



Surrey Wildlife Trust
Ecology Services

Ecology Report

Millmoor Common

Woking Environment Action



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Consultancies



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Gold Member



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Validity of report (CIEEM, 2019)	In most cases, this report will be valid for 12 months. Where habitat management has not been altered and new features have not formed, it is possible the report remains valid for between 12 and 18 months, however it is advised an updated site visit is undertaken to confirm this. Where more than 18 months have elapsed an ecologist should review the information to confirm whether the information in this report can be relied upon. Reports more than three years old are unlikely to remain valid.		

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Acronyms

Acronym	Definition
AX	Surrey Axiophyte
BCT	Bat Conservation Trust
BNG	Biodiversity Net Gain
BOA	Biodiversity Opportunity Areas
BSI	British Standard Institute
CIEEM	Chartered Institute of Ecology and Environmental Management
DAFOR	Dominant, Abundant, Frequent, Occasional, Rare
DEFRA	Department for Environment, Food and Rural Affairs
ERL	England Red List
GBRL	GB Red List
GLTA	Ground Level Tree Assessment
HPI	Habitats of Principal Importance
ILP	Institute for Lighting Professionals
INNS	Invasive, non-native species
LNR	Local Nature Reserve
LWS	Local Wildlife Site
MAGIC	Multi-Agency Geographic Information for the Countryside
MCIEEM	Full member of CIEEM
NERC	Natural Environment and Rural Communities
NPPF	National Planning Policy Framework
SAC	Special Areas of Conservation
SBS	Surrey Botanical Society
SNCI	Site of Nature Conservation Interest
SPA	Special Protection Areas
SPI	Species of Principal Importance
SSSI	Site of Special Scientific Interest
SWT	Surrey Wildlife Trust
TPO	Tree Protection Order

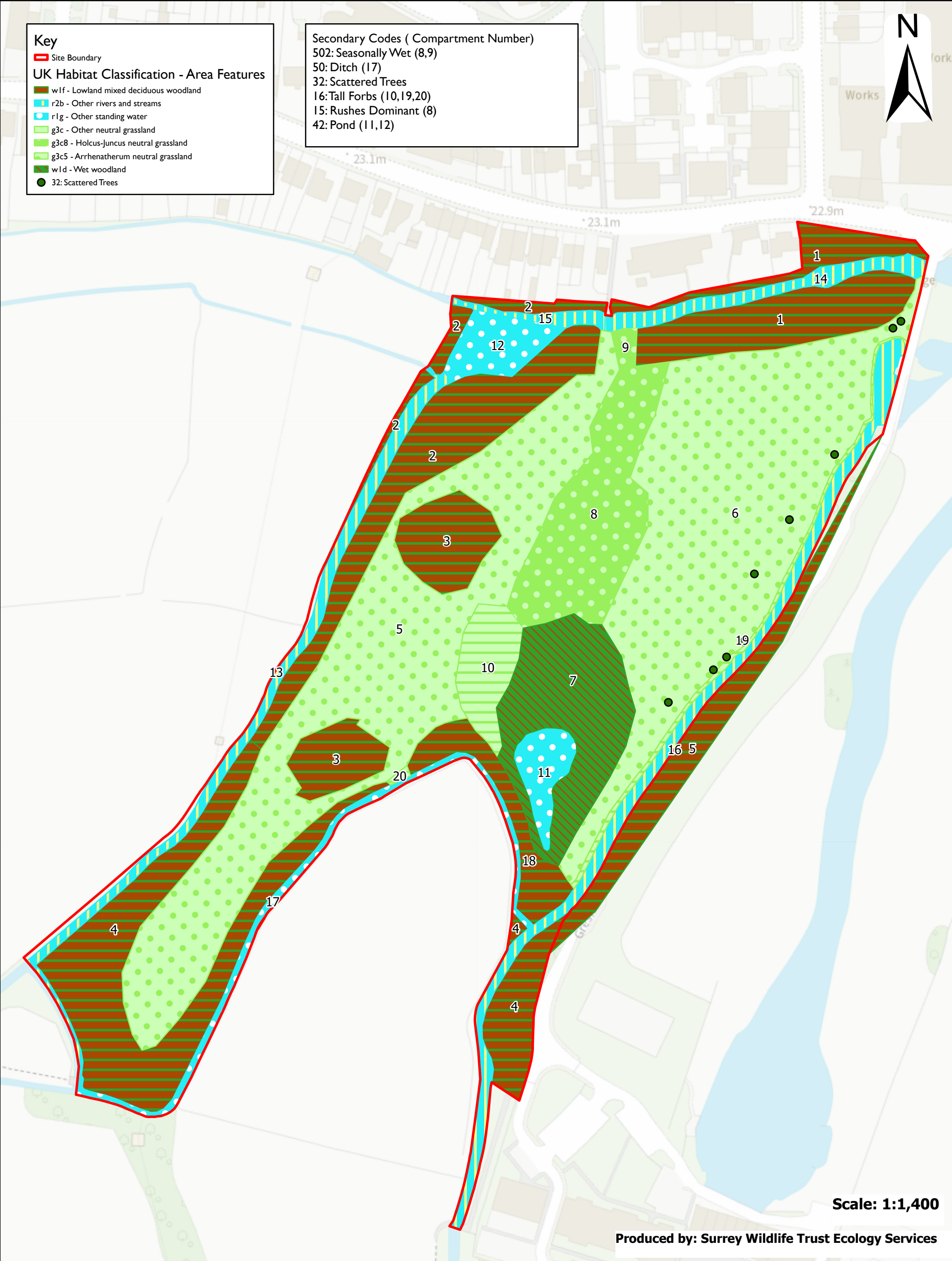
1 Summary

- 1.1.1 SWT Ecology Services was commissioned on 23 July 2024 by Woking Environment Action to undertake a habitat walkover survey across Millmoor Common to provide robust management recommendations to further enhance the biodiversity for the survey area, shown on Figure 1. The site is owned by Woking Borough Council.
- 1.1.2 In conservation terms, Millmoor Common is locally important for its wetland habitats including the southern pond as well as pockets and linear stretches of lowland deciduous mixed woodland. The woodland is a habitat of principal importance (HPI). Overall, Millmoor Common is a site of value in the local landscape and sits in a wider area of similar habitats, reflected by its being selected as a Site of Nature Conservation Importance (SNCI). It is also a proposed Suitable Alternative Natural Green Space (SANG), which are designed to offer recreations opportunities and reduce visitor pressure on other nearby sensitive habitats. Along the eastern edge of the site by Gresham Mill Road is a line of trees covered by a Tree Protection Order (TPO) (Ref. A1: 626/0039/1962)
- 1.1.3 Whilst the woodlands are in moderate to good condition and are gradually spreading and maturing into the grassland habitat, providing an interesting woodland-scrub-grassland interface or buffer zone that is a valuable microhabitat for wildlife. The grassland habitat is not considered to be particularly species rich and has declined over the years according to historical plant data. Several plants of conservation status have not been recorded for some time from this wetland habitat, see species tables in Appendix 1. A more disciplined approach to management could help to encourage a positive change in species richness. However, any future change to managing this site will be dependent upon budget and available volunteer time.
- 1.1.4 This will be done, in part, by continuing to use the dedicated volunteers that assist in the practical management of the site. The volunteers are helping with the maintenance of the site, such as scrub management, coppicing and other tasks. There will be tasks such as cut and collecting grass clippings or grazing that would enhance the open grassland, encourage grassland indicator plant species and a more varied sward. There will also be woodland management tasks that will require contractors. Some localised soil disturbance and scrape creation will also help to diversify the wetland grassland, the hope being that some of the species not seen in years may still be in the seedbank and could be encouraged to re-germinate such as marsh foxtail, cuckooflower and celery-leaved buttercup.

Table 1: Baseline summary

Aim of the report	• Provide an updated habitat survey with detailed plant species list. • Provide a summary on how the site habitat and plant composition has changed since the last botanical survey. • Map the habitats present and highlight any key findings. • Provide a short report which will provide management advice			
Project area	Millmoor Common, see Figure 1 for boundary of the survey area.			
Current land management practices	The past management of the site is not known in detail. What can be seen from historical maps is that the site would have been an open common up until the mid-1900's, when the management relaxed and allowed trees to encroach around the boundaries. In addition, two copses were planted up post 2000. Sympathetic habitat management over several decades has helped to retain the open grassland and water features.			
Local planning authority	Woking Borough Council			
Survey information	The survey was undertaken on the 28 th of August 2024 by Isobel Girvan BSc (Hons) MCIEEM FLS – Principal Ecologist			
Habitats recorded and suitability for protected species	Habitat	HPI	Suitability for protected species	Enhancement opportunity
	Other neutral grassland (gc3) likely <i>Arrhenatherum</i> neutral grassland (g3c5)	No	Invertebrates, amphibians, basking reptiles, foraging and commuting bats, nesting birds, other mammals including harvest mice and hedgehog and vascular plants.	Yes
	<i>Holcus-Juncus</i> neutral grassland (g3c8)			
	Other neutral grassland, tall herbs (g3c,16)			
	Wet woodland (w1d)	Yes	Invertebrates, amphibians, reptiles, roosting, foraging and commuting bats, nesting birds, other mammals and vascular plants.	Yes
	Lowland mixed deciduous woodland (w1f)			
	Pond (r1g)	Unknown	Invertebrates, amphibians, foraging and commuting bats, nesting birds, small mammals and vascular plants.	Yes
	Ditch (r1g, 50)	No		
	River Wey (r2b)	No		

Ecological considerations during management measures	• Invertebrates – unknown assemblage, potential for rare/notable invertebrate species and those of conservation concern, as well as a wide variety of more common species across the site. The current status is unknown. • Amphibians – suitable aquatic habitat present in the form of waterbodies including the ponds and ditch are suitable. Suitable terrestrial habitat is present in the form of woodland, scrub and grassland, particularly <i>Holcus-Juncus</i> neutral grassland. The current status is unknown. Adopt precautionary method of working during vegetation removal to minimise impacts to reptiles and amphibians; works to be scheduled during the active season (April to October). • Reptiles – suitable habitat present in the woodland scrub edges and grassland. Grass snake, which is semi-aquatic, could also be supported by the ponds and watercourses. Current status is unknown. Follow amphibians' recommendations of precautionary method of working. • Breeding birds – several habitats such as woodland, woodland scrub edge, scattered trees, grassland and wetland habitats are suitable for a variety of breeding birds. The current status is unknown. To avoid the breeding bird season, vegetation removal and other forms of management should be scheduled between September to early February. • Bats – suitable roosting, foraging and commuting habitat such as the long woodland tree lines, woodland scrub, wetland and grassland. Current status is unknown. Should any trees require, branch removal or felling, they will need to be checked for bat roosting potential prior to works (Ground Level Tree Assessment (GLTA)). • Vascular plants – GB and England Red Data Listed plants and other plants of conservation concern present, see 5.1.3, species lists and Table 8 for more information. • Invasive non-native species – Species on the Schedule 9 invasive species list (Wildlife and Countryside Act 1981 as amended Schedule 9) have been found in the past including Himalayan balsam, which is still present. Other known invasive species were recorded during the site visit. See species lists and 5.1.11 for more information. • General – Areas where birds, amphibians and reptiles are likely to be present, work should be timed for September to October. • Establish baseline of fauna population through species surveys in order to understand specific management requirements to ensure protection of fauna and enhanced management of their niche habitat.
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2 Introduction

2.1 Survey area

- 2.1.1 The survey area is presented in Figure 1. It is 4.6ha, located south of High Street, Old Woking (grid reference: TQ014567 [///shop.senior.woof/](https://www.shop.senior.woof/)).
- 2.1.2 Millmoor Common is situated on the floodplain of the River Wey, south of Old Woking. It is largely composed of neutral grassland, some wet grassland with pockets of woodland and boundary woodland. There are two ponds and the River Wey and ditch around the boundaries. Gresham Park Road forms the eastern boundary. There is connecting wetland habitat including boundary ditches and the River Wey in the wider landscape. The site is open to the public, and appears to be used low number of people, likely local dog walkers.
- 2.1.3 The site is selected as Site of Nature Conservation Importance (SNCI), known as Mill Moor SNCI. The site was selected for the following reasons *“The site is known for its nature conservation interest as it is situated on the floodplain of the River Wey, largely composed of semi-improved mesotrophic grassland, including central stands of wet grassland. Two ponds are present. It was selected as SNCI for its species rich wetland and ponds. selected for species rich wetland and ponds. Past records include at least nineteen species typical of grassland of conservation interest in Surrey including seven on the current draft Surrey Rare Plant Register¹.”*

2.2 Past surveys

- 2.2.1 There is a history of botanical recording and surveys being undertaken at this site:
- SWT (2012) Ecological Assessment of Land Around Gresham Mill (SWT)
 - SWT (2010) Woking SNCI Review Millmoor Common
 - SWT (2007) Botanical Survey for Woking Photomonitoring Survey
 - SARG (2008) Amphibian Survey SARG & Woking Great Crested Newt Survey
 - SWT (2002) Woking Monitoring Survey
 - SWT (1996) Woking Monitoring Survey
 - SWT (1996) Woking Pond Survey 1995-1996
 - Anderson P (1988) Penny Anderson Survey 1987-1988

2.3 Past and current management

- 2.3.1 The past management of the site is not known in detail. Up until the 1990s it is thought that the site would have been regularly grazed. Post-1990 it was given an annual cut. The subsequent management is unknown but given that the scrub and woodland encroachment shows up on aerial photographs post-1999, this would indicate that there was a relaxation in management, although the main body of grassland was likely to have been given an annual cut, but it is not known if the cuttings were collected as hay.
- 2.3.2 The three figures below provide further information of the history and land surface for Millmoor Common.

