Botanical and Entomological Surveys of Forest Green

Report to Abinger Parish Council

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EXECUTIVE SUMMARY

Giles Groome, Consultant Ecologist was commissioned by Abinger Parish Council to conduct a botanical survey and Jonty Denton, Consultant Ecologist an entomological survey of Forest Green during spring and summer 2020.

24 National Vegetation Classification (NVC) communities, plus one transitional/mosaic and five non-referable classifications, were mapped during the botanical survey across 230 individual stands. These have been redrawn as polygons in MapInfo GIS and each assigned to a broad habitat.

The most extensive habitat is unimproved acid and neutral grassland, much of which is mid-summer hay cut. Whilst the most common communities are MG6a and MG6b, approximately 1.3ha falls within the nationally rare communities of MG5a and MG5c, and 1.5ha within the regionally rare U4a and U4b. Coarser, mostly flail cut, grassland falls within MG1a, MG1b and MG1c, and wetter grassland within MG10a and a transitional/mosaic classification of MG5c/MG10a. A small area of U20a is also present, as well as one very small stand of marginal OV24a and two of OV27b. The annual bonfire night fire site was largely bare ground at the time of survey and therefore classified as non-referable 'Bare'.

Woodland, all of which has developed from former grassland within the past 150 years, is largely confined to boundary stands. Most falls within W8a; the remainder in W8d or, besides a pond to the south of Forest Green, an atypical form of W1. All scrub, variously falling within W21a, W24a and W24b, is similarly confined to the margins of the Green.

Aquatic and swamp vegetation is restricted to Forest Green's two ponds. The southern pond supports open water and summer draw-down A20 with emergent S12a and S23. The northern pond, is dominated by a non-referable community of open water *Potamogeton crispus* ('P.crispus') with a little emergent S14a and S28a.

The Green's remaining habitats are all artificial in origin. They have variously been mapped as 'Hardstanding', 'Pavilion' and 'Roads'.

Approximately 290 species of vascular plant were recorded during the botanical survey, including the Red Data Book (RDB) and English Red List (ERL) Vulnerable, Biodiversity Action Plan (BAP)/s.41 (NERC Act 2006) species *Chamaemelum nobile* (exclusively from around the cricket pitch infield) and the Surrey Scarce *Potamogeton berchtoldii* (within the southern pond). Five other species are listed as ERL Near Threatened. The locations of all rare/scarce/threatened species were mapped, other than *Campanula rotundifolia*, which was only seen during the entomological survey.

Over 540 species of invertebrate were recorded during the entomological survey, including 18 nationally rare and scarce, and two BAP/s.41 species. The locations of key invertebrate sightings were mapped.

Five Pantheon invertebrate assemblage types were defined following entomological surveys: arboreal canopy; wood decay, unshaded early successional mosaic; grassland and scrub mosaic; and shaded field and ground layer. Of these three Specific Assemblage Types (SATs) were found to be in favourable condition: bark and sapwood decay; rich flower resource; and scrub edge.

This report provides the results of botanical and entomological recording and evaluations of the conservation importance of habitats, communities/assemblages and species. A number of management and monitoring recommendations are given to maintain and enhance the nature conservation interest of the site. Maps show the distribution of habitat and NVC classifications, and the locations of mapped rare/scarce/threatened species. Appendices include species lists, descriptions of each NVC, transitional/mosaic and non-referable classification mapped during fieldwork, and notes on rare and scarce invertebrates.

Forest Green is of considerable nature conservation importance. All qualifies for selection as a Site of Nature Conservation Importance (SNCI). At least parts meet the criteria for selection as a Site of Special Scientific Interest (SSSI).

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1 INTRODUCTION

1.1 Background

Giles Groome, Consultant Ecologist was commissioned by Abinger Parish Council to conduct a botanical survey and Jonty Denton, Consultant Ecologist an entomological survey of Forest Green (centre site grid reference TQ123413) during spring and summer 2020. Owned by the Abinger Parish Recreation Grounds Charity (APRGC), of which Abinger Parish Council is the sole trustee, all is a registered village green.

The site, covering an area of approximately 11.6ha, overlies a bedrock of Weald Clay overlain in most areas bar the centre and centre-south by superficial Head deposits (British Geological Society 2020). Soils are classified as typical stagnogleys of the Wickham series and, in southern and south-eastern areas, typical argillic gleys of the Shabbington association (Soil Survey of England and Wales 1983).

Historical maps (https://www.old-maps.co.uk, accessed 7th December 2020) suggest that the physical layout of the site has changed little over the past 150 years with the 1871 1:2500 OS map (the earliest map available) showing most boundaries and roads, as well as access tracks, as they are today[1]. The Green itself is shown as rough grassland bounded for the most part by hedges and/or lines of trees. Both present-day ponds are depicted, as is the north-south running ditch to the north of Holy Trinity Church[2]. However, the cricket pitch was not depicted until the 1974 1:2500 OS map; although it is understood to have been created and fenced in the 1930's (https://www.forestgreenvillage.co.uk/cricketclub_history.php, accessed 7th December 2020)[3]. Whilst trees (indicative of planted fruit trees) were depicted immediately south of the Parrot Inn and a line of trees (perhaps originally planted as a landscape feature) shown in front and beside Beech Cottages, there was no woodland within the boundary of Forest Green in 1871. A slither of woodland was depicted on the western boundary of the Green (north of Smithy) on the 1916 1:2500 OS map. However, woodland proper was not shown on maps until 1974; although even by this time it had still not encroached upon any of the grassland to the north of the Ockley Road opposite Holy Trinity Church. Comparing historical maps to the present-day situation, there are now many more properties surrounding the Green than in the past.

Abinger Parish Councillor Deardre Cunningham reports that Forest Green has been hay cut for at least the last 70 years or so; although the practice may go back as far as 1920 when the Green was first purchased by the ABPRC. She also reports family members remembering cattle grazing around the mid-20th Century.

As far as is known, the Green has not been the subject of any previous vegetation survey, although there has been limited botanical recording by Surrey Botanical Society volunteers. The southern pond is known to have been surveyed by Greenspace Ecological Solutions in 2015 and Natural England in 2019. Great Crested Newt (*Triturus cristatus*) larvae and eggs were recorded here during the 21st May 2020 invertebrate survey.

1.2 Study Objectives

1.2.1 Botanical Survey

- To map homogenous stands of vegetation across Forest Green using the National Vegetation Classification (NVC), as set out by Rodwell (1991a *et seq*).
- To describe, using target notes as required, the composition and structure of mapped classifications.
- To compile vascular plant species lists for the site with frequency/abundance assessed using the DAFOR scale.
- To map the locations of rare/scarce/threatened species, as defined by Surrey Wildlife Trust (2019) and JNCC (2020).
- To identify the most appropriate location, if any, for the creation of a new playground and make recommendations for tree planting.

[1] The only obvious difference in boundary is in the region of the former Congregational Chapel, south of the Parrot Inn. This is shown as open grassland within the boundary of the Green on the 1871 map but as 'Congregational Chapel', beyond a realigned Green boundary, on the 1896-87 1:2500 OS map.
[2] No ditches other than this are shown on any other maps reviewed.
[3] Prior to the depiction of the present-day cricket pitch a track was shown running south from the junction of the Ockley Road (B2127) and Horsham Road through what is now open grassland and the cricket pitch. This track was presumably blocked and a new one, running from the Ockley Road besides Danesmead and Tumblers, created as an alternative access to Waterland Farm (south-west of Forest Green) when the cricket pitch was formalised.

1.2.2 Entomological Survey

- To record all species of invertebrate seen and captured using standard netting, sweeping, beating and suction hose techniques.
- To record target notes as required to highlight the locations of particularly notable assemblages.
- To record a full invertebrate species list with notes on the status of each species recorded.
- To map the capture locations of rare and scarce species.
- To identify the most appropriate location, if any, for the creation of a new playground and make recommendations for tree planting.

1.3 Personnel

The botanical survey was conducted by Dr Giles Groome CEcol CEnv MCIEEM and the entomological survey by Dr Jonty Denton FRES FLS CEcol MCIEEM. Separate draft survey reports were prepared by the surveyors and combined into a single final report by Giles Groome.

1.4 Report Presentation

This report is broken down into six main parts. Sections 2 and 3 cover the botanical and entomological surveys, respectively, with each broken down into sub-sections covering methodology, results and evaluation. Section 4 draws together the results and evaluations of previous sections to provide an overview of the nature conservation interest of Forest Green and, in the light of this, discuss the suitability of creating a playground and undertaking tree planting. Recommendations are given in Section 5 and Site Maps in Section 6.

A list of all NVC communities referred to in the text is given in Appendix I. Appendix II includes the list of all recorded vascular plant species recorded during surveys along with an indication of frequency/abundance. Descriptions of mapped NVC classifications are given in Appendix III. Appendix IV provides lists, along with their status, of all invertebrate species recorded. The criteria for defining rare/scarce/threatened invertebrate species are given in Appendix V with notes on the rare and scarce species recorded in Appendix VI.

Reference to property names used throughout this report are taken from the 1974 1:2500 OS map available at https://www.old-maps.co.uk (accessed 7th December 2020).

2 BOTANICAL SURVEY

2.1 Methodology

Fieldwork was undertaken in dry, sunny conditions on 22nd April; and 22nd and 24th June 2020.

