is inevitably intercepted by the perimeter highway ditches. This provides a very effective means of control and protection for both roads and surrounding properties.
There are both ecological and flood risk benefits in managing how surface water runoff works on the common. For example, allowing areas to flood where practical can help relieve pressure on the surrounding urban surface water drainage network which is faced with significant issues of high runoff associated with impermeable surfaces.

There is however currently a lack of a detailed understanding of how drainage currently works and how it could be better managed to the advantage of both biodiversity and flood risk. on the site. An initial exercise of mapping all known ditches and the direction of flow would provide valuable information and could significantly assist with the future creation and management of new wetland areas.

2.8.5 Management of Undesirable Invasive Species

Introduced alien plant species pose a number of threats to Epsom Common. These include the colonisation of ponds by *Crassula helmsii* and the water fern Azolla filiculoides and a threat to the ecology of woodlands of colonisation by tree and shrub species such as Turkey Oak, Cherry Laurel and Rhododendron.

A further major problem has been the introduction of species contained within garden waste dumped by adjoining householders. This includes species such as Spanish Bluebell (*Hyacinthoides hispanica*), Variegated Yellow Archangel (*Lamiastrum galeobdolon* ssp. *argentatum*), Periwinkel (*Vinca Major/Minor)* and Daffodils (*Narcissus* spp.). In December 2003 the Borough Council wrote to the owners of all properties adjoining the Common, addressing this and other relevant issues. In this letter, owners were requested to comply with the following:

- Stop dumping of rubbish either organic of non-organic onto the Common.
- Remove any rubbish organic or non-organic, dumped on Epsom Common.
- Stop carrying out grass cutting beyond property boundaries.
- Stop scrub removal beyond property boundaries.
- Stop planting of any kind beyond property boundaries.
- Stop any form of earthworks.
- Remove any planting that has been carried out beyond property boundaries.
- Remove any items of property currently situated on Epsom Common.

There is a need for an on-going programme of raising awareness of such issues, with stronger action taken if necessary therefore, monitoring of the situation is required. A letter to residents every ten years is recommended

with the distribution of invasive species is mapped across the Common Measures to be taken for those species of greatest importance for conservation management are dealt with below.

New Zealand Pigmyweed (*Crassula helmsii*)

Also known as Australian Swamp Stonecrop, the plant was introduced to Britain in 1927 as an oxygenating plant for water gardens. It was recorded for the first time in the wild in 1956, probably through being discarded into ponds and other watercourses and via subsequent transfer by wildlife. Since the 1970's it has spread across aquatic and semi-aquatic habitats and is now a serious problem on many wetland SSSIs. The plant can still be found on sale in Britain today in garden centres, under a variety of names.

It is capable of year-round growth and its dense mat-forming nature can smother large areas of native vegetation, growing in both deep water, up to 3m and also on the terrestrial fringes within 0.5m of the water level. It regenerates from only a small fragment of the plant. Therefore, control has proved to be extremely difficult.

This species is present in a number of ponds at Epsom Common and poses a considerable problem. Control efforts until now have had only temporary success. A number of methods have been attempted in Britain, with varying degrees of success (Coleshaw, 1999 & 2001; Wicks & Stone, 2001; and Stone, 2002). These have included 'burning' with liquid nitrogen, covering the pond with black polythene sheeting, and chemical treatment. To date, the latter method appears to have been the most successful (apart from complete removal/destruction of the affected pond). However, one of the more effective chemical treatments ('Reglone') was banned during 2002. In addition, chemical treatment will obviously be detrimental to other aspects of the pond's ecology.

It is proposed to continue *Crassula* control across the Common using chemical treatment and hand-weeding where necessary (although hand-weeding poses the risk of breaking-up the plants and thus causing further spread). The aim of control is to eradicate the species entirely.

During the early years of the last plan and in agreement with Natural England it was decided that chemical treatment of *Crassula* around Great Pond would not go ahead. Chemical treatment would have meant the complete destruction of all the existing marginal vegetation which seemed to be co-existing successfully with the *Crassula*,. The *Crassula* was confined to the pond margins and has not spread across the lake for unknown reasons. In 2015 the situation remains the same with interestingly a noticeable reduction in the mounts of *Crassula* present. This unusual situation is being monitored. The *Crassula* present at Blakes' pond has and continues to be treated and has not require the destruction of all marginal vegetation as the *Crassula* is confined to one side of the pond. It is however proving very difficult to eradicate. In a national context, there is a need to encourage garden centres to stop selling this plant and to educate the public of the dangers of introducing it into the wild. In terms of Epsom Common, continued efforts should be made to inform local residents of the threat it poses to the wildlife of the Common (e.g. through the Epsom Common Association). In addition, a series of small leaflets should be produced with the aim of raising public awareness of this and other non-native species on Epsom Common.

Sycamore

Sycamore was first recorded in the wild in Britain in the 17th Century. It is generally regarded as an undesirable species in woodlands of high nature conservation importance as it is a highly competitive, fast growing species, which develops large leaves early in spring that exert considerable canopy shade. This, coupled with the fact that leaves are slow to break down upon leaf fall, can suppress native field layer species. Although Sycamore can support a high invertebrate biomass, it can also lead to a reduction in overall diversity. However, when present as a veteran specimen, it should generally be retained (see Section 2.8.3).

Sycamore on Epsom Common is largely associated with W10a type woodlands. It is widely distributed around the Common, but quite local in occurrence. Most commonly it is found in site-boundary stands, in particular in the eastern and north-eastern parts of the Common. In the previous plan Sycamore was tolerated in these areas, but not within the more mature woodlands within the main body of the Common (apart from any veterans). Thus an 'intolerance zone' for Sycamore was delineated, encompassing all management compartments within the SSSI (i.e. 1-10) (see Map 4), and within those areas, Sycamore has been controlled as part of normal woodland thinning operations. Cut stumps have been treated with an appropriate herbicide such as 'Round-up'. Ring-barking could also be undertaken in winter, following seed production (see Section 2.8.3). In 2015 the view on Sycamore is more flexible especially in the light of what may be quite

devastating tree diseases such as Ash Dieback. Consequently, advice from Natural England is that Sycamore should now be tolerated across the site but not to the extent that it dominates the canopy. Further work to reduce the density of young Sycamore stands in the north-eastern parts of the Common should continue.

Turkey Oak

Turkey Oak is native to southern Europe and south-western Asia and it was introduced to Britain in 1735, but not recorded in the wild for another 150 years or so. Although it is not thought to be as detrimental to woodland ecology as Sycamore, it can be a competitive species, capable of displacing native canopy trees. Turkey Oak occurs widely in the Epsom Common woodlands, again largely as a component of W10a. The tree is usually fairly thinly spread and also occurs in boundary situations.

During the lifetime of the previous plan an arrangement with Merrist Wood Agricultural College has seen a programme of Turkey Oak removal commence where arboriculture students are trained to de-construct trees. The main trunk if away from paths is then left at approx. 4m to 5m and ring barked to remain as standing dead wood, with the limbs and smaller branches stacked in to habitat piles. This has proved a very cost effective way of both removing an exotic species and at the same time thinning areas and creating small glades. There are still at least sevarl years' worth of trees available and following the removal of the Turkey Oak it may be possible to work with College to continue thinning out the secondary woodland where needed.

Control of Turkey Oak will also be undertaken during woodland thinning operations (where the species will be selected in preference to native trees). Once again, cut stumps will be treated with an appropriate herbicide, such as 'Round-up' or ring barked as described. Turkey Oak will continue to be managed to enhance the dead wood resource in certain circumstances (see Section 2.8.3).

Cherry Laurel and Rhododendron

These exotic shrubs can be extremely invasive in a variety of habitats. Both have evergreen foliage (i.e. dense year-round shading) and produce poorly humified leaf litter, which can result in a drastic reduction in plant diversity. They also have few associated invertebrates and therefore have little value for wildlife. Cherry Laurel is fairly thinly scattered across Epsom (e.g. scattered bushes noted within recent W10-type woodland in the north-eastern part), whilst Rhododendron is even more localised in its occurrence. The ultimate objective is the complete removal of both species. The quantity at present makes them suitable for treatment by volunteer groups working with hand tools followed by the burning of cut material and chemical stump treatment. Successful eradication relies on follow-up treatment of the re-growth in successive years following cutting and treatment. In general, the re-growth

must be treated in summer (e.g. uptake of herbicide is greatest by the actively growing plants, producing most effective control).

Japanese Knotweed

Japanese Knotweed is a notifiable weed originally introduced as a garden plant in Victorian times. It became naturalised in Britain at the end of the 19th Century and is an extremely robust rhizomatous shrub capable of more rapid expansion than native vegetation. There are small infestations across Epsom Common (e.g. alongside the stream between Stew Pond and the car park, close to Baron's Pond). All colonies should be chemically treated with the view of eradication as soon as possible. During the last plan treatment was been applied to a small patch located on the path leading from Wells Road to Lewins Road. The patch at Stew Pond has not been treated as it seems to be declining rather than spreading which is of interest and worth monitoring. The Knotweed close to Baron's Pond has had chemical treatment but requires further treatment to eradicate it and infestations of Azola and Parrot Feather

Michaelmas daisy (*Aster* spp.)

This species has been a significant problem on parts of Ashtead Common. On Epsom Common, in recent years it was threatening to become a problem between Wells Road and end of Castle Road, however recent volunteer work to restore species-rich grassland at Railway Meadow seems to have reduced it significantly. Monitoring will ensure that it remains under control.

Canadian Goldenrod (*Solidago canadensis*)

This species has been a problem along the edges of some paths, but is currently under control.

Snowberry (*Symphoricarpos albus*)

This species is present close to Baron's Pond and requires monitoring.

2.8.6 Maintaining and Enhancing Invertebrate Interest

Management aimed at invertebrates is largely addressed by the measures aimed at the various habitat groupings. The rationale for the management of invertebrate populations within the main habitat groupings is considered more fully below, and any additional measures are outlined.

Management of mature woodland and pollarded oak trees for invertebrates

The aim is to encourage as wide a variety of types of dead and decaying timber habitats in as many situations as possible. A number of characteristics have been recognised as representing a 'good tree' for invertebrates (from Read, 1999):

- Dead wood in the crown – hot dry wood supports a limited but specialised range of species
- Decay columns – brown rot and soft white rot are especially valuable
- Rot holes in a variety of sizes, dampness and stages of decay (e.g. some water-filled, and others dry and containing tree humus).
- Partly decomposed wood, burrows and cavities, resulting from actions of other saprolyxic species.
- Sap runs or fluxes, where the sap oozes out of the tree.
- Fungal fruiting bodies and fungi present under the bark etc.
- Damage to the bark (e.g. lightning strike).
- Broken branch stubs that are good for invertebrate access (e.g. for egg-laying).
- Nectar source nearby.
- Fallen branches left to lie near the tree in partial shade.
- Living tissue (i.e. the tree is still alive) so that it can continue to produce more dead wood and shade the dead wood already on the tree.

The management already outlined for the pollard/veteran tree population is compatible with these requirements. However, a number of additional measures will be taken to further improve the value of this habitat to invertebrates:

- Avoid any action that could damage any of the above features.
- Retain as much dead wood (not brash from felling) on site as possible (preferably all).
- Create log plies from smaller timber and stack in the shade of tree canopy (or bracken/bramble).
- If timber removal is necessary, do this immediately, as this will help to prevent colonisation by invertebrates (cover-up if first to be left on site for any time).
- Allow some growth of Brambles and Bracken to partially shade dead wood, but should not be enough to pose a fire risk.
- Do not carry out management work on all trees at the same time (valid for any tree, regardless of its situation).
- Ensure adequate nectar sources in the vicinity (e.g. Hawthorn, Hogweed and Ivy).
- When carrying out halo release of veteran trees and removal of Turkey Oak use the opportunity to leave standing dead wood by retaining main stems to approx. 5m, ring barking to kill tree and leaving at least some of the larger limbs to rot as dead wood on the ground.

Management of grassland and scrub for invertebrates

It is important that grassland and scrub is managed to be structurally diverse as this maximises the range of niches and microclimatic conditions available to invertebrates. This includes protection from the wind and extremes of temperature. Some tree and shrub species are more important than others in terms of the number of different invertebrates that make use of them.

Sources of nectar are also important, ranging from early flowering plants that benefit butterflies and bees emerging from hibernation, through to those that flower late in the season. In addition, other structural elements of the scrub canopy are also important, such as the intricate branching patterns that provide habitat for predators such as spiders (and birds that feed on them). Finally, the development of coarse grassland at the scrub-edge may provide shelter for some species of invertebrate that will later spend a part of their life cycle within the scrub canopy.

Being a site dominated by heavy clay soils, Epsom Common is unlikely to present favourable conditions for ground-dwelling and burrowing species. These would prefer to have a loose, friable soil that was easy to burrow into. Therefore, the greater potential value is for those species that spend a major proportion of their lives above ground.

Planned management of the grassland scrub resource will initially follow the broad measures outlined in Section 2.8.1. At present, there is relatively little survey information in relation to the scrub-grassland invertebrate fauna of Epsom Common. Therefore, more detailed surveys will be undertaken during the early years of this plan. Following the results of these surveys, the scrub-grassland management regime will then be modified in subsequent years as appropriate.

Continued monitoring of invertebrate populations will be undertaken to determine the effectiveness of this management (Section 2.8.11).

Glow-worms

There is a colony of Glow-worm on Epsom Common and there is a need to coordinate regular grass-cutting operations along rides to avoid harm. . Night surveys will be carried out to assess the extent of the colony to inform grass cutting operations (during the period of May to September). If found in regularly mown areas grass cutting where safely possible will be at a later date.

2.8.7 Maintaining and Enhancing Ornithological Interest

Management for birds has largely been incorporated into the measures put forward for the various habitat groupings on the Common. Additional detail about the rationale behind this management is provided below:

Managing grassland/scrub mosaic for birds

As with invertebrates, the maximum potential for birds is achieved by maintaining a structurally diverse mosaic of scrub and grassland habitat. Different stages in the scrub succession are of value to different groups of birds. Thus, early stages of open scrub are attractive to birds such as Grasshopper Warbler (*Locustella naevia*) – one of the ‘target species’ of

management under this management plan, along with Linnet (*Acanthis cannabina*), Yellowhammer (*Emberzia citrinella*), Whitethroat (*Sylvia communis*) and Willow Warbler (*Phylloscopus trochilus*).

As scrub starts to become more mature it is favourable to birds such as Nightingale (*Luscinia megarhynchos*) – another 'target' species of the management plan, plus Blackbird (*Turdus merula*), Song Thrush (*Turdus philomelos*), Garden Warbler (*Sylvia borin*), Blackcap (*Sylvia atricapilla*), Lesser Whitethroat (*Sylvia curruca*) and Turtle Dove (*Streptopelia turtur*).

Experience with Nightingale at Bookham Common (Prowse, 1999) has shown the species to have a preference for Blackthorn scrub (which can be backed by scrub of other species) with a combination of dense edges and adjacent open areas. Close proximity to open water is also a significant factor. There is a limited amount of dense Blackthorn scrub on Epsom Common, although the species is scattered across much of the Common. One of the main stands lies very close to Great Pond, and this was cut but not killed in 2004/2005 when the area was prepared for grazing (2006 onwards). Subsequently, dense stands of Blackthorn dominated scrub have developed as planned and provide suitable nesting habitat. Yellow Hammer, Whitethroat and Willow Warbler have all bred in recent years and continue to do so (c2015). To date (c2015) neither Grasshopper Warbler or Nightingale have been recorded as breeding, however in May 2015 there were reports of a Nightingale singing in Rye Meadow. (Bird Survey Of Ashtead Common, Epsom Common & Newton Wood 2013 Kevin Morgan) The intention is to continue to manage for dense stands of Blackthorn and Hawthorn dominated scrub within the grazed areas.

The planned management regime accommodates the above general requirements, but there is a need to look carefully at existing stands of Blackthorn to see whether their structure can be enhanced, and also to encourage development of Blackthorn scrub in other parts of the Common. One technique that was used successfully at Bookham was the bulldozing of scrub edges to artificially create a dense edge. There has also been some success at Witley Common in 'layering' Hawthorn as in hedging, to create small islands of dense scrub. The creation of two new ponds will also be of help in this regard, again, especially if careful attention is given to creating adjacent scrub with appropriate structural characteristics. The same also applies to scrub adjacent to the Rye Brook.

Once scrub is mature (but not old and 'leggy), it is of value to birds such as Robin (*Erithacus rubecula*), Wren (*Troglodytes troglodytes*), Chiffchaff (*Phylloscopus collybita*), Greenfinch (*Carduelis chloris*), Bullfinch (*Pyrrhula pyrrhula*), Chaffinch (*Fringilla coelebs*) and hole-nesting species such as tits.

In addition to breeding species, autumn and early-winter berries on shrubs are important for resident and migrant Thrushes (*Turdus* spp.), mature scrub can provide important winter roosts for songbirds and scrub can also provide food

and shelter for large numbers of autumn and spring migrants, such as warblers.

Of primary importance is that any cutting of scrub should not take place during the bird breeding season – usually April to September inclusive. In addition, cutting should also be avoided in autumn and the first half of winter to prevent loss of the berry crop. This gives an optimum period of early December to late March. However, in recent years, some birds have been noted to be nesting earlier than the above period, so it may be necessary to complete any cutting by the beginning of March in mild years. Winter ground conditions (i.e. too wet) in certain areas can make cutting difficult during this period.

Whilst many species of birds require at least some degree of tree and shrub cover, others such as Skylark (*Alauda arvensis*), –, nest on the ground and so prefer to have a more open grassland so they can see predators approaching. Whilst open grassland is maintained throughout the grazed areas the relatively small areas and disturbance from both cattle and dogs in particular mean that breeding opportunities are very limited, to the extent that it has become clear that it is not practical to have the Skylark (Alauda arvenis) as a target species for grassland restoration. Skylark remains on Ashtead Common at Woodfield so remains present within the SSSI

2.8.8 Maintaining and Enhancing Botanical Interest

Once again, this aspect is largely covered by the habitat management proposals.

Management for Fungi

There are no proposals for specific management of fungi, beyond what is proposed under those outlined for the veteran tree population in Section 2.8.3 above. However, it is important for site managers to liaise with local mycologists over all restoration works (e.g. commission appropriate surveys) to ensure important fungal hosts and micro-climatic conditions are maintained wherever possible. In addition Epsom Common has seen a recent increase in the number of people collecting fungi and there is evidence that it is frequently a commercial operation which is likely to be damaging. Measures should be put in place to deter such activity including signs, targeted patrols and liaison with the City of London (Ashtead Common)

Managing for vascular plants

The maintenance of appropriate habitat conditions for vascular plants has been addressed under the proposed management for scrub (Section 2.8.1), grassland (Section 2.8.2) and open water (Section 2.8.4) habitats.

2.8.9 Managing Public Access and Visitor Interpretation

The current system of public access routes has in general worked very well, in particular, the creation of the network of 'summer horse rides' and the peripheral 'all-weather', winter horse ride (Map 2). The value of the 'all-weather track' has been further reinforced by its designation throughout, early in 2004, as a public bridleway. There is however a lack of knowledge concerning visitor numbers and perceptions. Improved knowledge of visitor numbers and perceptions could significantly assist future access management and the interpretation of the site.

A review of access management on Epsom Common was undertaken in 2002 (Cocker, 2002). A significant factor affecting future access management on Epsom Common is that visitor numbers are likely to increase following the creation of new residential housing on the West Park Hospital site, further emphasising the need to carry out a visitor survey. A number of major components that make up the overall picture of access on Epsom Common have been outlined:

The 'All-Weather Track'

This circular 4km hard surfaced path now has public bridleway status. There are several issues associated with using and maintaining this multi-use path, these include public awareness, safety and nature conservation. There isa need to promote this feature as a more visible and obvious route and thereby encourage visitors away from more vulnerable parts of the site. The recent increase in cyclists has raised concerns relating to cyclists travelling too fast, especially with a number of blind bends. The creation of a 10m cleared swathe either side of large sections of the path under the guidance of the previous plan has been successful with respect to wildlife and also safety by improving sightlines. In 2007 1 km was restored in a joint project with the City of London (Ashtead Common) trialling a sandstone surface which proved successful. 2015 the remaining 3 km were restored using the same material. To address these management issues this plan recommends:

- Maintenance of the newly restored surface, including drainage provided this does not impact the SSSI interest features.
- Maintain and improved signing when/where appropriate.
- Use of the Epsom Common web pages to highlight to cyclists the need to cycle considerately with regard to other users and for the Council's onsite presence to act if inconsiderate cycling is witnessed.
- Maintaining the recently created woodland edge zones either side of the bridleway. This provides a more inviting aspect for visitors (a safer feel – and encourage people to stay on the obvious route), provides an opportunity to increase the diversity of woodland edge habitat along the fringes of the track, acts as a fire break and improves safety with fewer over hanging branches and blind bends and allows room for wind-blown trees to fall without crossing paths. Starting in 2007 approximately one half of the 4 Km circular bridleway has seen the

creation of a 10m woodland edge zone and has been a success with increased sightings of butterflies such as the Silver washed Fritillary and importantly Glow worms. Maintenance involves periodic clearing at least once every 10 years.

The grass paths ('Summer Horse Rides')

These very wide grass paths are all public rights of way and provide access to the centre of the main part of Epsom Common. They are an important part of the sites access infrastructure providing the public and in particular horse riders with an alternative to the hard surfaced circular path, a very significant length of valuable woodland edge, potential fire breaks and summer time vehicular access to the grazing areas. The width of the paths is an erosion control measure to prevent footfall from being confined to one narrow and inevitably muddy route. Current maintenance involves a grass cutting regime of several cuts during the growing season which involves regular cutting of a wide swathe down the centre of the path with an annual cut (not cleared) of grass along the edges. In winter the routes become water logged and unsuitable for horses with signs placed to inform that the routes are closed. The development of secondary woodland along the edges of the path has meant that these once very wide grass paths have been encroached upon in recent decades. This has caused grass to disappear in places and has reduced the effectiveness of the paths width in preventing muddy patches and consequent erosion. In recent years volunteers have begun to address this problem to some extent with a programme of work mainly involving the lifting of tree canopies and in places cutting back encroaching scrub. This has proved effective but it has become clear that the potential for good quality woodland edge habitat is not being realised and the increasing heights of path side trees means that canopy lifting is not completely effective. It is proposed that following the success of creating up to 10m of woodland edge habitat either side of the circular hard surfaced path a similar programme is carried out along the main grass paths where appropriate.

It should also be noted that the main grass paths include several issues. They provide easy access to adjacent areas of more fragile habitat especially during the summer when the routes are dry and easily traversable Their wide, linear character encourages their use as 'gallops' thus creating an obvious safety issue. A rider was killed in 2001 after falling from a galloping horse on one of these 'summer horse rides' and there is also a risk to pedestrians from such use. Use by horses has to be prevented when conditions are wet to prevent poaching of the route which can create a safety hazard of uneven ground for both pedestrians and horses especially if frozen hard in winter or baked hard in summer. There is a need to carry out some maintenance of the surface which in places has become very uneven.

Therefore the following management will take place:

- Whilst visitors will not be overtly discouraged from using the routes there will be an emphasis on encouraging use of the circular hard

surfaced ride, achieved by more obvious signage and prominence in guided leaflets and maps..

- Access by horses will continue to be managed by a system of signs that close the routes to horses in wet ground conditions..
- The routes have the ability to function as fire breaks and there use as such considered through liaison with local fire services (a gap of between 7-8m is considered sufficient to represent an effective firebreak).
- Commence a programme of woodland edge creation as described above and continue with volunteer work.
- Commence a programme of repairs to tackle areas of very uneven surface.

Minor paths

None of these have any legal status *per se* (above the general rights of public access under the Law of Property Act, 1925 and the CROW Act, 2000). Some are well used and have become very wide in places due to visitors trying to avoid wet/muddy areas. Others pass close to areas of sensitive habitat (e.g. Christchurch 'Orchid area'). During the previous plan all minor routes were mapped on to the Councils GIS mapping system to enable more effective monitoring and management. The following monitoring and management will be undertaken:

- Monitor the routes and their impact.
- Discourage use of inappropriate routes (e.g. leave fallen trees in place, install brushwood barriers and manage vegetation to make it less obvious where these leave main routes).