¹ Please note that this is based on old data, the Surrey Rare Plant Register has now been published November 2024.

Figure 2: Millmoor Common OS map 1872 map

The figure below shows how the site would have looked in 1870s. Note that Corner Pond does not exist currently, there is a drainage ditch or tributary of the River Wey down the centre of the site and the southern pond is present.



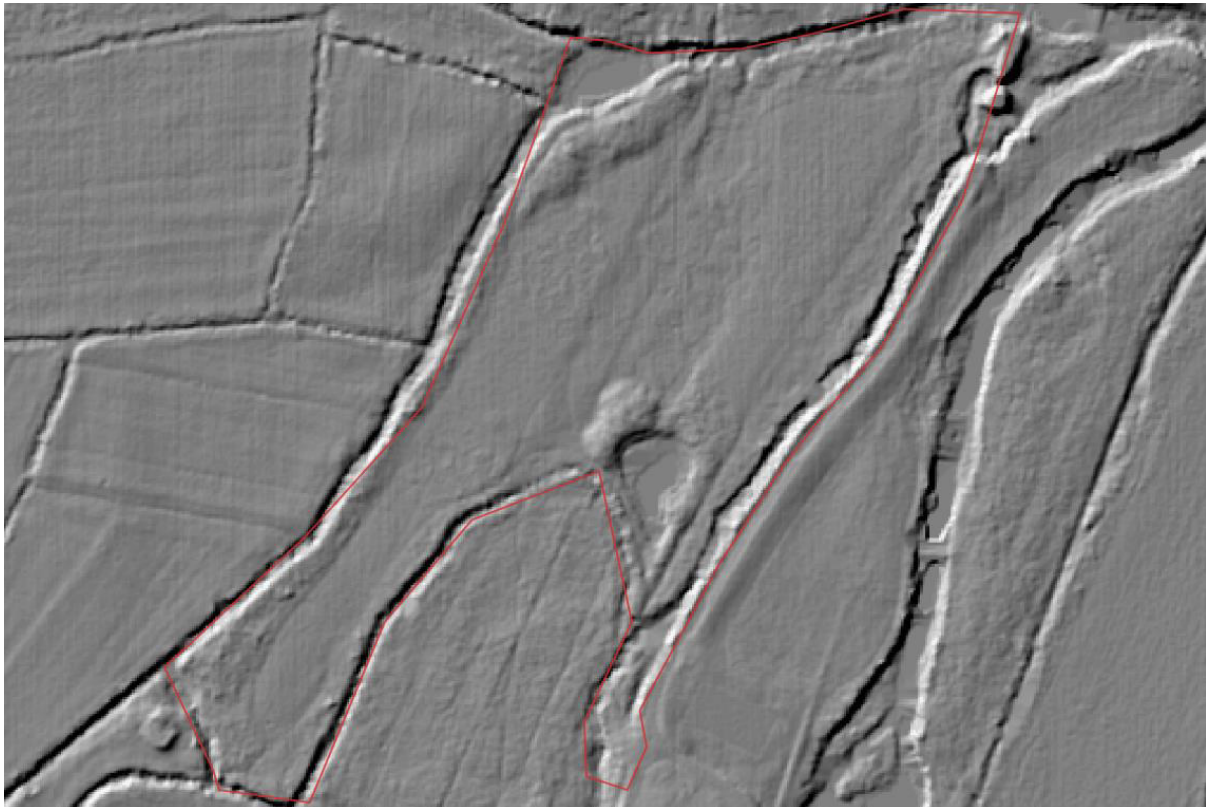
Figure 3: Google Earth Pro photograph 1945

The figure below shows how open and free of trees and woodland Millmoor Common would have looked eighty years ago.



Figure 4: Environment Agency LiDAR

The figure below shows the underlying land surface with vegetation removed that shows up patterns of small variation in elevation which are not generally visible to the human eye at ground level. It clearly shows the drainage and river systems as well as raised ground next to the two ponds where arisings from pond dredging were placed in the past. In addition, the central area of grassland shows a slight depression, which is why it is damper grassland that holds onto flood water for longer. This is the line that a former ditch or tributary of the River Wey would have taken, see Figure 2 above.



3 Methodology

3.1 Desk study

The desk study comprised:

- Purchase of the following data from Surrey Biodiversity Information Centre received on 20/08/2024:
 - Records of protected species and those of conservation concern within 1 km of the survey area.
 - Statutory designated sites, non-statutory designated sites, parcels of Habitats of Principal Importance, parcels of ancient woodland and Biodiversity Opportunity Areas within 2 km of the survey area.
- A review of waterbodies and watercourses within 250 m of the survey area using aerial imagery and publicly available information.
- DEFRA mapping (DEFRA, 2024a) specifically looking at:
 - Mitigation licences that have been issued within 2 km of the survey area.
 - Parcels of ancient woodland.

- Parcels of Habitats of Principal Importance.
- Impact Risk Zones for SSSI statutory designated sites.
- Important Bird Areas.

3.2 Habitat survey

- 3.2.1 Habitats on the site were mapped using the UKHab survey methodology Version 2.
- 3.2.2 UKHab survey is a comprehensive system for classifying and mapping habitats within the UK. The aim of the survey is to identify and map habitats using aerial imagery and ground-truthing the information in a consistent and unified way such that this can be used for ecological impact assessment and habitat metrics. The whole site was walked by an experienced ecologist and habitats identified, classified and mapped. Each habitat is coded in line with the UKHab survey methodology using primary codes. Then secondary codes can be used to define specific features, such as management measures, land use and other specific features.
- 3.2.3 Within each habitat type a record of the vascular plant species was made and an assessment of their abundance recorded. Abundances of each vascular plant species within each habitat type are based on the DAFOR scale (Dominant, Abundant, Frequent, Occasional and Rare), presented in Appendix 1, Table 6 for the 2024 plant species list. Species names follow the online Plant Atlas 2020 (plantatlas2020.org).
- 3.2.4 The presence of any non-native invasive species was recorded.
- 3.2.5 The date and weather conditions during the survey are detailed in Table 2.

Table 2: Survey dates and weather conditions

Survey dates	Surveyor name/s	Times	Temperature	Wind (Beaufort)	Rain	Cloud cover
01/08/2024	Isobel Girvan BSc (Hons) MCIEEM FLS	08.30-17.00	20°C	0-Calm	0	20%

3.3 Limitations

Habitat survey

- 3.3.1 Habitat surveys can be undertaken at any time of year, with the optimal season being between March and September, when most plant species are visible. Where feasible, all efforts were made to schedule the habitat survey in optimal weather conditions and time of year. Nevertheless, field surveys usually fail to record all species present for various reasons, including the seasonal absence of some species, and short survey duration. Rare or cryptic species are often missed in short surveys.
- 3.3.2 The survey was undertaken in August 2024 during the optimal season, although, as expected during a short one-off site visit, some early flowering plants may have been missed particularly from the woodland and dry grassland. Given that there are several years' worth of past botanical and habitat data available, and the main focus was to provide management recommendations the survey effort was sufficient to complete the assessment, and this was not seen as a significant limitation.

4 Results

4.1 Desk study

4.1.1 A summary of the desk study is provided in Table 3 below. A summary of the data search is provided in Table 9 in Appendix 3.

Table 3: Results of desk study

Statutory designated sites	Three statutory designated site falls within 2 km of the site, one SSSI and two LNRs: • Papercourt SSSI approximately 1100m to the east – known for its complex of wetlands habits including unimproved meadows, marshes, streams and flooded gravel pits supporting a number of local plants and a wide variety of breeding and wintering birds. • White Rose Lane LNR approximately 960m to the north – known for its woodland beside the Hoe Stream. • Mayford Meadows LNR approximately 1600m to the west – known for its species rich wet grassland.
Non-statutory designated sites	There are twelve SNCIs within 2km of the site one is within the site Mill Moor and one forms part of the boundary that being River Wey SNCI: • Mill Moor SNCI is within the site. • River Wey – Woking SNCI on the boundary of the site at TQ008532 – TQ072614 covering 16.8km. Known for its good quality water, with associated ponds. • Send Ponds SNCI located to the southeast of the site at TQ020557 covering 11.5ha. Known for its damp, broadleaved woodland with willow carr and ponds. • Broadmead Cut and Wey Navigation at Send SNCI located to the east of the site at TQ030564 covering 9.5ha. Known for its bankside vegetation, between the waterbodies are reedbeds, stands of willow and alder carr and dry oak woodland. • Westfield Common SNCI located to the southwest of the site at TQ005560 and TQ001562 covering 23.4ha. Known for its woodland, scrub, wetland, grassland and pond habitat. • Hoe Stream Fields, Hoe valley SNCI located to the northwest of the site at TQ025575 covering 6.98ha. Known for its wet marshy grassland either side of the Hoe Stream. • Oldhall Copse SNCI located to the northeast of the site at TQ029571 covering 1.37 ha. Known for its ancient semi-natural woodland and ponds. • Roundbridge Farm SNCI also located to the northeast of the site at TQ036576 covering 69.23ha. Known for its improved and semi-improved wet meadows, ditches, hedge and two lakes. • Land adjacent to Papercourt Marsh SNCI located to the east of the site at TQ037562 covering 10.28ha. Known for its rank grassland and woodland. • Mayford Meadows SNCI Part of Hoe Valley Linear Park located to the west of the site at SU997561 covering 5.6ha. Known for its marsh, swamp, fen, scrub, woodland and mesotrophic grassland. • Barnsbury Meadow & Bonsey Land Wood SNCI Par of Hoe Valley Linear Park • Hoe Stream SNCI also located to the west of the site at SU999568 covering 7.4ha. Known for its wet grassland, broadleaved wet and dry woodlands.
BOA	The site is within a BOA: R04 River Wey (and tributaries). See Surrey Nature Partnership website for more information.

NCA	NCA 129 Thames Basin Heaths, a variety of habitats are characteristic and include neutral grassland, woodland and wetlands. It is also with the RF7 River Floodplain Lower Wey Landscape Character Assessment area. See National Character Areas website for more information.
Local policy	The area is within a key target policy area being a SNCI and within a BOA. See Appendix 2 for further information.
Ancient woodland	Three parcels of ancient woodland were identified within 1km of the site. The nearest being 660m to the south by Fishers Farm.
TPO	The site is subject to one TPA. This is located along the eastern edge of the site by Gresham Mill Road. It is a line of trees covered with a reference of Ref. A1: 626/0039/1962.
HPI	There are several parcels of deciduous woodland to the north and southeast mapped as HPI on Natural England's Priority Habitat Inventory within 1km of Millmoor Common.
Waterbodies and watercourses within 500m of the site	On the site there are two ponds, a network of waterbodies including River Wey and a ditch. They are part of a connecting network of River Wey tributaries into the wider landscape. In the nearby residential areas, there may be garden ponds that do not show up on publicly accessible maps.
Protected species mitigation licences	Two bat mitigation licences have been issued within 1km. One for brown long-eared, common pipistrelle, Nathusius pipistrelle and soprano pipistrelle in 2018. The other for soprano pipistrelle in 2014. No other protected species licences were identified within 1km.
Public rights of way/other site access	There is access via High Street, Old Woking across a pedestrian path across the River Wey to bring you onto the northern part of the site. From here the path number 46 takes you south and exits the site in the southwest corner. In addition, there is a path number 44 that runs along the edge of the site following Gresham Park Road towards Broadmead House. An informal circular path takes you around the site and back up towards the High Street.

4.2 UK habitat classification habitat survey results

4.2.1 Eight habitat types were recorded during the habitat survey. The location of these is presented in Figure 1. The UKHab survey results are detailed in Table 4.