2.1.1 NVC Mapping

Following the guidelines given by Rodwell (2006) for experienced surveyors, homogenous stands of vegetation, as defined by the National Vegetation Classification (NVC) set out by Rodwell (1991 *et seq*), were identified in the field during walkover surveys undertaken in April and June 2020 and boundaries drawn over aerial photographs downloaded from Google Earth. Where vegetation was plainly heterogeneous and/or where it did not fit comfortably within the framework of existing NVC classifications a mosaic/transition of communities or a no-fit non-referable classification was mapped.

2.1.2 Species Recording

Where ever possible species were recorded to specific or, where relevant (and possible), sub-specific level following the classification and nomenclature of Stace (2019). However, no attempt was made to record micro-species of the aggregate taxa *Festuca ovina, Festuca rubra, Narcissus, Rosa canina, Rubus fruticosus* or *Taraxacum*. There was insufficient time to record bryophytes, although any particularly common species, especially where they might be important in NVC determination, were noted (with nomenclature following Hill *et al*, 2008). Ground layer macro-lichens would also have been recorded, but none were seen.

Vascular plant species frequency/abundance was defined using the DAFOR system:

D	Dominant
A	Abundant
F	Frequent
O	Occasional
R	Rare
(L	Locally)

The locations of any rare, scarce and/or threatened species, as defined by Cheffings & Farrell (2005), as updated by JNCC (2020), Stroh *et al* (2014) and Surrey Botanical Society (2019), were marked on to the aerial photographs for later digitisation.

2.1.3 GIS Mapping

The boundaries of NVC classifications and locations of rare/scarce/threatened species mapped on to aerial photographs in the field were redrawn in MapInfo v7.5 GIS. However, data are not geo-referenced as the aerial photograph could only be imported as a non-registered image file. All area and percentage figures given in this report are therefore approximations.

2.1.4 Constraints and Limitations

Mown Vegetation

Several areas of grassland were mown (on more than one occasion) prior to fieldwork. Whilst the majority of perennial grasses and forbs can be identified vegetatively, it is much more difficult to spot infrequent sward constituents, especially after plants have been cut. Most annuals, unless they have germinated after cutting, are lost entirely.

Whilst some species may have been missed/overlooked as a consequence of mowing, NVC determination is believed to be reliable; although patches of MG7a/e and OV23c may have been missed amongst otherwise dominant MG6a.

Vegetation not Referable to the NVC

As with most site surveys, some stands of vegetation recorded during fieldwork did not fit within the framework of the NVC. For these, mosaic/transitional or non-referable classifications were mapped. Creating mosaic, transitional and unique non-referable classifications can impose constraints on how they are best assessed, e.g. as BAP/s.41 habitats, and how future changes in composition are measured.

Species Recording Limitations

Surveys were restricted to late spring and early summer. Therefore, any species that had died back by mid-April and those that had not emerged by late-June will not have been recorded. Some species, both annuals and perennials, can emerge in one year and not another. Others, particularly diminutive species with a very restricted distribution, will simply have been missed. However, the extent to which species will have been missed/overlooked will have been very much reduced by recording over the course of three days across the two most favourable seasons for plant recording.

2.2 Results

2.2.1 NVC Mapping

24 NVC communities, plus one transitional/mosaic and five non-referable classifications, were mapped during fieldwork. Map 1 provides an overview of broad habitats. Maps 2-5 show the distribution of classifications. Descriptions are provided in Appendix III. A summary is given in Table 1.

Table 1 – Summary of mapped NVC communities, transitions/mosaics and non-referable classifications

Classification	Approx. Area (ha)	No. Stands	Classification	Approx. Area (ha)	No. Stands
A20	0.05	1	'Roads'	0.98	1
'Bare'	0.01	1	S12a	0.01	1
'Hardstanding'	0.54	20	S14a	<0.01	1
MG1a	0.74	36	S23	0.02	1
MG1b	0.12	6	S28a	<0.01	1
MG1c	0.02	1	U4a	0.44	4
MG5a	0.02	2	U4b	1.03	4
MG5c	1.23	35	U20a	0.01	2
MG5a/MG10a	0.07	1	W1	0.01	1
MG6a	1.32	37	W8a	1.56	8
MG6b	2.83	43	W8d	0.22	6
MG10a	0.14	3	W21a	0.06	1
OV24b	0.01	1	W24a	0.06	3
OV27b	0.01	2	W24b	0.02	5
'P.crispus'	0.03	1			
'Pavilion'	0.01	1	TOTAL	11.59	230

2.2.2 Species Recording

289 species of vascular plant, including sub-species but not aggregates where one or more species/sub-species was separated, were recorded during fieldwork, plus one additional species during entomological surveys. Full lists are given in Appendix II. The (non-georeferenced) locations of rare/scarce/threatened species are shown on Maps 2-5. A summary is given in Table 2.

Table 2 – Summary of recorded species
Numbers of non-gramineaceous herbaceous species (forbs) and rare/scarce/threatened species include *Campanula rotundifolia* (only recorded during entomological surveys)

Functional group	No. of Species
Trees and shrubs	39
Other woody species (climbers)	7
Graminoids (grasses, sedges and rushes)	47
Non-gramineaceous herbaceous species (forbs)	188
Ferns and Horsetails	9
Total	290
Rare/scarce/threatened species (see Table 5, Section 2.3.3)	7

2.3 Evaluation

2.3.1 Habitat Evaluation

Eight broad habitats were recorded during fieldwork (Map 1). Of these, four fall within or partly within five national priority Biodiversity Acton Plan (BAP) habitats that are included in the JNCC register of 'Habitats of Principle Importance in England' for which local authorities have a 'biodiversity duty' under Section 41 of the Natural Environment and Rural Communities Act (2006). Table 3 (based on Maddock 2008, updated 2011) and Map 5 provide a summary.

Table 3 – Summary of broad habitats and related priority BAP/s.41 habitats

Broad Habitat	BAP/s.41 Habitat	Approximate Area (ha)
Building		0.01
Grassland[1]	Lowland Dry Acid Grassland Lowland Meadows	7.99
Hardstanding		0.54
Pond[2]	Ponds	0.11
Road		0.98
Scrub[3]	Lowland Meadows Lowland Mixed Deciduous Woodland	0.14
Tall-herb Ruderal[4]	Lowland Meadows	0.02
Woodland[5]	Wet Woodland Lowland Mixed Deciduous Woodland	1.79

Notes:
1 – All U4a and U4b falls within Lowland Dry Acid Grassland BAP/s.41 habitat. Almost all other grassland, either because it is MG5a/c, is restorable to MG5a/c or falls within wet hay cut grassland in association with MG5a/c, falls within the Lowland Meadows BAP/s.41 habitat.
2 – Only the southern pond qualifies as a BAP/s.41 habitat (on the basis of Great Crested Newt and invertebrates)
3 – Only selected stands of W24a and W24b in association with hay cut grassland fall within in the Lowland Meadows BAP/s.41 habitat. Only W21a and selected stands of W24a in association with woodland fall within the Lowland Mixed Deciduous Woodland BAP/s.41 habitat.
4 – All mapped stands of tall-herb ruderal qualify for inclusion within the Lowland Meadows BAP/s.41 habitat because of their association with and/or potential to be restored to MG5 grassland.
5 – Only mapped W1 falls within the Wet Woodland BAP/s.41 habitat. All other woodland (where it qualifies) falls within the Lowland Mixed Deciduous Woodland BAP/s.41 habitat.

2.3.2 Vegetation Community Evaluation

24 NVC communities were mapped during fieldwork. Table 4 gives a guide to the distribution and therefore conservation status of the NVC-types recorded, based on distribution notes given by Rodwell (1991a *et seq*), updated distribution notes and maps given by Rodwell *et al* (2007), SSSI guidelines for lowland grasslands by Jefferson *et al* (2014) and personal experience.

Table 4 – Guide to the national and regional distributions of mapped NVC communities
National = Great Britain
Regional = South East England (Oxfordshire and all counties, including Greater London, south and south-east of here)
Communities in brackets were only recorded from transitional/mosaic classifications

NVC Community	National Distribution	Regional Distribution
A20	Widespread and common in suitably unpolluted open still waters	Rare/Local
MG1a	Widespread and very common	Very Common
MG1b	Widespread and very common	Very Common
MG1c	Widespread and common in suitably wet habitat	Local
MG5a	Widespread but rare	Rare
MG5c	Widespread but rare	Rare
MG6a	Widespread and very common	Very Common
MG6b	Widespread and common	Common
MG10a	Widespread and common in suitably wet habitat	Local/Common
OV24b	Widespread and common	Common
OV27b	Widespread and common	Common
S12a	Widespread and very common in suitably wet habitat	Local/Common
S14a	Widespread and very common in suitably wet habitat	Local/Common
S23	Widespread and very common in suitably wet habitat	Local/Common
S28a	Widespread and very common in suitably wet habitat	Local/Common
U4a	Widespread, especially in western and northern Britain	Rare
U4b	Widespread, especially in western and northern Britain	Rare/Local
U20a	Widespread, especially in western and northern Britain	Local
W1	Widespread but local	Local
W8a	Widespread and common	Common
W8d	Widespread and common	Common
W21a	Widespread and very common	Very Common
W24a	Widespread and very common	Very Common
W24b	Widespread and common	Common

2.3.3 Species Evaluation

A number of rare, scarce and/or nationally threatened species were recorded during fieldwork. Those with a recognised, published conservation status (Cheffings & Farrell 2005, as updated by JNCC 2020, Stroh *et al* 2014, Surrey Botanical Society 2019) are listed in Table 5 and, with the exception of *Campanula rotundifolia* which was not seen during botanical surveys due to relatively early-season recording, were mapped during fieldwork.