Access for people with disabilities

Resources permitting the 'all-weather track' will be maintained to a suitable standard for wheelchair access including the connecting path to Stew Pond car park. If resources permit a section of a suitable safety barrier will be constructed to provide a wheelchair access point to the Stew Pond. In addition, a wheelchair-friendly route will be made indicated providing access to the edge of the current grazing areas from West Heath around to the point where Rye Heath and Highlow Meadow almost meet..

Car parking

Stew Pond car park is the main car park for accessing Epsom Common and the only car park for accessing Ashtead Common. There is also a car park at Christ Church which can and is also used by some visitors to access Epsom Common but its primary use is by the church and activities associated with the adjacent combined Scout hut and day nursery. As in the previous plan it is recommended that the car parks should be maintained as 'low-key' features to try and manage the number of visitors to the Common and no further expansion of the current facilities will be undertaken. Following the

achievement of the first Green Flag award in 2007 some improvements have been made to signage most notably entrance signs welcoming visitors to both Epsom & Ashtead Commons and a path leading to Ashtead Common from the car was surfaced and a notice board installed for joint use by both EEBC and the City of London This has significantly enhanced the welcoming experience for visitors without overtly encouraging more visitors. The following on-going management issues will be addressed:

- Surfacing – an annual assessment of surfaces will continue to be undertaken and repairs made as necessary (using appropriate materials as agreed with English Nature)

- Litter, fly-tipping and abandoned/burnt-out cars – continued regular checks will be made so that rapid removal can be effected, thereby discouraging such activities.

- Indecent behaviour. The situation will be monitored in partnership with Surrey Police and Ashtead Common Rangers with a view to discouraging indecent behaviour in public.

Dog Control

There are a range of ecological, visual, and visitor safety/enjoyment issues relating to dogs and their owners which are negatively impacting the common and which pose a significant management challenge. Before identifying the key issues it is important to realise that dog owners can play a very positive role in helping to manage the common, in many cases they are the most frequent visitors to the site and therefore an invaluable set of ‘eyes and ears’ Below the issue are described.

- Dogs off lead:-There is little doubt that dogs off the lead that are allowed free reign across the common cause disturbance to wildlife. Bearing in mind that one of the sites SSSI designation features is for breeding birds the number of dogs currently accessing the common is likely to exclude ground nesting species in particular that might otherwise consider nesting in the now more open grazed areas. Dogs are often seen chasing deer which is both stressful for the deer, poses a road safety hazard and is upsetting to many. Along path edges there is evidence of long term impacts to vegetation through both constant trampling and nutrient enrichment from defecation. Ponds in particular are a magnet for dogs with owners not realising that their dogs seemingly innocent swim is one of many taking place every day year in year out. Disturbance to the bed of the pond and the consequent turbid water impacts the invertebrate life, bird life is disturbed and there can even be serious erosion problems where dogs regularly enter the pond. In 2012 a sum of £20,000 had to be found to repair the dam to Great Pond where erosion caused by dogs was threatening the integrity of the dam.

- Multiple dog walking:- The problems outlined above are often compounded by owners who bring more than one dog, bringing control issues which can be very distressing to other visitors, dog owners, horse riders and cyclists.
- Commercial dog walkers:- Again the problems outlined above are compounded but with an additional aspect where businesses are being run that impact the site but make NO contribution to the management of the site and control of the issues identified.
- Dog fouling:- Whilst dog fouling is still an issue with potential long term impacts regarding nutrient enrichment there has been a significant improvement in recent years on most public open spaces in the Borough. It is now more generally accepted that owners pick up after their dogs and there is a peer pressure to conform. Bins have now been placed at the main entrances on to the common for owners to use.

Identifying and understanding the issues are one aspect of the problem the other is the challenge of practical solutions that involves and does not exclude dog owners who form a very significant part of the community. Below are some potential approaches that could/should be investigated/implemented under this plan.

- Dogs off lead:- It is possible via 'Dog Control Orders'/'Environmental Improvement Orders' to insist that dog owners keep their dogs on the lead and in some places in particular where ground nesting birds are an issue this approach has been implemented. For Epsom Common there are two major issues set against the general feeling of dog walker's preference for letting their dogs off the lead. These are that whilst ground nesting birds such as Skylark might choose to nest in one of the grazing areas it is unlikely for reasons associated with the nature of the habitat rather than disturbance by dogs or indeed cattle. In addition the level of presence on the site would make enforcing a dogs on lead 'Control Order' very problematic. For this reason it is recommended that implementing a policy of educating dog walkers about the long term need to reduce disturbance is the only practical approach and holds out the prospect/advantage of working with dog owners rather than against them.
- Multiple dog walking:- Again it is possible to go down the 'Dog Control Order' route and in this case it might be slightly more straightforward to enforce because a lot of dog walkers would be likely to agree with some form of control. As with dogs off leads it is possible to take an educational approach but the control issues associated with multiple dog walking do seem to warrant some kind of limit. A suggested upper limit of 3 dogs per person would seem reasonable. Again however, a crucial factor will be the assessment of whether there is the ability to enforce such a rule?
- Commercial dog walkers:- There is little doubt that serious consideration should be given to charging a licence fee to commercial dog walkers and their numbers and frequency of visits limited to a

- sustainable level. That said Dog owner's in general but commercial dog walkers in particular represent a possible opportunity to significantly improve the level of organised presence on our open spaces and could play a role in policing dog walkers in general.
- Dog fouling:- Whilst as described there have been noticeable improvements in the behaviour of dog owners and improved measures put in place there is still room for improvement. Aside from the unpleasant nature of dog faeces the two key concerns are public health and the long term chemical impact on soils. A continuing programme of highlighting the issues should be maintained using noticeboards and press articles, with recourse to prosecution if necessary for a persistent offender.

Anti-social behaviour/ site security/boundaries/Byelaws

Like all large open spaces especially in the urban fringe Epsom Common is subject to the impact of regular anti-social behaviour. Common examples are litter, dog fouling, dumping of garden waste, damage to electric fencing and vandalism to signs and seats either through graffiti or actual damage. A more serious risk is also posed by the deliberate lighting of fires which could potentially devastate the site. Site security is also an issue due to the openness of the site and the general lack of any effective boundary features. An approach to the management of these issues is outlined below:

- Defence ditches and gates need to be checked regularly to ensure protection from illegal encampment. Wooden posts should be maintained on the edge of the Common at the junction of Christchurch Road and Stamford Green Road, in Stew Pond car park and at the Wells Road entrance to prevent vehicular access. All other boundaries should be checked on a regular programmed basis. This is particularly relevant with regard to dumping on to the common from adjacent properties and encroachment. Sadly, dumping is quite common and poses a threat to the common through the introduction of non-native species as well as looking very unsightly and being illegal. It is recommended that as happened in 2004 all properties either backing on to of fronting on to Epsom Common are written to and reminded of their responsibilities with regards to this issue.
- An increased on-site presence would greatly assist in managing anti-social behaviour and help improve site security. Currently the level of official council presence is low, EEBC Ranger Service are committed to trying to provide a daily patrol which covers some of the main paths and tracks, but is brief and restricted providing little deterrent and leaving large areas of the site with little or no presence for extensive periods. Other forms of current official or quasi-official presence include fairly regular site visits by EEBC staff from the Countryside Team, either for biological monitoring purposes or for supervising volunteer tasks, again though its effectiveness is very limited. Whilst the official

presence can and does pick up issues in reality it is often calls from the public via their mobile phones that alert attention to issues. To aid this fortunate development there are notices put up around the site advising the public on what number to call to report issues. Recently this has also prompted thoughts as to whether or not it may be possible to recruit volunteers, for example regular dog walkers to act as eyes and ears to effectively raise the level of presence. To assist in reporting issues a map (Map 7) that codified all the paths and tracks was produced in 2013 and working with the Epsom Common Association attempts are under way to recruit volunteers. It is early days but this plan recommends that efforts to raise the level of presence through the use of volunteers and new technology should be encouraged and developed.to help reduce anti-social behaviour and illegitimate access (e.g. unauthorised vehicles/illegal encampment) and other activities (e.g. illegal dumping).

- The Byelaws last agreed in 1975 with a maximum fine of £20 are in need of review and a greater financial sanction. Some activities unforeseen in 1975 currently cause issues which could be dealt with under the byelaws. These include, dumping of garden waste, introduction of exotic plants, speeding cyclists, unregistered sporting events, dog drawn sledges, unlicensed businesses e.g. dog walking businesses, and harvesting of Fungi

Site interpretation

The overall aim for site interpretation is to give visitors a sense of appreciation, attained through educating visitors by providing them with the knowledge that allows them to understand and appreciate the common. Appreciation is very important as it, rather than just knowledge/understanding is what motivates individuals to act, whether that be following guidelines on considerate cycling or joining the ECOVOLS!

The current approach to site interpretation is considered to be appropriate. The still increasing local population (Hospitals Cluster development) means that some increase in visitor numbers is likely, highlighting the need to ensure that visitors have readily available information about the common. This plan aims to maintain the present levels of interpretative activity on Epsom Common through a range of media and activities (listed below). Some of these activities are promoted in conjunction with other groups or organisations and it is thus important that close co-ordination with these parties is maintained. For example, the joint Epsom and Ashtead Commons site leaflet, entrance signs at Stew Pond Car Park and the Epsom Common Associations annual programme of guided walks.

A priority for this plan is ensuring that information currently contained in the ‘Common Sense Horse riding and Cycling’ leaflet is published on the web site and that the Councils on-site presence continues to address the issue of inconsiderate behaviour by visitors accessing the common.

- Signage

- Leaflets and maps and other publications
- Guided walks
- Talks
- Educational visits
- Displays
- Occasional open day in some years
- Web sites
- Videos

A critical aspect of site interpretation is the need to raise the awareness of the threat to the ecology of the Common caused by the release into the wild of non-native species (as outlined in Section 2.8.5). There will be a continued programme of raising public awareness (e.g. leaflets and letters), with appropriate action taken against persistent offenders.

Access for Emergency Services and to 'Services' running over or alongside Epsom Common

It is essential that Emergency Services can gain access onto the Common and that all those working on the site are made aware of the presence of various underground and above ground services.

- Main vehicular access points (Stew Ponds car park and the Wells) maintain the existing prominent signs providing 24-hr contact numbers.
- Ensure that information relating to the location, purpose and emergency contact information is available and up-to date for all Services crossing or running adjacent to the Common.
- Ensure that all those involved with management of the Common are aware of the High Pressure Aviation Fuel Line and what to do in the case of an emergency.
- Evaluate the need to create/maintain firebreaks (discuss with Fire Brigade etc.) and prepare a map of where these are to be situated.
- Maintain and update if necessary the current emergency access map available to emergency services (NB This is a map prepared jointly with the City of London Ashtead Common).

2.8.10 Landscape and Cultural Considerations

In order to maintain the sense of 'wilderness' on the main Common, it is important that a visual screen/noise barrier of trees and shrubs is maintained around the periphery of the site in particular the Northern Boundary with the B280 and the A24 in the South. Within the newly-restored more open parts of the Common, the resulting mosaic of open grassland, scrub and specimen trees has introduced a particularly appealing visual improvement to the landscape.

Epsom Common has played a prominent role in the cultural history of Epsom and as such its story needs to be made readily available to local residents and visitors via various forms of media as described above. Today a key aspect in Epsom Commons cultural role is its modern function as place for quiet informal recreation and nature watching, supported by good access, interpretive material and most importantly the involvement of local people in managing the site via the activities of the Epsom Common Association and with the support of Epsom & Ewell Borough Council.

2.8.11 Monitoring and Surveys

Monitoring

Monitoring is essential to ensure that prescriptive management meets the requirements of management objectives. For the SSSI this largely equates to ensuring that habitats are in a favourable condition as measured against

defined criteria. Condition Assessments are undertaken by Natural England every six years, usually by conducting brief site visits. The next repeat surveys are due in 2015.

Given the complexity of proposals included in this plan, as well as the fact that almost 30% of Epsom Common lies outside the SSSI, an extensive monitoring scheme is required. Some monitoring can continue to be undertaken by EEBC staff and volunteers, but the services of suitable specialists, on a paid or voluntary basis as appropriate will still be required and should be budgeted for. Information relating to the SSSI can be fed into English Nature's Condition Assessments as appropriate.

Surveys

Following the wide range of survey work initiated under the guidance of the previous plan there is now a need to build on the data already obtained and to carry out further new and repeat surveys as part of the overall monitoring plan to inform the precise management requirements (e.g. veteran trees and invertebrate populations) and also to check for legally protected species prior to any management taking place (e.g. bats during tree work). A continuing monitoring programme needs to be maintained to ensure management techniques are having the desired results and to inform decisions as to what changes are required should this not be the case. Under this plan the following additional baseline surveys should be carried out.

'Baseline' Surveys

- Survey to identify locations and status of 'near-veteran' trees.
- Survey of fungi across the whole site followed by repeat surveys every 10 yrs.
- Invertebrates associated with scrub-grass-heathland mosaic followed by repeat surveys every 10 yrs. Baselines species diversity surveys of all large ponds to include aquatic invertebrates, amphibians, fish and aquatic vegetation followed by repeat surveys every 10 yrs.
- Lichen survey across whole site followed by repeat surveys every 10 yrs.
- Bryophyte survey across whole site followed by repeat surveys every 10 yrs.
- Comprehensive botanical species diversity survey of grazed areas vs woodland areas, followed by repeat surveys every 10 yrs.
- Small mammal populations across whole site followed by repeat surveys every 10 yrs.
- Large mammal populations across whole site followed by repeat surveys every 10 yrs.
- Soil profiling
- Follow up on identification of non-coleopteran invertebrates currently held by the Natural History Museum captured during the vane trapping survey in 2012.

As well as new baseline surveys there is also a need for the following repeat surveys to build on the baseline data gathered previously**.**

Repeat Surveys

- Breeding birds, continue with regular breeding bird survey across the Epsom and Ashtead SSSI
- Butterflies, continue with volunteer led butterfly transect.
- Dormice, continue with volunteer coordinated checking of existing boxes and consider additional boxes. Reptiles, continue with volunteer led survey work in cooperation with the Surrey Amphibian and Reptile Group.
- Amphibians, continue with focus on regular pond surveys across the whole site.
- Invertebrate assemblages associated with veteran trees and decaying timber resource.
- Bats in certain areas (to gain more information about usage of the common by bats).
- Decadal NVC vegetation survey of both Epsom & Ashtead Commons
-

Known Protected Species Surveys

Breeding bird surveys prior to woodland/scrub thinning/clearance:
As a general rule trees and scrub should be felled/cut outside the bird breeding season but a rough estimate of the numbers and species breeding in the blocks to be felled should be made during the season prior to felling.

Bat surveys for tree-work:
Areas for planned tree felling or individual trees for attention should be checked, prior to any work commencing, for the presence of bats, by undertaking appropriate surveys at the correct time of year. If bats are found roosting in any of the felling blocks or trees, the plans will either be delayed or redrawn to accommodate the bat roosts.

Badger surveys prior to felling/scrub clearance:
There is badger activity on site, although no active setts have been found. However, a walkover of each proposed fell zone should be undertaken prior to clearance works as a final check on signs of badger activity, and appropriate action taken. If any setts are found to be present, or found subsequently, no felling works or land-forming will be done in close proximity to these setts (all work is well in excess of the recommended 30m safety zone).

Dormice:
Dormice are now known (2012) to be present and breeding on Epsom Common in the vicinity of Rye Meadow and have also recently (2013) been found on Ashtead Common. Any new proposals for the removal of areas of

secondary woodland or large areas of scrub should be preceded by a Dormouse survey. If found very careful consideration will be needed with regard to the decision to proceed and would almost certainly result in a significant modification of plans.

Great crested newt surveys prior to pond works:
Ponds on the Common do support Great Crested Newts for example Blakes' Pond (surveyed by P. Howarth 2014). Prior to any felling adjacent to ponds, or activities such as dredging, sites should be bottle-trapped in the previous spring/summer to ensure up to date information on the presence of Great Crested Newts..

Archaeological Survey

Archaeological interest can be surveyed in one of two ways, either by a full site survey prior to all restoration, or small surveys of each block prior to felling. It is particularly important to survey areas where scraping of the topsoil is to be undertaken (e.g. creation of new ponds). The County Archaeologist needs to be contacted regarding the need for a site survey and the survey methodology will be produced in consultation with them.

Monitoring

Monitoring is essential to ensure that prescriptive management meets the requirements of management objectives. For the SSSI this largely equates to ensuring that habitats are in a favourable condition as measured against defined criteria. Condition Assessments are undertaken by Natural England every six years, by conducting condition assessment site visits.

Given the complexity of proposals included in this plan, as well as the fact that almost 30% of Epsom Common lies outside the SSSI, a more vigorous monitoring scheme is employed. Currently monitoring is organised, undertaken and coordinated by EEBC staff, often employing the services of suitable specialists, on a paid or voluntary basis as appropriate. Information relating to the SSSI can be fed into English Nature's Condition Assessments as appropriate.

Monitoring Vegetation

Aerial and fixed-point photography:
At a broad scale, the impact of management upon the different habitats will be monitored by reviewing aerial photographs as these become available. Further information will come from establishing on-site fixed-point photography (see below).

Vegetation sampling:
At a finer level of detail than that provided by the regular NVC surveys, condition assessments of grasslands and heathlands will be made through repeat vegetation recording from sample stands. These are usually selected

during an initial baseline survey and identified by representativeness within pre-determined units (e.g. management compartments). Baseline grassland monitoring with a series of permanent quadrats was established in the main grazing area (Highlow Meadow) from 1997 and surveyed in 1997 & 2004, 2008, 2012 by Dr Giles Groome monitoring for the botanical effects of grazing. The results to date have indicated a statistically significant increase in plant diversity and have clearly shown through the use of exclosures the success of grazing in helping to control scrub encroachment. The previous plan recommended that the survey be extended to include all the grazing areas and to some extent this was achieved during the last survey in 2012 (Groome 2012), however, the expense and maintenance commitment of setting up large numbers of quadrats in all three grazing areas combined with the knowledge that previous surveys have essentially achieved their original aim of illustrating the benefits of grazing in regard to increasing botanical diversity has led to a re-appraisal.
It is now recommended that botanical surveys take place at least once every ten years across all three grazed areas using pre-defined GPS locations (possibly with an on ground marker). Consideration should also be given to establishing similar monitoring for:

- Remnant acidic/neutral grassland outside the grazing areas
- Each of the two main areas of relict heathland outside the grazed areas
- Grassland areas within sections of managed rides
- Woodland ground flora.

Each sampling area should ideally be a minimum of 50x50m; or larger for more extensive stands (but narrower along rides). Within each sample area a number of recording points or quadrats should be surveyed at each sampling occasion. Features for recording include species composition (this can either cover individual species or groups of species, such as grasses and tree/shrub seedlings, or a combination of species and groups, e.g. *Molinia*, *Deschampsia* and other grasses) and structure (e.g. sward height, heather growth phase and condition).

This type of monitoring will probably need to be undertaken by specialist contractors. Where treatments such as tree and scrub clearance are involved, the baseline survey and first monitoring occasion should be undertaken in the summer immediately after this work. Sample points should be re-recorded within five years of the first sampling.

For woodland/wood pasture areas, surveys of the veteran tree population took place in 2009 & 2011. These surveys provided a twenty year plan to work to which requires regular annual monitoring of veteran trees prior to work taking place.

The distribution of non-native species will need mapping at 5-yearly intervals; this work can be undertaken by EEBC staff.

Ponds will be monitored at a broad scale through fixed-point photography. The status of *Crassula helmsii* (and other invasive aquatics) needs to be monitored continuously (by EEBC staff and volunteers).

Fauna

Invertebrates:
Given the importance of invertebrate assemblages on Epsom Common effective monitoring is a continuing priority. This will involve:

- The continued monitoring of the Invertebrate assemblages of veteran trees and decaying/dead wood habitat. A follow on survey building on the initial 2012 baseline survey phytophagous and dead wood beetles should be carried out during this plan (to be undertaken by specialist entomologists). Invertebrate groups that should be covered include lepidoptera, diptera, spiders as well as phytophagous and dead wood beetles.
- Open habitat mosaic. In areas of recent tree and shrub clearance a first (baseline) survey should be undertaken as soon as possible. A second survey should follow 5-years later. These surveys should form part of a precisely-planned and targeted programme of monitoring to assess management impacts upon invertebrate populations (including limits of acceptable change etc.)
- During the last plan a butterfly transect was set up with a route that includes both grazed and non-grazed open habitats as well as woodland edge and woodland. The results are sent to the national charity 'Butterfly Conservation'

Other groups:

- During the last plan a regular annual breeding bird survey was carried out across both Epsom and Ashtead commons, paid for by Natural England. Importantly the surveys have indicated a relatively stable population over thirty years and indicated the benefits of current management. Volunteer recorders continue to submit valuable date but finding the funds to continue with, professional surveys as least once every five years is a priority. Monitoring will continue to determine the impact of grassland, scrub and woodland management (both in terms of breeding activity and use of the Common by winter visitors etc.). Bird activity of the various water bodies will also be monitored (Great Pond in particular) – again throughout the year.

Monitoring small mammal populations in the grazed areas (Harvest Mouse), is a priority due to these species being a good indicator of habitat condition. Some surveying took place during the last plan with the aim of surveying for Harvest Mice and this aim should continue especially as previous surveys carried out in partnership with Surrey Wildlife Trust in 2012 and 2013 under sub-optimal conditions proved inconclusive. Continued monitoring for Dormice discovered in 2012 should continue with the addition of further boxes to other likely locations on the common. For example, south of the A24. Volunteer

input in to small mammal monitoring has proved crucial to success and should be encouraged at every opportunity.

Finally, it should be noted that subject to availability and funding, Natural England specialists should be consulted and be able to provide assistance and advice about much of the monitoring to take place within the SSSI. In particular Natural England will be able to advise on the necessary monitoring required to support Condition Assessments of SSSI interest features.

Other Surveys

Casual recording at Epsom Common has given rise to a wealth of species records. Recorders should continue to be encouraged to visit the site and make records available to site managers and the Epsom Common Association. This could include visits by individual recorders as well as specialist groups such as the Surrey Botanical Society and London Natural History Society.

Interpretation of Data

All commissioned surveys should include the provision for interpretation of results and recommendations for management. However, individual surveys are usually species, or species-group specific and the recommendations for one monitoring target may conflict with another. For this reason it is recommended that all data is input in to the Recorder database and an annual review of monitoring and survey data (including all casually submitted records) is undertaken in liaison with Natural England to determine whether changes to management work plans are required. Ideally this information should be collated into a standardised spreadsheet format (e.g. using MSExcel).

Visitor surveys

Visitor numbers to the Common need to be assessed. This should be a priority of this plan especially in the light of anecdotal evidence that numbers may be increasing perhaps due the nearby development of the former hospital cluster and a perceived increase in the numbers of cyclists and dogs being walked. As with vegetation monitoring it would seem sensible to carry out a baseline survey with a view to repeating at least once every ten years.

Continuing Risk Assessment

There is a legal requirement to keep up to date contingency/emergency plans – e.g. contact numbers, access for emergency vehicles, contingency for fracture of fuel pipeline. In addition, all works carried out need to have an appropriate risk assessment.