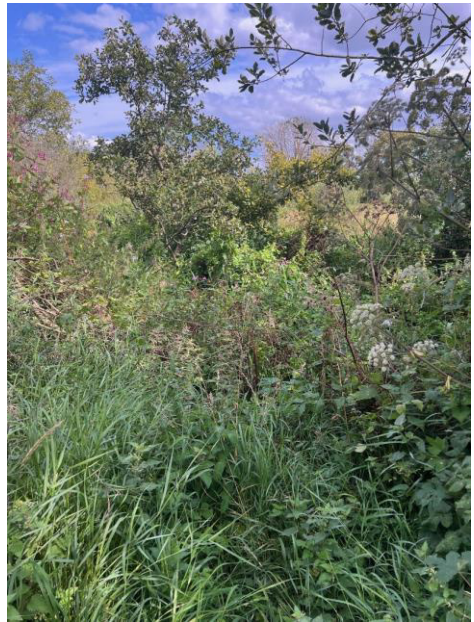
- Other neutral grassland (g3c), likely *Arrhenatherum* neutral grassland (g3c5)
- *Holcus-Juncus* neutral grassland (g3c8)
- Other neutral grassland, tall herbs (g3c,16)
- Wet woodland (w1d)
- Lowland mixed deciduous woodland (w1f)
- Pond (r1g)
- Ditch (r1g-50)
- River Wey (r2b)

4.2.2 With the following secondary codes:

- Rushes dominant (15)
- Tall forbs (16)
- Scattered trees (32)
- Pond (42)
- Ditch (50)
- Seasonally wet (502)

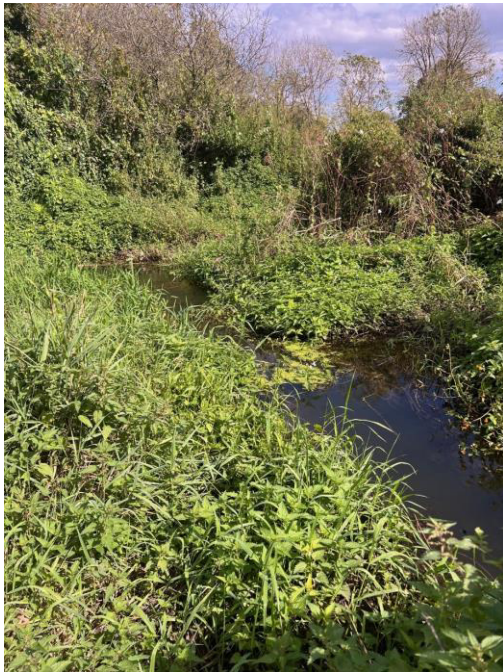
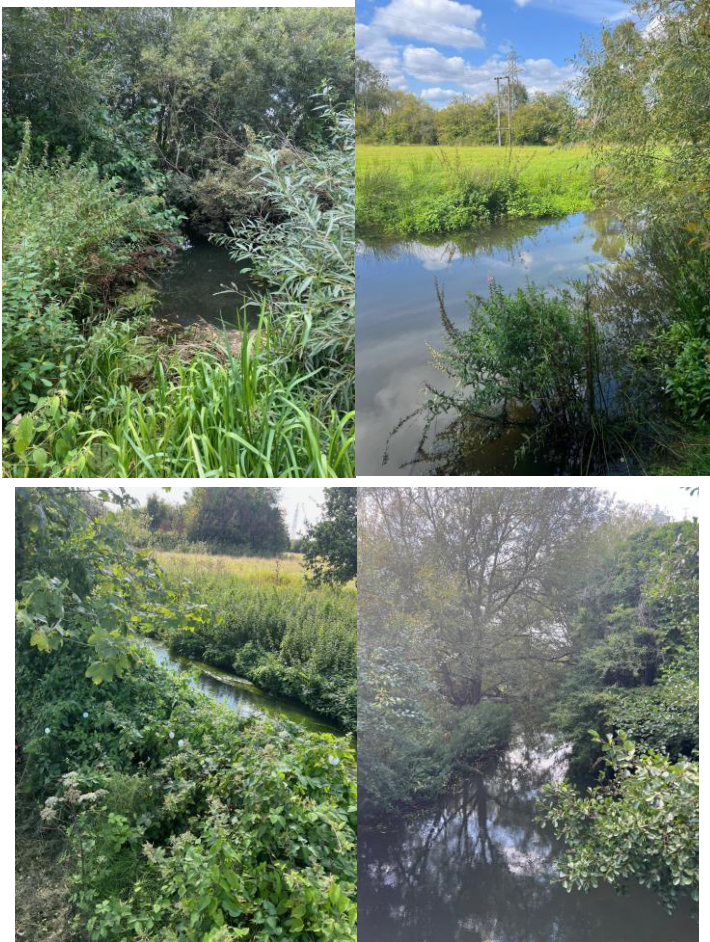
Table 4: UK habitat classification survey results

Habitat and code	Compartment number	Description	HPI	Photograph
Other neutral grassland (g3c), scattered trees (32) [Likely <i>Arrhenatherum</i> neutral grassland (g3c5)]	5, 6	This area of other neutral grassland covers the majority of the western and eastern side of the site. It does not appear to be species-rich, and the majority of the sward is very grass dominated with species such as Yorkshire-fog, rough meadow-grass, cock's-foot, meadow foxtail, perennial rye-grass with greater plantain, knotgrass (on path edges), meadow buttercup and hairy sedge. Towards the southern edge, false oatgrass is more noticeable in the sward co-dominant with Yorkshire-fog, indicating that this grassland is not regularly managed through grazing or cutting. Other herbs in the sward include creeping thistle, creeping buttercup, common knapweed, ribwort plantain and cat's-ear. Along the eastern edge there are several mature and maturing infield trees, with a mix of species including pedunculate oak and hawthorn. The grassland description has not significantly changed since the 2010 review (incorporating changes from the 2002 and 1996 surveys). However, from the survey data it would appear that the site would have supported a more species-rich sward prior to 2000. In the past, a patch of acid to neutral grassland was present on the woodland edge near to Corner Pond in the northwest corner. This sward developed as a result of spoil dredgings from Corner Pond before 1996. It no longer exists, having been encroached by woodland. The southwestern corner prior to 1996 would have been open grassland and mown regularly. Since then, it has been left around the edge of the site to mature into semi-natural woodland.	No	
<i>Holcus-Juncus</i> neutral grassland (g3c8), dominant rushes (15), seasonally wet (502)	8	Down the centre of the site (south to north) there is a wide section of wet grassland (flooded at the time of the survey) denoted by soft-rush, Yorkshire -fog, creeping bent and creeping buttercup. To the north of this section, a sedge bed of lesser pond-sedge is developing. The description has not significantly changed since the 2002 survey, although it appears that the wet grassland section has slightly increased down through the centre of the site and a sedge bed is developing.	No	

Habitat and code	Compartment number	Description	HPI	Photograph
<i>Holcus-Juncus</i> neutral grassland (g3c8), seasonally wet (502)	9	A sedge bed is developing towards the northern end of the wet grassland.	No	
Other neutral grassland (g3c), tall forbs (16)	10	Around the edge of the wet woodland there is a wide swathe of common nettle and wet grassland. This indicates where past pond dredging arisings have been deposited. The additional nutrients in the arisings make it suitable for common nettle and other plants that are tolerant of high nutrient soils to dominate. This description has not significantly changed since the 2002 survey.	No	
Other neutral grassland (g3c), tall forbs (16)	19,20	Along the edge of the River Wey on the eastern boundary edge there is a line of mixed tall forbs including locally dominant common nettle which is common along the edges of waterbodies that frequently flood.	No	See photograph of river edge.

Habitat and code	Compartment number	Description	HPI	Photograph
Wet woodland (w1d)	7	There is wet woodland surrounding the southern pond with willow scrub, pedunculate oak, ash, aspen and rare rowan. This pond was largely open in 1999, and since then a woodland has been allowed to grow up around it.	Yes	
Lowland mixed deciduous woodland (w1f)	1	Maturing woodland in the north. The canopy comprises crack willow, pedunculate oak, silver birch and hazel with common nettle, bramble, Yorkshire-fog, nipplewort, ash saplings and some typical woodland field layer species such as wood avens, wood dock, common ivy and false brome. This woodland is less than 20 years old; aerial photography shows that it was grassland up to the edge of Corner Pond in 1999.	Yes	
Lowland mixed deciduous woodland (w1f)	2	Linear woodland along the western boundary of the site next to the River Wey and similar in composition to the aforementioned woodland habitat. The banksides support common nettle, bramble and creeping thistle vegetation. This description has not significantly changed since the 2002 survey.	Yes	See photographs of river.

Habitat and code	Compartment number	Description	HPI	Photograph
Lowland mixed deciduous woodland (w1f)	3	Two mature planted copse woodlands located in the west and southwest of the site. They are dense with species such as semi-mature pedunculate oak with field maple, silver birch, hawthorn as well as blackthorn and rusty willow under-scrub. In the field layer are some bramble, wood dock, ash saplings, wood avens and common ivy.	Yes	
Lowland mixed deciduous woodland (w1f)	4,18	Along the southwestern edge of the site the scrub is maturing into pedunculate oak woodland.	Yes	See grassland photographs for compartment 5,6.
Lowland mixed deciduous woodland (w1f)	5	Woodland bounds the eastern edge with mature pedunculate oak, alder, crack willow, blackthorn and butterfly-bush.	Yes	See river photographs.
Other standing water (r1g), pond (42)	12	This pond is located in the northwest of the site and known as Corner Pond. It is an online pond, within a ditch system and connected to other waterbodies including realigned branches of the River Wey. Access was difficult and only possible from the southern edge. The woodland canopy, such as crack willow and rusty willow, from compartment 2, hangs over the water, reducing the amount of marginal vegetation. However, there were some pockets of marginal species such as orange balsam, hemlock water-dropwort, purple loosestrife, water forget-me-not, soft-rush, reed sweet-grass and yellow iris. Across the water there was floating white waterlily. Not enough is known about this pond in terms of current fauna to know if it is a priority waterbody, however past information stated that Corner Pond supported a good common toad population in 2004. This description has not significantly changed since the 2002 survey.	Unknown	
Other standing water (r1g), pond (42)	11	The access to the southern pond was difficult due to flooding. This woodland pond has a heavy rusty willow canopy around the edge. Not enough is known about this pond in terms of current fauna to know if it is a priority pond for example if it supports great crested newt.	Unknown	See wet woodland photograph.

Habitat and code	Compartment number	Description	HPI	Photograph
Other standing water (r1g), ditch (50)	17	Open ditch along the southern edge of the site. There is a good amount of vegetation including water-starwort species, branched bur-reed, floating sweet-grass, Himalayan balsam (INNS schedule 9 species), orange balsam and hemlock water-dropwort.	No	
Other rivers and streams (r2b)	13, 14, 15 & 16	The stretch of the River Wey that denotes the western, northern and eastern boundaries of the site. Access to the west and north was limited, but the eastern side was open with a mix of marginal and emergent vegetation such as bittersweet, fool's watercress, hedge bindweed, common nettle, common reed, Himalayan balsam and purple loosestrife.	No	

5 Species

5.1 Flora

Botanical heat map

- 5.1.1 According to the botanical value map (Natural England, 2021) Millmoor Common is considered high with regards to the Priority Habitat Positive Indicator (PHPI) species. This takes into account the presence of rare, scarce and threatened plant species including axiophytes, positive indicators from Common Standard Monitoring lists and ancient woodland indicators. The aim of this is to ensure that areas of high conservation value are presented in the landscape to help inform management of important botanical sites.
- 5.1.2 A compilation of available plant data from the current and historical surveys (where available) have been included in Table 7, Appendix 1.
- Two hundred and twenty-five vascular plants have been recorded historically across the site. This is a high number and reflects the different type of habitats, the size of the survey area and recording effort over the years.
 - One hundred and seven plants were recorded in the 2002 survey.
 - One hundred and thirty-three plants were recorded in the 2007 survey.
 - Only seventy-eight were recorded in the 2012 survey; this is due to the time of year not being optimal (November).
 - One hundred and twelve were recorded in 2024.

Rare and notable species

- 5.1.3 Forty-eight vascular plants with plant indicator/conservation status have been recorded across the site of which 11 were recorded in 2024, the summary of which is presented in Table 5 below and in full in Appendix 1, Table 8. This shows that there has been a high number and good variety of rare and notable species across the site historically, but that this appears to have declined. The presence of these species will need to be considered when undertaking any management practices. However, please note that some of the historical species will have likely been lost from the site due to change in habitat conditions or management.

Table 5: Summary of plant indicators/conservation status

Conservation status or habitat indicator type	Number recorded overall	Recorded in 2024
Grassland indicators ^{GI}	28	3
Surrey axiophytes ^{SAX}	41	11
Ancient woodland indicators ^{AWI}	8	3
Surrey rare plant register ^{VC17}	5 (2 local & declining, 1 rare, 2 not scarce)	0
England Red List ^{ERL}	2 (2 near threatened)	0
GB Red List ^{GBRL}	0	0

¹ ^{GI} Grassland indicators of conservation interest (Gibbs, 2008), ^{AX} Axiophytes 'worthy plants' (SBS, 2024 draft), ^{AWI} Ancient woodland indicators (Rose, 1999), ^{VC17} Surrey Rare Plant Register (SBS, 2024) & ^{GBRL/ERL} Threatened on GB and England Red Data List (ERL (Strohl et al, 2014)).

Surrey grassland indicators

- 5.1.4 This indicator list is taken from the list of '*Species typical of grassland of conservation interest in Surrey*' taken from the '*Guidance for the Selection of Sites of Nature Conservation Importance in Surrey*' (Gibbs, 2008). To put this into context a grassland site that is worthy of being selected at SNCI will usually have 15 or more grassland indicator species.
- 5.1.5 Three species recorded in the 2024 survey. They were lesser pond-sedge, wild carrot and common sorrel. These not found in large abundance across the site. Overall, this indicates that the grassland surveyed has declined in quality.