As Maps 2-5 reveal, the most important areas for rare/scarce/threatened plants are the acid grassland (including the cricket pitch), stands of species-rich (MG5) hay meadow, ditches south of the cricket pitch and the southern pond.

Table 5 – Rare, scarce and/or threatened species
RDB = UK Red Data Book (Cheffings & Farrell 2005, as updated JNCC 2020), ERL = English Red List (Stroh *et al* 2014), Vulnerable = species facing a high threat of extinction in the wild in the near future, Near Threatened = species facing a high threat of extinction in the wild in the medium-term future, BAP/s.41 = priority BAP species/species "of principal importance for the purpose of conserving biodiversity" covered under Section 41 (England) of the NERC Act, 2006 (JNCC 2020), VC17 Scarce = species recorded in 11-30 (of 2105) 1km squares from 2000 onwards (Surrey Botanical Society 2020), VC17 Declining = species recorded in more than 30 1km squares but declining in population size and/or distribution (Surrey Botanical Society 2020).
* only recorded during entomological surveys

Species	**Conservation Status**
**Campanula rotundifolia*	ERL Near Threatened
Chamaemelum nobile	RDB Vulnerable, ERL Vulnerable, BAP/s.41, VC17 Declining
Fragaria vesca	ERL Near Threatened
Potamogeton berchtoldii	VC17 Scarce
Potentilla erecta ssp. *erecta*	ERL Near Threatened
Ranunculus flammula ssp. *flammula*	ERL Near Threatened
Succisa pratensis	ERL Near Threatened

3 ENTOMOLOGICAL SURVEY

3.1 Methodology

Because it is impracticable to survey all the potential invertebrates within any given site, only specific groups of species were examined during fieldwork. These groups are sufficiently well known as to allow meaningful comparisons to be made with other sites, both locally and nationally. They are also important as indicators of the quality of a site and the habitats present (see Brooks, 1993).

Groups covered during the survey were:

- Mollusca (slugs and snails)
- Arachnida (spiders, harvestmen & pseudoscorpions)
- Isopoda (woodlice)
- Thysanura (bristletails)
- Odonata (dragonflies & damselflies)
- Orthoptera (grasshoppers & crickets)
- Dictyoptera (cockroaches)
- Dermaptera (earwigs)
- Hemiptera-Heteroptera (true-bugs)
- Hemiptera-Homoptera (hoppers)
- Neuroptera (lace-wings)
- Mecoptera (scorpion-flies)
- Lepidoptera (butterflies & moths)
- Diptera (true flies)
- Aculeate Hymenoptera (ants, bees & wasps)
- Coleoptera (beetles)

3.1.1 Surveys and Species Identification

Site surveys were conducted on the following dates: 22nd April; 21st May; 12th July and 2nd September 2020.

During each site visit standard field techniques were employed to sample the invertebrate fauna across Forest Green. These included sweeping vegetation with a wide mouthed sweep net, beating trees and bushes over a beating tray, and grubbing amongst tussocks and key host plant rosettes. Areas with open water were sampled using a 0.5mm GB nets pond net and kick-sampling.

Most invertebrates were identified in the field, but some were collected and preserved for later mounting and identification.

3.1.2 Constraints and Limitations

No nocturnal sampling was carried out so the moth fauna is poorly recorded. The season was atypical with a protracted hot, dry and sunny spring-early summer period, which lead to many species being active much earlier than normal. This was followed by rather unsettled conditions in late summer, but overall coverage was reasonably good.

The ditch/headwater stream to the north of Holy Trinity Church dried up in the drought period, and is likely to support more species of interest in wetter years.

3.2 Results

A total of 564 species of invertebrate were recorded during fieldwork. Full lists are given in Appendix IV. The capture locations of key rare/scarce/threatened species are shown on Map 7. A summary is given in Table 6.

Table 6 – Summary of recorded invertebrate species

Class (Order)	No. Species	Class (Order)	No. Species
Mollusca (Hygrophila)	2	Insecta (Diptera)	66
Mollusca (Littorinimorpha)	1	Insecta (Ephemeroptera)	1
Mollusca (Pulmonata)	10	Insecta (Hemiptera)	112
Crustacea (Amphipoda)	2	Insecta (Hymenoptera)	47
Crustacea (Isopoda)	3	Insecta (Lepidoptera)	55
Arachnida (Araneae)	60	Insecta (Mecoptera)	2
Arachnida (Opiliones)	4	Insecta (Megaloptera)	1
Arachnida (Trombidiformes)	2	Insecta (Neuroptera)	3
Insecta (Coleoptera)	171	Insecta (Odonata)	8
Insecta (Dermaptera)	1	Insecta (Orthoptera)	13
Species of conservation significance	20		

3.3 Evaluation

3.3.1 Species Evaluation

A number of rare, scarce and/or nationally threatened species were recorded during fieldwork. Those with a recognised conservation status are listed in Table 7 (see Appendix V for categories). Appendix VI provides notes on the rare and scarce species.

Table 7 – Summary of rare/scarce and/or threatened Species

Species	Family	Order	Conservation status
Trematocephalus cristatus	Linyphiidae	Araneae	NS
Ero aphana	Mimetidae	Araneae	NS
Ballus chalybeius	Salticidae	Araneae	NS
Marpissa muscosa	Salticidae	Araneae	NS
Theridiosoma gemmosum	Theridiosomatidae	Araneae	NS
Xysticus acerbus	Thomisidae	Araneae	NR
Donacia cinerea	Chrysomelidae	Coleoptera	NS
Coeliodes transversealbofasciatus	Curculionidae	Coleoptera	Nb
Pelenomus olssoni	Curculionidae	Coleoptera	RDB 3
Heterocerus marginatus	Heteroceridae	Coleoptera	NS
Anthocomus fasciatus	Malachiidae	Coleoptera	NS
Stenus fornicatus	Staphylinidae	Coleoptera	Nb
Gymnosoma rotundatum	Tachinidae	Diptera	RDB 3
Acinia corniculata	Tephritidae	Diptera	[RDB 1]
Macropsis glandacea	Cicadellidae	Hemiptera	Nb
Pediopsis tiliae	Cicadellidae	Hemiptera	Nb
Lasius brunneus	Formicidae	Hymenoptera	Na
Dolichovespula media	Vespidae	Hymenoptera	[Na]
Tyria jacobaeae	Erebidae	Lepidoptera	BAP/s.41 Priority Species [research only]
Coenonympha pamphilus	Nymphalidae	Lepidoptera	NT, BAP/s.41 Priority Species

3.3.2 Assemblage Evaluation

There is currently no standard framework for evaluating the invertebrate value of a site, for example as part of Ecological Impact Assessment. However most active invertebrate ecologists have adopted the Pantheon programme to assess sites.

Pantheon was developed by Natural England and the Centre for Ecology and Hydrology to analyse invertebrate sample data and assess assemblage data for favourable versus unfavourable condition by Sites of Special Scientific Interest (SSSI) standards. Hence if one or more assemblages are found to be in favourable condition this would indicate that the site is likely to be of significant importance for invertebrates. Further information on Pantheon is available at http://www.brc.ac.uk/pantheon/about/pantheon.

Users import lists of invertebrates (called "samples") into Pantheon, which then matches the species to the preferred name in the UK species inventory (a list of species maintained by the Natural History Museum). Not all macro-invertebrate taxa are included in the database. To date over c.13000 species have been assessed, this being about a quarter of the total macro-invertebrate fauna of the UK (estimated at 37000). It remains limited to those taxa and families where there is enough ecological information to give a fair level of coding accuracy. These include species such as beetles, flies, bugs and hoppers, moths, ants, bees, wasps, spiders and molluscs.

The method for defining species resources was broadly similar to that followed by Webb *et al* (2010):

> *'For each species, a literature search was undertaken. All relevant ecological information was extracted and added to a spreadsheet. This included structural elements of the habitats that the species is generally associated with (e.g. emergent vegetation, seed heads) and/or other environmental factors that it requires, host plant and/or animal species alongside ecological guild of larvae as well as adults where these differed, (e.g. herbivore, carnivore). Only those resources which were considered important to the species in completing its life cycle were included'.*

The assemblage types are labelled in terms that relate to their favoured habitats in order to make them accessible to non-specialists. However, they are actually defined by lists of characteristic species that are generally found together in nature. Two levels are recognised in the classification. Broad Assemblage Types (BATs) are a comprehensive series of assemblage types that are characterised by more widespread species. They can be expressed in lists from a wide range of sites. Specific Assemblage Types (SATs) are characterised by ecologically restricted species and are generally only expressed in lists from sites with conservation value. Since 2008 there has also been a third category of assemblage type that cuts across this classification. They are mainly defined by lists of species dependent on a particular environmental resource, such as flowers as a source of pollen and nectar. The assemblage type classification is given below (Table 9). Textual descriptions of each assemblage type and its habitats have been prepared for incorporation into a web-based database and are given in Table 8.