Fixed-point Photography

Fixed-point photography can play an important role in monitoring the effects of land management (e.g. Roworth, 2004). During the last plan some fixed-point photographic stations were set up in the Highlow Meadow (main grazing area) but still need to be established at a variety of locations around Epsom Common, as outlined below:

Area	Recommended minimum number of points	Notes on location
Existing grazing compartment	6	One at each corner plus two appropriate other locations, to monitor the effectiveness of the grazing regime.
Remnant grassland outside grazing compartment	4	One at each of more extensive remnant grassland areas (including establishment before any scrub clearance under this plan) to monitor effectiveness of scrub clearance.
Relict Heathland	3	One at each of Bramble Heath, Horton Heath and Castle Heath to monitor effectiveness of heathland management/restoration techniques
Veteran pollard oak	10	One of each major tree (specialist veteran tree survey will photograph every tree included in survey also)
Ponds	6	One for each pond (apart from Great Pond which will have two – one to NW from Dam and one looking back towards the dam end from the SW corner).
Rides*	5	To monitor effectiveness of ride-side habitat management
Bracken glades	2	To monitor bracken-dominated vegetation in various parts of the common
*Fixed-point photography has limited applications in closed canopy woodland, although woodland rides/glades can be monitored.		

Photographic points should be fixed using available landmarks and recorded with GPS. It is recommended that stations be re-photographed at 5-yearly intervals. Maintaining consistency has proved challenging due to resources and it is recommended that this could be a good volunteer activity made much easier nowadays with digital photography etc.

2.9 Identification of Operational Objectives and Outline Prescriptions

Operational Objective	Outline Prescription
Maintain and enhance habitat mosaic	• **Grazed grassland-scrub mosaic areas** Continue with low-intensity summer cattle grazing to all grazed compartments • Maintain scrub mosaic within grazing areas • Install hard surface using inert stone around existing watering points within grazing areas • Continue liaison with the City of London with

Operational Objective	Outline Prescription
	regard to the grazing of Epsom and Ashtead Commons • Continue to support the Epsom Common Association in running a system of stock-checking with volunteer 'lookers' • Continue to observe impact/benefits of rabbit grazing at 'Stew Pond Meadow', suspend annual cut and clear. **Non-grazed grassland-scrub mosaic areas:** • Manage specified blocks of non-grazed scrub on rotation • Ensure scrub does not encroach on identified areas of species rich grassland • Manage scrub succeeding to woodland on the edge of rye Meadow to maintain Dormouse population • Undertake experimental heather mowing in non-grazed heathland to increase structural diversity • Control encroaching scrub, bracken, trees in non-grazed heathland • Undertake experimental turf scraping to encourage natural heathland regeneration • Conduct experimental scrapes within stands of dense bracken south of A24 • Experiment with seed harvesting of heather from *in-situ* plants and introduction into scrapes • Control bracken **Non-grazed grasslands:** • Ensure scrub does not encroach on areas of species rich grassland • 'Informal Grass' – 16x annual cut, but with less-frequent mowing along scrub and woodland margins • 'Rough Cut Grass' – Variable mowing frequency (3x max/year) to maximise structural diversity of sward. Ideally remove all cut grass. Ensure effective supervision of contractors • Small isolated areas of 'Species rich grassland' cut and clear annually. • 'Meadow Grass' – Annual cut and clear (Where arisings are not removed from site and deposited along edges, monitor for possible

Operational Objective	Outline Prescription
	negative impact of nutrient enrichment of surrounding areas caused by leaching)
Maintain and enhance mature semi-natural woodlands, veteran trees and decaying timber resource, and control invasive species	**Manage existing veteran tree resource:** • Map and assess condition of un-recorded veteran & 'near-veteran' tree population • Conduct further surveys of beetle fauna associated with veteran tree population • Continue to implement programme of specialist tree-work for veterans on an individual basis • Continue to implement a strategy for 'releasing' shaded veteran trees through appropriate thinning • Encourage Hawthorn in shrub layer around veterans **Encourage regeneration and new pollards:** • Create new pollards in young trees and manage on 10-20 year cycle • Undertake group-felling to encourage natural regeneration • Grow and subsequently plant-out saplings raised using acorns collected from on-site veteran tree population • Translocate appropriate young trees • Induce veteran characteristics in younger trees **General woodland management:** • Undertake selective removal of non-natives • Monitor for tree diseases • Rotationally manage woodland edge along 'all-weather track' • Undertake selective thinning/group felling of secondary woodland to diversify age structure and where opportunities present create permanent glades comprising a grass scrub mix managed rotationally • Where appropriate create and maintain Hazel understory to be managed as future coppice • Continue to support the Epsom Common Association volunteers who make charcoal using wood from the management of woodland on Epsom and Ashtead Commons

Operational Objective	Outline Prescription
Maintain and enhance aquatic and wetland habitats	**All Ponds:** • Undertake rotational management of marginal vegetation • Discourage the introduction of non-native plant species. Control *non-native species* where appropriate **Great Pond:** • On-going monitoring and works associated with dam stability **Stew Pond:** • Resources permitting improve access for people with disabilities by repair of surfaces and provide a suitable section of safety fencing • Work with lease holders to discourage over stocking with bottom feeding fish. • Support the lease holder in finding the funds to have the pond de-silted and improved for wildlife. **Baron's Pond:** • Thin surrounding trees/scrub cover to reduce shading **Blake's Pond:** • Control trees/scrub and mow vegetation for *Ophioglossum* **Dixies Pond:** • Thin surrounding trees/scrub cover to reduce shading • Through clearing of scrub and over shading trees maintain open valley linking with two step ponds above Dixies Pond to allow de-silting and improve habitat mosaic within woodland. **Stamford Green Pond:** • Thin surrounding trees/scrub cover to reduce shading • Clearance of litter • Re-pollarding of willows when appropriate **Other Projects:** • Investigate the possibility of creating new ponds and a wetland north of Stew Pond and near Pepys Way. • Map positions of smaller water bodies, dredge and thin scrub as appropriate • Map locations and flow directions of drainage ditches. • Rye Restoration – maintain liaison with City of

Operational Objective	Outline Prescription
	London and ensure that management is compatible with aims of the project
Control the spread of undesirable invasive species	• Map distribution of invasive species • Control *Crassula*, Turkey Oak, Sycamore, Cherry Laurel, Rhododendron, Japanese Knotweed (and other species referred to above) in relevant locations • Continue public education • Enforcement where appropriate
Maintain and enhance the invertebrate interest	Largely addressed by specific habitat management and survey/monitoring requirements • Create log piles in vicinity of veteran trees and spray wood chips on to piles if possible • Encourage Goat Willow near to Oak for Purple Emperor butterfly • Encourage Alder Buckthorn for Brimstone butterflies • Encourage hawthorn below oak for beetles such as Jewel beetles and other saproxylic invertebrates • Ensure retention of ivy for Horseshoe ladybird
Maintain and enhance ornithological interest	Largely addressed by specific habitat requirements and survey/monitoring requirements, but a number of refinements will be investigated: • Experiment with techniques for creating ideal scrub characteristics for Nightingale • Encourage Blackthorn scrub and manage appropriately • Encourage suitable scrub in close proximity to open water (e.g. Great Pond, , Rye Brook) • Encourage diverse woodland structure • Leave standing dead wood when removing Turkey Oak
Maintain and enhance botanical interest	Largely addressed by specific habitat requirements and survey/monitoring requirements
Site designations and management standards	• Continue to pursue National Nature Reserve status • Implement Green Flag Award management standards
Manage recreational activity and promote educational use	**Visitor numbers & perceptions:** • Carry out a visitor survey to inform future

Operational Objective	Outline Prescription
	management. **'All-weather track':** • Ensure effective signage • Restore worn out path surfaces using appropriate inert surfacing materials agreed with Natural England • Manage newly created woodland edge by rotational cut and clear **'Summer Horse Rides':** • Create woodland edge habitat where appropriate • Replace and re-locate where necessary wet ground conditions closed signs **Minor paths:** • Map and monitor impact on sensitive habitats • Discourage use of inappropriate routes **Access for people with disabilities:** • Ensure suitable surface materials are used for the 'all-weather tracks' Investigate provision of safety barrier at Stew Pond **Car Parking:** • Ensure suitable surface materials are used for surface restoration Regular litter/dumping checks – remove as necessary • Monitor antisocial behaviour at Stew Pond car park. **Dog control:** • Ensure regularly emptied litter bins are provided at main entrances ' Investigate ways of reducing the impact of dog walking on the sites ecology and visitors **Anti-social behaviour/ Boundaries/site security/Byelaws:** • Regular checks of site boundary and defence ditches • Prohibit vehicular access at Christchurch Rd/Stamford Green Rd junction • Seek ways to increase on-site presence including possible use of volunteers • Control illegal dumping • Update Byelaws

Operational Objective	Outline Prescription
	Education and interpretation: • Maintain and replace when necessary the existing information boards (x5) • Promote, where appropriate, levels of educational and interpretation activity on the Common • Ensure close liaison with the Epsom Common Association, the Ashtead Common Rangers and other appropriate organisations **Emergency access and other 'services':** • Ensure 24-hr contact numbers are provided at main (locked) access points • Maintain up to date information on location of 'services' and appropriate emergency procedures • Provide map to emergency services • Maintain wide rides that can act as firebreaks at appropriate locations
Maintain and enhance cultural and landscape value	• Maintain visual screen of trees around margins of site • Maintain mosaic of open grassland, heathland, scrub, high forest and isolated feature trees (as part of habitat management)
Undertake appropriate surveys	• Detailed survey of 'near-veteran' trees • Baseline fungi across whole site prioritising those associated with decaying timber resource • Invertebrate populations associated with veteran trees • Invertebrate populations associated with scrub/grass/heath mosaic • Invertebrate, amphibian, fish and aquatic vegetation populations associated with ponds • Continue breeding bird surveys across whole site in cooperation with City of London at Ashtead Common • Baseline small mammal surveys across site Baseline survey for large mammals (Roe Deer and Mink) • Botanical species diversity assessment of grazing areas and repeat every ten years • Repeat joint NVC botanical survey of Epsom & Ashtead Commons in 2022

Operational Objective	Outline Prescription
	• Bat surveys prior to tree work etc. • More general surveys of bat activity on the Common • Baseline bryophyte survey • Baseline lichen survey • Soil profiling
Monitor effectiveness of management	• Natural England SSSI condition assessment at agreed intervals • Review of new aerial photographs as available • Fixed-point photographic monitoring • Follow recommendations of detailed veteran tree plan following survey in 2009/2011 • Invertebrate populations associated with veteran trees, scrub/grass/heath mosaic and ponds • Continue with volunteer based reptile surveys in association with Surrey Amphibian & Reptile Group • Continue with ongoing volunteer led Dormouse survey • Small mammal populations of scrub/grass/heath mosaic, subject to the availability of suitable volunteer/s • Vegetation sampling of mature (un-grazed) woodland field layer • Vegetation sampling of grazed grasslands • Breeding bird monitoring surveys across whole site (in part to investigate impact of management) • Status of *Crassula helmsii* and other invasive species • Visitor usage surveys • Annual review of biological records and monitoring data • Use of consistent biological recording format (Currently Recorder 6) • Risk assessment etc. • Annual monitoring under contract of stability of Great Pond Dam

STAGE THREE - PRESCRIPTION

The following tables outline management proposals across Epsom Commons during the period 2016/17 to 2026/27. The format follows that given by Ryland (2002).

The various adopted management compartments are shown on Map 4. The area column outlines the total area over which each prescription is proposed.

Prescriptions are defined under the heading “proposed work”.

Outline estimated costs are given for guide/planning purposes for each year of the management plan. Year 1 relates to the 2016/17 tax year, year 2 to 2017/18 etc. Costs have been calculated, during the first five years, and then during the second five-year period, on the following basis:

	First five years	**Second five years**
Contractors	£150/person/day	£175/person/day
Volunteers	£6/person/day	£7/person/day
Ecological Consultants	£250/person/day	£275/person/day
Arboricultural Contractors	£250/person/day	£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. In all such cases, costings have therefore been based throughout on the preferential use of volunteers. It should also be noted that a significant amount of the crucial volunteer input to site management is at no direct cost to the Council.

-The previous management plan enabled the Council to secure the vast majority of funds externally through national agri-environment schemes such as the current Environmental Stewardship Higher Level Scheme 2010-2020 (£168,700). Up to 2013/14 of the £172,000 spent since 2005/06 £131,000 was from external sources.

Ten Year Work Programme

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
Maintain and enhance habitat mosaic: **1. – Grazed grassland scrub mosaic areas**													
2, 6, 7, , 9	18.1ha	Maintain early successional scrub mosaic by rotational cutting within grazing areas so that scrub covers no more than 30-35%-of the area (mainly hand-cutting and NB importance of maintaining scrub near water). Also includes chemical treatment of gorse.	£1500	£1500	£1500	£1500	£1500	£1800	£1800	£1800	£1800	£1800	Contractor/ Volunteer (CT Vols/Lower Mole/E.C. Assoc.)
		Maintain and replenish temporary electric fencing necessary to allow grazing.	£500	£500	£500	£500	£500	£600	£600	£600	£600	£600	EEBC staff & CTVols
2, , 6, 9	c. 18.1ha	Cutting and clearing of recently cleared scrub areas to encourage grasses		£1500		£1500		£1600		£1600		£1600	Contractor/ (CT Vols/Lower Mole/E.C. Assoc.)
2, , 6, 9	N/A	Hard surface around existing water troughs with inert stone to prevent erosion and maintain	£1500						£500				Volunteer (Lower Mole/E.C. Assoc.)
N/A	N/A	Maintain liaison via Epsom & Ashtead Commons SSSI Forum with the City of London with regard to the grazing of Epsom and Ashtead Commons	As appropriate										EEBC staff
	N/A	Maintain good working relationship with existing grazier)	As appropriate										EEBC staff

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
	18.1 ha	To maintain a diverse age structure, encourage/protect young specimen oaks as future veteran trees. First pollard cut at very early stage for a proportion of such trees.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff/vols
2, , 6, , 9	18.1 ha	Maintain and extend system of stock-checking with volunteer 'lookers' from and coordinated by the ECA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff/ Volunteer (E. C. Assoc
2, , , 6, 9	N/A	Monitor grazing pressure and adjust numbers as appropriate. E.G. 2011-2014 Highlow Meadow 20, Rye Meadow 10, Horton Heath 5	As appropriate										EEBC staff
2	N/A	Monitor impact of grazing on heather	As appropriate										EEBC staff
1	N/A	Monitor impact of Rabbit grazing during suspension of annual cut and clear	As appropriate										EEBC staff
Maintain and enhance habitat mosaic: **2. - Non-grazed grassland scrub mosaic areas**													
2, 7, 9, 10, 13 15, 17	6ha approx	Manage, by coppicing, specified stands of non-grazed scrub on rotation			£2000			£2400			£2400		Contractor/ vols
9	N/A	Manage developing woodland on the edge of Rye Meadow to retain scrub component for Dormouse population	No cost		No cost		No cost		No cost		No cost		No cost

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
8, 16	N/A	Undertake experimental heather mowing in non-grazed heathland to increase structural diversity: • Mowing – • Monitoring of experimental outcomes Costs include works and monitoring of experimental outcomes	£500			£500			£600			£600	Volunteer (Lower Mole/E.C. Assoc.) Contractor (monitoring)
8, 16	N/A	Control encroaching scrub/trees and *Molinia* in non-grazed heathland by cutting • Scrub/trees • *Molinia*	£200 £200	£200 £200	£200 £200	£200 £200	£200 £200	£240 £240	£240 £240	£240 £240	£240 £240	£240 £240	Volunteer (Lower Mole/E. C. Assoc.)
2, 8, 16,	0.1ha	Undertake experimental turf scraping and heather seed harvesting aimed at encouraging natural heathland regeneration (Horton Heath, Castle Heath & Bramble Heath,) • Turf scraping • Heather seed harvesting • Monitoring of experimental outcomes Costs include works and monitoring of outcomes		£1000	£1000		£1000			£1000			Volunteer (Lower Mole/E. C. Assoc.) Contractor (monitoring)
17	0.3ha	Conduct experimental scrapes within dense bracken areas south of A24 Woodcote Heath close to existing small heather patch as part of above works • Creation of scrapes • Monitoring of experimental outcomes Costs include works and monitoring of outcomes	£1000			£1000			£1000			£1000	Volunteer (Lower Mole/E.C. Assoc.) Contractor (monitoring)

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
, 2, 4, 6 8, 15, 17	*2ha approx	Control Bracken, by combination of pulling, cutting and rolling * Based on extent of bracken-dominated communities at Epsom (i.e. NVC U20)	£350	£350	£350	£350	£350	£400	£400	£400	£400	£400	Contactor/ Volunteer (Lower Mole/E.C. Assoc.)
Maintain and enhance habitat mosaic: **3. - Non-grazed grasslands**													
1, 10, 11, 12, 14, 16	3.3ha	'Informal Grass' – 16x annual cut, but with less-frequent mowing along scrub and woodland margins	£7000	£7000	£7000	£7000	£7000	£7500	£7500	£7500	£7500	£7500	EEBC GM
1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14, 16, 17	5.3ha plus 2.6km of rides	'Rough Cut Grass' – Variable mowing frequency (3-5x max/year) to maximise structural diversity of sward. Ideally remove all cut grass.	£5000	£5000	£5000	£5000	£5000	£5500	£5500	£5500	£5500	£5500	EEBC GM
12	1.0ha	Conservation Meadow (Osbornes Green) –Annual cut and clear, leaving headlands where appropriate to be retained on a rotational basis.	£500	£500	£500	£500	£500	£600	£600	£600	£600	£600	Contractor

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
3, 11, 13, 17, 18	?	Annual cut and clear of areas of species rich grassland as identified in the 2012 NVC survey and other areas subsequently identified as having potential e.g. Christchurch Glade.											EEBC staff/volunteers
Maintain and enhance mature semi-natural woodlands, veteran trees and decaying timber resource, and control invasive species: 1. – Manage existing resource													
All	c.45ha	Implement veteran tree management plans for individual trees as directed by 2009 & 2011 surveys	£3500	£3500	£3500	£3500	£3500	£1500	£1500	£1500	£1500	£1500	EEBC Staff and Specialist Arboriculturalist
all	c.45ha	Map and assess condition of un-recorded veteran & 'near-veteran' trees (to include mapping and tagging)			£3000								Ecological Consultant
1, 4	N/A	Encourage Hawthorn in shrub layer around veterans (e.g. creating open areas for seed establishment, 'weeding' around seedlings/saplings, transplants from cleared areas)	£150	£150	£150	£150	£150	£150	£150	£150	£150	£150	Volunteers (
Maintain and enhance mature semi-natural woodlands, veteran trees and decaying timber resource, and control invasive species: 2. – Encourage regeneration and new pollards													
1, 2, 4, 6, 9	N/A	Identify and create new pollards in young trees (up to 15 years old) and manage on 10-20 year cycle. Include grazed areas.	£50	£50	£50	£50	£50	£60	£60	£60	£60	£60	Volunteer

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
1, 2, 3, 4, 7, 8, 9, 10, 13, 15, 17, 18	N/A	Undertake selective thinning and group-felling to encourage natural regeneration and diversify age structure See below under 2. General Woodland Management for more detail and associated costs.											Contractor
1, 4	N/A	Grow and subsequently plant-out saplings raised using acorns collected from on-site veteran tree population	£50		£50		£50		£60		£60		Volunteer)
1, 4	N/A	Translocate appropriate young trees (as appropriate)	£50	£50	£50	£50	£50	£60	£60	£60	£60	£60	Volunteer
All	N/A	Induce veteran characteristics in younger trees	£50	£50	£50	£50	£50	£60	£60	£60	£60	£60	Specialist Arboriculturalist/Volunteer
Maintain and enhance mature semi-natural woodlands, veteran trees and decaying timber resource, and control invasive species: **3. – General woodland management**													

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
1, 2, 3, 4, 7, 8, 9, 10, 13, 15, 17, 18	N/A	Undertake selective thinning and group-felling of secondary woodland to encourage natural regeneration and diversify age structure as guided by Environmental Stewardship HLS scheme. Where opportunities present, create glades comprising a grass scrub mix subsequently managed rotationally To be funded by Environmental HLS Grant Scheme up to 2020 Note removal of Turkey Oak (Merrist Wood College) has played and continues to play a significant role in selective thinning at no cost		£3500		£3500		£2500	£2500	£2500	£2500	£2500	Contractor
All	All habitats	Undertake selective removal of non-natives (saplings/small trees) – as appropriate yrs 1-10. To be followed-up by treatment of cut stumps with appropriate herbicide (e.g. 'Round Up').	£50	£50	£50	£50	£50	£60	£560	£60	£60	£60	Volunteer
1, 2, 3, 4, 5, 6, 7, 8, 9, 10	SSSI intolerance zone	Undertake selective removal of Sycamore and Turkey Oak (larger trees) in relevant places (e.g. woodlands beside Christchurch Road), by chain saw felling. Continue inviting use by Merrist Wood College at no cost to remove mature Turkey Oak Note: trees can be ring barked and left as standing dead wood away from paths	No cost at present	No cost at present	No cost at present	No cost at present	No cost at present	No cost at present	No cost at present	No cost at present	No cost at present	No cost at present	Contractor/r/student.
1, 4	Older woodland	Undertake selective removal of Turkey Oak and Sycamore. Note ring barking of Turkey Oak carried out by Merrist Wood College. Treat stumps of younger trees	£50	£50	£50	£50	£50	£60	£60	£60	£60	£60	Volunteer/students/EEBC Staff
4	N/A	Where appropriate create and maintain Hazel understory to be managed as future coppice	£50	£50	£50	£50	£50	£55	£55	£50	£55	£55	Volunteers

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
1, 2, 3, 4, 7, 8, 9	0.4ha	Create woodland edge by widening 200m either side of 'all-weather track', from Stew Pond Meadow to Gas Pipeline Wayleave that leads to Highlow meadow. In addition widen Pepys Way & Summers Gate paths (tree/scrub removal within 10m corridor either side).	£3500				3500		2500		2500		Contractor
, 2, 3, 67, 8,	2Ha	Widen 2Km 'Summer Horse ride' (tree/scrub removal within 10m corridor either side) to create woodland edge)		£3500			£	£2500		£2500		£2500	Contractor
1, 2, 3, 4, 7, 8, 9	4.0Ha	Undertake rotational management every five to seven years of ride-side vegetation to create a varied woodland edge age range.	£2000		£2000		£2000		£2500		£2500		Volunteers/ contractor/ EEBC staff
2	N/A	Continue with charcoal burning operation	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	/Epsom Common Assoc.)
Management of aquatic and wetland habitats													
4, 5, 10, 15, 17, 18	2.9ha (all ponds)	Undertake rotational management of marginal vegetation (**all ponds**)	£100	£100	£100	£100	£100	£125	£125	£125	£125	£125	Volunteer

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
4, 5, 10, 15, 18	N/A	Control *Crassula helmsii* where appropriate (hand-weeding and herbicide). Complete eradication within management plan period is probably unrealistic	£500	£500	£500	£500	£500	£600	£600	£600	£600	£600	Contractor
5	N/A	**Great Pond:** Maintain on-going statutory monitoring and works associated with dam stability under the Reservoirs Act	£4000	£4000	£4000	£4000	£4000	£5000	£5000	£5000	£5000	£5000	Specialist Civil Engineers
4	N/A	**Stew Pond:** Implement measures to improve access for people with disabilities – repair surfaces and provide section of safety fencing						£2000					Contractor
4	N/A	**Stew Pond:** Measures to discourage stocking with fish and the introduction of non-native aquatic plant species (e.g. signs and leaflets). Work in partnership with angling club	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	EEBC staff
4	N/A	**Stew Pond:** Work with the angling lease holder and other partners in securing funds for the de-silting and ecological enhancement of the pond					£100,000						EEBC staff, angling lease holder, ECA, Natural England, Env Agency
18	0.5ha	**Baron's Pond:** Thin surrounding tree/shrub cover to reduce shading			£5000								Contractor/ volunteers
11	1.0ha	**Blake's Pond:** Control trees/scrub and mow vegetation for *Ophioglossum vulgatum*	£50	£50	£50	£50	£50	£50	£50	£50	£50	£50	Volunteer