Axiophytes

- 5.1.6 Axiophytes are plants that are considered 'worthy plants' and indicators of habitats that are considered important for conservation and are not themselves necessarily rare plants. Table 5 states that 41 Surrey Axiophytes have been recorded overall and eleven in 2024, suggesting that the site is likely important for conservation. Species recorded in 2024 include yellow iris, water forget-me-not, white waterlily and branched bur-reed. However, there are several species not recorded in 2024 that are likely still present that were recorded in the past such as grassland species marsh foxtail, sweet vernal-grass, crested dog's-tail, as well as wetland species such as water-plantain, wild angelica, meadowsweet, marsh-bedstraw, ragged-Robin and marsh woundwort.

Ancient woodland indicators

- 5.1.7 Ancient woodland indicators are those plants that are strongly associated with ancient woodlands, i.e. those being over 400 years old. Only eight ancient woodland indicators have been recorded across the site, and three ancient woodland indicators were recorded during the 2024 survey.
- 5.1.8 No ancient woodland is present on the site and the historical maps (see Figures 2-3) show that the woodland present is relatively young and still maturing.

Surrey rare plants

- 5.1.9 Overall, five Surrey rare plants have been recorded across the site. They are various-leaved water-starwort, common water-crowfoot, river water-crowfoot, ragged-Robin and blue water-speedwell, none of which were recorded in 2024. One is Rare, two are Not Scarce and two are Local and Declining.

GB and England Red List for Vascular Plants

- 5.1.10 Two plants have been recorded on Millmoor Common in the past that are on the ERL for plants; both are Near Threatened. Near Threatened means that they are close to qualifying for (or likely to qualify for) a threatened category in the future (BSBI, 2014).

Invasive and non-native species

- 5.1.11 The following species on the Schedule 9 invasive species list (Wildlife and Countryside Act 1981 (as amended)) have been found in the past, but their current status is unknown:
- Canadian waterweed – not seen in 2024.
 - Himalayan balsam – recorded on site in 2024.
 - Japanese knotweed – not thought to be present on the site currently.

5.1.12 Other known invasive species that were recorded during the site visit in 2024 are:

- Butterfly-bush

5.1.13 Due to the current positive management the site supports only small amounts of invasive and non-native species.

Conclusions

5.1.14 Millmoor Common continues to be an important site locally and it still worthy of its SNCI status as it would likely still qualify on habitats type present.

5.1.15 It also is important within the wider landscape and its connections to other habitats.

5.1.16 The woodland parcels are HPI. These are habitats know as a focus for conservation action. They also connect into the wider landscape.

5.1.17 The site is known historically for its range of rare and threatened plant species. Enhanced management going forward may encourage some of these species to return to the site.

5.1.18 It is hoped that further coordinated botanical surveying will also help to capture more data and if conducted over several visits during the late spring through to late summer may pick up some of the species not recorded in 2024. Further survey work should be in May, June and July, if possible, to catch as many species as possible for a good comparison with historical records.

6 Management recommendations

6.1 Grassland

6.1.1 Appropriate management of the grassland using the following criteria would achieve good condition:

- The grassland represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type.
- Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
- Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens.
- Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.
- Combined cover of species indicative of suboptimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.
- No invasive non-native plant species (as listed on Schedule 9 of WCA) are present.
- There are 10 or more vascular plant species per m² present, including forbs that are characteristic of the habitat type of other neutral grassland.

Compartments 5 & 6

- 6.1.2 The recommendations are dependent upon whether the grassland is cut and collected for hay during the summer (late July to late August) and then could be given aftermath grazing with cattle, or whether it is summer grazed. Either way some of the nutrients will be removed from the site. The number of cattle will depend on the available number of weeks they are put out. If grazing, a fence may be needed around the ponds.
- 6.1.3 Litter and rubbish should be regularly removed.

Grassland scrape

- 6.1.4 There is potential for scrape wetland feature creation in compartments 5 and or 6.

Compartments 10, 19 & 20

- 6.1.5 On the southern edge of 1.4 there is a buffer strip of longer tall forbs such as willowherbs and wild teasel. The nectar here will be useful on a local scale for a variety of invertebrates. The dead stems left over winter will also be used by overwintering invertebrates. Half of this buffer strip can be strimmed back every other year, to keep the zone open and not scrub up.

6.2 Woodland/scrub edge

- 6.2.1 These are the criteria for achieving good condition of other lowland mixed deciduous woodland, although some criteria will be difficult to achieve fully as the woodland is relatively young:
- No invasive plant species in woodland habitats.
 - All three classes present in woodland: trees 4-7cm diameter at breast height (DBH), saplings and seedlings or advanced coppice regrowth.
 - Recognisable National Vegetation Community (NVC) plant community present, strongly characterised by ancient woodland flora specialists.
 - 10-20% of woodland has areas of temporary open space.
 - No significant browsing damage evident in woodland.
 - Five or more native tree or shrub species present within parcel.
 - >80% canopy trees and >80% understorey shrubs are native.
 - Tree mortality <10%, no pests or diseases, no crown dieback.
 - Three or more storeys across all survey plots, or a complex woodland.
 - High abundance of deadwood (50% of all survey plots within the woodland parcel have deadwood).
 - No nutrient enrichment or damaged ground evident.

All woodland compartments

- 6.2.2 In general, there is a policy of non-intervention. On a site as big as this with limited resources, this is an acceptable management regime. However, there are a few small-scale management recommendations that could be operated across the woodland.

- 6.2.3 There is a hard edge of woodland into grassland without there being a good scrub edge. Let some woodland grow out and allow longer grassland vegetation next to it to be left uncut.
- 6.2.4 Halo (preferentially thin) around some of the good specimen examples of pedunculate oak. There are some mature pedunculate oak trees such as ///pool.banks.coherent and they could do with haloing, whereby some of the surrounding trees are removed over several years to allow the remaining oak to spread into the space.
- 6.2.5 In the western copse could open up some of the semi-mature pedunculate oak trees such as the one at ///caked.advice.tens.
- 6.2.6 On a small scale if you are lopping off and cutting back other native scrub and young tree species to lay this brash on the ground on the edge of woodland covering 1 x 1 m² (approximately) to create a log pile that will rot down gradually over 2-3 years.
- 6.2.7 There is quite a bit of rubbish left in the woodland to the north of the site and regular litter picking would be useful.

6.3 Ponds

- 6.3.1 These are the criteria for achieving good condition of ponds:
- The pond is of good water quality, with clear water and low turbidity indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.
 - There is semi-natural habitat of moderate quality or better surrounding the pond, for at least 10m from the pond edge from its entire perimeter.
 - Less than 10% of the water surface is covered with duckweed species or filamentous algae.
 - The pond is not artificially connected to other waterbodies, such as agricultural ditches or artificial pipework.
 - Pond water levels can fluctuate naturally throughout the year. No obvious artificial dams, pumps or pipework.
 - There is an absence of listed no-native plant and animal species.
 - The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.

Corner pond compartment 12

- 6.3.2 Whilst the access to this pond in the northwest is tricky for management works, it does have the benefit of making it difficult for dogs to access, and therefore provide a quieter place for wildlife. Therefore, retain the canopy tree line edge along the southern edge of the pond.
- 6.3.3 Remove bamboo from the edge of the pond and woodland and monitor regrowth.

Southern pond compartment 11

- 6.3.4 Southern pond would benefit from some coppicing of willow around the edge to open it up to light.

6.4 Ditches

- 6.4.1 These are the criteria for achieving good condition for ditches:

- The ditch is of good water quality, with clear water indicating no obvious signs of pollution.
- A range of emergent, submerged and floating-leaved plants are present. As a guide more than 10 species in a 20m ditch length.
- There is less than 10% cover of filamentous algae and or duck weed as they are sign of eutrophication.
- A fringe of aquatic marginal vegetation is present along more than 75% of the ditch.
- Physical damage is evident along less than 5% of the ditch, with examples of damage including excessive poaching, damage from machinery use or stage, or any other damaging management activities.
- Sufficient water levels are maintained, as a guide a minimum summer depth of approximately 50cm in minor ditches and 1m in main drains.
- Less than 10% of the ditch is heavily shaded.
- There is an absence of non-native plant and animal species.

6.5 Compartment 17

- 6.5.1 Good management is being undertaken to ensure that there is light into the ditch and encouraging a good floating and marginal flora.

6.6 General management

- 6.6.1 The site does suffer from Himalayan balsam in the waterbodies. Volunteers should continue to pull where they can get safe access. This should be undertaken before the flowers set seed otherwise, they will re-seed and if they are taken downstream will invade other land.

6.7 Additional enhancement measures to consider

- 6.7.1 The following measures to benefit specific species are additionally recommended:
- Installation of stag beetle loggeries in shady locations (e.g. within woodland and on woodland edge).
 - When wooden fences are used, small discrete holes can be drilled in that may encourage solitary bees and wasps to lay eggs.
 - Installation of solitary bee hotels on buildings, particularly where these are situated by nectar-rich vegetated areas.
 - Large insect hotels could be created in order to provide additional refuge for any invertebrates using these steppingstone habitats. It is preferable to use varied material collected on site such as brash, logs, rubble and arisings, as opposed to commercially produced hotels. All should be annually cleaned out, so they remain clean and functional.
 - Amphibian and reptile hibernacula could be installed on woodland edge, particularly where south-facing and free from flooding, and near to standing water or ditches.
 - Stone/rubble piles additionally provide refugia for amphibians such as toads, and these can be placed close to standing water or ditches.

6.8 Climate change

- 6.8.1 Climate change could have a variety of negative impacts to the site including:
- Loss in biodiversity.

- Increased invasive non-native species.
 - Change in habitat structure and composition, affecting its suitability for some species currently adapted to the habitat, therefore reducing its suitability for these.
 - Significant changes to weather patterns including increased drought, flooding, fire risk, erosion, impacting the suitability for habitats for some more specialised species.
- 6.8.2 In successfully and ambitiously managing Millmoor Common this will continue to help prevent nature's decline and reduce the threats by being part of the nature recovery network. The site can help with:
- Sequestering climate gases, by trapping carbon safely.
 - Providing healthy open habitats with clean air, that regulates temperature.
 - Connecting people with nature for the benefit of their health, wellbeing and enjoyment of life.
 - Providing a thriving ecosystem with plenty of pollinators.
- 6.8.3 Future considerations will include:
- Understanding of specific tree diseases.
 - Adaptation in species selection when planting up trees to build up future resilience.

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Appendix 1: Vascular plant species recorded during the survey

Results

Table 6: Vascular plant species recorded during the survey

The table below presents the plant species recorded during the survey (W = woodland G = grassland and Wet = wetland).

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
<i>Acer campestre</i>	Field maple	R	W	R
<i>Aegopodium podagraria</i>	Ground-elder	R	G	R
<i>Acer pseudoplatanus</i>	Sycamore	R	W	R
<i>Agrostis capillaris</i>	Common bent	O	G	LF
<i>Agrostis stolonifera</i>	Creeping bent	O	G	LA
<i>Achillea millefolium</i>	Yarrow	R	G	R
<i>Alnus glutinosa</i>	Alder	R	W, Wet	LA
<i>Alopecurus pratensis</i>	Meadow foxtail	F	G	F
<i>Amelanchier lamarckii</i>	Juneberry	R	W	R
<i>Anisantha sterilis</i>	Barren brome	R	G	R
<i>Anthriscus sylvestris</i>	Cow parsley	R	W	R
<i>Arrhenatherum elatius</i>	False oat-grass	O	G	LF
<i>Betula pendula</i>	Silver birch	R	W	LF
<i>Betula pubescens</i>	Downy birch	R	W, Wet	R
<i>Brachypodium sylvaticum</i>	False brome	R	W	R
<i>Buddleja davidii</i>	Butterfly-bush	R	W	R
<i>Callitriche</i> sp.	A water-starwort	R	Wet	R
<i>Calystegia sepium</i>	Hedge bindweed	R	W	R
<i>Carex hirta</i>	Hairy sedge	R	G	R
<i>Carex acutiformis</i>	Lesser pond-sedge	LA	Wet	F
<i>Centaurea nigra</i> agg.	Common knapweed	R	G	LF
<i>Cerastium fontanum</i>	Common mouse-ear	R	G	LF
<i>Cirsium arvense</i>	Creeping thistle	R	G	LF
<i>Cirsium vulgare</i>	Spear thistle	R	G	R
<i>Corylus avellana</i>	Hazel	R	W	R
<i>Crataegus monogyna</i>	Hawthorn	R	W	R
<i>Cytisus scoparius</i>	Broom	R	W	R