Table 8 – Break-down of the available PANTHEON assemblage types with number of species assigned to each assemblage

Arboreal assemblage types	
A1 arboreal canopy (846)	
A2 wood decay (1118)	A211 heartwood decay (175)
	A212 bark & sapwood decay (503)
	A213 fungal fruiting bodies (89)
	A215 epiphyte fauna (20)
Field layer assemblage types	
	F001 scrub edge (179)
	F002 rich flower resource (241)
	F003 scrub-heath and moorland (344)
	F006 dung (99)
F1 unshaded early successional mosaic (1188)	F111 bare sand & chalk (440)
	F112 open short sward (200)
F2 grassland & scrub matrix (1910)	F221 montane & upland (101)
F3 shaded field & ground layer (480)	

Table 9 – Specific Assemblage Types (SATs)

Code	SAT	No. species	% representation	SQI	Reported condition
A212	bark & sapwood decay	31	6	110	favourable
F002	rich flower resource	22	9	110	favourable
F001	scrub edge	11	5	100	favourable
F112	open short sward	5	2	100	Unfavourable (5 of 13 species)
A211	heartwood decay	1	1	175	Unfavourable (1 of 6 species)
W211	open water on disturbed mineral sediments	5	12	100	Unfavourable (5 of 6 species)

The survey recorded three specific assemblage types in favourable condition namely: bark & sapwood decay; scrub edge; and rich flower resource. In effect this means that these assemblages are of SSSI quality and Forest Green supports elements that are of national interest for invertebrates.

4 DISCUSSION

4.1 The Nature Conservation Interest of Forest Green

Forest Green supports approximately 8ha of unimproved acidic and neutral grassland, almost all of which falls within the BAP/s.41 habitats of Lowland Dry Acid Grassland and Lowland Meadows, respectively. Of the latter, approximately 1.3ha falls within the nationally rare community of MG5 and thus qualifies for selection as a Site of Special Scientific Interest (SSSI) (Jefferson *et al* 2014)[4]. Conservation interest is further enhanced by the presence of U4a; a rare community in South East England and extremely rare beyond areas of heathland. Several threatened plants are also present, including the RDB (and ERL) Vulnerable, BAP/s.41 *Chamomilla nobile*.

Whilst hay meadows, because the cut comes before most phytophagous species can complete their life cycles, can be poor habitats for invertebrates, Pantheon assessment has revealed that the flower-rich assemblage of Forest Green is in favourable SSSI condition. The RDB Near Threatened, BAP/s.41 butterfly *Coenonympha pamphilus* (Small Heath) was present in small numbers in 2020.

In addition to grassland, Forest Green supports two ponds, one of which falls within the BAP/s.41 habitat of Ponds, supporting a breeding population of Great Crested Newt (*Triturus cristatus*) and at least five Nationally Scarce invertebrate species (the burrowing water beetles *Heterocerus marginatus* and *H.fenestratus*, both of which were present in good numbers across the large expanse of barely vegetated draw-down*;* the reed beetle *Donacia cinerea*, as well as *D.marginata* and *D.vulgaris*; the Water-purslane feeding weevil *Pelenomus olssoni*; and the picture-winged fly *Acinia corniculata*). The Surrey Scarce pondweed *Potamogeton berchtoldii* is also present (in local abundance). The northern pond, which supports the nationally scarce spider *Theridiosoma gemmosum*, adds to overall site diversity, supporting several species not found elsewhere. It has potential for Great Crested Newt, but no larvae, eggs or adults were seen during 2020 fieldwork.

Almost all of Forest Green's woodland falls within the BAP/s.41 habitat of Lowland Mixed Deciduous Woodland with one pond-side stand of Wet Woodland. Whilst of a recent secondary origin with few rare/scarce/threatened species, stands of woodland support a number of old trees and at least 32 Ancient Woodland Indicator vascular plant species. The invertebrate fauna of its bark and sapwood decay and scrub edge assemblages are also in favourable SSSI condition. The Lime trees around the cricket pavilion support the Nationally Scarce hopper *Pediopsis tiliae*. Elms north of the Ockley Road opposite the Holy Trinity Church support the Nationally Scarce hopper *Macropsis glandacea*, as well as numerous other local Elm feeding taxa.

Seasonal ditches add to overall site diversity, providing suitable habitat for a range of wetland plants not found elsewhere. The ditch/headwater stream to the north of Holy Trinity Church supports the local water beetle *Octhebius bicolon*.

Whilst only the grassland qualifies for selection as a SSSI, all qualifies for designation as a Site of Nature Conservation Interest (SNCI) (Gibbs 2008). The invertebrate fauna, compares favourably with other wildlife-rich village greens in the county, such as those at Dunsfold, Ewhurst and Holmwood.

4.2 Proposed Playground

Given the very high nature conservation value of Forest Green there is nowhere that a playground could be created that would not have a significant negative impact on biodiversity. Whilst it could be argued that losses could be compensated for by mitigation, offsetting and/or enhancement measures, the only location for creating a playground that would not result in the loss of unimproved BAP/s.41 grassland, unless it was undertaken within woodland and/or scrub, is immediately in front of the Parrot Inn. Anywhere else would be contrary to the principles of Biodiversity Net Gain (Baker *et al* 2019), which excludes both statutorily designated sites and irreplaceable habitats.

4.3 Proposed Tree Planting

The irreplaceable, unimproved grassland at Forest Green is of regional, if not national, importance and tree planting is not recommended anywhere.

[4] The threshold for SSSI selection is >0.5ha of MG5.

5 RECOMMENDATIONS

5.1 Management

Although providing management advice is beyond the scope of this report, it would be remiss not to give certain recommendations following such detailed surveys. The following bullet points are not intended to be exhaustive and undoubtedly include prescriptions that are already in place or in the process of being put in place.

5.1.1 Grassland

- As much of the grassland at Forest Green as possible should be managed by annual hay cutting with multiple selected rotationally cut 'islands' left uncut each year to allow grassland invertebrates to complete their life cycles.
- Where such 'islands' are unshaded they should be cut on a 3 years on/one year off rotation (i.e. hay cut for three years along with the rest of the Green, then left uncut in the fourth year but flailed the following winter/spring). All arisings resulting from flailing should ideally be collected and removed from site.
- Selected stands adjacent to woodland and hedges should continue to be flailed on a 2-3 year rotation. Again, arisings should ideally be removed.
- Any chance to introduce aftermath livestock grazing within rotationally sited temporary enclosures across the Green should be explored to control broad-leaved grasses and thereby increase species-richness and the potential for conversion/reversion of MG6 to MG5.
- There should be no further loss of any grassland to scrub or woodland. Despite increasing interest in tree planting and 'rewilding', it will have a negative effect on nature conservation interest and little or no effect on carbon sequestration; in fact, quite possibly the opposite (see for example Alonso *et al* 2014, Friggens *et al* 2020).
- Ditch clearing should be undertaken on a five year rotation. However, it is essential that ditches are never deepened.

5.1.2 Ponds

- Both ponds will require dredging at some point in the future if they are not to be lost. However, it is important not to ever over-deepen shallow ponds and rotational de-silting is always best to ensure maintenance of seed banks and silt-dependent fauna.
- Current methods to maintain the balance of open water (plus summer draw-down) and emergent vegetation (e.g. rotational *Typha* clearance) appear to be highly effective and should continue.
- Regeneration scrub should be cut around each pond as required to maintain a balance between providing shelter and flowers/fruits, and preventing excessive shade. A 'little and often' maintenance approach to cutting is much better than intensive clearances undertaken only once habitats have become so deteriorated that they require restoration.
- All efforts to maintain a culture of no dogs allowed within the southern pond should be maintained (see for example, Denton & Groome 2017, Groome *et al* 2018).

5.1.3 Scrub and Woodland

- Ash Dieback Disease (ADD) is presenting a huge challenge for managers of publicly accessible sites. Whilst dangerous trees must be made safe, it is hoped that at least some trees will either be immune to the worst effects of ADD or develop resistance over time. To this end ADD affected trees should always be cut-back or coppiced in preference to outright felling where ever possible to encourage future regeneration. Invasive non-native trees, e.g. Sycamore and Turkey Oak, should not be allowed to develop to maturity in place of lost Ash trees.
- Consideration should be given to removing the invasive garden plant *Lamiastrum galeobdolon* ssp. *argentatum* (Variegated Archangel), a species listed in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), from woodland to the north of the Green. Chemical treatment is the only effective method of control and will almost certainly need to be applied more than once.

5.1.4 General Maintenance

- The use of herbicides is amongst the most important drivers of global insect declines (Cardoso 2020), with significant negative affects being recorded far from the point of application (e.g. Hallmann *et al* 2017). It is therefore highly recommended that herbicide use (Variegated Archangel control aside) is stopped where ever possible, as soon as possible.
- Efforts to prevent encroachment, garden dumping and the introduction of exotic species should be made by undertaking appropriate stakeholder engagement including, for example, notice board messaging (both on-site and via social media) and guided walks.

5.2 Surveys and Monitoring

5.2.1 Repeat NVC Survey

It is recommended that a repeat NVC survey is conducted in or around 2030 (i.e. 10 years from now). If it is to be accompanied by further invertebrate recording, it would be worth including targeted sampling (using vane traps and subterranean traps) of the saproxylic assemblage.

5.2.3 Monitoring

Photomonitoring is an easy, cheap and effective way to monitor changes over time at a larger scale and should be established across Forest Green.

At a finer scale, and the scale at which important changes may become apparent long before they are visible at the scale of photomonitoring, vegetation monitoring should be established in key parts of the site. It is suggested that this could be relatively simply done using a variation of Natural England's Common Standards Monitoring (CSM) methodology for neutral grasslands (Robertson & Jefferson 2000). Monitoring should ideally be undertaken annually in June/July (before the hay cut) and include hay meadow 'islands' (Section 5.1.1).