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
17	0.25ha	**Dixies Pond:** Continue restoration project (including clearance of surrounding scrub/trees and opening up the small valley leading to two higher ponds which require dredging)		£1500									Volunteer
11	N/A	**Stamford Green Pond:** Control litter	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff
11	N/A	**Stamford Green Pond:** Re-pollarding of willows and thin surrounding scrub.			£500				£600			£600	Contractor/ volunteers
, 9	0.25ha	Create 1 new seasonal ponds in Rye Meadow using appropriate excavator				£1000							volunteer
N/A	N.K.	Map positions of smaller temporary seasonal water bodies and the locations and flow direction of all drainage ditches	No cost										EEBC staff/Volunteer
2,	N.K.	Thin scrub/trees around some smaller water bodies e,g, Pepys Way, Horton Heath							£1200				Volunteer (Lower Mole/E.C. Assoc.)
8	N/A	Investigate surface water drainage leading to seasonal water bodies next to Pepys Way and if practical implement project to create new ponds	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	EEBC staffVolunteer
1	N/A	Seek funding and permissions to create a wetland at Stew Pond Meadow	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	No cost at this stage	EEBC staff/Contractor
9, 14	N/A	Continue to liaise with City of London over Rye Brook Restoration											EEBC staff
Control the spread of undesirable invasive species													
All	Whole site	Continue to map distribution of invasive species	No cost	No cost									EEBC staff

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
All	Whole site	Clear and burn and chemically treat all Rhododendron and Cherry Laurel with hand tools			£50	£50	£50						Volunteer
1, 10, 18	0.2ha approx.	Monitor success of chemical control of Japanese knotweed, repeat treatment if required		£250		£250		£250		£250		£250	EEBC staff
10, 13	0.2ha	Monitor for re-emergence of Michaelmas Daisy	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	EEBC staff
7	N/A	Monitor for re-emergence of Canadian Goldenrod by hand weeding	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	EEBC staff
8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	N/A	Initiate programme of public education concerning problem weed issue • Press article • Website info • Additional letter drop to residents	 N/A N/A N/A	 N/A N/A N/A	 N/A N/A N/A	 N/A N/A N/A	 N/A N/A N/A	 N/A N/A N/A	 N/A N/A N/A	 N/A N/A N/A	 N/A N/A N/A	 N/A N/A N/A	EEBC staff
8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	N/A	Monitor illegal tipping	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	N/A	Enforce illegal tipping policy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff
Maintain and enhance the invertebrate interest													
1, 4	N/A	-Create log piles in vicinity of veteran trees and spray wood chips on to piles if possible (costs incorporated into felling and other works)-Encourage Goat Willow near to Oak for Purple Emperor butterfly -Encourage Alder Buckthorn for Brimstone butterflies -Encourage hawthorn below oak for beetles such as Jewel beetles and other saproxylic invertebrates -Ensure retention of ivy for Horseshoe ladybird	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Volunteer (Lower Mole/E.C. Assoc.)
Maintain and enhance the ornithological interest													
4	N/A	Experiment with techniques for creating ideal scrub characteristics for Nightingale – e.g. using mature Blackthorn stands in scrub margins (applies to both grazed and non-grazed scrub)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Volunteer

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
As app rop.	N/A	Encourage Blackthorn scrub and manage appropriately (applies to both grazed and non-grazed scrub)	£100		£100		£100		£120		£120		Volunteer
4, 6 9	N/A	Encourage suitable scrub in close proximity to open water (e.g. Great Pond, Rye Brook)		£100		£100		£120		£120		£120	Volunteer
All	N/A	Encourage diverse woodland structure and leave standing dead wood when removing Turkey Oak											Volunteer/ Student/Contractor
Manage recreational activity and promote educational use													
All	N/A	Carry out a visitor survey to inform future access management			£500	£500	£500						EEBC staff/vols
1, 2, 3, 4, 7, 8, 9	N/A	Monitor condition of restored path (2015) and where appropriate improve signage to 'all-weather track' (e.g. re-naming of winter horse ride)			£500			£600			£600		Volunteer
All	Whole site	Monitor and map /update routes of minor paths	N/A										EEBC staff
All	Whole site	Monitor condition of public and minor grass paths and address issues as appropriate (e.g. drainage of public paths)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
1, 3, 3, 4, 5, 6, 7, 8, 9, 10	SSSI only	Discourage use of minor paths where necessary		N/A	N/A								EEBC staff
1	N/A	Undertake annual check and repair of Stew Pond car park surface	£1000		££1000		££1000		£1000		£1000		EEBC staff/Contractor
All	Whole site	Control litter & illegal dumping	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff
1	N/A	Monitor anti-social behaviour at Stew Pond Car Park in conjunction with Surrey Police	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff
All	N/A	Dog Control: Investigate ways of reducing the impact of dog walking on the sites ecology and visitors and ensure continued presence of Dog Waste Bins at Stew Ponds, Stamford Green, The Wells and Pepys Way	No cost										EEBC staff, vols, dog walkers
8, 10, 11, 12, 13, 15, 16	N/A	Undertake annual checks of site boundary and defence ditches	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff
11	N/A	Ensure effectiveness of vehicle barrier at Christchurch Road/Stamford Green Road junction	No cost										EEBC staff
N/A	N/A	Maintain on-site Ranger presence and seek ways to increase on-site presence including possible use of volunteers.	No cost										EEBC staff/Vols

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
N/A	N/A	Update the Byelaws											EEBC staff
Maintain and enhance cultural and landscape value													
All	N/A	Promote appropriate levels of education and interpretational activity on Epsom Common, including maintaining and replacing when necessary the existing information boards (x5)				£1000					£1000		EEBC staff
1, 4, 9, 14, 15	N/A	Liaise effectively with Ashtead Common Rangers and other appropriate organisations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff
All	N/A	Continue to pursue National Nature Reserve Status with Natural England	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC/Natural England
All	N/A	Implement Green Flag Award management Standards	£300	£300	£300	£300	£300	£300	£300	£300	£300	£300	EEBC staff
1, 8, 9	N/A	Ensure 24-hr contact numbers are displayed at locked access points and liaise with neighbouring sites to ensure 24hr access	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff
N/A	N/A	Provide map showing access points etc. for emergency services	N/A										EEBC staff
N/A	N/A	Maintain up to date information on location of mains services and appropriate emergency procedures	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff)
N/A	1.0ha	Maintain wide rides that could act as firebreaks at appropriate locations. For costs see above.											Contractors/Volunteer/EEBC staff

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
Undertake appropriate surveys													
All	N/A	Commission baseline survey of fungi across the whole site.					£3000						Ecological Consultant
2, 4, 6, 7, 8, 9, 10, 13, 15, 16	N/A	Commission baseline survey of invertebrates in scrub/grass/heath mosaic (this is aimed at monitoring the effects of re-introducing grazing).		£3000									Ecological Consultant
All	N/A	Commission small mammal surveys including the following:. - Investigating differences between secondary and pasture woodland - Harvest mouse population in heathland/species rich grassland areas - Surveys to determine what species are present across the site	£300				£300						EEBC staff and volunteers
As appropriate	As appropriate	Commission large mammal surveys including the following: - Estimation of Roe deer, badger and fox populations - Mink with a view to extermination											
2, 6, 9	30ha	Commission botanical species diversity survey of grazing areas every 10 years.								£4000			Ecological consultant

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
1, 2, 4	As per cpt areas	Commission vegetation survey of field layer component within mature, un-grazed woodlands every 10 years					£4000						Ecological consultant
As appropriate	As appropriate	Commission more general surveys to investigate bat activity across the wider area of the Common identifying roost locations and species diversity		£500									EEBC staff and Volunteers e.g. Surrey Bat Group
2 4, 5 8, 10, 15, 17 18	N/A	Survey all ponds to identify aquatic invertebrates species					£3000						Ecological consultant/ EEBC Staff
2 4, 5 8, 10, 15, 17 18	N/A	Survey all ponds to identify amphibian species with focus on Great Crested Newts	No cost	No cost									/EEBC Staff
2 4, 5 8, 10, 15, 17 18	N/A	Survey all ponds to identify fish species		No cost		No cost		No cost					/EEBC Staff, Vols, CALPAC?

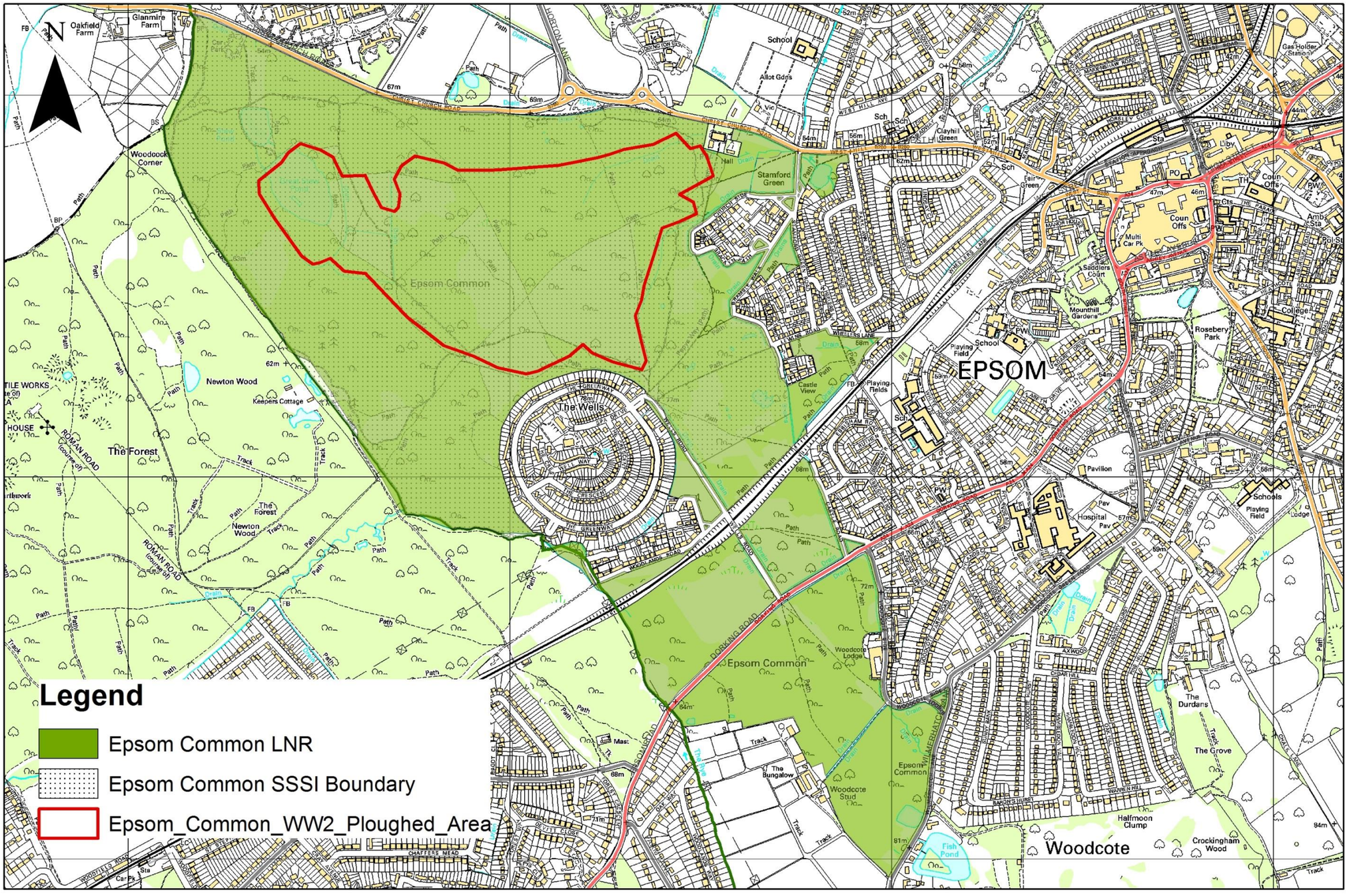
Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
2 4, 5 8, 10, 15, 17 18	N/A	Survey all ponds to identify aquatic vegetation including invasive non-native species				No cost	No cost						/EEBC Staff, Vols,
All	N/A	Baseline lichen survey									£2000		EEBC staff/vols/consultant
All	N/A	Baseline Bryophyte survey across whole site		No cost	No cost	No cost							EEBC staff/vols/consultant
TBA	TBA	Commission soil profiling surveys					£500						Specialist consultant
2, 4, 7, 9	N/A	Investigate possible archaeological impacts from proposed management activities (Scope of work involved and costs to be investigated)		??									County Archaeologist
Monitoring requirements													
1, 2, 3, 4, 5, 6, 7, 8, 9, 10	Whole Site	SSSI condition assessment (Due 2015) and remainder of site for consistent monitoring methodology	No cost						No cost				Natural England/EEBC staff
All	Whole site	Review new aerial photography as becomes available	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
1, 2, 4, 5, 6, 7, 8, 9, 10, 17, 18	N/A	Establish and implement fixed point photographic monitoring using GPS/existing landmarks.	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	Volunteer (Lower Mole/E.C. Assoc.)
All	N/A	Following 2012 baseline survey of invertebrates associated with veteran trees, fully analyse the results held at the Natural History Museum with regard to lepidoptera, diptera, and spiders	£		£1000								Ecological Consultant
1, 4	N/A	Monitor veteran tree and decaying timber invertebrate populations					£3000					£2200	Ecological consultant
1, 2, 4, 6, 7 ,9,	N/A	Continue annual monitoring of butterflies along transect route	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	Volunteer/ EEBC staff
2, 4, 6, 7, 8, 9, 16	N/A	Monitor scrub/grass/heath invertebrate populations every 5 years following initial survey.					£1500					£1600	Ecological consultant
All	N/A	Monitor bat activity following baseline survey						£500					EEBC staff and Volunteers e.g. Surrey Bat Group

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
All	N/A	Monitor Badger activity					No cost				No cost		EEBC staff/volunteers
2, 4, 5, 8, 10, 17, 18	N/A	Monitor for amphibians with focus on GCN					No cost	No cost				No cost	
6, 9	N/A	Continue annual reptile monitoring in partnership with Surrey Amphibian & Reptile Group, extend further across site if practical	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	EEBC staff/volunteers
2, 4, 6, 7, 8, 9, 16	N/A	Monitor scrub/grass/heath small mammal populations							£550	£550			Ecological consultant/ volunteers
, 8, 16	c.2ha	Monitor outcome of experimental heather mowing in non-grazed heathland to increase structural diversity (costs included under works)		No cost	No cost		No cost	No cost		No cost	No cost		EEBC staff
2, 8, 16	0.1ha	Monitor results of experimental turf scraping and heather seed harvesting aimed at encouraging natural heathland regeneration (Horton Heath, Castle Heath & Bramble Heath). – costs included within works.		No cost	No cost		No cost	No cost		No cost	No cost		EEBC staff
17	0.2ha	Monitor outcome of experimental scrapes within dense bracken areas south of A24 (costs included as part of works)		No cost	No cost		No cost	No cost		No cost	No cost		EEBC staff

Cpt	Area (ha)	Proposed Work	Outline Costs (£)										Workforce
			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	
All	Whole site	Commission breeding and winter bird monitoring surveys across whole Epsom & Ashtead Commons SSSI (in part to investigate impact of management) (Two years on Two years off)		£3000	£3000			£3000	£3000			£3000	Ecological consultant
4, 5, 6, 9, 10, 11, 17, 18	N/A	Monitor status of *Crassula helmsii* and other invasives	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EEBC staff/Volunteer (E.C. Assoc./Lower Mole)
N/A	N/A	Use of recorder database and in house spreadsheets for compilation of biological records subsequently shared with the Surrey Biological Records Office	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	No cost	EEBC staff/volunteers
TOTAL ANNUAL COSTS £			**34100**	**42000**	**43800**	**32050**	**149690**	**38430**	**40490**	**36375**	**36540**	**39830**	

MAPS



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Date: 05/06/2015

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Map 1: Location of Epsom Common

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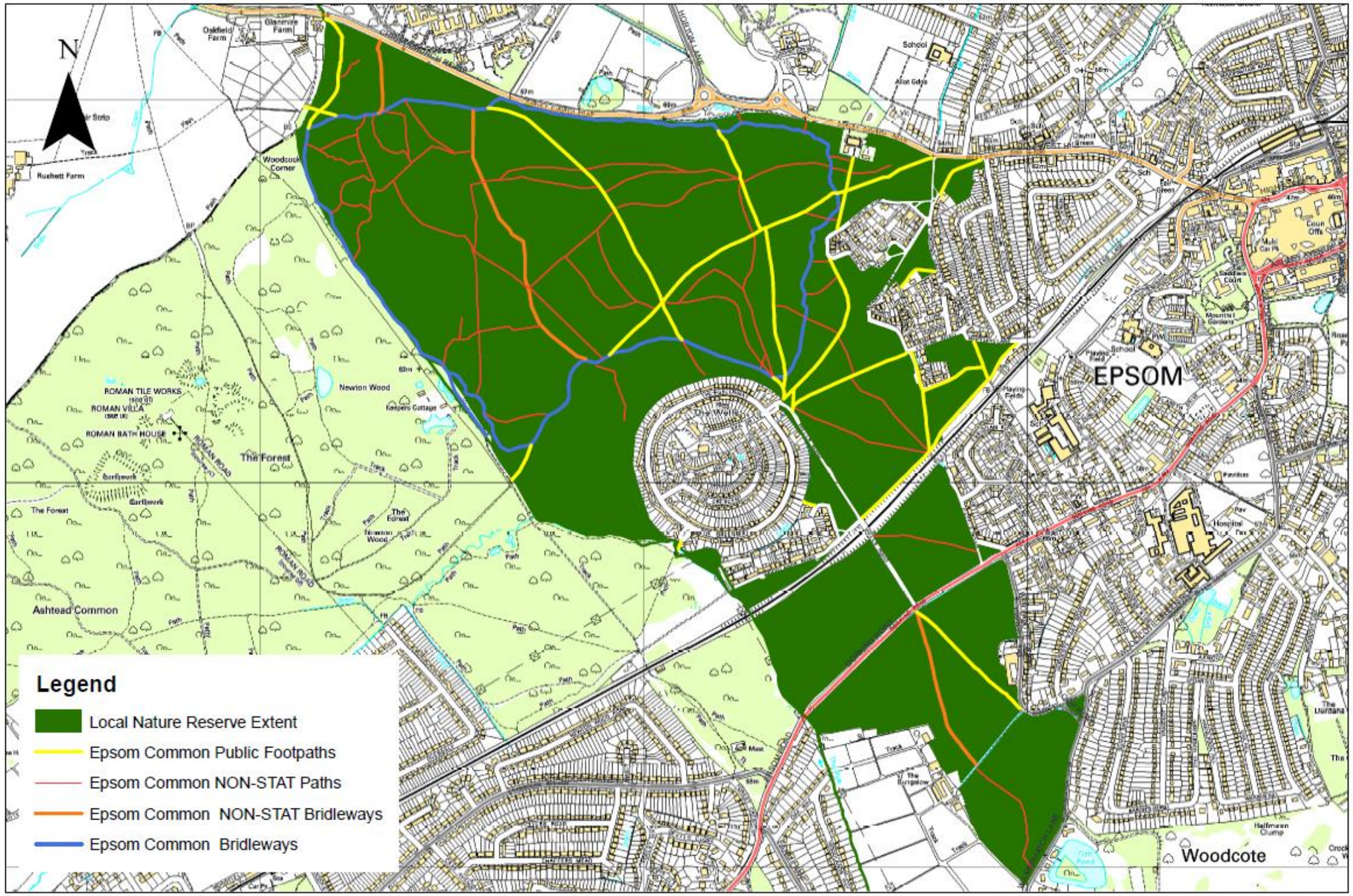

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Map 2: Access

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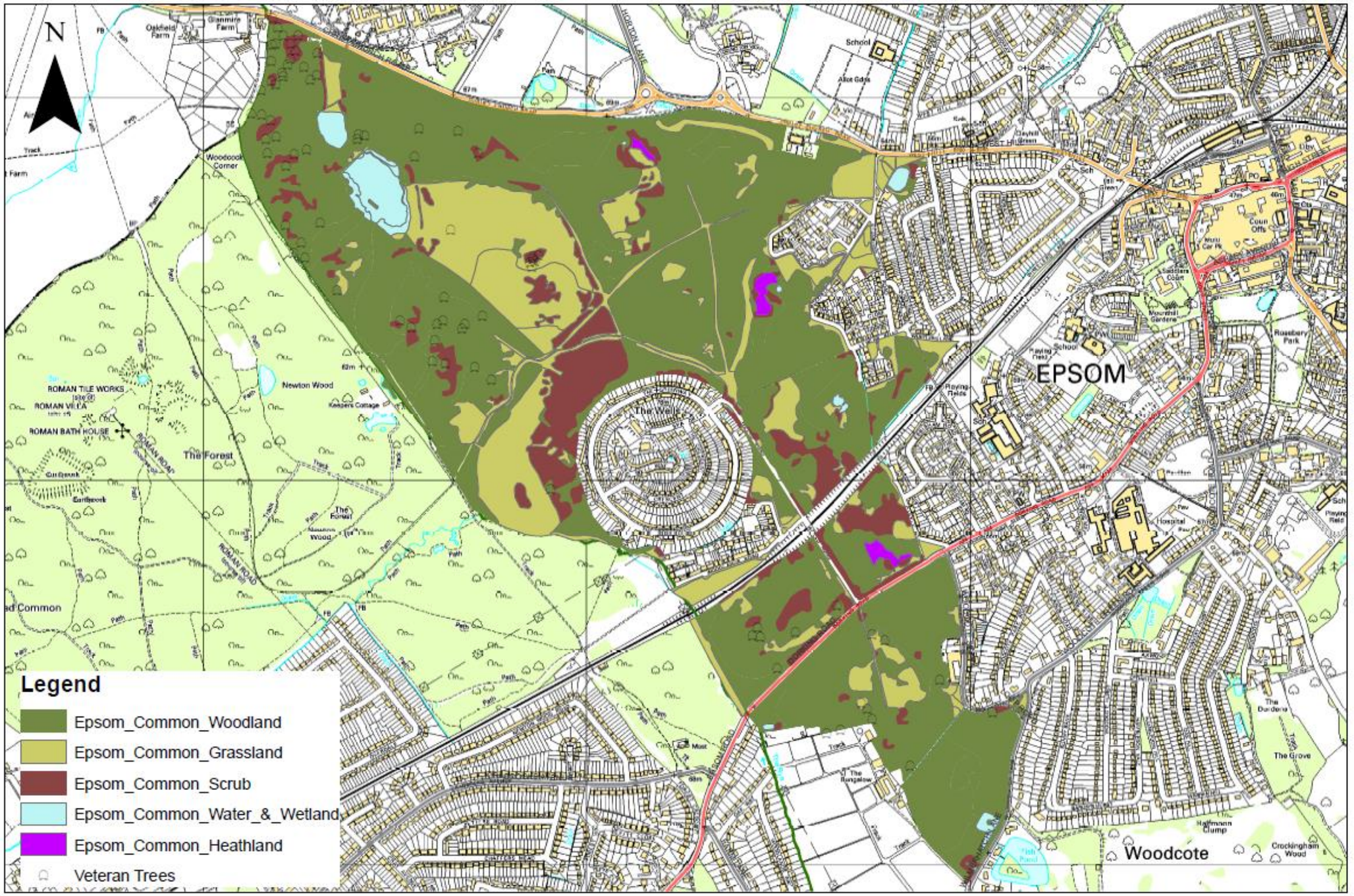