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
<i>Dactylis glomerata</i>	Cock's-foot	O	G	LF
<i>Daucus carota</i>	Wild carrot	R	G	R
<i>Dryopteris filix-mas</i>	Male fern	R	W	R
<i>Epilobium hirsutum</i>	Greater willowherb	R	G	R
<i>Equisetum arvense</i>	Field horsetail	R	G	R
<i>Festuca rubra</i>	Red fescue	R	G	R
<i>Fraxinus excelsior</i>	Ash	R	W	R
<i>Geranium molle</i>	Dove's-foot crane's-bill	R	G	R
<i>Geranium robertianum</i>	Herb-Robert	R	W	R
<i>Galium aparine</i>	Cleavers	R	W	R
<i>Geum urbanum</i>	Wood avens	R	W	R
<i>Glyceria fluitans</i>	Floating sweet-grass	R	Wet	LF
<i>Glyceria maxima</i>	Reed sweet-grass	R	Wet	LF
<i>Hedera helix</i> ssp. <i>helix</i>	Common ivy	R	W	LF
<i>Helosciadium nodiflorum</i>	Fool's-water-cress	R	Wet	R
<i>Heracleum sphondylium</i>	Hogweed	R	W	R
<i>Holcus lanatus</i>	Yorkshire-fog	F	G	F
<i>Hordeum murinum</i>	Wall barley	R	G	R
<i>Humulus lupulus</i>	Hop	R	W	R
<i>Hypochaeris radicata</i>	Cat's-ear	R	G	R
<i>Ilex aquifolium</i>	Holly	R	W	R
<i>Impatiens capensis</i>	Orange balsam	R	Wet	R
<i>Impatiens glandulifera</i>	Himalayan balsam	R	Wet	R
<i>Iris pseudacorus</i>	Yellow iris	R	Wet	LF
<i>Jacobaea vulgaris</i>	Common ragwort	R	G	R
<i>Juncus effusus</i>	Soft-rush	R	G	LF
<i>Lamium album</i>	White dead-nettle	R	G	R
<i>Lapsana communis</i>	Nipplewort	R	G	R
<i>Lemna minor</i>	Common duckweed	R	Wet	R
<i>Lemna minuta</i>	Least duckweed	R	Wet	R
<i>Lolium perenne</i>	Perennial rye-grass	R	G	R

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
<i>Lotus corniculatus</i>	Common bird's-foot-trefoil	R	G	R
<i>Lycopus europaeus</i>	Gypsywort	R	Wet	R
<i>Lythrum salicaria</i>	Purple loosestrife	R	Wet	R
<i>Malus</i> sp.	An apple	R	W	R
<i>Medicago lupulina</i>	Black medick	R	G	R
<i>Mentha aquatica</i>	Water mint	R	Wet	R
<i>Myosotis scorpioides</i>	Water forget-me-not	R	Wet	R
<i>Nymphaea alba</i>	White water-lily	R	Wet	R
<i>Oenanthe crocata</i>	Hemlock water-dropwort	R	Wet	R
<i>Persicaria hydropiper</i>	Water-pepper	R	Wet	R
<i>Persicaria maculosa</i>	Redshank	R	G	R
<i>Phalaris arundinacea</i>	Reed canary-grass	R	Wet	LF
<i>Phleum pratensis</i>	Timothy	R	G	R
<i>Phragmites australis</i>	Common reed	R	Wet	R
<i>Plantago lanceolata</i>	Ribwort plantain	R	G	R
<i>Plantago major</i>	Greater plantain	R	G	R
<i>Poa annua</i>	Annual meadow-grass	R	G	R
<i>Poa trivialis</i>	Rough meadow-grass	O	G	LF
<i>Polygonum aviculare</i>	Knotgrass	R	G	R
<i>Populus</i> sp. c.f. <i>x canadensis</i>	A poplar c.f. hybrid black-poplar	R	W, Wet	R
<i>Quercus robur</i>	Pedunculate oak	R	W	LF
<i>Ranunculus repens</i>	Creeping buttercup	O	G	O
<i>Ranunculus acris</i>	Meadow buttercup	O	G	O
<i>Rosa canina</i> agg.	Dog-rose	R	W	R
<i>Rosa</i> sp.	A rose	R	W	R
<i>Rubus fruticosus</i> agg.	Bramble	R	W	LF
<i>Rumex crispus</i>	Curled dock	R	G	R
<i>Rumex obtusifolius</i>	Broad-leaved dock	R	G, W	R
<i>Rumex sanguineus</i> var. <i>viridus</i>	Wood dock	R	W	R
<i>Salix caprea</i> ssp. <i>caprea</i>	Goat willow	R	W, Wet	R

Scientific name	Common name	Site abundance	Habitat/s	Abundance in habitat type
<i>Salix cinerea</i> ssp. <i>oleifolia</i>	Rusty willow	R	W, Wet	LF
<i>Salix fragilis</i>	Crack willow	R	Wet	R
<i>Sambucus nigra</i>	Elder	R	W	R
<i>Sasa</i> sp.	A bamboo	R	W	R
<i>Silene dioica</i>	Red campion	R	W	R
<i>Solanum dulcamara</i>	Bittersweet	R	Wet	R
<i>Sorbus aria</i>	Whitebeam	R	W	R
<i>Sorbus aucuparia</i>	Rowan	R	W	R
<i>Sparganium erectum</i>	Branched bur-reed	R	Wet	LF
<i>Symphytum x uplandicum</i>	Russian comfrey	R	Wet	R
<i>Taraxacum</i> agg.	Dandelion	R	G	R
<i>Trifolium campestre</i>	Hop trefoil	R	G	R
<i>Trifolium repens</i>	White clover	O	G	O
<i>Typha latifolia</i>	Bulrush	R	Wet	R
<i>Ulmus minor</i> agg.	An elm	R	W	R
<i>Urtica dioica</i>	Common nettle	R	G, W	LF
<i>Viburnum opulus</i>	Guelder-rose	R	W	R
<i>Vicia cracca</i>	Tufted vetch	R	G	R

Table 7: Vascular plant species recorded 1996-2024

Scientific name ²	Common name	2024	2012	2007	2002	1987-2002 ³
<i>Acer campestre</i>	Field maple	✓	✓	✓	✓	
<i>Acer pseudoplatanus</i>	Sycamore	✓	✓	✓	✓	
<i>Achillea millefolium</i>	Yarrow	✓	✓	✓	✓	
<i>Aegopodium podagraria</i>	Ground-elder	✓	✓	✓	✓	
<i>Agrostis capillaris</i>	Common bent	✓	✓	✓	✓	
<i>Agrostis stolonifera</i>	Creeping bent	✓	✓	✓	✓	
<i>Ajuga reptans</i>	Bugle					WPS

² Names have been updated to Plant Atlas 2020, old names are in brackets

³ SWT surveys, WPS Woking Pond Survey, WMS-02 Woking Monitoring Survey 2002, WMS-96 Woking Monitoring Survey 1996, PA Penny Anderson survey

Scientific name ²	Common name	2024	2012	2007	2002	1987-2002 ³
<i>Alisma plantago-aquatica</i>	Water plantain					SWT
<i>Alliaria petiolata</i>	Garlic mustard		✓			PA
<i>Alnus glutinosa</i>	Alder	✓	✓	✓	✓	
<i>Alopecurus geniculatus</i>	Marsh foxtail			✓	✓	
<i>Alopecurus pratensis</i>	Meadow foxtail	✓		✓	✓	
<i>Amelanchier lamarckii</i>	Juneberry	✓				
<i>Angelica sylvestris</i>	Wild angelica		✓	✓	✓	
<i>Anisantha sterilis</i>	Barren brome	✓				SWT
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass			✓		
<i>Anthriscus sylvestris</i>	Cow parsley	✓	✓	✓		
<i>Arctium lappa</i>	Greater burdock		✓			SWT
<i>Arctium minus</i>	Lesser burdock		✓	✓	✓	
<i>Armoracia rusticana</i>	Horse-radish					SWT
<i>Arrhenatherum elatius</i>	False oat-grass	✓	✓	✓	✓	
<i>Artemisia vulgaris</i>	Mugwort			✓	✓	WMS-02
<i>Aster</i> sp.	An aster				✓	
<i>Barbarea vulgaris</i>	Winter-cress			✓		
<i>Bellis perennis</i>	Daisy					PA
<i>Betula pendula</i>	Silver birch	✓	✓	✓	✓	
<i>Betula pubescens</i>	Downy birch	✓				
<i>Betula x aurata</i>	Hybrid birch			✓	✓	
<i>Brachypodium sylvaticum</i>	False brome	✓				
<i>Bromus hordeaceus</i>	Soft brome					SWT
<i>Buddleja davidii</i>	Butterfly-bush	✓				
<i>Callitriche platycarpa</i>	Various-leaved water-starwort					WPS
<i>Callitriche</i> sp.	A water-starwort	✓		✓	✓	
<i>Callitriche stagnalis</i>	Common water-starwort					SWT
<i>Calystegia sepium</i>	Hedge bindweed	✓		✓	✓	
<i>Cannabis sativa</i>	Hemp					WPS



Scientific name ²	Common name	2024	2012	2007	2002	1987-2002 ³
<i>Cardamine amara</i>	Large bitter-cress					WPS
<i>Cardamine flexuosa</i>	Wavy bitter-cress					WMS096
<i>Cardamine pratensis</i>	Cuckooflower					SWT
<i>Carex acutiformis</i>	Lesser pond-sedge	✓		✓	✓	
<i>Carex hirta</i>	Hairy sedge	✓		✓	✓	
<i>Carex pendula</i>	Pendulous sedge		✓			
<i>Carex pseudocyperus</i>	Cyperus sedge					PA
<i>Carex remota</i>	Remote sedge					PA
<i>Carex riparia</i>	Greater pond-sedge					PA
<i>Castanea sativa</i>	Sweet chestnut					PA
<i>Centaurea nigra</i> agg.	Common knapweed	✓	✓	✓	✓	
<i>Cerastium fontanum</i>	Common mouse-ear	✓	✓	✓	✓	
<i>Cerastium glomeratum</i>	Sticky mouse-ear					WMS-96
<i>Ceratophyllum demersum</i>	Rigid hornwort			✓	✓	
<i>Chamaenerion angustifolium</i> (<i>Chamerion angustifolium</i>)	Rosebay willowherb					SWT
<i>Cirsium arvense</i>	Creeping thistle	✓	✓	✓	✓	
<i>Cirsium palustre</i>	Marsh thistle			✓		
<i>Cirsium vulgare</i>	Spear thistle	✓				SWT
<i>Conium maculatum</i>	Hemlock					SWT
<i>Corylus avellana</i>	Hazel	✓	✓	✓	✓	
<i>Crataegus monogyna</i>	Hawthorn	✓	✓	✓	✓	
<i>Crepis capillaris</i>	Smooth hawk's-beard			✓	✓	
<i>Cynosurus cristatus</i>	Crested dog's-tail					SWT
<i>Cytisus scoparius</i>	Broom	✓				SWT

Scientific name ²	Common name	2024	2012	2007	2002	1987-2002 ³
<i>Dactylis glomerata</i>	Cock's-foot	✓	✓	✓	✓	
<i>Daucus carota</i>	Wild carrot	✓				WPS
<i>Deschampsia cespitosa</i>	Tufted hair-grass		✓	✓	✓	
<i>Digitalis purpurea</i>	Foxglove			✓		
<i>Dryopteris filix-mas</i>	Male fern	✓		✓		
<i>Elodea canadensis</i>	Canadian waterweed					WPS
<i>Elymus repens</i> (<i>Elytrigia repens</i>)	Common couch			✓	✓	
<i>Epilobium ciliatum</i>	American willowherb					SWT
<i>Epilobium hirsutum</i>	Great willowherb	✓	✓	✓	✓	
<i>Equisetum arvense</i>	Field horsetail	✓		✓	✓	
<i>Erigeron canadensis</i> (<i>Conyza canadensis</i>)	Canadian fleabane		✓	✓		
<i>Ervilia hirsuta</i> (<i>Vicia hirsuta</i>)	Hairy tare			✓	✓	
<i>Eupatoria cannabinum</i>	Hemp-agrimony			✓	✓	
<i>Festuca ovina</i>	Sheep's fescue					WMS-96
<i>Festuca rubra</i>	Red fescue	✓	✓	✓	✓	
<i>Filipendula ulmaria</i>	Meadowsweet	✓	✓	✓	✓	
<i>Fraxinus excelsior</i>	Ash	✓	✓	✓	✓	
<i>Galeopsis tetrahit</i>	Common hemp-nettle			✓	✓	
<i>Galium aparine</i>	Cleavers	✓	✓	✓	✓	
<i>Galium palustre</i>	Marsh-bedstraw		✓	✓	✓	
<i>Galium saxatile</i>	Heath bedstraw					SWT
<i>Geranium dissectum</i>	Cut-leaved crane's-bill			✓		
<i>Geranium molle</i>	Dove's-foot crane's-bill	✓				SWT
<i>Geranium pratense</i>	Meadow crane's-bill					PA
<i>Geranium robertianum</i>	Herb-Robert	✓	✓	✓		
<i>Geum urbanum</i>	Wood avens	✓	✓			