6 SITE MAPS

6.1 List of Maps

Map 1 – Broad Habitats
Map 2 – NVC Communities (north)
Map 3 – NVC Communities (centre-north)
Map 4 – NVC Communities (centre-south)
Map 5 – NVC Communities (south)
Map 6 – National Priority BAP/s.41 (NERC Act 2006) Habitats
Map 7 – Locations of Key Invertebrate Sightings

Forest Green Botanical and Entomological Surveys 2020
Map 1 - Summary Habitats
Approximate Scale = 1 : 2500

Broad Habitats

- Building
- Grassland
- Hardstanding
- Pond
- Road
- Tall-herb Ruderal
- Scrub
- Woodland

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Forest Green Botanical and Entomological Surveys 2020
Map 2 - NVC Communities (north)
Approximate Scale = 1 : 1500

NVC Communities

- A20
- 'Bare'
- 'Hardstanding'
- MG10a
- MG1a
- MG1b
- MG1c
- MG5a
- MG5c
- MG5c/MG10a
- MG6a
- MG6b
- OV24b
- OV27b
- 'P.crispus'
- 'Pavilion'
- 'Roads'
- S12a
- S14a
- S23
- S28a
- U20a
- U4a
- U4b
- W1
- W21a
- W24a
- W24b
- W8a
- W8d

Rare/Scarce/Threatened Species

- Chamaemelum nobile
- Fragaria vesca
- Potamogeton berchtoldii
- Potentilla erecta ssp. erecta
- Ranunculus flammula ssp. flammula
- Succisa pratensis

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Forest Green Botanical and Entomological Surveys 2020
Map 3 - NVC Communities (centre-north)
Approximate Scale = 1 : 1500

NVC Communities

- A20
- 'Bare'
- 'Hardstanding'
- MG10a
- MG1a
- MG1b
- MG1c
- MG5a
- MG5c
- MG5c/MG10a
- MG6a
- MG6b
- OV24b
- OV27b
- 'P.crispus'
- 'Pavilion'
- 'Roads'
- S12a
- S14a
- S23
- S28a
- U20a
- U4a
- U4b
- W1
- W21a
- W24a
- W24b
- W8a
- W8d

Rare/Scarce/Threatened Species

- Chamaemelum nobile
- Fragaria vesca
- Potamogeton berchtoldii
- Potentilla erecta ssp. erecta
- Ranunculus flammula ssp. flammula
- Succisa pratensis

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Forest Green Botanical and Entomological Surveys 2020
Map 4 - NVC Communities (centre-south)
Approximate Scale = 1 : 1500

NVC Communities

- A20
- 'Bare'
- 'Hardstanding'
- MG10a
- MG1a
- MG1b
- MG1c
- MG5a
- MG5c
- MG5c/MG10a
- MG6a
- MG6b
- OV24b
- OV27b
- 'P.crispus'
- 'Pavilion'
- 'Roads'
- S12a
- S14a
- S23
- S28a
- U20a
- U4a
- U4b
- W1
- W21a
- W24a
- W24b
- W8a
- W8d

Rare/Scarce/Threatened Species

- Chamaemelum nobile
- Fragaria vesca
- Potamogeton berchtoldii
- Potentilla erecta ssp. erecta
- Ranunculus flammula ssp. flammula
- Succisa pratensis

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Forest Green Botanical and Entomological Surveys 2020
Map 5 - NVC Communities (south)
Approximate Scale = 1 : 1500

NVC Communities

- A20
- 'Bare'
- 'Hardstanding'
- MG10a
- MG1a
- MG1b
- MG1c
- MG5a
- MG5c
- MG5c/MG10a
- MG6a
- MG6b
- OV24b
- OV27b
- 'P.crispus'
- 'Pavilion'
- 'Roads'
- S12a
- S14a
- S23
- S28a
- U20a
- U4a
- U4b
- W1
- W21a
- W24a
- W24b
- W8a
- W8d

Rare/Scarce/Threatened Species

- Chamaemelum nobile
- Fragaria vesca
- Potamogeton berchtoldii
- Potentilla erecta ssp. erecta
- Ranunculus flammula ssp. flammula
- Succisa pratensis

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Forest Green Botanical and Entomological Surveys 2020
Map 6 - National Priority BAP/s.41 (NERC Act 2006) Habitats
Approximate Scale = 1 : 2500

BAP/s/41 Habitat

- Lowland Dry Acid Grassland
- Lowland Meadows
- Lowland Mixed Deciduous Woodland
- Ponds
- Wet Woodland

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Forest Green Botanical and Entomological Surveys 2020
Map 7 - Locations of Key Invertebrate Sightings
Approximate Scale = 1 : 2500

Species

- Acinia corniculata
- Anthocomus fasciatus
- Coeliodes transversalbofaciatus
- Donacia cinerea
- Gymnosoma rotundatum
- Heterocerus marginatus
- Lasius brunneus
- Macropsis glandacea
- Marpissa muscosa
- Octhebius bicolon
- Pediopsis tiliae
- Pelenomus olssoni
- Stenus fornicatus
- Theridiosoma gemmosum
- Trematocephalus cristatus

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APPENDIX I – CHECKLIST OF NVC COMMUNITY-TYPES

The following list of NVC communities covers all community-types referred to in this report (nomenclature given by Rodwell 1991a *et seq* has been revised to follow Stace, 2019 and Hill *et al*, 2008). Communities in **bold** were recorded as individual stands in 2020. Classifications in normal type are either the community within which a sub-community has been recorded or referred to in the text but not mapped in their own right.

Woodland and Scrub Communities

W1 – *Salix cinerea-Galium palustre* woodland
W8 – *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland
W8a - *Primula vulgaris-Glechoma hederacea* sub-community
W8d – *Hedera helix* sub-community
W21 – *Crataegus monogyna-Hedera helix* scrub
W21a –*Hedera helix-Urtica dioica* sub-community
W24 – *Rubus fruticosus-Holcus lanatus* underscrub
W24a – *Cirsium arvense-Cirsium vulgare* sub-community
W24b – *Arrhenatherum elatius-Heracleum sphondylium* sub-community

Grassland Communities

MG1 – *Arrhenatherum elatius* grassland
MG1a – *Festuca rubra* sub-community
MG1b – *Urtica dioica* sub-community
MG1c – *Filipendula ulmaria* sub-community
MG1e – *Centaurea nigra* sub-community
MG5 – *Cynosurus cristatus-Centaurea nigra* grassland
MG5a – *Lathyrus pratensis* sub-community
MG5c – *Danthonia decumbens* sub-community
MG6 – *Lolium perenne-Cynosurus cristatus* grassland
MG6a – typical sub-community
MG6b – *Anthoxanthum odoratum* sub-community
MG7 – *Lolium perenne* leys and related grasslands
MG7a – *Lolium perenne-Trifolium repens* leys
MG7e – *Lolium perenne-Plantago lanceolata* grassland
MG9 – *Holcus lanatus-Deschampsia cespitosa* grassland
MG9b – *Arrhenatherum elatius* sub-community
MG10 – *Holcus lanatus-Juncus effusus* rush-pasture
MG10a – *Juncus effusus* sub-community
U4 - *Festuca ovina* agg.*-Agrostis capillaris-Galium saxatile* grassland
U4a – typical sub-community
U4b – *Holcus lanatus-Trifolium repens* sub-community

Heath and Mire Communities

M23 – *Juncus effusus*/*acutiflorus-Galium palustre* rush-pasture
M23a – *Juncus acutiflorus* sub-community

Aquatic and Swamp Communities

A20 – *Ranunculus peltatus* community
S12 – *Typha latifolia* swamp
S12a – *Typha latifolia* sub-community
S14 – *Sparganium erectum* swamp
S14a – *Sparganium erectum* sub-community
S23 – Other water-margin vegetation
S28 – *Phalaris arundinacea* tall-herb fen
S28a – *Phalaris arundinacea* sub-community

Vegetation of Open Habitats

OV23 – *Lolium perenne-Dactylis glomerata* community
OV23c – *Plantago major-Trifolium repens* sub-community
OV24 – *Urtica dioica-Galium aparine* community
OV24b – *Arrhenatherum elatius-Rubus fruticosus* sub-community
OV26 – *Epilobium hirsutum* community
OV26d – *Arrhenatherum elatius-Heracleum sphondylium* sub-community
OV27 – *Chamaenerion angustifolium* community
OV27b – *Urtica dioica-Cirsium arvense* sub-community

APPENDIX II – VASCULAR PLANT SPECIES LISTS

Recorded on 22nd April; 22nd June and 26th June 2020 by Giles Groome, with the exception of *Campanula rotundifolia* (only recorded by Jonty Denton during later entomological fieldwork). Nomenclature follows Stace (2019).