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Map 3: Existing Habitats

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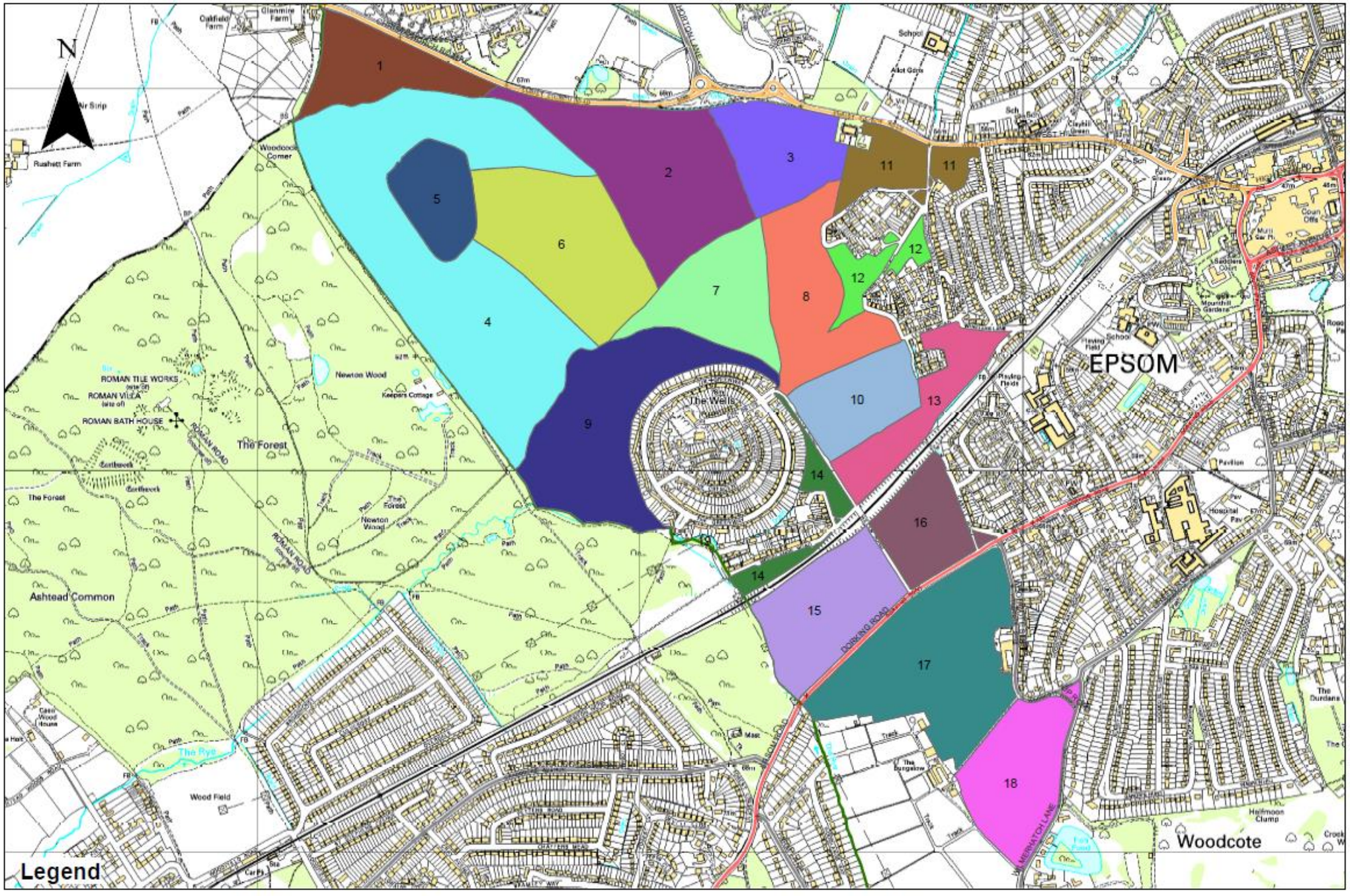

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Map 4: Management compartments

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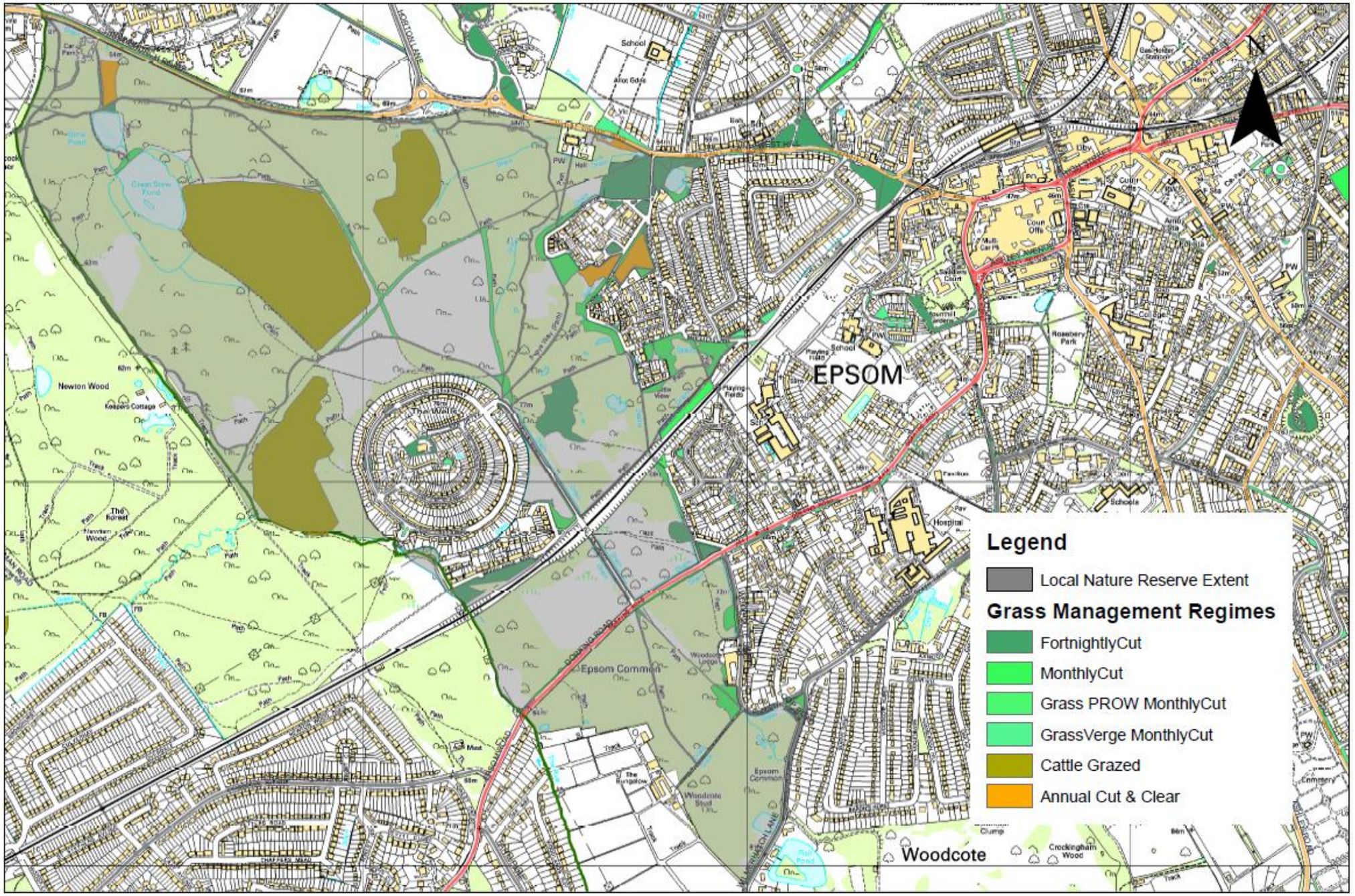

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Map 5: Grassland Management

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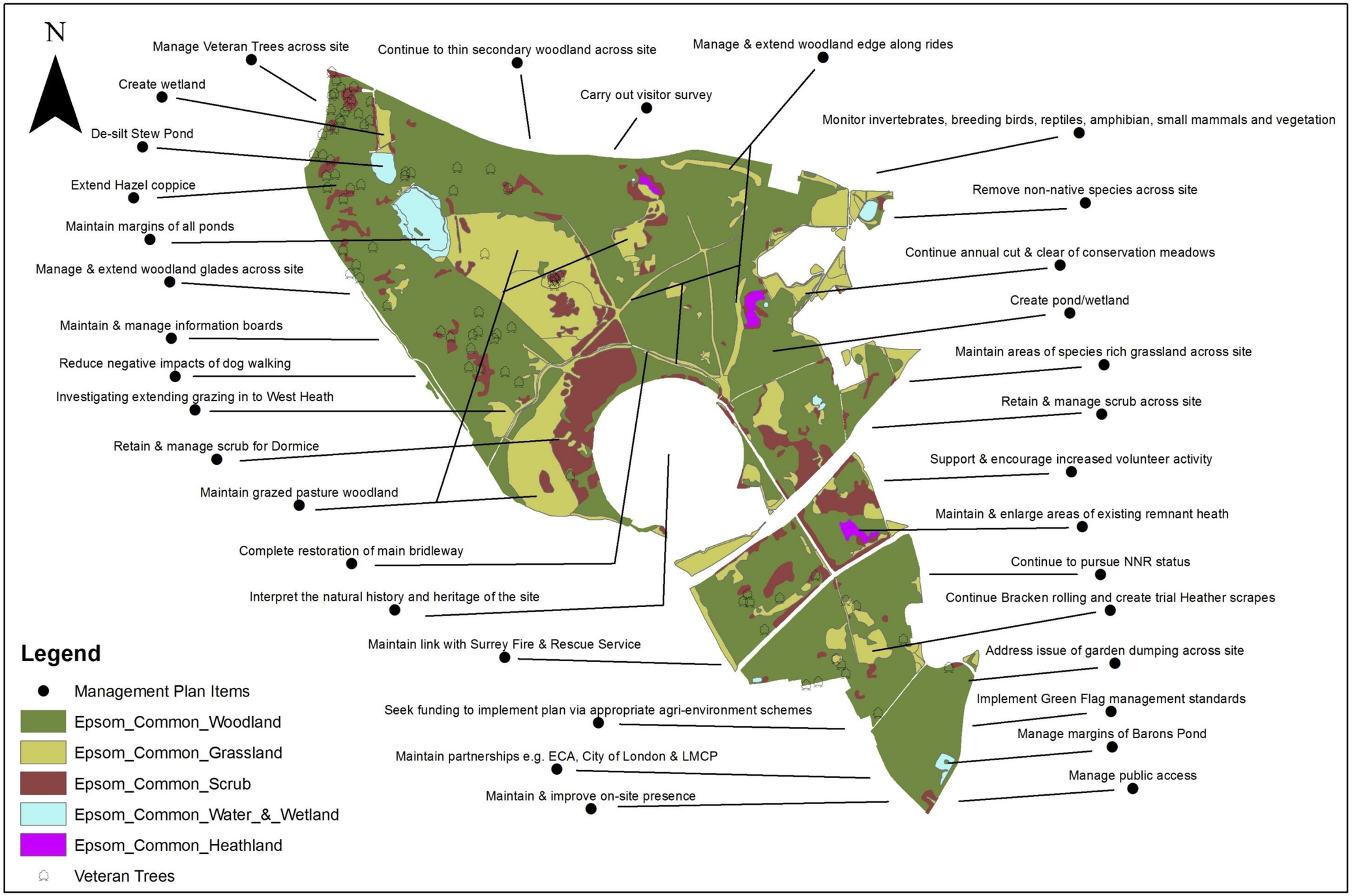

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Map 6: Proposed Management Summary Map

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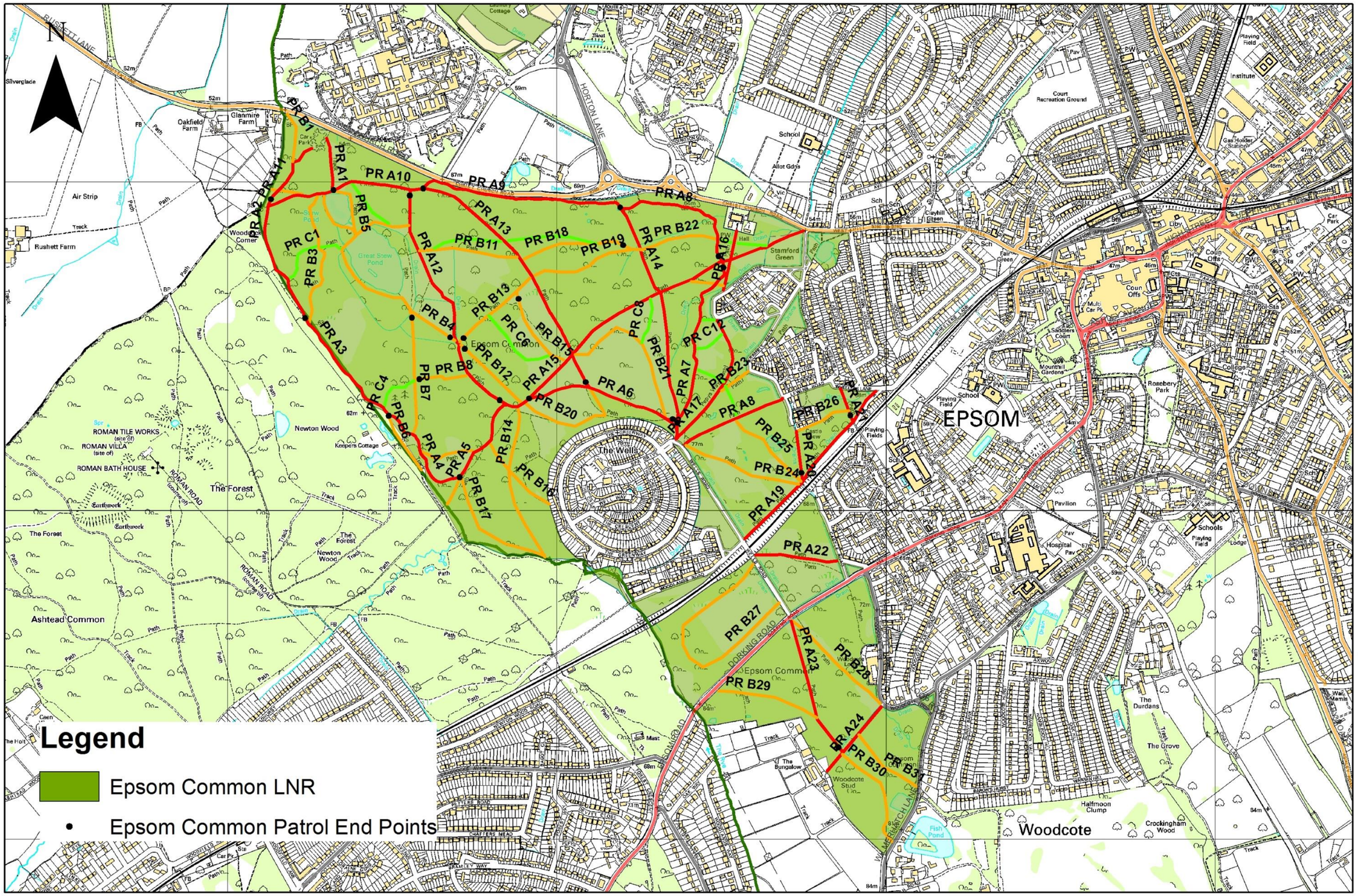

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Date: 05/06/2015

Scale
1:14,000

Map 7: Epsom Common Patrol Routes

0 125 250 500 Meters

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APPENDICES

Appendix 1 - Epsom and Ashtead Commons SSSI citation

COUNTY: SURREY SITE NAME: EPSOM AND ASHTEAD COMMONS

DISTRICT: EPSOM AND EWELL, MOLE VALLEY

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

Local Planning Authority: EPSOM AND EWELL BOROUGH COUNCIL, MOLE VALLEY DISTRICT COUNCIL

National Grid Ref: TQ 181602 Area: 358.4 ha (885.6 acres)

Ordnance Survey Sheets 1:50,000: 176, 187
1:10,000:TQ15NE, TQ16SE

Date notified (under 1949 Act): 1955
Date of last revision: 1975
Date notified (under 1981 Act): 1984
Date of last revision: -

Other Information: This site lies within the London Basin Natural Area. Epsom Common is owned and managed as a public open space by Epsom and Ewell Borough Council. The site is of archaeological interest.

Reasons for Notification

These two commons support a wide diversity of habitat types on the undulating terrain of the London Clay. The site carries four nationally rare invertebrates and several others which are uncommon in Surrey. The range of habitats present promotes a rich community of breeding birds.

Variations in drainage and the management history of the Commons are chiefly responsible for the diversity of habitats present. The site was once managed by stock grazing but the cessation of this activity has led to a natural succession from rough grassland to scrub, and finally to woodland. The present areas of open grassland are maintained by natural factors such as fire and rabbit grazing, and scrub clearance. Woodland dominates approximately half of the site and is variable in age and composition. The Stew Pond and the adjacent recently restored Great Pond (at TQ 184607) date from Mediaeval times; smaller woodland ponds and a stream are also present.

Grassland in the southern parts of the site, and around Stew and Great Ponds, lies on poorly drained ground and is dominated by tussock grass *Deschampsia cespitosa* with cocksfoot *Dactylis glomerata*, marsh fox-tail *Alopecurus geniculatus* and rushes *Juncus* species. Drier ground on Ashtead Common is mainly dominated by bracken *Pteridium aquilinum* but on Epsom Common dry grasslands include patches of remnant heath with ling *Calluna vulgaris*, bell heather *Erica cinerea* and creeping

willow *Salix repens*. Scrub is scattered throughout the open grasslands and consists mainly of hawthorn *Crataegus monogyna*, gorse *Ulex europaeus* and sallow *Salix cinerea*. The grassland and scrub supports breeding birds such as grasshopper warbler and lesser whitethroat and carries large populations of wintering thrushes and finches.

Two main types of woodland are present. Young birch *Betula pendula* - pedunculate oak *Quercus robur* woodland has recently colonised above bracken or tussock grass and has a high scrub content. More mature woodland, particularly on Ashtead Common and the southern part of Newton Wood, consists of pedunculate oak, birch, holly *Ilex aquifolium* and coppiced hazel *Corylus avellana*. Of particular importance are several fine old pollards of pedunculate oak which are characteristic of former wood pasture, and of special importance for the rare insects associated with them. The woodland carries a rich community of breeding birds including all three species of British woodpecker, woodcock, barn owl and tawny owl.

Stew and Great Ponds are the most valuable of the open water habitats. The open aquatic flora of these two ponds includes duckweeds *Lemna* species, white waterlily *Nymphaea alba* and pondweeds *Potamogeton* species while the marginal fen flora includes great reedmace *Typha latifolia*, bogbean *Menyanthes trifoliata,* trifid bur-marigold *Bidens tripartita* and narrow-leaved water-plantain *Alisma lanceolatum.* Around the Great Pond a belt of sallow is present above tussock sedge *Carex paniculata,* rushes and tussock grass. Breeding birds associated with open water at this site include mallard, moorhen, little grebe and kingfisher.

This site is one of the most important for invertebrates in Surrey. Of particular note are the species of coleoptera (beetles) and diptera (flies) that are associated with dead wood; these include a beetle *Rhizophagus oblongicollis* whose national existence is under threat. Three other dead wood species are regarded as nationally rare; the beetle *Bibloporus minutus* and the flies *Ctenophora bimaculata* and *Oedalea apicalis*. The fly fauna is further enhanced by the presence of two species which have their only Surrey locality here: *Trixia coerulescens* and *Servillia lurida.* Two notable butterflies, the purple emperor *Apatura iris* and the purple hairstreak *Quercusia quercus* are also present in the woodland.

Appendix 2

2a Current Conservation Objectives

South East Region – Eastern Area Team
Phoenix House
32-33 North Street
Lewes
East Sussex, BN7 2PH
Tel: 01273 476595
Fax: 01273483063
www.naturalengland.org.uk

CONSERVATION OBJECTIVES and DEFINITIONS OF FAVOURABLE CONDITION for DESIGNATED FEATURES OF INTEREST:

These Conservation Objectives relate to all designated features on the SSSI, whether designated as SSSI, SPA, SAC or Ramsar features.

Name of Site of Special Scientific Interest (SSSI)	
Epsom and Ashtead Commons SSSI	
Names of designated international sites	
Candidate Special Area for Conservation (SAC)	N/A
Special Protection Area (SPA)	N/A
Ramsar :	N/A
Relationship between site designations	
Units 2, 6 7, 8 and 9 are within Ashtead Common National Nature Reserve	

Version Control information	
Status of this Version (Draft, Consultation Draft, Final)	Consultation Draft
Prepared by:	Louise Bardsley
Date of this version:	21 January 2008
Date of generic guidance on favourable condition used:	EN CSM Guidance for birds: January 2004 UK CSM Guidance for invertebrates: September 2006.
Other notes/version history :	First Draft 22 August 2004, followed by site visit with national woodland specialists on 26 October 2004 and subsequent amendments

	Editing and invertebrate details using guidance added by Jo Clarke 21/01/2008.	
Quality Assurance information		
Checked by	**Name: Keith Kirby**	**Date: 12 October 2005**
	Signature	

Conservation Objectives and definitions of Favourable Condition: notes for users

Conservation Objectives
SSSIs are notified because of specific biological or geological features. Conservation Objectives define the desired state for each site in terms of the features for which they have been designated. When these features are being managed in a way which maintains their nature conservation value, then they are said to be in 'favourable condition'. It is a Government target that 95% of the total area of SSSIs should be in favourable condition by 2010.

Definitions of Favourable Condition
The Conservation Objectives are accompanied by one or more habitat extent and quality definitions for the special interest features at this site. These are subject to periodic reassessment and may be updated to reflect new information or knowledge; they will be used by Natural England and other relevant authorities to determine if a site is in favourable condition. The standards for favourable condition have been developed and are applied throughout the UK.

Use under the Habitats Regulations
The Conservation Objectives and definitions of favourable condition for features on the SSSI may inform the scope and nature of any 'appropriate assessment' under the Habitats Regulations. An appropriate assessment will also require consideration of issues specific to the individual plan or project. The habitat quality definitions do not by themselves provide a comprehensive basis on which to assess plans and projects as required under Regulations 20-21, 24, 48-50 and 54 - 85. The scope and content of an appropriate assessment will depend upon the location, size and significance of the proposed project. Natural England will advise on a case by case basis.

Following an appropriate assessment, competent authorities are required to ascertain the effect on the integrity of the site. The integrity of the site is defined in para C10 of PPG9 as the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified. The determination of favourable condition is separate from the judgement of effect upon integrity. For example, there may be a time-lag between a plan or project being initiated and a consequent adverse effect upon integrity becoming manifest in the condition assessment. In such cases, a plan or project may have an adverse effect upon integrity even though the site remains in favourable condition.

The formal Conservation Objectives for European Sites under the Habitats Regulations are in accordance with para. C10 of PPG 9, the reasons for which the European Site was classified or designated. The entry on the Register of European Sites gives the reasons for which a European Site was classified or designated.

Explanatory text for Tables 2 and 3
Tables 2 and 3 set out the measures of condition which we will use to provide evidence to support our assessment of whether features are in favourable condition . They are derived from a set of generic guidance on favourable condition prepared by NE specialists, and have been tailored by local staff to reflect the particular characteristics and site-specific circumstances of individual sites. Quality Assurance has ensured that such site-specific tailoring remains within a nationally consistent set of standards. The tables include an audit trail to provide a summary of the reasoning behind any site-specific targets etc. In some cases the requirements of features or designations may conflict; the detailed basis for any reconciliation of conflicts on this site may be recorded elsewhere.

Conservation Objectives

The Conservation Objectives for this site are, subject to natural change, to maintain the following habitats and geological features in favourable condition (*), with particular reference to any dependent component special interest features (habitats, vegetation types, species, species assemblages etc.) for which the land is designated (SSSI, SAC, SPA, Ramsar) as individually listed in Table 1.

Habitat Types represented (Biodiversity Action Plan categories)

Lowland Neutral Grassland
Broadleaved, Mixed and Yew Woodland
Dwarf Shrub Heath
Scrub (including under-storey)
Open Water

Geological features (Geological Site Types)

N/A

(*) or restored to favourable condition if features are judged to be unfavourable .