Scientific name ²	Common name	2024	2012	2007	2002	1987-2002 ³
<i>Glechoma hederacea</i>	Ground-ivy		✓	✓	✓	
<i>Glyceria declinata</i>	Small sweet-grass			✓		
<i>Glyceria fluitans</i>	Floating sweet-grass	✓	✓	✓	✓	
<i>Glyceria maxima</i>	Reed sweet-grass	✓	✓	✓		
<i>Gnaphalium uliginosum</i>	Marsh cudweed					PA
<i>Hedera helix</i> ssp. <i>helix</i>	Common ivy	✓	✓	✓	✓	
<i>Helosciadium nodiflorum</i> (<i>Apium nodiflorum</i>)	Fool's-water-cress	✓	✓			PA
<i>Heracleum sphondylium</i>	Hogweed	✓	✓			SWT
<i>Hirschfeldia incana</i>	Hoary mustard				✓	WMS-02
<i>Holcus lanatus</i>	Yorkshire-fog	✓	✓	✓	✓	
<i>Holcus mollis</i>	Creeping soft-grass			✓	✓	
<i>Hordeum murinum</i>	Wall barley	✓		✓	✓	
<i>Humulus lupulus</i>	Hop	✓		✓	✓	
<i>Hypochaeris radicata</i>	Cat's-ear	✓	✓	✓	✓	
<i>Ilex aquifolium</i>	Holly	✓		✓		
<i>Impatiens capensis</i>	Orange balsam	✓		✓		
<i>Impatiens glandulifera</i>	Himalayan balsam	✓		✓	✓	
<i>Iris pseudacorus</i>	Yellow iris	✓	✓	✓		
<i>Jacobaea vulgaris</i> (<i>Senecio vulgaris</i>)	Common ragwort	✓	✓	✓	✓	
<i>Juncus conglomeratus</i>	Compact rush					PA
<i>Juncus effusus</i>	Soft-rush	✓	✓	✓	✓	
<i>Juncus inflexus</i>	Hard rush					WPS
<i>Lactuca serriola</i>	Prickly lettuce					WPS
<i>Lamium album</i>	White dead-nettle	✓	✓	✓	✓	
<i>Lapsana communis</i>	Nipplewort	✓		✓	✓	

Scientific name ²	Common name	2024	2012	2007	2002	1987-2002 ³
<i>Lemna minor</i>	Common duckweed	✓	✓	✓		
<i>Lemna minuta</i>	Least duckweed	✓		✓	✓	
<i>Lemna trisulca</i>	Ivy-leaved duckweed					WPS
<i>Leontodon hispidus</i>	Rough hawkbit					SWT
<i>Lepidium didymium</i> (<i>Coronopus didymus</i>)	Lesser swine-cress					WMS-96
<i>Leucanthemum vulgare</i>	Oxeye daisy					SWT
<i>Lolium perenne</i>	Perennial rye-grass	✓	✓	✓	✓	
<i>Lotus corniculatus</i>	Common bird's-foot-trefoil	✓				SWT
<i>Lycopus europaeus</i>	Gypsywort			✓	✓	
<i>Lythrum portula</i>	Water-purslane					PA
<i>Lythrum salicaria</i>	Purple loosestrife	✓		✓	✓	
<i>Malus</i> sp.	An apple	✓				SWT
<i>Malva sylvestris</i>	Common mallow					WPS
<i>Matricaria chamomilla</i> (<i>Matricaria recutita</i>)	Scented mayweed					SWT
<i>Matricaria discoidea</i>	Pineappleweed					PA
<i>Medicago lupulina</i>	Black medick	✓			✓	WMS-02
<i>Mentha aquatica</i>	Water mint	✓		✓	✓	
<i>Myosotis scorpioides</i>	Water forget-me-not	✓		✓	✓	
<i>Nasturtium officinale</i> agg. (<i>Rorippa nasturtium-aquaticum</i>)	Water-cress			✓		
<i>Nuphar lutea</i>	Yellow water-lily			✓		
<i>Nymphaea alba</i>	White water-lily	✓		✓	✓	
<i>Oenanthe crocata</i>	Hemlock water-dropwort	✓	✓	✓	✓	
<i>Pentaglottis sempervirens</i>	Green alkanet		✓			
<i>Persicaria amphibia</i>	Amphibious bistort			✓	✓	

Scientific name ²	Common name	2024	2012	2007	2002	1987-2002 ³
<i>Persicaria hydropiper</i>	Water-pepper	✓		✓		
<i>Persicaria maculosa</i>	Redshank	✓		✓	✓	
<i>Phalaris arundinacea</i>	Reed canary-grass	✓	✓	✓	✓	
<i>Phleum pratense</i>	Timothy	✓		✓		
<i>Phragmites australis</i>	Common reed	✓				
<i>Pinus sylvestris</i>	Scots pine		✓			
<i>Plantago lanceolata</i>	Ribwort plantain	✓	✓	✓	✓	
<i>Plantago major</i>	Greater plantain	✓	✓	✓	✓	
<i>Poa annua</i>	Annual meadow-grass	✓	✓	✓	✓	
<i>Poa pratensis</i>	Smooth meadow-grass					SWT
<i>Poa trivialis</i>	Rough meadow-grass	✓		✓	✓	
<i>Polygonum aviculare</i> agg.	Knotgrass	✓		✓	✓	
<i>Populus 'Italica'</i>	Lombardy poplar			✓		
<i>Populus</i> sp. c.f. <i>x canadensis</i>	Hybrid black-poplar	✓				
<i>Populus tremula</i>	Aspen	✓		✓	✓	
<i>Potamogeton crispus</i>	Curled pondweed					PA
<i>Potamogeton natans</i>	Broad-leaved pondweed			✓	✓	
<i>Potentilla anserina</i>	Silverweed			✓	✓	
<i>Potentilla reptans</i>	Creeping cinquefoil					SWT
<i>Prunus avium</i>	Wild cherry	✓	✓	✓	✓	
<i>Prunus spinosa</i>	Blackthorn	✓	✓	✓	✓	
<i>Pteridium aquilinum</i>	Bracken		✓			
<i>Quercus robur</i>	Pedunculate oak	✓	✓	✓	✓	
<i>Ranunculus acris</i>	Meadow buttercup	✓		✓	✓	
<i>Ranunculus aquatilis</i>	Common water-crowfoot				✓	PA

Scientific name ²	Common name	2024	2012	2007	2002	1987-2002 ³
<i>Ranunculus fluitans</i>	River water-crowfoot			✓		
<i>Ranunculus repens</i>	Creeping buttercup	✓	✓	✓	✓	
<i>Ranunculus sceleratus</i>	Celery-leaved buttercup					PA
<i>Reynoutria japonica</i> (<i>Fallopia japonica</i>)	Japanese knotweed					WPS
<i>Rorippa amphibia</i>	Great yellow-cress					SWT
<i>Rosa canina</i> agg.	Dog-rose	✓		✓	✓	
<i>Rubus fruticosus</i> agg.	Bramble	✓	✓	✓	✓	
<i>Rumex acetosa</i>	Common sorrel	✓	✓	✓	✓	
<i>Rumex conglomeratus</i>	Clustered dock			✓	✓	
<i>Rumex crispus</i>	Curled dock	✓	✓	✓	✓	
<i>Rumex obtusifolius</i>	Broad-leaved dock	✓	✓	✓	✓	
<i>Rumex sanguineus</i>	Wood dock					WPS
<i>Rumex sanguineus</i> var. <i>viridus</i>	Wood dock	✓				
<i>Salix alba</i>	White willow	✓		✓	✓	
<i>Salix caprea</i>	Goat willow					SWT
<i>Salix caprea</i> ssp. <i>caprea</i>	Goat willow	✓				
<i>Salix cinerea</i> ssp. <i>oleifolia</i>	Rusty willow	✓	✓	✓	✓	
<i>Salix fragilis</i>	Crack willow	✓	✓	✓	✓	
<i>Salix</i> sp.	A willow		✓	✓	✓	
<i>Sambucus nigra</i>	Elder	✓	✓	✓	✓	
<i>Sasa</i> sp.	A bamboo	✓				
<i>Saxifraga spathularis</i>	St. Patrick's-cabbage ⁴					WPS
<i>Schedonorus giganteus</i> (<i>Festuca gigantea</i>)	Giant fescue			✓	✓	

⁴ Presumably meant to be the hybrid *S.x urbium* (Londonpride) G Groome 2007)

Scientific name ²	Common name	2024	2012	2007	2002	1987-2002 ³
<i>Scrophularia auriculata</i>	Water figwort			✓	✓	
<i>Senecio aquaticus</i>	Marsh ragwort				✓	WMS-02
<i>Silene dioica</i>	Red campion	✓	✓	✓		
<i>Silene flos-cuculi</i> (<i>Lychnis flos-cuculi</i>)	Ragged-Robin					PA
<i>Sisymbrium officinale</i>	Hedge mustard			✓		
<i>Solanum dulcamara</i>	Bittersweet				✓	
<i>Solanum dulcamara</i> ssp. <i>dulcamara</i>	Bittersweet	✓		✓		
<i>Sonchus asper</i>	Prickly sow-thistle			✓		
<i>Sorbus aria</i>	Whitebeam	✓				
<i>Sorbus aucuparia</i>	Rowan	✓		✓	✓	
<i>Sparganium emersum</i>	Unbranched bur-reed			✓	✓	
<i>Sparganium erectum</i>	Branched bur-reed	✓	✓	✓	✓	
<i>Stachys palustris</i>	Marsh woundwort			✓	✓	
<i>Stachys sylvatica</i>	Hedge woundwort					WMS-96
<i>Stellaria aquatica</i> (<i>Myosoton aquaticum</i>)	Water chickweed		✓	✓		
<i>Stellaria graminea</i>	Lesser stitchwort		✓	✓	✓	
<i>Stellaria media</i> agg.	Common chickweed		✓	✓		
<i>Symphyotrichum x versicolor</i> (<i>Aster x versicolor</i>)	Late Michaelmas-daisy			✓		
<i>Symphytum officinale</i>	Common comfrey					SWT
<i>Symphytum x uplandicum</i>	Russian comfrey	✓				
<i>Tanacetum vulgare</i>	Tansy		✓			SWT
<i>Taraxacum</i> agg.	A dandelion	✓	✓	✓	✓	
<i>Tilia x europaea</i>	Common lime			✓		
<i>Torilis japonica</i>	Upright hedge-parsley					PA

Scientific name ²	Common name	2024	2012	2007	2002	1987-2002 ³
<i>Trifolium campestre</i>	Hop trefoil	✓				
<i>Trifolium dubium</i>	Lesser trefoil			✓	✓	WMS-02
<i>Trifolium pratense</i>	Red clover	✓	✓	✓		
<i>Trifolium repens</i>	White clover	✓	✓	✓	✓	
<i>Typha latifolia</i>	Bulrush	✓	✓	✓	✓	
<i>Ulmus minor</i> agg. ⁵	An elm	✓		✓	✓	
<i>Ulmus</i> sp.	An elm	✓				
<i>Urtica dioica</i>	Common nettle	✓	✓	✓		
<i>Verbascum thapsus</i>	Great mullein					SWT
<i>Veronica anagallis-aquatica</i>	Blue water-speedwell					PA
<i>Veronica chamaedrys</i>	Germander speedwell		✓			
<i>Viburnum opulus</i>	Guelder-rose	✓		✓	✓	
<i>Vicia cracca</i>	Tufted vetch	✓		✓	✓	
<i>Vicia sativa</i> ssp. <i>segetalis</i>	A common vetch			✓		
<i>Vicia sepium</i>	Bush vetch					SWT
<i>Vicia</i> sp.	A vetch		✓			

Table 8: Vascular plant species with conservation status

Common name ⁶	Grassland indicator	Surrey axiophyte	Ancient woodland indicator	Surrey rare plant register	England red list	GB red list
Field maple			✓			
Water-plantain	✓	✓				
Marsh foxtail	✓	✓				
Wild angelica	✓	✓				
Sweet vernal-grass	✓	✓				
Various-leaved water-starwort		✓		VC17 local & declining		

⁵ In original survey recorded as *Ulmus procera*, now part of aggregate

⁶ Those in bold were recorded in 2024

Common name ⁶	Grassland indicator	Surrey axiophyte	Ancient woodland indicator	Surrey rare plant register	England red list	GB red list
Large bittercress	✓		✓			
Lesser pond-sedge	✓	✓				
Pendulous sedge		✓	✓			
Cyperus sedge		✓				
Remote sedge	✓		✓			
Greater pond-sedge	✓	✓				
Rigid hornwort		✓				
Crested dog's-tail		✓				
Wild carrot	✓	✓				
Meadowsweet	✓	✓				
Marsh-bedstraw	✓	✓				
Meadow crane's-bill	✓	✓				
Small sweet-grass	✓	✓				
Creeping soft-grass	✓	✓				
Cat's-ear		✓				
Yellow iris		✓				
Compact rush	✓	✓				
Rough hawkbit	✓	✓				
Water forget-me-not		✓				
Water chickweed	✓	✓				
Yellow water-lily		✓				
White water-lily		✓				
Smooth meadow-grass	✓	✓				
Aspen		✓	✓			
Wild cherry		✓	✓			
Common water-crowfoot		✓		VC17 Rare		
River water-crowfoot		✓		VC17 Scarce		
Celery-leaved buttercup	✓	✓				

Common name ⁶	Grassland indicator	Surrey axiophyte	Ancient woodland indicator	Surrey rare plant register	England red list	GB red list
Common sorrel	✓	✓				
Giant fescue		✓	✓			
Marsh ragwort	✓	✓			NT	
Ragged-Robin	✓	✓		VC17 Not Scarce	NT	
Whitebeam		✓				
Unbranched bur-reed		✓				
Branched bur-reed		✓				
Marsh woundwort	✓	✓				
Lesser stitchwort	✓	✓				
Tansy	✓	✓				
Blue water-speedwell	✓	✓		VC17 Local & Declining		
Bush vetch	✓		✓			
TOTAL	28 (3)⁷	41 (11)	8 (3)	5 (0)	2 (0)	0 (0)

⁷ Those in brackets were recorded in 2024

Appendix 2: Legislation and planning policy

Legislation

Conservation of Habitats and Species Regulations 2017 (as amended)

Provides for the protection of Natura 2000 sites (SACs, SPAs and Ramsar sites), European Protected Species and habitats. Species listed under Schedule 2 are protected from:

- Deliberate capture, injury or killing.
- Deliberate disturbance [...], such that it impairs their ability to breed, reproduce or rear their young, hibernate or migrate or significantly affect their local distribution or abundance.
- Deliberate taking or destroy effect.
- Damage or destroying a breeding site or resting place.
- Keeping, transporting, selling or exchanging any live, dead or part.