Taxon	English Name	DAFOR
Canopy and mature open-grown trees		
Acer campestre	Field Maple	O
Acer pseudoplatanus	Sycamore	R
Aesculus hippocastanum	Horse-chestnut	R
Betula pendula	Silver Birch	R
Fagus sylvatica	Beech	R
Fraxinus excelsior	Ash	LA
Ilex aquifolium	Holly	R
Pinus sylvestris	Scots Pine	R
Prunus avium	Wild Cherry	R
Quercus cerris	Turkey Oak	R
Quercus robur	Pedunculate Oak	LA
Salix alba	White Willow	R
Salix caprea	Goat Willow	R
Salix x *fragilis*	Crack Willow	R
Tilia x *europaea*	Lime	O
Shrubs and immature trees		
Acer campestre	Field Maple	R
Acer pseudoplatanus	Sycamore	R
Aesculus hippocastanum	Horse-chestnut	R
Betula pendula	Silver Birch	R
Betula pubescens	Downy Birch	R
Carpinus betulus	Hornbeam	R
Corylus avellana	Hazel	LF
Crataegus laevigata	Midland Hawthorn	R
Crataegus monogyna	Hawthorn	LF
Cupressus lawsoniana	Lawson Cypress	R
Fraxinus excelsior	Ash	R
Ilex aquifolium	Holly	O
Ligustrum ovalifolium	Garden Privet	R
Malus domestica	Apple	R
Prunus avium	Wild Cherry	R
Prunus domestica	Wild Plum	R
Prunus laurocerasus	Cherry Laurel	R
Prunus lusitanica	Portugal Laurel	R
Prunus spinosa	Blackthorn	LA
Prunus x *fruticans*	Hybrid Blackthorn	R
Quercus robur	Pedunculate Oak	O
Ribes rubrum	Red Currant	R
Ribes uva-crispa	Gooseberry	R
Salix caprea	Goat Willow	O
Salix cinerea ssp. *oleifolia*	Grey Willow	O
Salix x *reichardtii*	Hybrid Willow	R
Sambucus nigra	Elder	O
Sorbus aucuparia	Rowan	R
Symphoricarpos albus	Snowberry	R
Taxus baccata	Yew	O
Tilia x europaea	Lime	R
Ulmus procera	English Elm	LA

Taxon	English Name	DAFOR
Climbers (not always found climbing)		
Hedera helix	Ivy	LD
Lonicera periclymenum	Honeysuckle	LA
Rosa arvensis	Field Rose	LF
Rosa canina agg.	Dog Rose	O
Rubus fruticosus agg.	Bramble	LD
Solanum dulcamara	Bittersweet	LF
Tamus communis	Black Bryony	R
Woody species seedlings and saplings		
Acer campestre	Field Maple	LF
Acer pseudoplatanus	Sycamore	R
Aesculus hippocastanum	Horse-chestnut	R
Betula pendula	Silver Birch	R
Betula pubescens	Downy Birch	R
Buddleja davidii	Butterfly-bush	R
Corylus avellana	Hazel	O
Crataegus monogyna	Hawthorn	R
Fraxinus excelsior	Ash	LA
Ilex aquifolium	Holly	R
Prunus avium	Wild Cherry	R
Prunus domestica	Wild Plum	R
Prunus laurocerasus	Cherry Laurel	R
Prunus spinosa	Blackthorn	O
Quercus cerris	Turkey Oak	R
Quercus robur	Pedunculate Oak	O
Salix caprea	Goat Willow	O
Salix cinerea ssp. *oleifolia*	Grey Willow	R
Sambucus nigra	Elder	R
Symphoricarpos albus	Snowberry	R
Syringa vulgaris	Lilac	R
Taxus baccata	Yew	R
Tilia x *europaea*	Lime	R
Ulmus procera	English Elm	LF
Graminoids		
Agrostis canina	Velvet Bent	LA
Agrostis capillaris	Common Bent	LA
Agrostis stolonifera	Creeping Bent	LF
Alopecurus geniculatus	Marsh Foxtail	R
Alopecurus pratensis	Meadow Foxtail	LA
Anisantha sterilis	Barren Brome	R
Anthoxanthum odoratum	Sweet Vernal-grass	A
Arrhenatherum elatius	False Oat-grass	LD
Brachypodium sylvaticum	False-brome	LA
Bromopsis ramosa	Hairy Brome	R
Bromus hordeaceus ssp. *hordeaceus*	Soft-brome	R
Carex divulsa ssp. *divulsa*	Grey Sedge	R
Carex leporina	Oval Sedge	LF
Carex pendula	Pendulous Sedge	O
Carex remota	Remote Sedge	LF
Carex sylvatica	Wood-sedge	R
Cynosurus cristatus	Crested Dog's-tail	R
Dactylis glomerata	Cock's-foot	F
Danthonia decumbens	Heath-grass	LA
Deschampsia cespitosa	Tufted Hair-grass	LF
Elymus caninus	Bearded Couch	R
Elymus repens	Common Couch	O
Festuca ovina agg.	Sheep's-fescue	R

Taxon	English Name	DAFOR
Festuca rubra agg.	Red Fescue	A
Holcus lanatus	Yorkshire-fog	A
Holcus mollis	Creeping Soft-grass	LA
Hordeum murinum	Wall Barley	R
Hordeum secalinum	Meadow Barley	R
Juncus acutiflorus	Sharp-flowered Rush	R
Juncus articulatus	Jointed Rush	R
Juncus bufonius	Toad Rush	LF
Juncus conglomeratus	Compact Rush	LF
Juncus effusus	Soft-rush	LA
Juncus inflexus	Hard Rush	R
Lolium perenne	Perennial Rye-grass	LA
Luzula campestris	Field Woodrush	A
Melica uniflora	Wood Melick	O
Nardus stricta	Mat-grass	LA
Phalaris arundinacea	Reed Canary-grass	R
Phleum bertolonii	Smaller Cat's-tail	O
Phleum pratense	Timothy	R
Poa annua	Annual Meadow-grass	LA
Poa nemoralis	Wood Meadow-grass	R
Poa pratensis	Smooth Meadow-grass	O
Poa trivialis	Rough Meadow-grass	LA
Schedonorus arundinaceus	Tall Fescue	O
Schedonorus giganteus	Giant Fescue	R
Ferns and horsetails		
Asplenium scolopendrium	Hart's-tongue	R
Dryopteris affinis ssp. *borreri*	Scaley Male-fern	R
Dryopteris dilatata	Broad Buckler-fern	LF
Dryopteris filix-mas	Male-fern	LA
Equisetum arvense	Field Horsetail	R
Polypodium vulgare	Polypody	R
Polystichum aculeatum	Hard Shield-fern	LF
Polystichum setiferum	Soft Shield-fern	R
Pteridium aquilinum	Bracken	R
'Herbs'		
Achillea millefolium	Yarrow	LF
Achillea ptarmica	Sneezewort	R
Aegopodium podagraria	Ground-elder	LA
Agrimonia eupatoria	Agrimony	R
Ajuga reptans	Bugle	LA
Alisma plantago-aquatica	Water-plantain	R
Alliaria petiolata	Garlic Mustard	LF
Allium paradoxum	Few-flowered Garlic	R
Anacamptis pyramidalis	Pyramidal Orchid	R
Anemone nemorosa	Wood Anemone	R
Angelica sylvestris	Wild Angelica	R
Anthriscus sylvestris	Cow Parsley	LA
Arabidopsis thaliana	Thale-cress	R
Arctium minus	Lesser Burdock	R
Armorica rusticana	Horse-radish	R
Artemisia vulgaris	Mugwort	R
Arum maculatum	Lord's-and-ladies	O
Bellis perennis	Daisy	LA
Callitriche spp.	Water-starworts	LA
Callitriche stagnalis	Common Water-starwort	LA
Calystegia sepium ssp. *sepium*	Hedge Bindweed	R
Campanula persicifolia	Peach-leaved Bellflower	R

Taxon	English Name	DAFOR
**Campanula rotundifolia*	Harebell	R
Capsella bursa-pastoris	Shepherd's-purse	R
Cardamine flexuosa	Wavy Bittercress	LF
Cardamine hirsuta	Hairy Bittercress	R
Cardamine pratensis	Cuckooflower	LA
Centaurea nigra	Common Knapweed	A
Cerastium fontanum	Common Mouse-ear	F
Cerastium glomeratum	Clustered Mouse-ear	LF
Chamaemelum nobile	Chamomile	R
Chamaenerion angustifolium	Rosebay Willowherb	LA
Chenopodium album	Fat-hen	R
Circaea lutetiana	Enchanter's-nightshade	LF
Cirsium arvense	Creeping Thistle	O
Cirsium palustre	Marsh Thistle	O
Cirsium vulgare	Spear Thistle	R
Conopodium majus	Pignut	F
Convolvulus arvensis	Field Bindweed	R
Crepis capillaris	Smooth Hawk's-beard	R
Dactylorhiza fuchsii	Common Spotted-orchid	R
Digitalis purpurea	Foxglove	R
Epilobium ciliatum	American Willowherb	R
Epilobium hirsutum	Greater Willowherb	O
Epilobium montanum	Broad-leaved Willowherb	O
Epilobium parviflorum	Hoary Willowherb	R
Epilobium tetragonum ssp. *tetragonum*	Square-stalked Willowherb	R
Erigeron floribundus	Bilbao's Fleabane	R
Ervum tetraspermum	Smooth Tare	O
Euphorbia amygdaloides ssp. *robbiae*	Wood Spurge	R
Euphorbia peplus	Petty Spurge	R
Ficaria verna	Lesser Celandine	F
Ficaria verna ssp. *fertilis*		R
Ficaria verna ssp. *verna*		LA
Filipendula ulmaria	Meadowsweet	R
Fragaria vesca	Wild Strawberry	R
Galeopsis bifida / *tetrahit*	Bifid / Common Hemp-nettle	R
Galium album	Hedge Bedstraw	R
Galium aparine	Cleavers	LA
Galium palustre	Common Marsh-bedstraw	LF
Galium palustre ssp. *elongatum*		x
Galium palustre ssp. *palustre*		x
Galium saxatile	Heath Bedstraw	LA
Geranium dissectum	Cut-leaved Crane's-bill	O
Geranium robertianum	Herb-Robert	LA
Geranium x *oxonianum*	Druce's Crane's-bill	R
Geum urbanum	Wood Avens	LF
Glechoma hederacea	Ground-ivy	LA
Gnaphalium uliginosum	Marsh Cudweed	R
Helleborus foetidus	Stinking Hellebore	R
Helminthotheca echioides	Bristly Oxtongue	R
Helosciadium nodiflorum	Fool's-watercress	R
Heracleum sphondylium	Hogweed	LF
Hyacinthoides hispanica	Spanish Bluebell	R
Hyacinthoides non-scripta	Bluebell	LA
Hyacinthoides x *massartiana*	Hybrid Bluebell	O
Hypericum androsaemum	Tutsan	R
Hypericum perforatum	Perforate St John's-wort	LF
Hypericum tetrapterum	Square-stalked St John's-wort	O
Hypochaeris radicata	Cat's-ear	LA
Iris foetidissima	Stinking Iris	R