Standards for favourable condition are defined with particular reference to the specific designated features listed in Table 1, and are based on a selected set of attributes for features which most economically define favourable condition as set out in Table 2 and Table 3:

Table 1 Individual designated Special Interest Features

BAP Broad Habitat type / Geological Site Type	Specific designated features	Explanatory description of the feature for clarification	SSSI designated interest features	SAC designated interest features	SPA bird populations dependency on specific habitats			Ramsar criteria applicable to specific habitats			
					Annex 1 species	Migratory species	Waterfowl assemblage	1a Wetland characteristics	2a Hosting rare species &c	3a 20000 waterfowl	3c 1% of population
Broadleaved mixed and yew woodland	W8, W10a, W16 Including ancient woodland, wood pasture with veteran trees	Oak-birch and oak-beech woodlands, ancient woodland, wood pasture and veteran trees	*								
Broadleaved mixed and yew woodland	Outstanding assemblage of invertebrates	Broad assemblage type: A21 wood decay Specific assemblage types: A211 heartwood decay, A212 bark & sapwood decay & A213 fungal fruiting bodies	*								
Broadleaved mixed and yew woodland	Outstanding assemblage of invertebrates	Broad assemblage type: A11 arboreal canopy	*								
Grassland, scrub, woodland, open water	Breeding Bird Assemblage	List of breeding birds given on site criteria sheet[2]	*								

NB. 1). Features where asterisks are in brackets (*) indicate habitats which are not notified for specific habitat interest (under the relevant designation) but because they support notified species. 2) The requirements of species (including SPA bird species) are reflected in the Conservation Objectives for habitat features on which they depend. In some specific situations, direct population measures for species may also be used to provide supporting information to confirm habitat quality measures.

Table 2a Habitat Features - Extent Objectives

Conservation Objective for habitat extent	To maintain the designated habitats in favourable condition, which is defined in part in relation to a balance of habitat extent (extent attribute). Favourable condition is defined at this site in terms of the following site-specific standards:
Extent - Dynamic balance	On this site favourable condition requires the maintenance of the extent of each designated habitat type. Maintenance implies restoration if evidence from condition assessment suggests a reduction in extent.

Habitat Feature (BAP Broad Habitat level, or more detailed level if applicable)	**Estimated extent (ha) and date of data source/estimate**	**Site Specific Target range and Measures**	**Comments**
Broadleaved mixed and yew woodland	Area Count of Veteran Trees Measure by field survey and/or aerial photography, in relation to baseline map	Target: No loss of ancient semi-natural mosaic. No loss of ancient woodland. For wood pasture/parkland: No loss of semi-natural wood-pasture mosaic area. No more than 0.5% reduction in the number of veteran trees (except through natural causes). Count includes dead and living veteran trees. Numbers compared with baseline map based on previous survey.	Stand loss due to natural processes e.g. in minimum intervention stands may be acceptable. Stand destruction may occur if the under-storey and ground flora are irretrievably damaged even if the canopy remains intact. As a guideline, loss can be defined as at least 0.5 ha or 0.5% of the stand area, whichever is the smaller. In practice management will also be aiming to reduce some of the natural loss (details in management plan). 20% canopy cover is conventionally taken as the lower limit for an area to be considered as woodland. Baseline map is based on extent at 1955 notification From aerial photographs. Targets for extent include increase of area of wood pasture and heathland at the expense of young birch-oak woodland.

Habitat Feature (BAP Broad Habitat level, or more detailed level if applicable)	Estimated extent (ha) and date of data source/estimate	Site Specific Target range and Measures	Comments
Breeding Bird Assemblage (BTO index)	Habitat Extent (see baseline map).	Measure: Record the extent of all habitat types used by the Breeding Birds (woodland including wood pasture, scrub and open water). Heathland and grassland glades are part of the woodland wood pasture mosaic. Methods could include aerial photographs to assess extent of broad habitat types and/or, mapping of broad habitat types, Phase 1 habitat survey, NVC. Compared with baseline map. Target: Maintain the area of habitats that are used by the breeding birds in the site within acceptable limits: Extent of all habitats used by the birds should be maintained - losses of 5% or more of any relevant habitat type unacceptable. Dynamic movement between woodland, wood pasture and scrub is expected and desirable.	For the designated habitat features (woodland including wood pasture) the data for assessing this attribute should be collected according to the relevant habitat guidance. Additional data will be needed for those habitats (open water, neutral grassland, scrub and heathland) used by the breeding assemblage of birds Habitat requirements for birds are described in Part of Commons Standards Monitoring guidance for birds (available on JNCC website).

Audit Trail
Rationale for habitat extent attribute (Include methods of estimation (measures), and the approximate degree of change which these are capable of detecting).
Estimation of extent measures including targets are based on NVC survey (Groomes G 2001)[3], an Aerial photographs from the nearest date to 1955 and 1984 notifications as well as most recent aerial photographs. Veteran tree location data came from data supplied by the Corporation of London and Epsom and Ewell Borough Coucil.
Rationale for site-specific targets (including any variations from generic guidance)

Table 2b Species population objectives

Conservation Objective for species populations	To maintain the designated species in favourable condition, which is defined in part in relation to their population attributes. Favourable condition is defined at this site in terms of the following site-specific standards:
Population balance	On this site favourable condition requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage.

Species Feature (species or assemblage)	**List supporting BAP Broad Habitats**	**Population Attribute (eg presence/absence, population size or assemblage score)**	**Site Specific Target range and Measures (specify geographical range over which target applies ie site, BAP broad habitat or more specific)**	**Comments**
Breeding Bird Assemblage	**Grassland, scrub, woodland, open water**	Breeding Bird Community Index at notification = 57 (Data from criteria sheet.)	**Maintain assemblage diversity:** If the total score calculated for a breeding bird assemblage falls by **14.25 points** (25%) or more then the assemblage is in unfavourable condition. The target score for favourable is 42.75 points. Any score below this is unfavourable.	
Outstanding assemblage of invertebrates Broad assemblage type: A21 wood decay Specific assemblage types: A211 heartwood decay, A212 bark & sapwood decay & A213 fungal fruiting bodies	**Broadleaved, mixed and yew woodland**	Specialist direct monitoring of assemblage score based on presence/absence of specified proportion of species typical of habitat listed in ISIS	Monitor assemblage once in every 6 year monitoring cycle. Using defined invertebrate sampling protocols thresholds to be met: A21 wood decay: SQI score = 190 A211 heartwood decay: Weighted Species Score = 7 A212 bark & sapwood decay: Weighted Species Score = 20 A213 fungal fruiting bodies: Weighted Species Score = 8	This attribute is to be assessed through specialist survey.

Outstanding assemblage of invertebrates Broad assemblage type: A11 arboreal canopy	**Broadleaved, mixed and yew woodland**	Specialist direct monitoring of assemblage score based on presence/absence of specified proportion of species typical of habitat listed in ISIS	Monitor assemblage once in every 6 year monitoring cycle. Using defined invertebrate sampling protocols thresholds to be met: A11 arboreal canopy: SQI score = 160**	This attribute is to be assessed through specialist survey. ** This is the provisional score but needs testing.

Audit Trail
Rationale for species population attributes (Include methods of estimation (measures), and the approximate degree of change which these are capable of detecting).
Rationale for site-specific targets (including any variations from generic guidance)
Other Notes

Table 3a Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **broadleaved mixed and yew woodland** at this site in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	

Site-specific standards defining favourable condition

Criteria feature	Attribute	Measure	Site-specific Targets	Comments	Use for CA?
W8, W10a, W16 Including ancient woodland, wood pasture with veteran trees	Structure and Natural processes	Assess by field survey using structured walk.	Understorey (2-5m) present over at least 20% of total stand area (except in wood pasture). Canopy cover present over 30-90 % of stand area (except in wood pasture stands where lower limits are acceptable). Areas of relatively undisturbed mature/old growth stands or a scatter of large trees allowed to grow to over-maturity/death on site (e.g. a minimum of 10% of the woodland (or 5-10 trees per ha). In wood pasture units dead wood to be scored as at least good =/> 1 or 2 large pieces visible per hectare At least a third of veteran trees in open locations or with open halo around them. 20-40% of site is open space (including grazing restoration areas, widened rides	Different woodland types will differ in their expected cover in different layers e.g. in beech or oak woods the shrub layer is often sparse. This should be reflected in the tailoring of these targets to particular sites. In coppiced stands a lower canopy cover (of standards) can be accepted, as will also be the case in parkland. More detailed targets for deadwood may be appropriate where this is an important element of the woodland (see section 5.9). Note however that assessment of dead wood targets may be difficult to carry out and caution should be exercised in judging condition for this element. The details of site management are contained within the relevant management plans	Yes

			and existing fire sites) 15-30% of sites with scrub or young growth abundant. Woodland: At least three age classes spread across the average life expectancy of the commonest trees (oak, beech, birch). Veteran Trees: Younger Cohorts of trees (<100 years,; 100-200 years) each present over 10% of the site		
W8, W10a, W16 Including ancient woodland, wood pasture with veteran trees	Composition	Assess by field survey using structured walk.	At least 95% of cover in any one layer of site-native or acceptable naturalised species. Death, destruction or replacement of native woodland species through effects of introduced fauna or other external unnatural factors not more than 10% by number or area in a five year period. No rapid dieback (>10% of trees in 5 yr period) including any death by fire.	In sites where there might be uncertainty as to what counts as site-native or as acceptable naturalised species this must be made clear (e.g. the position of sycamore). On this site sycamore is not an acceptable site native due to its highly invasive nature and out-competing of young regeneration. Where cover in any one layer is less than 100% then the 95% target applies to the area actually covered by that layer. Factors leading to the death or replacement of woodland species could include pollution or new diseases. Damage to species by non-native species that does not lead to their death is not necessarily unacceptable. Excessive browsing/grazing, even by native ungulates, may be undesirable if it causes shifts in the composition/ structure of the	Yes

				stand.	
W8, W10a, W16 Including ancient woodland, wood pasture with veteran trees	Quality indicators	Assess by field survey using structured walk, or as appropriate to feature.	80% of ground flora cover referable to relevant NVC community. This is not necessarily woodland communities. Heather presence at key target locations (see baseline map). *Oenanthe pimpinelloides* (population at Epsom Common initial grazing area shown in centre of Wood pasture area baseline map. Ancient and young scrub present at major ecotones. Good representation of following important tree/shrub species including hawthorn, sallow, oak, ash, beech and birch. Dead wood is close to netar sources. Flowering plants within 10m of at least 10% of veteran pollards. (Measures by survey for flowers in sample selection of pollards). Rye Brook unpolluted and restoration area remains largely open with some overhanging perches for kingfisher. Measured by survey for presence of perches and list of reports in pollution incidents from Environment Agency.	This attribute is intended to cover any site-specific aspects of this habitat feature (forming part of the reason for notification) which are not covered adequately by the previous attributes, or by separate guidance (e.g. notified species features). For notable species it is not intended to set a target for detailed species monitoring, rather to provide a rapid indication of presence/ absence and/or approximate extent, allowing for natural fluctuations in population size. Distinctive elements and patches should be marked on maps for ease of checking in the field where possible.	Yes
W8, W10a, W16 Including ancient woodland, wood pasture with veteran trees	Regeneration potential	Assess by field survey using structured walk and/or transects.	Signs of seedlings growing through to saplings to young trees at sufficient density to maintain canopy density over a 10 yr period (or equivalent re-growth from coppice stumps). No more regeneration	A proportion of gaps at any one time may develop into permanent open space; equally some current permanent open space/glades may in time regenerate to closed canopy. Regeneration may often	Yes

			by planting. Saplings and young trees growing up to form groves or single trees to form replacement cohorts	occur on the edges of woods rather than in gaps within it. The density of regeneration considered sufficient is clearly less in parkland sites than in high forest; in coppice most of the regeneration will be as stump regrowth. The minimum level of regeneration to be acceptable from a nature conservation viewpoint is likely to be much less than that needed where wood production is also an objective.	

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Rationale for selection of measures of condition (features and attributes for use in condition assessment) **(**The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).

INCLUSION OF BREEDING BIRD COMMUNITY

The site was notified under 1979 guidelines for selection of biological SSSIs, (NCC 1979). These used a mean estimate of rank for species based on the number of species for that rank. The total at the time of notification from the Criteria sheet was 57. The qualifying birds at the time of notification were as follows. Scoring 3 : Kingfisher, barn owl, little owl and nightingale. Scoring 2: Green woodpecker, great spotted woodpecker, lesser spotted woodpecker, tawny owl, cuckoo, woodcock, willow tit, nuthatch, redstart, grasshopper, warbler, garden warbler, lesser whitethroat, kestrel. Scoring 1: Mallard, moorhen, turtle dove, stock dove, magpie, jay, marsh tit, long-tailed tit, treecreeper, goldfinch, redpoll, bullfinch, yellowhammer, reedbunting, tree sparrow, blackcap, whitethroat, chiffchaff, spotted flycatcher.

INCLUSION OF NVC HABITATS FOR WOODLAND

Woodland stand types of 8b and 6Db on the criteria sheet[1] largely corresponded to NVC[4] habitats W10, W11, W14 and W 16, of which W10 and W16 are the predominant woodland on the site[3]. W8 was included as the citation mentions hazel coppice which occurs mostly in the W8 on the site.

LOWLAND NEUTRAL GRASSLAND NVC COMMUNITIES

The Grassland G32 mentioned on the citation corresponds approximately to MG9 or MG10. MG9 is not a notifiable community under the 1989 guidelines[2]. However the grassland is an important component of the wood pasture with many veteran trees scattered. In addition the grassland supports a number of species of county significance including *Oenanthe pimpinelloides* and *Serratula tinctoria.*. The grassland has therefore been included as part of the woodland/wood pasture mosaic and is not included as a feature for assessment in its own right.

OTHER HABITATS INCLUDED

The acid grassland, relict heathland, open water and scrub are all important parts of what is really a mosaic site. Their principal role is to function within wood pasture mosaic and provide supporting habitats to the assemblage of breeding birds and invertebrate assemblage. In other counties the relict heathland may have qualified in its own right, however in this "area of search" it is comparatively small. It should be managed as an integral part of the mosaic of habitats.

Other Notes

References

[1]Criteria for selection of SSSI: Epsom and Ashtead Commons
[2]Guidelines for selection of biological SSSIs. NCC 1989
[3]Groomes. G. 2001. Ashtead and Epsom Commons National Vegetation Classification Survey. Surrey Wildlife Trust.
4 Rodmell 1991: National Vegetation Classification for Woodlands
5 Generic guidance on objective setting and condition assessment for Birds January 2004 Common Standards Monitoring English Nature
6 Common Standards Monitoring January 2004. Additional Birds Guidance: Generic Guidance on Objective setting and Condition Assessment English Nature
7 Common Standards Monitoring Guidance on Objective Setting & Condition Assessment within woodland SSSI 2002 English Nature

Table 3b Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **arboreal canopy invertebrate community** at this site in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	
Site-specific standards defining favourable condition	

Criteria feature	Attribute	Measure	Site-specific Targets	Comments	Use for CA?
Outstanding assemblage of invertebrates Broad assemblage type: A11 arboreal canopy (Proxy habitat table = woodland canopy)	Vegetation heterogeneity Diverse surface topography of vegetation types	Record Structural Recording Surveys (SRS) of 6m radius at sample stops to determine number of structural surfaces and representation of preferred surfaces within the assessed unit. Preferred surfaces are: • Short layer of vegetation. Typical species include *Hyacinthoides non-scriptus, Allium ursinum, Ranunculus spp.* • Medium layer of vegetation, in dry areas species may include *Rubus spp* and in moist areas *Carex pendula, Iris foetidissima,* and *Juncus spp.* • Young trees/ scrub/ understorey. Species may	• A single surface present in no more than 10% of SRSs. • More than 2 different surfaces present in at least 20% of SRSs.	Woodland systems can be covered in the summer period, though the surveyor should be mindful of gaining a full picture of the structure of ride, edges etc. Preferred features are micro-habitat features which should always be targeted during an assessment. These should be recorded and mapped. The preferred features for this assemblage are: • Dead wood - fallen, on living trees and as standing dead trees. • Gradual transition to any other semi-natural habitat. • Open sunny areas, except in closed wet woodland. • Wet areas - springs, seepages, streams, both in the open and shaded. • Moss carpets. • Naturally long-lasting accumulations of leaf litter (with possible exception of beech litter.) • Flowery areas if these aren't present within the wood, including those on surrounding habitats	Yes

		include *Corylus, Quercus, Fraxinus etc, Crataegus spp, Prunus spp.* • Canopy trees. Possible preferred surfaces (depending on fauna and circumstances) include: • Bare forest soils, mud or thin water films. Typical species consist of sparse lower plants or scattered dicots.		(farmland, grassland, verges, ruderal etc) including 'unwelcome' weeds such as ragwort and thistles, and flowering shrubs, especially hawthorn, blackthorn and bramble. Negative factors should be regarded as mandatory parts of the condition assessment process. If a preferred feature is significantly impacted by a negative factor then the unit should fail. The presence of negative factors on the rest of the unit depends on the level of impact, whether it is increasing/ declining, and its location. Negative indicators for this assemblage include: • Removal of dead wood • Invasive evergreen shrubs, including natives with dense shade in spring - holly, rhododendron, laurel etc. • Excessive collection of fungal fruiting bodies. • Invasive species: - Impatiens glandulifera, sycamore (only in certain circumstances where it suppresses other species.)	
	Dead organic matter litter	Record percentage cover of litter layer of grass/sedge or heather litter (**Excluding** Molinia) >1cm depth	**Favourable condition if:** 5%-10% of herbaceous, graminoid or ericoid layers with litter layer beneath in dry heath.		Yes
	Cover – seed heads	Percentage of site where seed heads and hollow stems are able to persist through winter	**Favourable condition if:** At least 10% of herbaceous, graminoid swards with erect dead stems and seedheads persisting until late winter/spring.		Yes
	Nectar sources (See floweriness table in CSM guidance)	Record percentage occupation of species able to flower throughout the year.	**Favourable condition if:** At least 10% of sward, hedgerow or scrub able or likely to be able to flower at time of year appropriate to flowering		Yes

			species present There should be no reduction in seasonality of existing distribution of flowering through loss of species with a particular flowering phenology between monitoring intervals		

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Rationale for selection of measures of condition (features and attributes for use in condition assessment) **(**The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Other Notes

Table 3c Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **wood decay invertebrate community** at this site in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	
Site-specific standards defining favourable condition	

Criteria feature	Attribute	Measure	Site-specific Targets	Comments	Use for CA?
Outstanding assemblage of invertebrates Broad assemblage type: A21 wood decay Specific assemblage type: A211 heartwood decay, A212 bark & sapwood decay & A213 fungal fruiting bodies (Proxy habitat table = wood pasture and parkland)	Vegetation heterogeneity Diverse surface topography of vegetation types	Record Structural Recording Surveys (SRS) of 6m radius at sample stops to determine number of structural surfaces and representation of preferred surfaces within the assessed unit. Preferred surfaces are: • Short swards grassland with various grasses and grazed grassland forbs such as *Bellis, Achillea etc.* • Longer coarser grasses/forbs & tussocks. Typical species include *Holcus, Dactylis & Deschampsia*, with umbellifers *(Heracleum, Angelica)* and composites *(Cirsium* & *Senecio* species, *Achillea etc.)*		Woodland systems can be covered in the summer period, though the surveyor should be mindful of gaining a full picture of the structure of ride, edges etc. Preferred features are micro-habitat features which should always be targeted during an assessment. These should be recorded and mapped. The preferred features for this assemblage are: • Diverse age structure of trees with all age cohorts well represented. • Large veteran tree population. • Dead wood - fallen, on living trees and standing dead trees. • Nectar sources in grassland swards and flowering shrubs. • Presence of ivy where it does not threaten veteran trees and other biological interest such as lichens. • Unimproved sward with abundant forbs, including less welcome species such as thistles and ragwort where these don't pose a threat to	Yes

		Nettle patches. (Present in 10% of SRSs.) • Scrub and young trees. Typical species include *Crataegus spp, Prunus spinosa, , Rubus spp.* (Present in 10% of SRSs.) • Veteran trees that have 'grown downward' by death of higher canopy. Species may include main tree species of wood-pasture/ parkland:- e.g. oaks, beech, ash, field maple, lime, sycamore, sweet & horse chestnut. (Targets should mainly be on tree age structure and condition.) • Tall veterans and mature but not veteran trees. Species may include main tree species of wood-pasture/ parkland:- e.g. oaks, beech, ash, field maple, lime, sycamore, sweet & horse chestnut. (Targets should mainly be on tree age structure and condition.)		grazing livestock. • Grazing by deer. • Transition into canopy woodland. Negative factors should be regarded as mandatory parts of the condition assessment process. If a preferred feature is significantly impacted by a negative factor then the unit should fail. The presence of negative factors on the rest of the unit depends on the level of impact, whether it is increasing/ declining, and its location. Negative indicators for this assemblage include: • Loss of fallen dead wood and removal of dead wood from live trees during tree surgery. • Grassland improvement leading to loss of forbs and bark browsing by livestock. • Excess use of veteran trees by stock for sheltering leading to soil compaction and root death. • Poor age structure of trees leading to long-term unsustainability of veteran tree populations. • Multiple veteran tree deaths from whatever cause. • Loss of flowers in grassland through over-zealous weed control. • Bracken invasion leading to fire risk to veteran trees. • Other invasives such as rhododendron and excess holly.	
	Dead organic matter litter	Record percentage cover of litter layer of grass/sedge or heather litter (**Excluding** Molinia) >1cm depth	**Favourable condition if:** 5%-10% of herbaceous, graminoid or ericoid layers with litter layer beneath in dry heath.		Yes

	Cover – seed heads	Percentage of site where seed heads and hollow stems are able to persist through winter	**Favourable condition if:** At least 10% of herbaceous, graminoid swards with erect dead stems and seedheads persisting until late winter/spring.		Yes
	Nectar sources (See floweriness table in CSM guidance)	Record percentage occupation of species able to flower throughout the year.	**Favourable condition if:** At least 10% of sward, hedgerow or scrub able or likely to be able to flower at time of year appropriate to flowering species present There should be no reduction in seasonality of existing distribution of flowering through loss of species with a particular flowering phenology between monitoring intervals		Yes

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Rationale for selection of measures of condition (features and attributes for use in condition assessment) **(**The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Other Notes

2b
– OLDs* list for Epsom and Ashtead Commons SSSI

* Operations Likely to Damage the Special Interest of the Site (see 2.1.3)

1. Cultivation, including ploughing, rotovating, harrowing, and re-seeding.

2. Grazing.

3 . Stock feeding.

4. Mowing or other methods of cutting vegetation.

5. Application of manure, fertilisers and lime.

6. Application of pesticides, including herbicides (weedkillers).

7. Dumping, spreading or discharge of any materials.

8. Burning.

9. The release into the site of any wild, feral or domestic animal[*], plant or seed.

10. The killing or removal of any wild animal[*], including pest control.

11. The destruction, displacement, removal or cutting of any plant or plant remains (including tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungus, leaf mould, turf).

12. Tree and/or woodland management[+]

13a. Drainage (including the use of mole, tile, tunnel or other artificial drains).

13b. Modification of the structure of water courses (eg streams, ditches), including their banks and beds, as by re-alignment, regrading and dredging.

13c. Management of aquatic and bank vegetation for drainage purposes.

14. The changing of water levels and tables and water utilisation (including irrigation, storage and abstraction from existing water bodies and through boreholes).

15. Infilling of drains, ponds, pools, marshes or streams.

16a. Freshwater fishery production and/or management[**]

20. Extraction of minerals, including peat, topsoil, sub-soil.

21. Construction, removal or destruction of roads, tracks, walls, fences, hard-stands, banks, ditches or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground.

22. Storage of materials.

23. Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling.

26. Use of vehicles or craft likely to damage or disturb features of interest.

27. Recreational or other activities likely to damage or disturb features of interest.

28. Game and waterfowl management and hunting practices.

[+] (including afforestation, planting, clear and selective felling, thinning, coppicing, modification of the stand or underwood, changes in species composition, cessation of management).
[*] "animal" includes any mammal, reptile, amphibian, bird, fish or invertebrate.