Species listed under Schedule 2 include, but are not limited to:

- Great crested newt
- Natterjack toad
- Otter
- Smooth snake
- Sand lizard
- All bat species
- Hazel dormouse

The LPA will be aware of its legal duty under Regulation 9(3) of Conservation of Habitats and Species Regulations 2017, as amended, which states that “*a competent authority in exercising any of its functions, must have regard to the requirements of the Directives so far as they may be affected by the exercise of those function*”.

Also, under Regulation 55 (9b) of the above regulations, the LPA must apply the following three tests when deciding whether to grant planning permission where a Protected Species (bats) may be harmed, in line with of the Conservation of Habitats and Species Regulations 2017, as amended.

- The activity must be for imperative reasons of overriding public interest or for public health and safety;
- There must be no satisfactory alternative;
- Favourable conservation status of the species must be maintained.

Natural England has stated that they would expect these three tests to be adequately considered by the LPA before planning permission is granted. Natural England will require evidence from the applicant that the LPA has considered the three tests and how they were met, before a mitigation licence can be issued. Where a mitigation licence is required to avoid breach of legislation, development cannot proceed even where a valid planning permission is granted.

Wildlife and Countryside Act 1981 (as amended)

Key piece of legislation consolidating existing wildlife legislation to incorporate the requirements of the Bern Convention and Birds Directive. It includes additional protection measures for species listed under the Conservation of Habitats and Species Regulations 2017

(as amended) and includes a list of species protected under the Act. It also provides for the designation and protection of Sites of Special Scientific Interest (SSSI).

Development which would adversely affect a SSSI is not acceptable except only in special cases, where the importance of a development outweighs the impact on the SSSI when planning conditions or obligations would be used to mitigate the impact. Developments likely to impact on a SSSI will likely require an Environmental Impact Assessment (EIA).

The Impact Risk Zones dataset is a GIS tool which details zones around each SSSI according to the particular sensitivities of the features for which it is notified and specifies the types of development that have the potential to have adverse impacts. Natural England uses the Impact Risk Zones to make an initial assessment of the likely risk of impacts on SSSIs and to quickly determine which consultations are unlikely to pose risks and which require more detailed consideration. Local Planning Authorities (LPAs) have a duty to consult Natural England before granting planning permission on any development that is in or likely to affect a SSSI.

Further information on specific legislation relating to species protected under the Wildlife and Countryside Act 1981 (as amended) is detailed below, under Protection of Protected Species and Habitats.

Environment Act (2021)

The Environment Act (2021) makes a provision for biodiversity net gain to be a condition of planning permission in England. Planning applications will need to demonstrate a 10% biodiversity net gain can be met. A biodiversity net gain plan must be submitted and must include:

- (a) information about the steps taken or to be taken to minimise the adverse effect of the development on the biodiversity of the onsite habitat and any other habitat
- (b) the pre-development biodiversity value of the onsite habitat,
- (c) the post-development biodiversity value of the onsite habitat,
- (d) any registered offsite biodiversity gain allocated to the development and the biodiversity value of that gain in relation to the development,
- (e) any biodiversity credits purchased for the development,

Countryside and Right of Way Act 2000

Amends and strengthens the Wildlife and Countryside Act 1981 (as amended). It also details habitats and species for which conservation measures should be promoted.

Natural Environment and Rural Communities Act 2006

Section 40 of the Act places a duty on local planning authorities to conserve and enhance biodiversity in England whilst carrying out their normal functions. Section 41 comprises a list of Habitats of Principal Importance (HPIs) and Species of Principal Importance (SPIs) which should be considered.

Section 41 details 56 HPI, including (but not limited to) arable field margins, traditional orchards, hedgerows, eutrophic standing waters, ponds, rivers, lowland calcareous grassland, lowland dry acid grassland, lowland meadows, purple moor-grass and rush pastures, lowland heathland, open mosaic habitats on previously developed land, coastal and floodplain grazing marsh, lowland fens, lowland raised bog, reedbeds, lowland beech and yew woodland, lowland mixed deciduous woodland, wet woodland, and wood-pasture and parkland.

Impacts to HPI are of material planning consideration.

The LPA will need to have particular regard to any relevant local nature recovery strategies, and any relevant species conservation strategy or protected site strategy prepared by Natural England.

Hedgerows Regulations 1997

Under the Hedgerows Regulations 1997 it is against the law to remove or destroy certain hedgerows without permission from the LPA, which are also the enforcement body for offences created by the Regulations. LPA permission is normally required before removing hedges that are at least 20 m in length, more than 30 years old and contain certain plant species. The authority will assess the importance of the hedgerow using criteria set out in the regulations. The regulations **do not** apply to hedgerows within the curtilage of, or marking a boundary of the curtilage of, a dwelling house.

Hedgerow is a HPI.

Management of Hedgerows Regulations 2024

For all hedgerows defined as 'important' in the Regulations:

- It is a requirement to take all reasonable steps to establish and maintain green cover on land within 2m of the centre of an important hedgerow.
- No cultivation or application of fertilisers or pesticides to land within 2m of the centre of an important hedgerow, unless:
- Pesticides are used through spot application to control the spread of broad-leaved dock, creeping thistle, curled dock, giant hogweed, Himalayan balsam, Japanese knotweed, common ragwort, rhododendron or spear thistle.
- The land is being cultivated to establish a green cover where it does not already exist.
- Written permission has been given to cultivate the land in order to enhance the environment, improve public or agricultural access, or for reasons relating to livestock or crop production.
- Without cultivation there is a risk to human or animal health and safety.
- Cultivation, fertilisers or pesticides are being applied to treat a serious cause of harm to plant health or a serious pest or weed infestation, or to prevent the development of any such cause of harm or infestation.

The Regulations define an important hedgerow as any hedgerow growing on land used for agriculture where the hedgerow has a continuous length of 20m or more; or a continuous length of <20m and, at each end, meets (whether by intersection or junction) another hedgerow. It applies to any stretch of hedgerow (even if smaller than 20m) that forms part of a hedgerow meeting the above definition. The exception is if the hedgerow is within the curtilage of, or marking the boundary of the curtilage of, a dwelling.

The requirements of the Regulations do not apply to:

- Land either side of an important hedgerow if the hedgerow is less than five years old.
- Land forming part of a parcel of ≤2ha as measured within permanent boundary features.
- Casting up of a traditional hedgerow bank between September and February (inclusive).

- Land on the side of an important hedgerow facing a dwelling where the hedgerow marks a boundary of the curtilage of the dwelling.
- Land used for an allotment as defined by the Allotments Act 1925.

Wild Mammals (Protection) Act 1996

Under this act wild mammals are protected from the intentional unnecessary suffering by crushing and asphyxiation.

ODPM Circular 06/05: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact within the Planning System (2005)

The Government's Office of the Deputy Prime Minister (ODPM) Circular 06/05 (ODPM 2005) presents the legal requirement for planning authorities with regard to statutory designated sites. Planning approval should not be granted where impacts to statutory designated sites that are not connected to the site maintenance for nature conservation or will have a significant effect on the site's conservation objectives and/or affect the site's integrity. Permission may be granted if the proposed development overrides public interest.

The presence of a protected species is a material planning consideration. The Circular clearly outlines that it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before planning permission is granted. Otherwise, all relevant considerations may not have been addressed in making the decision.

Biodiversity Opportunity Areas (BOAs)

In order to assist in delivering the government's Biodiversity 2020 strategy, the Surrey Nature Partnership has identified seven BOAs where improved habitat management, habitat restoration and recreation of HPIs is the key focus to enhancing the connectivity of habitats for SPIs to deliver biodiversity objectives at a landscape scale. The location of these is presented in the South East Biodiversity Strategy's website. The project promotes a collaborative approach across a number of regional and local organisations.

Developments within or adjacent to BOAs should be designed in consideration of the BOA objectives, which are provided at:

- <https://surreynaturepartnership.org/biodiversity-opportunity-areas/>

The BOAs include:

- **Thames Valley** comprising Windsor Great Park, Runnymede Meadows & Slope, Staines Moor & Shortwood Common, Thorpe and Shepperton, Molesey & Hersham.
- **Thames Basin Heaths** comprising Chobham Common North & Wentworth Heaths; Chobham South Heaths; Colony Bog, Bagshot Heath & Deepcut Heaths; Ash, Brookwood & Whitmoor Heaths; Woking Heaths; Wisley, Ockham & Walton Heaths; Camberley & Broadmoor Heaths.
- **Thames Basin Lowlands** comprising Wanborough & Normandy Woods & Meadows; Clandon to Bookham Parkland; Esher & Oxshott Commons; Ashted & Epsom Woodland, Prince's Coverts and Horton Country Park.
- **North Downs** comprising North Downs Scarp – The Hog's Back; North Downs Scarp and Dip – Guildford to the Mole Gap; North Downs Scarp – Mole Gap to Reigate; North Downs – Epsom Downs to Nonsuch Park; North Downs – Banstead Wood & Downs,

& Chipstead Downs; North Downs Scarp – Quarry Hangers to the A22; North Downs Scarp – Woldingham; North Downs – Banstead & Walton Heaths.

- **Wealden Greensand** comprising Puttenham & Crooksbury Farnham Heaths; Thursley, Hankley & Frensham Heaths; Devil's Punch Bowl & Hindhead Heaths; Hascombe, Winkworth & Hydon's Heath & Woodlands Blackheath; Chilworth & Farley Heaths; Winterfold & the Hurtwood; Greensand Ridge; Leith Hill, Wotton, Abinger & Holmwood; Limpsfield Heaths; Reigate Heaths; Holmesdale; Albury & Shere Heaths & Parkland; Abinger Roughts.
- **Low Weald** comprising Low Weald & West Weald Woodlands, Cranleigh Woods, Wallis Woods, Vann Lake & Ockley Gill Woods, Glover's Wood & Edolph's Copse, Newdigate Woodland, Earlswood & Redhill Commons to the River Mole.
- **Rivers** comprising Hogsmill, Eden (& tributaries), Blackwater River, River Wey (& Tributaries), River Mole (& Tributaries), River Thames (tow-path & islands).

Protection of protected species and habitats

Amphibians

Natterjack toad, pool frog and great crested newt are protected under the Conservation of Habitats and Species Regulations 2017 (as amended). They are also afforded additional protection under the Wildlife and Countryside Act 1981 (as amended).

Natterjack toad, common toad, great crested newt and northern pool frog are also SPIs.

Reptiles

Smooth snake and sand lizard are protected under the Conservation of Habitats and Species Regulations 2017 (as amended). They are afforded additional protection under the Wildlife and Countryside Act 1981 (as amended).

Adder, grass snake, common lizard and slow-worm are all protected from killing and injury under the Wildlife and Countryside Act 1981 (as amended). All UK reptile species are SPIs.

Birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). This includes damage and destruction of their nests whilst in use, or construction. Species listed under Schedule 1 of the Act, such as barn owl, are afforded protection from disturbance during the nesting season.

The following 49 bird species are SPIs: lesser redpoll, aquatic warbler, marsh warbler, skylark, white-fronted goose, tree pipit, scaup, bittern, dark-bellied brent goose, stone-curlew, nightjar, hen harrier, hawfinch, corncrake, cuckoo, Bewick's swan, lesser spotted woodpecker, corn bunting, curlew, yellowhammer, reed bunting, red grouse, herring gull, black-tailed godwit, linnet, twite, Savi's warbler, grasshopper warbler, woodlark, common scoter, yellow wagtail, spotted flycatcher, curlew, house sparrow, tree sparrow, grey partridge, wood warbler, willow tit, marsh tit, dunnoek, Balearic shearwater, bullfinch, roseate tern, turtle dove, starling, black grouse, song thrush, ring ouzel and lapwing.