Taxon	English Name	DAFOR
Iris pseudacorus	Yellow Iris	LD
Jacobaea vulgaris	Common Ragwort	R
Lamiastrum galeobdolon ssp. *argentatum*	Variegated Archangel	R
Lamiastrum galeobdolon ssp. *montanum*	Yellow Archangel	LF
Lamium album	White Dead-nettle	R
Lamium purpureum	Red Dead-nettle	R
Lapsana communis	Nipplewort	O
Lathyrus pratensis	Meadow Vetchling	LF
Lemna minuta	Least Duckweed	LF
Lemna minor	Lesser Duckweed	R
Lepidium didymum	Lesser Swine-cress	R
Leucanthemum vulgare	Oxeye Daisy	LA
Leucojum aestivum ssp. *pulchellum*	Summer Snowflake	R
Linaria purpurea	Purple Toadflax	R
Lotus corniculatus	Common Bird's-foot-trefoil	LA
Lotus pedunculatus	Large Bird's-foot-trefoil	LA
Lunaria annua	Honesty	R
Lysimachia arvensis	Scarlet Pimpernel	R
Lysimachia nummularia	Creeping-Jenny	LF
Lythrum portula	Water-purslane	R
Matricaria discoidea	Pineappleweed	R
Medicago lupulina	Black Medick	R
Melilotus albus / *altissimus* / *officinalis*	White / Tall / Ribbed Melilot	R
Mentha x *villosa*	Apple-mint	R
Mercurialis perennis	Dog's Mercury	LA
Moehringia trinervia	Three-nerved Sandwort	O
Myosotis arvensis	Field Forget-me-not	R
Myosotis scorpioides	Water Forget-me-not	LF
Myosotis sylvatica	Wood Forget-me-not	O
Narcissus agg.	Daffodils	O
Nasturtium officinale	Water-cress	R
Oenanthe crocata	Hemlock Water-dropwort	R
Oenothera sp.	an Evening-primrose	R
Pentaglottis sempervirens	Green Alkanet	O
Persicaria hydropiper	Water-pepper	R
Persicaria maculosa	Redshank	R
Petasites fragrans	Winter Heliotrope	R
Pilosella officinarum	Mouse-ear-hawkweed	LF
Pimpinella saxifraga	Burnet-saxifrage	O
Plantago coronopus	Buck's-horn Plantain	R
Plantago lanceolata	Ribwort Plantain	F
Plantago major	Greater Plantain	LF
Polygonum aviculare	Knotgrass	LF
Polygonum depressum	Equal-leaved Knotgrass	LF
Potamogeton berchtoldii	Small Pondweed	LA
Potamogeton crispus	Curled Pondweed	LA
Potentilla anserina	Silverweed	LA
Potentilla erecta	Tormentil	LA
Potentilla reptans	Creeping Cinquefoil	O
Potentilla sterilis	Breen Strawberry	R
Potentilla x *mixta*	Hybrid Cinquefoil	R
Primula vulgaris	Primrose	O
Primula x *polyantha*	Polyanthus	O
Prunella vulgaris	Selfheal	LA
Pulicaria dysenterica	Common Fleabane	O
Pulmonaria officinalis	Lungwort	R
Ranunculus acris	Meadow Buttercup	F
Ranunculus auricormis	Goldilocks Buttercup	LF
Ranunculus bulbosus	Bulbous Buttercup	LA

Taxon	English Name	DAFOR
Ranunculus flammula ssp. *flammula*	Lesser Spearwort	LF
Ranunculus peltatus	Pond Water-crowfoot	LA
Ranunculus repens	Creeping Buttercup	LA
Rumex acetosa	Common Sorrel	F
Rumex acetosella	Sheep's Sorrel	R
Rumex conglomeratus	Clustered Dock	R
Rumex crispus	Curled Dock	O
Rumex obtusifolius	Broad-leaved Dock	O
Rumex sanguineus	Wood Dock	LA
Sagina procumbens	Procumbent Pearlwort	R
Scrophularia auriculata	Water Figwort	R
Scrophularia nodosa	Common Figwort	O
Senecio vulgaris	Groundsel	R
Silene dioica	Red Campion	O
Sisymbrium officinale	Hedge Mustard	R
Sonchus arvensis	Perennial Sow-thistle	R
Sonchus asper	Prickly Sow-thistle	R
Sonchus oleraceus	Smooth Sow-thistle	R
Sparganium erectum	Branched Bur-reed	LD
Stachys sylvatica	Hedge Woundwort	O
Stellaria graminea	Lesser Stitchwort	F
Stellaria holostea	Greater Stitchwort	LF
Stellaria media	Common Chickweed	R
Succisa pratensis	Devil's-bit Scabious	R
Taraxacum agg.	Dandelions	LF
Torilis japonica	Upright Hedge-parsley	R
Trifolium dubium	Lesser Trefoil	R
Trifolium micranthum	Slender Trefoil	R
Trifolium pratense	Red Clover	LF
Trifolium repens	White Clover	LA
Tripleurospermum inodorum	Scentless Mayweed	R
Typha latifolia	Bulrush	LD
Urtica dioica	Common Nettle	LA
Veronica arvensis	Wall Speedwell	R
Veronica beccabunga	Brooklime	R
Veronica chamaedrys	Germander Speedwell	LA
Veronica filiformis	Slender Speedwell	R
Veronica hederifolia ssp. *hederifolia*	Ivy-leaved Speedwell	R
Veronica hederifolia ssp. *lucorum*	Ivy-leaved Speedwell	LF
Veronica montana	Wood Speedwell	LF
Veronica persica	Common Field-speedwell	R
Veronica serpyllifolia ssp. *serpyllifolia*	Thyme-leaved Speedwell	O
Vicia cracca	Tufted Vetch	LF
Vicia sativa ssp. *nigra*	Common Vetch	R
Vicia sativa ssp. *segetalis*	Common Vetch	O
Vicia sepium	Bush Vetch	LF
Vinca major	Greater Periwinkle	R
Vinca minor	Lesser Periwinkle	R
Viola odorata	Sweet Violet	R
Viola riviniana	Common Dog-violet	LF

APPENDIX III – NVC COMMUNITY DESCRIPTIONS

The following sections are broken down by broad habitat-type as per Map 1. Nomenclature follows Stace (2019) for vascular plants and Hill *et al* (2008) for bryophytes.

1 Grassland Communities

Eleven NVC grassland communities plus one transitional/mosaic and one non-referable classification were mapped during fieldwork.

MG1a (*Arrhenatherum elatius* grassland; *Festuca rubra* sub-community)

MG1a is largely restricted to late-summer flail cut stands on the margins of ditches (and thus also roads[5]). Most stands are therefore not only late-summer cut, with arisings left in-situ, but also disturbed by the periodic deposition of ditch-dredged spoil (ditch clearance is understood to be undertaken every 4-5 years). It also occurs beneath groups of trees and in the roadside strip north of the Ockley Road (north of Beech Cottages), where swards are no longer cut at all. The stand in front of Green Bank Cottages has been disturbed for many years by intermittent car parking.

All stands support abundant, locally overwhelmingly dominant, *Arrhenatherum elatius*. *Dactylis glomerata, Festuca rubra* and *Holcus lanatus* are more-or-less constant and each, notably the latter two species, locally abundant (very locally dominant). *Alopecurus pratensis, Schedonorus arundinaceus* and *Elymus repens* are less common but can also be locally abundant. *Poa trivialis, Agrostis capillaris, Agrostis stolonifera* and *Lolium perenne* are locally frequent (rarely locally abundant). *Deschampsia cespitosa* is very locally frequent, e.g. in the ditch flanking stand to the west of the southern pond.

Stands are for the most part rather forb-poor; although on the margins of MG5a/c stands are usually much richer and support narrow (too small to map separately) strips of MG1e with species such as *Centaurea nigra, Leucanthemum vulgare, Lotus corniculatus* and *Ranunculus acris*. Amongst the most common species, each of which can be locally abundant, are *Anthriscus sylvestris, Cirsium arvense, Rumex acetosa, Ranunculus repens, Heracleum sphondylium* and (especially within shaded stands besides boundary hedgerows) *Rumex sanguineus*. *Epilobium hirsutum* and *Pulicaria dysenterica* are very locally common within and besides ditches. Scattered associates include *Lotus pedunculatus, Geum urbanum, Potentilla anserina, Trifolium repens, Achillea millefolium, Plantago lanceolata* and *Artemisia vulgaris*. Species noted from within ditches include *Myosotis scorpioides, Nasturtium officinale, Galium palustre, Hypericum tetrapterum, Iris pseudacorus, Cirsium palustre, Ranunculus flammula, Veronica beccabunga* and *Filipendula ulmaria*. *Anacamptis pyramidalis* is present above the southern bank of the northern pond.