** including sporting fishing and angling.
++ including the use of traps or fish cages.

Appendix 3 – Epsom Common Species of Nature Conservation Importance

The following lists have been extracted from various sources. A large number of records have been collated by Epsom and Ewell Borough Countryside Staff over the years and are now held on the 'Recorder Database' which is the national standard. Please note records are constantly being updated. Notes for each major group follow.

Fungi

Fungi have not been studied in any detail, although the EEBC database lists over 130 species. The source of this information is given as "Epsom Common Fungi", although the origin and date of this survey are unknown, as is the status of any species on this list.

Lichens

A survey of lichens at Epsom Common was carried-out by Frank Dobson in 2003 (Dobson, 2003). All of the species recorded currently fall within the 'Least Concern' IUCN threat category (Woods & Coppins, 2003).

Bryophytes

A list of mosses and liverworts recorded from Epsom Common was drawn up by R.C. Stern in 1972/73. This information has been obtained from the Epsom & Ewell database and we have not been able to establish a reference to the original source. In addition, some records have also been derived from the former Nature Conservancy Council prepared a Site Register of Surrey Bryophytes (NCC, 1986). A review of records has been undertaken by Giles Groome and Karl Crowther, with reference also being made to Gardiner's 'A Bryophyte Flora of Surrey (1981)

Species of note are:

Species	Source of record	Status/location
Drepanocladus exannulatus (presumably var. *exannulatus*)	NCC Surrey Bryophyte Register	One of only two known Surrey sites for species (Stew Pond). Probably no longer present at this site.
Plagiomnium ellipticum	NCC Surrey Bryophyte Register	Apparently no longer present at Epsom and probably extinct in Surrey.
Pleuridium subulatum	NCC Surrey Bryophyte Register	Apparently no longer present at this site
Sphagnum subnitens	R.C. Stern/EEBC database	Local in Surrey

Vascular Plants

Vascular plant records have been drawn from a number of sources. These are listed below:

- "History of Epsom" (Dorling, 1825).
- "List of Vascular Plants" (R.C. Stern, 1972/73).
- "History of Epsom" (Brayley, 1980/81)
- "Epsom Common Nature Trail" (Lawton, 1985)
- "Plant List for Epsom Common" (Epsom Common Association, 1994).
- "Epsom Common Nature Report, 2000" (Gibson, 2000)
- "Epsom and Ashtead Commons National Vegetation Classification Survey, 2001" (Groome, 2002).
- "Plants of Epsom Common" (R.T. Stein, undated)
- "Flora of Epsom Common" (K. Buckley, undated)
- Various BRC recording cards
- A number of records have been provided by the BSBI Vice County Recorder, Ann Sankey (A.S.).

A review of records has been undertaken by Giles Groome and Karl Crowther. The following table lists notable species recorded from the Common. In general, the most recent (or verified) source or record is provided.

Latin name	Common name	Source of record	Status
Alisma lanceolatum	Narrow-leaved Water-plantain	ECA, 1994; B. Welch, 1958 (from A.S.)	Local/scarce in Surrey
Alopecurus aequalis	Orange Foxtail	J.F.Leslie & K.W. Page, 2002 (from A.S.)	Rare in Surrey
Apium inundatum	Lesser Marshwort	Groome, 2002	Local/scarce in Surrey
Bupleurum rotundifolium	Throw-wax	Dorling, 1925	Probably extinct in UK (Wilson & King, 2003)
Chamaemelum nobile[1]	Chamomile	Groome, 2002	Rare in Surrey (and formerly nationally scarce)
Chenopodium bonus-henricus	Good King Henry	Gibson, 2000	Rare/scarce in Surrey
Chrysoplenium alternifolium	Alternate-leaved Golden Saxifrage	Dorling, 1825	Rare in Surrey – probably extinct at Epsom (not recorded since Dorling, 1825)

Latin name	Common name	Source of record	Status
Cirsium dissectum	Meadow Thistle	Groome, 2002	Rare in Surrey (may be a hybrid with *Cirsium palustre*).
Dactylorhiza x *grandis*	Common Spotted/Southern Marsh Orchid hybrid	Gibson, 2000	Local/scarce in Surrey
Dactylorhiza maculata	Heath Spotted Orchid	ECA, 1994	Local/scarce in Surrey
Dactylorhiza praetermissa	Southern Marsh Orchid	R.C. Stern, 1972/73	Local/scarce in Surrey
Eleocharis multicaulis	Many-stalked Spike-rush	ECA, 1994	Local/scarce in Surrey
Eleogiton fluitans	Floating Club-rush	Groome, 2002	Local/scarce in Surrey
Genista anglica	Petty Whin	J.F.Leslie & K.P. Page, 2002 (from A.S.)	Scarce in Surrey
Hydrocharis morsus-ranae	Frogbit	ECA, 1994	Rare in Surrey
Lemna trisulca	Ivy-leaved Duckweed	Groome, 2002	Local/scarce in Surrey
Luzula sylvatica	Greater Woodrush	R.C. Stern 1972/73	Rare in Surrey
Menyanthes trifoliata	Bogbean	Groome, 2002	Local/scarce in Surrey
Myriophyllum alterniflorum	Alternate Water-milfoil	ECA, 1994	Rare in Surrey
Nardus stricta	Mat-grass	ECA, 1994	Local/scarce in Surrey
Nitella flexilis	a Stonewort	*	Local/scarce in Surrey
*New record 2002? 'Botany Section', Environment Department, University of York			
Oenanthe pimpinelloides	Corky-fruited Water-dropwort	J.F.Leslie & K.P. Page, 2002 (from A.S.)	Rare in Surrey
Ononis spinosa	Spiny rest-harrow	Dorling, 1825	Local/scarce in Surrey
Ophioglossum vulgatum	Adder's-tongue Fern	Gibson, 2000	Local/scarce in Surrey
Polygonatum multiflorum	Solomon's Seal	ECA, 1994	Rare as a native in Surrey (may be introduced at Epsom)
Potamogeton obtusifolius	Blunt-leaved Pondweed	2001 NVC survey	Local/scarce in Surrey

Latin name	Common name	Source of record	Status
Ranunculus aquatilis	Common Water-crowfoot	ECA, 1994	Scarce in Surrey (may now be rare)
Ranunculus trichophyllus	Thread-leaved Water-crowfoot	Groome, 2002	Rare in Surrey
Rosa pimpinellifolia	Burnet Rose	Lawton, 1985	Rare in Surrey
Rosa stylosa	Short-styled Field-rose	ECA, 1994	Rare in Surrey
Salix purpurea	Purple Willow	ECA, 1994	Local/scarce in Surrey
Salix repens	Creeping Willow	Groome, 2002	Local/scarce in Surrey
Serratula tinctoria	Saw-wort	Groome, 2002	Scarce in Surrey
Silene noctiflora	Night-flowering Catchfly	R.T. Stein and K. Buckley (undated)	Rare in Surrey
Tilia cordata	Small-leaved lime	ECA, 1994	Rare in Surrey. Probably introduced at Epsom
Ulex minor	Dwarf Gorse	Groome, 2002	Local/scarce in Surrey
Utricularia vulgaris	Common Bladderwort	ECA, 1994	Rare in Surrey (probably now extinct at Epsom)
Viola canina	Heath Dog-violet	ECA, 1994	Rare in Surrey
[1]*Chamaemelum nobile* (Chamomile): listed as Nationally Scarce in Stewart *et al*. (1994) – i.e. recorded in between 16-100 ten km squares of Ordnance Survey Grid (96 in fact). However, in the recently published "New Atlas of the British and Irish Flora" (Preston *et al*., 2002), it is shown to be present in 148 ten km squares. In a recent review of plant status based upon the New Atlas (Cheffings, 2004) it is therefore, no longer considered nationally scarce.			

In addition to species considered to be native in origin, a number of 'non-native' species have been recorded on the Common. Some of these have been long-established in the British Isles and are termed 'Archaeophytes' (Preston *et al.* 2002), whilst more recently introduced species are termed 'Neophytes'. Within this latter category there can be a variety of reasons for a plant's presence in a particular location. Some species are now considered to be 'naturalised' and tend to spread in the wild of their own accord. There are also a number of species that can more appropriately be considered to be 'garden escapes' that have now colonised some peripheral areas of the Common. There are other cases of deliberate introduction through planting. Thus, the implications of the presence of individual Neophyte species can vary depending upon circumstances. However, it is clear that some of these pose a threat to the ecology of the Common. The following table lists the

Neophytes recorded on Epsom Common. Taxa in **bold*** represent the most problematic species.

Latin name	Common name	Location/status
Acanthus mollis	Bear's Breech	Single plant Dixies Pond.
Artemisia verlotiorum	Chinese Mugwort	
Arum italicum (prob. ssp. *italicum)*	Italian Lord's-and-ladies	Small pond at Horton Heath.
Aster novi-belgii*	Michaelmas-daisy	Widespread and naturalised alien parts of Britain
Berberis vulgaris	Barberry	May not be introduced
Briza maxima	Greater Quaking-grass	Stamford Meadow
Lepidium draba	Hoary Cress	Widespread in Britain
Carpinus betulus var. *fastigiata*	Fastigate Hornbeam	? cultivar of *C. betulus*
Cornus sericea	Red-osier Dogwood	
Crassula helmsii*	New Zealand Pigmyweed	Garden pond escape. Major threat to ecology of water bodies.
Crepis vesicaria	Beaked Hawk's-beard	
Crocus vernus	Spring Crocus	Stamford Green + Baron's pond
Cyperus longus	Galingale	Native, but most probably introduced at this site
Fallopia baldschuanica	Russian Vine	Garden escape
Fallopia japonica*	Japanese Knotweed	Garden escape, now widely naturalised across UK.
Galanthus nivalis	Snowdrop	Baron's Pond
Galega officinalis	Goat's Rue	
Hyacinthoides hispanica*	Spanish Bluebell	Garden escape. Threat to native bluebell populations. Note that this record probably relates to the hybrid H. *hispanica* x *non-scripta*
Iris versicolor	Purple Iris	Blake's Pond + Great Pond
Kerria japonica	Kerria	Single plant at Pepys Way. Garden escape
Lamiastrum galeobdolon* ssp. *argentatum*	Yellow Archangel (variegated)	Garden escape (widespread in Britain)
Lemna minuta*	Least Duckweed	Abundant on some ponds
Leucanthemum x superbum	Shasta Daisy	Garden escape
Linaria purpurea	Purple Toadflax	Christchurch Road + Wells Estate
Linum usitatissumum	Flax	Christchurch Road
Lobularia maritima	Sweet Alison	Garden escape
Lysimachia punctata	Dotted Loosestrife	Along track to Woodcote Stud.
Mahonia aquifolium	Oregon-grape	

Latin name	Common name	Location/status
Meconopsis cambrica	Welsh Poppy	Native, but established alien in Surrey - garden escape
Mentha longifolia	Horse Mint	
Myriophyllum aquaticum*	Parrot's Feather	Garden pond escape. Threat to various water bodies
Narcissus spp. cultivars	Daffodills	Garden escape
Ornithogalum angustifolium	Star-of-Bethlehem	Stamford Meadow + Stew Pond
Paeonia officinalis	Garden Paeony	Bramble Heath – garden escape
Pentaglottis sempervirens	Blue Alkanet	Naturalised and widespread in Britain. Stud Track and Christchurch Road
Persicaria amplexicaulis	Red Bistort	
Populus nigra	Black Poplar hybrid	Planted along Wells Road
Prunus laurocerasus*	Cherry Laurel	Garden escape. Threat to semi-natural woodlands
Pyracantha coccinea	Firethorn	
Quercus cerris*	Turkey Oak	Naturalised. Threat to native oak woodlands
Quercus x *crenata*	Lucombe Oak	Ashtead Pond
Rhododendron ponticum*	Rhododendron	Garden escape. Threat to semi-natural woodlands
Rosa rugosa	Japanese Rose	
Salix daphnoides	European Violet-willow	Planted in 1960s
Salix alba x *S. babylonica*	Weeping Willow	Planted at Stamford Pond
Solidago canadensis	Canadian Goldenrod	Blake's Pond – garden escape
Solidago gigantea	Early Goldenrod	Blake's Pond
Solidago rugosa	Rough-stemmed Goldenrod	
Spiraea salicifolia	Bridewort	Garden escape (widespread in Britain)
Symphoricarpos albus*	Snowberry	Garden escape (widespread in Britain)
Symphytum x *uplandicum*	Russian Comfrey	
Taxodium officinalis	A Redwood	
Tilia platyphyllos	Large-leaved Lime	One planted at Top Crossroads
Verbascum blattaria	Moth Mullein	
Vinca major	Greater Periwinkle	

Invertebrates

There is a large volume of information relating to the invertebrates of Epsom and Ashtead Common. This includes in particular, the JNCC's Invertebrate Site Register. However, this rarely distinguishes records between either of the two commons.

A major source of information was the recent survey, mainly of Coleoptera, conducted by Dr Roger Booth (Booth, 2002). Incorporated into this survey were records of species collected by Dr I.S. Menzies and Mr S. Gibson during 2001. Reference has also been made to a provisional list of Coleoptera for Epsom Common prepared by I.S. Menzies and R.G. Booth in January of 2005 (this list does not highlight species in the 'local' status category, as has been the case with some of the other information sources).

Sources of information:
Coleoptera appearing on the list below includes those species considered to be Nationally Notable as listed by Hyman & Parsons (1992, 1994). Uncommon species believed to occupy 16-100 10 km squares of the national grid in Great Britain are Nationally Notable, although other criteria may also apply.

Shirt, D.B. ed. (1987). *British Red Data Books: 2. Insects.* International Union for Conservation of Nature and Natural Resources (IUCN), Joint Committee for the Conservation of British Insects, Nature Conservancy Council (NCC) and Royal Society for Nature Conservation (RSNC).

Key:

RDB	Nationally rare species, recorded in 1-15 national hectads (RDB1 = endangered; RDB2 = vulnerable; RDB3 = rare).
pRDBK	Suspected Red Data Book species, but are not definitely known to belong to one of the RDB categories because of lack of information.
Notable A	Nationally scarce, recorded in 16-100 hectads (Notable A = 16-30 hectads).
Notable B	Nationally scarce, recorded in 16-100 hectads (Notable B = 31-100 hectads).
LBAP	Species on the National Biodiversity Action Plan Long list
NSR	New Surrey Record
VRUK(NE)	'apparently very rare in UK' – status not established.

Recorders/sources:

RGB (Roger Booth), SG (Seth Gibson); ECNR2000 (Epsom Common Nature Report 2000, Ed. Seth Gibson); JAO (J.A. Owen); ISM (Ian Menzies); BL (B. Levey in Br. J. Ent. Nat. Hist. 12: 227-229); ISR (JNCC Invertebrate Site Register); NK (not known)

Nomenclature and status derived from the biolgical database Recorder v.3.4

Latin name	Common name	Source of record (most recent)	Status	Habitat/ comments
Aranae – spiders				
Haplodrassus silvestris	A ground spider	NK (1998)	Notable B	
Philodromus praedatus	A running crab spider	NK (1998)	Notable B	
Robertus neglectus	A comb-footed spider	NK (1998)	Local	
Tetragnatha nigrita	A long-jawed spider	NK (1998)	Local	
Zilla diodia	An orb-weaver spider	NK (1998)	Notable B	
Lepidoptera – butterflies & moths				
Apatura iris	Purple Emperor	ISM (2000)	Notable B; LBAP	Good population on Epsom Common
Argynnis paphia	Silver-washed Fritillary	ISM (undated)	LBAP	Expected spread onto Epsom Common
Lagoda camilla	White Admiral	ISM (undated)	Local	Plentiful on Epsom Common. The var. *semi-nigrina* quite frequently seen
Orthoptera – grasshoppers & crickets				
Conocephalus discolor	Long-winged Conehead	NK (1995 - via ISM)	Notable A	Rapid recent increase throughout SE England (no longer notable)
Conocephalus dorsalis	Short-winged Conehead	NK (2000 - via ISM)	Local	Rapid decline noted at Epsom Common (Gibson, 2000)
Metrioptera roeselii	Roesel's Bush-cricket	ISM (1993)	Notable B	Now well-established in grazing area
Hemiptera – true bugs				
Gonocerus acuteangulatus	Box Bug	ISM (1995)	RDB1	Old Hawthorns nr. Christchurch

Latin name	Common name	Source of record (most recent)	Status	Habitat/ comments
Neuroptera – lacewings				
Drepanepteryx phalaenoides	a brown lacewing	ISM (1997)	Local	Young Oak nr. Christchurch

Latin name	Common name	Source of record (most recent)	Status	Habitat/ comments
Diptera – true flies				
Laphria marginata	An assassin fly	ISR (1991)	Notable B	Very local in old Oakwoods in southern & central England
Oedalea apicalis	a dance fly	EEBC database (undated)	Notable B	Formerl;y RDB3
Coleoptera – beetles				
Abdera biflexuosa	a false-darkling beetle	RGB (2002)	Notable B	Dead wood. Nr. Woodcock Corner
Agabus labiatus	a water beetle	RGB (2002)	Notable B	Bramble Heath
Agrilus laticornis	a jewel beetle	RGB (2002)	Notable B	Oak branches and twigs (Nr. Stew Pond car park)
Agrilus pannonicus	Oak Jewel Beetle	RGB (2002)	Notable A	Old Oaks (Stew Pond area). Formerly RDB2
Agrilus sinuatus	Hawthorn Jewel Beetle	ISM (1979)	Notable A	Old Hawthorn nr. Stew Pond. Formerly RDB2
Agrilus viridis	Sallow Jewel Beetle	JAO (1994)	Notable A	On Sallows. Formerly RDB2
Ampedus elongantulus[*1]	A click beetle	ISM (undated)	Notable A	Nr. Stew Pond

Latin name	Common name	Source of record (most recent)	Status	Habitat/ comments
Anaglyptus mysticus	A longhorn beetle	NK (undated - via ISM)	Notable B	Well established on Epsom Common (Hawthorn blossom)
Anobium inexspectatum	A wood-boring beetle	RGB (2002)	Notable B	Slender woody material. Nr. Stew Pond car park
Anthonomus ulmi[*1]	A weevil	ISM (1987)	Notable B	On Crab Apple
Apion cerdo[*2]		ISM (1988)	Notable B	Stew Pond area
Apoderus coryli	Hazel Leaf-roller Weevil	NK (undated - via ISM)	Local	Abundant on Hazel
Atheta hygrobia	A rove beetle	RGB (2002)	Notable B	Damp to wet habitats. Bramble Heath
Batrisodes venustus	A rove beetle	RGB (2002)	Notable A	Rotten wood of old trees. Formerly RDB3
Bembidion clarkii	A ground beetle	RGB (2002)	Notable B	Damp to wet habitats. Bramble Heath (2002)
Bibloporus minutus[*1]	A rove beetle	EEBC database (undated)	Notable B	Formerly RDB3
Byctiscus betulae	Half-leaf Roller	(1998 – via ISM)	Notable B	Epsom/Ashtead boundary on Hazel. New to site
Cantharis figurata[*2]	A soldier beetle	ISM (1986)	Notable A	
Chalcoides nitidula	A leaf beetle	RGB (2002)	Notable B	Aspen & Poplar. Bramble Heath
Cis festivus	A small fungus beetle	RGB (2002)	Notable B	Bracket fungi in woods. Old Oak at entrance to Stew Pond car park

Latin name	Common name	Source of record (most recent)	Status	Habitat/ comments
Coccidula scutellata[*1]	A ladybird	Last seen 1980s – via ECNR2000	Local	Associated with *Typha* at Great Pond
Coeliodes erythro[*2]	A weevil	ISM (1988)	Notable B	Hawthorn and Oak in Stew Pond area
Coeliodes ruber	A weevil	RGB (2002)	Notable B	Oak and Hazel in woodland
Conophagus testaceus[*2]		ISM (1986)	Notable B	
Ctesias serra	Cobweb Beetle	NK (1990 – via RGB)	Notable B	Old trees. Stew Pond & nr. Woodcock Corner.
Curculio rubidus	A weevil	RGB (2002)	Notable B	Birch in woodlands. Bramble Heath
Enicmus rugosus	A mould beetle	NK (1994 – via RGB)	Notable B	Powdery fungus on old trees. Nr. Stew Pond car park
Galeruca tanaceti[*2]		ISM (1992)	Notable B	
Grammoptera variegata[*2]		ISM (1998)	Notable A	Oak near Stew Pond
Helochares lividus[*2]		SG (2001)	Notable B	Baron's Pond
Helochares punctatus[*2]		SG (2001); ISM (2002)	Notable B	Baron's Pond (SG); Blake's Pond (ISM)
Hydrochus angustatus	A scavanger water beetle	RGB (2002)	Notable B	Blake's Pond
Halyzia 16-guttata[*1]	16 Spot Ladybird	SG (2001)	Local	Recent increase of very local species. Incl. Stew Pond & Baron's Pond
Lampyris noctiluca	Glow-worm	NK (2001)	Local	Colony in grassland at Churchside
Lissodema quadripustulata	A false weevil	RGB (2002)	Notable B	Dead wood. Nr. Stew Pond car park
Longitarsus parvulus[*2]		SG (2001)	Notable A	Near Baron's Pond

Latin name	Common name	Source of record (most recent)	Status	Habitat/ comments
Megatoma undata	A dermestid beetle	NK (1991 – via RGB)	Notable B	Old trees. Oak bark nr. Stew Pond.
Melandrya carabioides[*2]		ISM (1993)	Notable B	Rotten Oak stump
Mordellistena humeralis	A tumbling flower beetle	NK (1992 – via RGB)	PRDBK	Broadleaved woodland. On Hogweed flowers
Mordellistena neuwaldeggiana[*2]	A tumbling flower beetle	ISM (2002)	Notable B	Bramble Heath
Mordellistena secreta[*1]	A tumbling flower beetle	BL (1971 – via SG)	New British species	
Notaris scirpi	A weevil	NK (1990, 1991 – via RGB)	Notable B	On *Typha* (Great Pond)
Opilo mollis[*2]		SG (2001)	Notable B	Baron's Pond
Orsodacne lineola	A leaf beetle	NK (1993 – via RGB); ISM (1988)	Notable B	Adults on Hawthorn in woods and parks. Nr. Stew Pond.
Orthoperus nigrescens	A minute fungus beetle	RGB (2002)	Notable B	Mostly in broad-leaved woodland. Nr. Stew Pond car park
Oxylaemus variolosus[*2]		ISM (2004)	RDB3; AW2	Partly rotten old Oak near Stew Pond car park
Oxypoda recondita	A rove beetle	RGB (2002)	Notable B	Rotten old wood
Phloiophilus edwardsi	A beetle	SG (2000)	Notable B	Dead log nr. Baron's Pond
Phymatodes alni	A longhorn beetle	ISM (1988)	Notable B	Dead Hazel branch nr. Stew Pond
Phytodecta decemnotata	A leaf beetle	NK (undated - via ISM)	Notable B	Well established on Epsom Common Aspens

Latin name	Common name	Source of record (most recent)	Status	Habitat/ comments
Phytodecta viminalis[*2]	A leaf beetle	SG (2000)	Notable B	
Platycis minuta	A net-winged beetle	ISM (1995)	Notable B	Nettles by Stew Pond car park
Pyrochroa coccinea	Black-headed Cardinal Beetle	NK (1993 – via RGB)	Notable B	Under bark of dead wood. Nr. Stew Pond car park
Quedius scitus	A rove beetle	RGB (2002)	Notable B	Old rotten wood
Quedius ventralis	A rove beetle	RGB (2001)	Notable B	Rot holes of old trees. Old hornet nest in hollow Birch tree nr. Great Pond.
Rabocerus foveolatus[*2]		ISM (2004)	Notable B	Old Hawthorn near Blake's Pond
Rhantus grapii	A water beetle	SG (2001)	Notable B	Baron's Pond
Rhizophagus oblongicollis[*2]		ISM (2004)	RDB1	Old oaks near Stew Pond car park
Rhynchites cavifrons[*1]	A leafroller beetle	ISM (1985)	Notable B	Well-established on Oak nr. Stew Pond
Rhynchites interpunctatus	A leafroller weevil	NK (1993 – via RGB)	Notable B	Mature trees in woodland. Oaks nr. Stew Pond car park
Strangalia quadrifasciata	A longhorn beetle	ISM (1983)	NTB2/AW 3	Dead birch stump nr. Stew Pond
Sulcacis bicornis	A small fungus beetle	NK (1994 – via RGB)	Notable B	Bracket fungi in woodlands. Nr. Stew Pond car park
Tomoxia biguttata[*2]		ISM (1984)	RDB3	Near Stew Pond car park

Latin name	Common name	Source of record (most recent)	Status	Habitat/ comments
Tomoxia bucephala[*1]	A tumbling flower beetle	ISM (1984)	Notable A	Nr. old Oak stump, Stew Pond area. Formerly RDB3
Zeugophora flavicollis[*2]	A leaf beetle	ISM (2001)	RDB2	Bramble Heath on Aspen
Zeugophora subspinosa	A leaf beetle	ISM (1987)	Local	On Aspen & Poplar

[*1] Coleoptera not appearing on the provisional (January 2005) listing for the site prepared by I.S. Menzies and R.G Booth.
[*2] 'New' data from January 2005 provisional listing of Coleoptera (i.e. not previously identified in the other consulted sources).