Badger

Badger is protected under the Protection of Badgers Act 1992. Under this legislation it is an offence to kill or injure a badger; to damage, destroy or block access to a badger sett; or to disturb badger in its sett. The Act also states the conditions for the Protection of Badgers licence requirements.

Bats

All bat species are protected under the Conservation of Habitats and Species Regulations 2017 (as amended), as detailed above. Bats are further protected under the Wildlife and Countryside Act 1981 (as amended), making it an offence to:

- Deliberately or recklessly damage or destroy any structure or place which bat(s) use for shelter or protection.
- Disturb bat(s) while occupying a structure or place which it uses for shelter or protection.
- Obstruct access to any structure or place which they use for shelter or protection.

Greater horseshoe, lesser horseshoe, Bechstein's and barbastelle are Annex II species for which Special Areas of Conservation have been designated.

Furthermore, seven bat species are SPIs, covered under Section 41 of the NERC Act 2006. These include western barbastelle, Bechstein's, noctule, soprano pipistrelle, brown long-eared, lesser horseshoe and greater horseshoe.

Beaver

Beaver is provided under Conservation of habitats and Species Regulations 20217 (as amended). Beaver is also afforded additional protection under the Wildlife and Countryside Act 1981, as amended.

Hazel dormouse

Hazel dormouse is protected under the Conservation of Habitats and Species Regulations 2017 (as amended). It is afforded additional protection under the Wildlife and Countryside Act 1981 (as amended), including obstruction to a place of shelter or rest.

Hazel dormouse is also a SPI.

Otter

Otter is protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and is afforded additional protection under the Wildlife and Countryside Act 1981 (as amended). Otter is also a SPI.

Water vole

Water vole is fully protected from capture, killing or injury; damage, destruction or blocking access to a place of shelter; disturbance whilst in a place of shelter or possessing, selling any part of a water vole, dead or alive under the Wildlife and Countryside Act 1981 (as amended).

Water vole is also a SPI.

Other mammals

Hedgehog, brown hare, mountain hare, pine marten, harvest mouse, polecat and red squirrel are all SPIs.

The following mammals are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended): wildcat, brown hare (Schedule 5A), mountain hare (Schedule 5A), pine marten and red squirrel.

Invertebrates

Seventy invertebrate species are fully or partially listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). These are tentacled lagoon-worm, lagoon sandworm,

medicinal leech, trembling sea-mat, Ivell's sea anemone, pink sea-fan, starlet sea anemone, marine hydroid, white-clawed crayfish, fairy shrimp, lagoon sand shrimp, tadpole shrimp, rainbow leaf beetle, mire pill beetle, spangled diving beetle, lesser silver water beetle, Moccas beetle, violet click beetle, stag beetle, Bembridge beetle, purple emperor, northern brown argus, pearl-bordered fritillary, chequered skipper, large heath, small blue, mountain ringlet, marsh fritillary, high brown fritillary, Duke of Burgundy, silver-spotted skipper, wood white, large copper, heath fritillary, Glanville fritillary, large tortoiseshell, swallowtail, large blue, silver-studded blue, adonis blue, chalkhill blue, black hairstreak, white-letter hairstreak, brown hairstreak, Lulworth skipper, Norfolk hawk, southern damselfly, reddish buff, Fisher's estuarine moth, barberry carpet, fiery clearwing, black-veined moth, Sussex emerald, Talisker burnet moth, Slender scotch burnet, New Forest burnet, wart-biter grasshopper, mole cricket, field cricket, New Forest cicada, fan mussel, Defolin's lagoon snail, Roman snail, freshwater pearl mussel, glutinous snail, sandbowl snail, lagoon sea-slug, northern hatchet-shell, fen raft spider, and ladybird spider.

A total of 398 invertebrates are Species of Principal Importance. These include beetles (including stag beetle), butterflies (high brown fritillary, large heath, small blue, white-letter hairstreak, brown hairstreak, damselflies (southern damselfly), moths (marsh moth), ants, bees etc. Impacts to SPI must be considered by the LPA when assessing planning applications.

Higher and lower plants (rare/notable species)

Killarney fern, creeping marshwort, lady's-slipper orchid, early gentian, fen orchid, floating water-plantain, slender naiad, shore dock and marsh saxifrage are listed under Schedule 5 of the Conservation of Habitats and Species Regulations 2017 (as amended) making it illegal to be in position or control, transport, sell or exchange or offer to sell or exchange any live of dead plant, or part of a plant.

One hundred and eighty-three higher and lower plants and fungi are listed under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended), which makes it illegal for a person to intentionally pick, uproot or destroy any wild plant listed under Schedule 8.

One hundred and fifty-one higher plant species are listed as Species of Principal Importance.

Non-native invasive species

7.1.1 Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is a list of non-native plant and animal species for which Section 14 of the Act applies. It is an offence to release or allow to escape any animal listed under Schedule 9 Part I of the Act. These include, but are not limited to:

- Chinese mitten crab
- American signal crayfish
- Muntjac
- Edible dormouse
- Marsh frog
- Canada goose
- Egyptian goose
- Mink
- Ring-necked parakeet

- Grey squirrel
- European pond terrapin

It is also an offence to plant, or otherwise cause to grow in the wild, species listed under Schedule 9 Part II of the Act. These include, but are not limited to:

- Himalayan balsam
- Five species of cotoneaster
- Japanese knotweed
- Giant hogweed

Planning policy

National Planning Policy Framework (2024)

Details the Government's planning policies for England and how these should be applied, particularly to contribute to the Government's commitment to halt the decline of biodiversity. When assessing planning applications, LPAs should have regard to conserving and enhancing biodiversity by applying a number of principals, including:

- Avoiding impacts to biodiversity through appropriate site selection.
- Mitigating residual impacts.
- Encouraging the preservation and enhancement of biodiversity.
- Preventing the development of protected sites, such as SSSIs.
- Refusing permission where habitats that cannot be recreated, such as ancient woodland, would be lost.
- Encouraging good design that limits light pollution.

Relevant paragraphs in the are detailed below (Department for Levelling Up, Housing and Communities, 2024).

Paragraph number	Detail
187	Planning policies and decisions should contribute to and enhance the natural and local environment by: (a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); (b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland (c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate; (d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs. (e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and (f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate

Paragraph number	Detail
190	“When considering applications for development within National Parks, the Broads and Areas of Outstanding Natural Beauty, permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of: (a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy; (b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and (c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.”
193	“When determining planning applications, local planning authorities should apply the following principles: (a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; (b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; (c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons 67 and a suitable compensation strategy exists; and (d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.”
194	“The following should be given the same protection as habitats sites: (a) potential Special Protection Areas and possible Special Areas of Conservation; (b) listed or proposed Ramsar sites 68; and (c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.”
195	“The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.”

Local planning policy

Woking Borough Council		
(Woking Borough Council, 2012)	CS6	To ensure the Green Belt continues to serve its fundamental aim and purpose, and maintains its essential characteristics, it will be protected from harmful development. Within its boundaries strict control will continue to apply over inappropriate development, as defined by Government policy currently outlined in the NPPF.
	CS7	The Council is committed to conserving and protecting existing biodiversity assets within the Borough. It will require development proposals to contribute to the enhancement of existing biodiversity and geodiversity features and also explore opportunities to create and manage new ones where it is appropriate. This will include those habitats and species listed in the Surrey Biodiversity Action Plan (BAP). Any development that will be anticipated to have a potentially harmful effect or lead to a loss of features of interest for biodiversity will be refused. The Council will pay particular consideration to the following hierarchy of important sites and habitats in the Borough. 1. Special Protection Areas (SPA) and Special Areas of Conservation (SAC) (European). 2. Sites of Special Scientific Interest (SSSI) and National Nature Reserves (National). 3. Sites of Nature Conservation Importance (SNCI), Local Nature Reserves (LNR), and other Ancient Woodland not identified in 1 and 2 above (Local). These sites are identified on the Proposals Map. Within locally designated sites development will not be permitted unless it is necessary for appropriate on-site management measures and can demonstrate no adverse impacts to the integrity of the nature conservation interest. Development adjacent to locally designated sites will not be permitted where it has an adverse impact on the integrity of the nature conservation interest that cannot be mitigated. The Council will encourage new development to make positive contribution to biodiversity through the creation of green spaces, where appropriate, and the creation of linkages between sites to create a local and regional biodiversity network of wildlife corridors and green infrastructure. It will seek to retain and encourage the enhancement of significant features of nature conservation value on development sites. Any development with potential impact on the SPA or the SAC will be subject to a Habitats Regulations Assessment to determine the need for Appropriate Assessment.
	CS8	New residential development beyond 400m threshold but within 5 kilometres of the Special Protection Areas (SPA) boundary will be required to make an appropriate contribution towards the provision of Suitable Alternative Natural Greenspace (SANG) and the Strategic Access Management and Monitoring (SAMM).
	CS9	All development, particularly on brownfield land, should seek to remediate contaminated land to ensure that risk to water quality as a result of development is minimised.
	CS17	All proposals for new residential development will be required to contribute towards the provision of open space and green infrastructure. Protect river corridors by creating undeveloped buffer zones, which will serve as green infrastructure as well as habitats of biodiversity value.
	CS22	All development is encouraged to make biodiversity enhancements such as green roofs and bird and bat boxes.
(Woking Borough Council, 2016)	DM1	New green infrastructure assets required to support development and the general community will be expected to be designed and located to maximize the range of green infrastructure functions and benefits. (i) where new features will be located and, where relevant, how they may be accessed. A map should be provided of the existing and proposed green infrastructure on relevant sites; and (ii) the function of green infrastructure assets, what benefits they will bring (e.g. social, environmental, economic) and how proposals will contribute or integrate with the existing and/or proposed green infrastructure network; and (iii) management and maintenance arrangements that will be put in place to ensure the sustainable longterm care for the asset; and (iv) that the provision of any Suitable Alternative Natural Greenspace will not compromise the biodiversity value of Sites of Nature Conservation Interest. There are various ways in which GI could be incorporated into proposals, for example, through the incorporation of the following connected features: • trees and other vegetation such as hedgerows • green walls and green roofs • sustainable drainage systems (SuDS) • open space and recreation areas.
	DM3	The development will not cause harm to a site of nature conservation, landscape or historic value that cannot be satisfactorily mitigated Opportunities are taken to connect to and enhance the surrounding Green Infrastructure Network.
	DM4	Basingstoke Canal is designated as SSSI for much of its length with only short sections within Woking and Runnymede Boroughs being designated Site of Nature Conservation Interest (SNCI). It is the most biodiverse freshwater body for aquatic plants within England and Wales. Developments which introduce significant shading of the water, which is generally considered harmful to the health of the aquatic botany - whether by built structures or inappropriate landscaping, will generally not be considered acceptable.
(West Byfleet Neighbourhood Forum, 2017)	Section 3.2.4	To enhance and protect all existing green spaces, including roadside verges, within the neighbourhood to ensure that they remain for the benefit of the community. To protect and enhance wildlife corridors, plant habitats and SSSIs within The Area.

Appendix 3: Desk study

Table 9: Protected or notable species

These are protected or notable species that were recorded in the desk study and for which suitable habitat occurs in the survey area.

Species group	Species
Invertebrate	A tachinid fly, a tumbling beetle, brilliant emerald, brown tree ant, grayling and stag beetle.
Amphibian	Common frog, great crested newt and smooth newt.
Reptiles	Adder, grass snake and slow-worm.
Birds	Collard dove, dunnoek, kingfisher, mallard, mistle thrush, red kite, song thrush, sparrow hawk, willow warbler and wren.
Mammals	Badger, bats, hazel dormouse, otter, water vole, hedgehog and other mammals.
Higher and lower plants	Common valerian, fringed waterlily, frogbit, lesser spearwort, opposite-leaved pondweed and red pondweed.

Appendix 4: Survey calendar

This survey calendar should be used as guidance only and is based on current industry best-practice.

Survey type		January	February	March	April	May	June	July	August	September	October	November	December
Habitat					UK habitat classification survey and National Vegetation Classification (habitat dependant for specific survey months)								
					Habitat condition assessment (habitat specific suitable month)								
Invertebrate													
Amphibian (including great crested newt)		Habitat suitability index											
					eDNA presence/absence								
				Presence/absence and population size class assessment									
Reptiles													
Birds		Wintering birds		Migratory/br eeding birds	Breeding birds					Migratory birds		Wintering birds	
Badger			Bait marking and sett search							Bait marking and sett search			
Bats		Preliminary Roost Assessment (all year); Preliminary Ground Level Tree Roost Assessment (optimal between November and March)											
		Winter roost presence/likely absence				Presence/likely absence summer survey and activity survey						Winter roost presence/likely absence	
Hazel Dormouse					Nest tube (nut search from September to December)							Nut search	
Otter				Preferable survey season									
Water Vole													
Rare/notable plant or invasive species													
	Survey sub-optimal		Survey optimal	Survey outside acceptable season									