Vertebrates

The following lists have been compiled primarily upon the basis of the 'Epsom Common Nature Report 2000' (Gibson, 2000).

Key:

LBAP = Species on the National Biodiversity Action Plan Long list
BAP1 (UKBAP) = Priority BAP species
BAP2 (UKBAP) = Priority BAP species
SyBAP = Surrey BAP Action Plan species

Herptiles

Latin name	Common name	Source of record (most recent)	Status
Vipera berus	Adder	Gibson, 2000	LBAP
Natrix natrix	Grass Snake	Gibson, 2000	LBAP

Birds

TABLE SUMMARISING THE BIRD SURVEY FOR 2013

SPECIES	STATUS	PROTECTION
(A) BREEDING BIRD SPECIES		
1. Greylag Goose	'Feral' breeding resident	Amber list
2. Canada Goose	Breeding resident	
3. Mandarin Duck	Common Breeding Resident	
4. Mallard	Breeding Resident	
5. Tufted Duck	Irregular Resident/Has Bred	Amber list Breeds Stamford Pond
6. Sparrowhawk	Common Breeding Resident	Target species
7. Buzzard	Resident, breeding and increasing	Obvious increase over the past few years
8. Kestrel	Breeding Resident, increasing	Amber list
9. Pheasant	Breeding Resident	
10. Moorhen	Breeding Resident	
11. Coot	Breeding Resident	
12. Woodcock	Seen & heard roding over Ashtead Common.	Amber list & a key target species
13. Feral Pigeon	Breeding Resident (margins)	
14. Stock Dove	Breeding Resident, increasing?	Amber list
15. Wood Pigeon	Common Breeding Resident	
16. Collared Dove	Breeding Resident (mainly in the margins)	
17. Rose-ringed Parakeet	Resident (no evidence of roosting in the area). Breeds	Now breeding, numbers expected to rise
18. Tawny Owl	Breeding Resident	
19. Green Woodpecker	Common Breeding Resident	Amber list
20. Great Spotted Woodpecker	Very Common Breeding Resident	
21. Lesser Spotted Woodpecker	One seen on 3rd May 2013 in far NE corner of Ashtead Common. Rarely seen/scarce resident.	Red list & BAP species. Target species for diverse mature woodland
22. Swift	Summer Visitor/Feeds Overhead, breeds around margins	Breeds on houses around margins of the site
23. Skylark	Breeds in margins – and could breed in the future in more open areas that are created.	Red list/BAP & 'potential' target species (also refer to systematic list)
24. Swallow	Summer Visitor/Feeds Overhead. Breeds in margins. Encourage nests on nearby properties.	Amber list and BAP species (was a local BAP)

25. Grey Wagtail	Seen on several occasions as well as a regular pair close to Stamford Green pond.	Amber list – breeds near Stamford Green pond and potential to breed elsewhere?
26. Pied Wagtail	Breeding resident (esp. margins)	
27. Wren	Abundant Breeding Resident	
28. Dunnock	Common Breeding Resident	Amber list & recent BAP
29. Robin	Common Breeding Resident	
30. Blackbird	Common Breeding Resident	
31. Song Thrush	Breeding Resident	Red list & BAP species and target species for grassland/scrub/wood mosaic
32. Mistle Thrush	Breeding Resident	Amber list
33. Common Whitethroat	Common breeding summer visitor	Good 'indicator' species for mid succession in grassland scrub mosaic. Amber list.
34. Lesser Whitethroat	Seen by another observer in the dense scrub along Rye brook by Woodfield.	Elusive summer visitor breeding in small numbers?
35. Garden Warbler	Breeding Summer Visitor	
36. Blackcap	Common breeding Summer visitor	Good 'indicator' species for grassland/scrub/wood mosaic
37. Chiffchaff	Breeding Summer Visitor	
38. Willow Warbler	Breeding Summer Visitor	Amber list
39. Goldcrest	Breeding Resident (more around margins)	Amber list
40. Long-tailed Tit	Common Breeding Resident	Good 'indicator' species for thorn thickets
41. Blue Tit	Abundant Breeding Resident	Most common bird on site
42. Great Tit	Abundant Breeding Resident	
43. Coal Tit	Breeding Resident (mainly around margins)	
44. Wood Nuthatch	Common Breeding Resident	Good 'indicator' species for mature and diverse woodland
45. Treecreeper	Common Breeding Resident	
46. Eurasian Jay	Common Breeding Resident	
47. Black-billed Magpie	Common Breeding Resident	
48. Jackdaw	Uncommon Breeding Resident, roost in Newton Wood.	
49. Carrion Crow	Common Breeding Resident	
50. Starling	Uncommon Resident, breeds in margins, also	Red list and recent BAP species

	roosts in winter	
51. House Sparrow	Uncommon Resident, mainly in some marginal areas	Red list & recent BAP (was a local BAP). Target species for marginal thickets
52. Chaffinch	Breeding Resident	
53. Greenfinch	Uncommon Breeding Resident (mainly marginal areas)	
54. Goldfinch	Uncommon Resident, breeding?	Target species for rough grassland
55. Bullfinch	Uncommon Breeding Resident	Amber list/BAP- target species for diverse areas for fruiting trees & scrub
56. Yellowhammer	Increasing Breeding Resident	Red list, recent BAP species and target species for grassland/scrub mosaic
57. Reed Bunting	Uncommon resident that may now be breeding.	Amber list/BAP & target species for marshy areas

(B) NON BREEDING BIRDS OBSERVED IN SURVEY PERIOD		
58. Cormorant	Regular Visitor	Amber list
59. Grey Heron	Resident and regularly seen in wetland areas.	Tried to breed on the Great Pond in 2007
60. Little Egret	Seen over Woodfield on 6/4/13 and on other occasions by others.	Amber list. Becoming a regular visitor to the area.
61. Teal	Pair on Great Pond 25/3/13(pair also seen here on 9th April 2013 and around same time in 2009)	Amber list. Pair regular on passage - checking for breeding potential?
62. Red Kite	Seen on 19/4/13 over Ashtead Common. Records increasing.	Amber list and schedule 1. Potential to breed soon?
63. Goshawk	Seen in the earthworks, Ashtead Common, 29/4/13 and by others.	Becoming a regular visitor that may breed nearby.
64. Peregrine	Seen hunting over the area	Breeds nearby
65. Lapwing	Winter visitor and on passage, in the margins.	Red list and recently added as a BAP species.
66. Snipe	Seen on 2/4/13 by Great Pond	Passage and winter visitor
67. Black-headed Gull	Regular Visitor/Winter Visitor	Amber list
68. Herring Gull	Irregular Visitor/Winter Visitor.	Recent BAP species
69. Common Gull	Irregular Visitor/Winter Visitor.	
70. Short-eared owl	One seen the near, King Oak, Ashtead, on 20th January 2013.	Occasional winter visitor
71. Woodlark	One seen to the west of the old fire area on 2/4/13 at the	Occasional visitor?

	end of the cold spell - in the open bracken area at the very west end	
72. House Martin	Summer Visitor/Feeds Overhead. Not sure if it breeds nearby. Need to encourage more colonies.	Amber list and recently added as a BAP species (was a local BAP)
73. Meadow Pipit	Not observed, but see on 27/3/13 by another observer.	Amber list – target species for rough grassland
74. Fieldfare	Winter visitor and on passage, good numbers with the cold conditions.	Winter visitor and on passage.
75. Redwing	Winter visitor, and on passage, good numbers with the cold conditions.	Winter visitor and on passage.
76. Wood Warbler	One singing on 23/4/13 at SE end of Epsom Common along a trail between Woodcote Stud and Baron's pond. Not heard again.	Potential to breed on margins of the site?
77. Firecrest	One seen on various occasions in the late winter and early spring 2013 on Epsom Common – close to the cattle trough.	Occasional visitor in winter and on passage.
78. Willow Tit	Good to see one bird (singing) on the far SE area of Ashtead on during the cold spell on 6/4/13. Now very scarce in Surrey.	Red list and recent BAP species (was a local BAP) and key target species
79. Siskin	Singing bird seen between 25/3/13 & 6/4/13 in bushes close to the bridge on NE side of Woodfield, and small numbers seen by other observers in the winter.	A species that is increasing as a breeding bird in the UK with potential to breed on Epsom and Ashtead Common.
80. Mealy/Lesser Redpoll	Passage birds seen early during survey and the cold spell.	Lesser Redpoll is a red list and BAP species.
(c) 'POTENTIAL' BREEDING BIRDS NOT OBSERVED IN SURVEY		
Little Grebe	Irregular visitor	Amber list. Not breeding due to impact of terrapins and a lack of seclude areas?
Great Crested Grebe	Irregular visitor	Puzzling why it does not breed, disturbance by dogs could be an issue.
Mute Swan	Irregular visitor	Lack of breeding records, or visiting birds, puzzling

Ruddy Duck	Irregular visitor, potential to breed	
Hobby	Irregular visitor, potential to breed	Potential to breed?
Red-legged Partridge	Has been seen in the past.	Could it breed around the margins?
Grey Partridge	Not present at the moment.	Red list – potential to attract to rough grassland?
Common Tern	Irregular visitor.	Potential for tern rafts on Great Pond?
Turtle Dove	As in 2006 & 2007 not present. Any records since 2001?	Red list/BAP and key target species
Cuckoo	Fairly scarce summer visitor. Not observed in 2013 during the survey or reported by others.	Red list and BAP species. Target species for grassland/scrub mosaic
Little Owl	Not observed in 2013 (seen in or near old fire area before) but probably breeds nearby.	Good indicator species for old oak trees. Potential with more open areas on site.
Barn Owl	Not Present	Amber list & schedule 1, potential to attract with nest boxes?
Nightjar	Not present	Red list/BAP. Not really a suitable area this species
Kingfisher	Not seen – an irregular visitor, especially in the autumn.	Amber list & schedule 1, a target species where nesting areas may be a key factor

Red/Amber list taken from the RSPB website (Anon., 2002), which in turn has been based upon Gregory *et al*. (2002).

Mammals

Information sources include surveys of small mammals (Newman, 1998). This lists records for Wood Mouse, Common Shrew, Field Vole and Harvest Mouse, none of which are LBAP.

Latin name	Common name	Source of record (most recent)	Status
Pipistrellus pipistrellus	Common Pipistrelle	Gibson, 2000	BAP1
Pipistrellus pygmaeus	Soprano Pipistrelle	Gibson, 2000	BAP1
*Lepus europaeus**1*	Brown Hare		BAP1
*Micromys minutus**2*	Harvest Mouse	Newman, 1998	
*1 There are no recent records of Brown Hare from this part of Surrey. The			

EEBC database needs updating to reflect this.
*[2] Recorded during small mammal surveys in1998 (Newman, 1998). The species has suffered a marked decline in recent years due to changing agricultural practices.

Appendix 4 – Byelaws for Epsom Common

See Section 2.2.1

Epsom Common and Clay Hill Green are subject to the provisions of Section 193 of the Law of Property Act, 1925, under which members of the public have rights of access to the land for air and exercise.

1. If done on the land without lawful authority, it is an offence for anyone exercising the aforesaid rights of access to the land:
(i)
(a) To draw or drive any carriage, cart, caravan, truck or other vehicle otherwise than on a public carriage way.
(b) To camp.
(c) To light fires.
(ii)
(a) To injure or remove trees, shrubs, gorse, bracken, heather or plants.
(b) To remove gravel, sand, soil or turf.
(c) To take or attempt to take fish from any pond or stream.
(d) To discharge firearms or throw or discharge missiles.
(e) To shoot or wilfully disturb, chase or take game or other birds or animals.
(f) To permit dogs to chase game or other birds or animals or otherwise to fail to keep dogs under proper control.
(g) To remove or attempt to remove birds' eggs or nests.
(h) To set traps, nets or snares for birds or animals.
(i) To permit horses, cattle, sheep or other animals to graze or stray.
(j) To bathe in any pond or stream.
(k) To post or paint bills, advertisements, placards or notices.
(l) To injure notice boards, seats or receptacles for rubbish.
(m) To place or deposit and leave any glass, china, earthenware, tin, carton, paper or other rubbish so as to create or tend to create a litter.
(n) To injure or disfigure any ancient monument or earthwork or object of historical, scientific or antiquarian interest.
(o) To train or break in horses by grooms or others.
(p) To hold any show, exhibition or fair, or place any swing, roundabout or other like thing.
(q) To erect or place any building, tent, booth, stall, fence, post, railing or other similar structure for any purpose.
(r) To create any nuisance or disturbance, use obscene language or behave in an indecent or disorderly manner to the annoyance of any person.
(s) Fly any power-driven model aircraft.
(t) Generally to injure or disfigure the land or to interfere with the use thereof by the public for the purposes of air and exercise

2. Anyone committing such an offence as aforesaid is liable on summary conviction to a fine not exceeding £20 for each offence.

3. The acts mentioned in paragraph 1 (ii) are forbidden. by reason of the limitations and conditions imposed by an Order dated the Twenty-fifth day of

January, 1951, made by the Minister of Agriculture and Fisheries under the said section 193.

4. The said Order with the relative plan. has been deposited at the Public Record Office, Chancery Lane, London, W.C.2, and a certified copy has been deposited with the Council of the Borough of Epsom and Ewell being the Borough in which the land is situated. The Order and the copy will be open to inspection during ordinary office hours.

Dated the 1st day of September, 1975.

Appendix 5 – National Nature Reserve Criteria

Annex 4 Approved Body Criteria required by Natural England

A. Organisations must have nature conservation as a formal part of their remit

EEBC response:- *As a local authority owning and managing the Epsom Common section of the Epsom and Ashtead Common's Site of Special Scientific Interest (SSSI) we have a statutory responsibility to manage and enhance the SSSI as outlined in the Countryside and Rights of way Act 2000. In addition we have a duty to have regard for biodiversity under the Natural Environment and Rural Communities Act 2006. We have a very significant amount of open space in our ownership and under our control, the largest include Epsom Common LNR, Horton Country Park LNR, The Hogsmill LNR, the world famous Epsom Downs and the former royal Tudor palace site of Nonsuch Park. In addition we have a multitude of smaller parks and recreation grounds. Our five largest sites all operate under approved management plans which have nature conservation and good public access as their priorities. In recent years we have applied for and attained Green Flag award Status for a range of our parks and open spaces to indicate to our residents that their open spaces are managed to a national standard. Epsom Common LNR was the first of our five sites to gain the Green Flag award in 2007.*

B. Organisations must demonstrate they have the long term financial stability and governance to deliver the NNR Management Standards for the NNR they manage.

EEBC response:- *As a local authority which has been in existence for 76 years we believe that we have demonstrated long term financial stability along with the governance ability to successfully manage large open spaces and to deliver the NNR Management Standards for Epsom Common LNR.*

C. Organisations must demonstrate they have the skills, knowledge and capacity to deliver the NNR Management Standards for the NNR.

EEBC response:- *Following the requirements of the Countryside and rights of Way Act 2000 and the need to return Epsom Common SSSI to 'favourable Condition', in 2003 we set up a suitably qualified and skilled team (Countryside Team) focused on managing and enhancing biodiversity and public access on Epsom Common LNR, Horton Country Park LNR and the Hogsmill LNR. Since inception the team have agreed and are now implementing ten year management plans*

for each site, Epsom Common regained 'favourable' condition status for the SSSI in 2010. The team coordinate a very significant amount of volunteer work which for example, is enabling us to maintain a summer grazing regime on Epsom Common LNR and which plays a crucial role in managing habitats. We also have a Borough wide Ranger Service which regularly patrols Epsom Common both tackling and reporting the issues they encounter.

D. Confirmation that an organisation will deliver all aspects of the Management Standards

EEBC response: *We have looked carefully at the National Nature Reserve Management Standard and we are confident that we currently meet and in some cases exceed the standard required.*

The NNR Standard

This standard applies to all NNRs, whether they are under Natural England's responsibility or are managed by Approved Bodies. It sets out the key principles for the management of National Nature Reserves (NNRs), and some specific expectations beneath them. It has been created by Natural England in consultation with Approved Bodies in order to support consistent quality of management across all NNR sites.

1. The NNR series will seek to represent the best places for England's biodiversity and geodiversity.

NNRs are selected as being amongst the best examples of England's special biodiversity and geodiversity. Our aspiration is that overtime the series becomes representative of this range of natural heritage. The role of the series is to look after the best examples of those features that rely on conservation action and/or to provide places where good management practice is developed and demonstrated to others.

- Natural England will maintain objective criteria consistent with its Designations Strategy[1] for new NNRs and de-declaring existing sites.

Epsom Common forms approx. one half of the Epsom and Ashtead Common SSSI with Ashtead Common being a NNR primarily for its collection of several thousand veteran trees and associated invertebrate assemblage. Epsom Common has a much smaller number of veteran trees and a wider range of habitats including several large ponds, relict lowland heath and grazed areas of acid grassland within newly created and extensive areas of pasture woodland. The differences complement each other and provide a substantially more diverse SSSI/NNR. Both sites are of interest in terms of demonstrating their overall management challenges with Ashtead Common demonstrating the management of veteran trees and Epsom demonstrating the restoration of

[1] Link to Natural England's Designations Strategy

a declining SSSI to 'favourable' condition and the recent creation of pasture woodland from young secondary woodland on a former heathland site that suffered extensive ploughing during ww2. In addition community involvement via the Epsom Common Association is unusually active/effective in helping to manage the site.

2. A management plan for the NNR will be kept up-to-date and will reflect the requirements of this standard.

Proper management planning is an essential basis for exemplary management and for integrating and meeting all relevant aspects of this standard. A plan has a legal aspect too, by providing the consents required for specified operations likely to damage the special features of SSSIs. The management plan, and changes to it, must therefore be consented by Natural England's Responsible Officer for the SSSI. Carrying out any of the listed operations without consent may be an offence under the Wildlife and Countryside Act 1981.

- The NNR has a management plan that describes a site, identifies key features, analyses and sets objectives and specifies the management and monitoring prescriptions[2]. The management plan is written within a year of the NNR being declared.
- The outcomes of management should be reviewed regularly against objectives and the Plan reviewed at least every five years to ensure it remains fit for purpose.
- Records of key management activities are maintained that allow the effectiveness of management interventions to be monitored and reviewed.[3]

3. The management of designated features and the wider reserve is exemplary.

The primary management of the NNR should reflect its status as being amongst the country's most important sites for nature conservation. Management should address the needs of its designated nature conservation features, other priority habitats and species and the functions required to support these. It should consider potential impacts on features due to climate change and responses.

- The management of designated nature conservation features on NNRs will ensure these features are as a minimum maintained at, or progressing towards Favourable Condition.
- SSSI features are monitored by Natural England according to Common Standards Monitoring[4].

[2] The template and guidance Natural England uses for its NNR management plans can be provided as an example of an approach.
[3] Natural England uses CMSi - see CMSi
[4] For further information, see JNCC website Protected sites monitoring

- The management of the NNR will contribute to priority species and habitats as specified in Biodiversity 2020 and subsequent national strategies.

4. The NNR contributes to safeguarding and restoring ecosystems beyond its boundaries.

As core wildlife sites, NNRs potentially have an important function in restoring ecosystems, notably biodiversity, at a wider scale and in building resilience to climate change. This might be for example by acting as reservoirs and source sites for certain species, through demonstrating successful management practices, by coordinating action with others at a larger scale, or by inspiring others to take action. The nature and extent of this function depends on the features on the NNR and the concerted action of partners.

- The management of an NNR will take account of its function in providing and supporting the restoration of ecosystems beyond the site and adaptation to climate change.

5. The management of the NNR provides opportunities for public enjoyment and quiet recreation.

Provision of public access and enjoyment can be combined with high standards of nature conservation. Visitors should be able to find out why an NNR is of special significance and have an opportunity to learn about and, wherever possible, directly experience these features. The information the public sees about a site should help reinforce their positive impressions and understanding of the NNR series. The nature and extent of public engagement will depend on the features at the NNR and the resources available.

- The management plan for the NNR should encourage opportunities to engage with a wide range of visitors consistent with the species and habitat objectives in the management plan.
- Physical access to the site for visitors must be considered where compatible with the nature conservation interest of the site and subject to appropriate assessment of potential impacts.
- Visitor information about the site must be made easily accessible for the public including via a website.
- It must be clear to visitors when they arrive at the main entrances that the site is a National Nature Reserve. The NNR symbol must be used in new signage at main entrances and principal interpretation materials[5].
- The NNR will demonstrate good practice in conservation and visitor management.

[5] Brand guidelines available from Natural England.

6. Research into the natural environment at an NNR is promoted and knowledge is shared.

NNRs are often highly regarded as locations for research and study, especially in relation to the special features of the site. Information gathered from NNRs can contribute greatly to our understanding of the natural environment and how it is changing. NNRs themselves rely on good access to data, historic and current, to inform management decisions. Good liaison with Local Record Centres (species records) can facilitate this flow of non-confidential knowledge.

- Opportunities and requests for monitoring, research and study into the natural environment should be positively considered, especially where they involve looking at long term trends.
- Species records and the outputs of research must be made available to the wider research community and the natural environment.

7. Communities and stakeholders are involved in the management of the NNR.

Public participation in the management of a site, such as through volunteering, can be very effective in building public understanding and support for the natural environment. It is recognised that the extent to which community participation is feasible will depend upon the particular situation of each site. Management of an NNR should have regard to the views of stakeholders, particularly neighbours and local communities.

- Local communities and stakeholders should be given the opportunity to contribute to how the objectives of the management plan are achieved and to direct management of the NNR.
- Volunteering opportunities should be promoted where feasible.

8. NNR managers will work collaboratively to promote the NNR series and wider goals.

The collective contribution of NNRs to fulfil statutory purposes and wider policy goals is far greater than the individual contribution from each site. Sharing good management practice, scientific evidence and other information is beneficial and is encouraged.

- Each NNR must have a named first point of contact for the purpose of liaison with others in the network of NNRs.
- NNR managers will provide information when requested by Natural England in order to support promotion of the series and to establish whether this standard and the purposes of the NNR are being met.
- NNR managers should implement opportunities for collaboration with other nature reserve managers in order to enhance the visitor experience and the effective management of collective reserves.

9. NNRs will support opportunities to demonstrate exemplary conservation management to others

Many NNRs provide opportunities for developing and demonstrating environmental land management techniques that can help build skills and knowledge more widely amongst the sector and other land managers. The sites themselves can also act as ‘reference points’, providing examples of habitats at or exceeding favourable condition.

Opportunities and requests for developing and demonstrating land management techniques should be positively considered where compatible with the conservation objectives of the NNR.

Section 28G of Wildlife and Countryside Act 1981 as amended by Countryside and Rights of Way Act 2000 places an obligation on all public bodies including Epsom and Ewell Borough Council to further the conservation and enhancement of Epsom Common SSSI. All of the proposed management will be compatible with this responsibility.