Two stands of MG1a to the south of the Ockley Road support mature *Tilia* x *europaea* trees; one to the south, the other to the north of the cricket pitch. A little *Hedera helix, Rubus fruticosus* and *Lonicera periclymenum* are present here. *Rubus fruticosus* is also locally very common in some stretches of ditch[6].

Bryophytes appear to be infrequent within MG1a and only *Brachythecium rutabulum* and *Pseudoscleropodium purum* were noted during fieldwork.

MG1b (*Arrhenatherum elatius* grassland; *Urtica dioica* sub-community)

MG1b is confined to shaded ditches and ditch-side grassland on the margins of the Green. Stands are thus not only shaded but also enriched by the deposition of ditch-dredged spoil. Most are excluded from the annual mid-summer hay cut and thus maintained by periodic late summer flailing with arisings left in-situ.

Stands for the most part comprise species-poor assemblages of coarse *Arrhenatherum elatius* with *Holcus lanatus, Urtica dioica, Heracleum sphondylium* and, north of Holy Trinity Church, locally abundant (to locally dominant) *Aegopodium podagraria*. Other scattered and/or locally common species include *Cirsium arvense, Dactylis glomerata, Alopecurus pratensis, Rumex sanguineus, Anthriscus sylvestris, Galium aparine, Poa trivialis, Geranium robertianum, Rumex acetosa* and *Rubus fruticosus*.

[5] Most road verges include a very narrow strip (too small to map separately) of mown MG6a grassland beside the road itself.

[6] The ditch within the stand of MG1a mapped immediately to the west of the former Congregational Chapel (west of the Horsham Road), falls within W24b but was too small to map separately.

No attempt was made to record bryophytes.

MG1c (*Arrhenatherum elatius* grassland; *Filipendula ulmaria* sub-community)

The single stand of mapped MG1c, situated on the eastern margins of the southern pond, is highly atypical having developed following tree and scrub clearance undertaken within the last five years or so. All is now included in the mid-summer hay cut or, on the margins of the pond itself, late summer flailing.

The stand comprises a mixture of damp grassland dominated by *Arrhenatherum elatius, Holcus lanatus, Alopecurus pratensis, Schedonorus arundinaceus* and *Dactylis glomerata* with *Lotus pedunculatus, Centaurea nigra, Cirsium arvense, Rumex sanguineus* and *Iris pseudacorus*. Other species noted during fieldwork include *Stellaria graminea, Cirsium palustre, Mentha aquatica, Rumex acetosa, Deschampsia cespitosa, Plantago lanceolata, Ranunculus repens, Calystegia sepium* and post-cut regeneration *Salix cinerea*. *Juncus effusus* and *Galium palustre* ssp. *palustre* are present on the margins of the pond. No attempt was made to record bryophytes.

MG5a (*Cynosurus cristatus-Centaurea nigra* agg. grassland, *Lathyrus pratensis* sub-community)

Only one stand of MG5a (split in two by a trampled MG6a mapped path) was recorded during fieldwork; although many stands of MG5c, especially those lacking *Potentilla erecta*, can be very close in composition. All falls within the *Juncus acutiflorus* variant of MG5a referred to but not described by Rodwell (1992b) and Rodwell *et al* (2000).

Situated within a winter-wet seepage, it is dominated by *Festuca rubra* and *Juncus acutiflorus* with *Holcus lanatus, Alopecurus pratensis, Carex leporina, Anthoxanthum odoratum, Juncus effusus* and *Juncus conglomeratus*. The most common forbs are *Centaurea nigra, Lotus pedunculatus, Ranunculus repens, Potentilla anserina, Ranunculus acris, Rumex acetosa, Cirsium palustre* and *Plantago lanceolata*. As with all other stands of MG5, grass:forb ratio is high.

No attempt was made to record bryophytes.

MG5c (*Cynosurus cristatus-Centaurea nigra* agg. grassland, *Danthonia decumbens* sub-community)

MG5c is confined to mid-summer hay-cut grassland where grass:forb ratio is high. Most stands are also species-rich, but some poorer swards have been separated from what can be extremely similar MG6b on the basis of grass:forb ratio and the relatively high cover of key indicators such as *Centaurea nigra, Lotus corniculatus, Potentilla erecta, Pimpinella saxifraga, Leucanthemum vulgare, Ranunculus bulbosus* and *Trifolium pratense*.

Stands, which are atypical given that *Cynosurus cristatus* and *Danthonia decumbens* are largely absent, are dominated by *Festuca rubra, Holcus lanatus, Anthoxanthum odoratum* and *Luzula campestris* with locally abundant/co-dominant *Agrostis capillaris* and, in damper stands, *Agrostis canina*. *Dactylis glomerata* is a scattered associate. *Juncus conglomeratus, Carex leporina, Agrostis stolonifera, Deschampsia cespitosa* and *Juncus effusus* are scattered only in damper stands. Other species include very locally frequent *Alopecurus pratensis, Schedonorus arundinaceus, Poa trivialis, Poa pratensis, Lolium perenne* and *Phleum bertolonii*. *Hordeum secalinum, Danthonia decumbens, Cynosurus cristatus* and *Holcus mollis* are rare.

Centaurea nigra and *Lotus corniculatus* are the most common forbs with locally abundant (sometimes very abundant) *Leucanthemum vulgare*. Other very common, more-or-less constant, species include *Hypochaeris radicata, Plantago lanceolata, Rumex acetosa, Ranunculus acris, Stellaria graminea, Trifolium pratense* and *Cerastium fontanum*. *Ranunculus bulbosus, Potentilla erecta, Conopodium majus, Prunella vulgaris* and *Potentilla reptans* are locally common in drier swards with *Ranunculus repens, Cardamine pratensis, Lotus pedunculatus, Vicia cracca, Potentilla anserina* and *Cirsium palustre* in damper grassland. Scattered associates include *Trifolium repens, Achillea millefolium, Heracleum sphondylium, Pimpinella saxifraga, Veronica chamaedrys, Pilosella officinarum, Ervilla hirsuta, Vicia sativa* ssp. *segetalis, Hypericum perforatum, Lathyrus pratensis, Taraxacum* agg., *Bellis perennis, Ervum tetraspermum, Geranium dissectum* and *Vicia sativa* ssp. *nigra*. A handful of *Dactylorhiza fuchsii* are also present; notably within the most southerly mapped stand (east of the Horsham Road).

Bryophytes appear for the most part to be poorly represented; although *Rhytidiadelphus squarrosus, Kindbergia praelonga, Calliergonella cuspidata, Pseudoscleropodium purum* and *Brachythecium rutabulum* are all at least locally frequent.

MG5c/MG10a (*Cynosurus cristatus-Centaurea nigra* agg. grassland, *Danthonia decumbens* sub-community/*Holcus lanatus-Juncus effusus* rush-pasture, *Juncus effusus* sub-community)

The only stand of transitional MG5c/MG10a mapped during fieldwork is similar to that recorded as MG5a, except here *Holcus lanatus* and *Juncus effusus* are key components and swards include scattered and locally frequent *Potentilla erecta*. All is mid-summer hay cut.

Swards are dominated by *Holcus lanatus* with *Festuca rubra, Anthoxanthum odoratum, Agrostis canina, Juncus effusus* and *Juncus conglomeratus*. *Juncus acutiflorus, Agrostis stolonifera* and *Carex leporina* are locally abundant with occasional *Alopecurus pratensis* and *Deschampsia cespitosa*.

Centaurea nigra remains abundant with frequent *Lotus pedunculatus, Rumex acetosa* and *Ranunculus acris*. *Ranunculus repens, Potentilla anserina* and *Plantago lanceolata* are locally abundant. Scattered associates include *Cirsium palustre, Cardamine pratensis, Lathyrus pratensis, Trifolium pratense, Lotus corniculatus* and *Potentilla erecta*.

No attempt was made to record bryophytes.

MG6a (*Lolium perenne-Cynosurus cristatus grassland,* typical sub-community)

MG6a at Forest Green falls within four types of grassland: amenity mown; trampled (mown or not); coarse mown; and hay cut. Most amenity mown swards are cut on a regular basis by owners/occupiers of adjacent properties; although some is undertaken by the cricket club and some, e.g. adjacent to roads, by Mole Valley District Council grass cutting contractors. The mid-summer hay cut is undertaken by a local farmer.

Non-shaded amenity mown stands are the richest, being derived from previously hay cut grassland. However, regular mowing has altered composition and few areas support the suite of meadow species found in MG5 and none the preferential graminoids of U4. Most stands are thus composed of closed swards dominated by *Agrostis capillaris, Festuca rubra* and/or *Holcus lanatus*. *Luzula campestris* can also be abundant, but *Anthoxanthum odoratum* is rare throughout. *Lolium perenne* is also locally abundant, most notably in front of the Parrot Inn and in coarse mown grassland to the north of Green Wicket. It is commonly dominant along what are universally species-poor trampled paths. Other species include occasional/locally frequent *Dactylis glomerata, Alopecurus pratensis, Poa trivialis, Agrostis stolonifera, Poa pratensis* and very sparse *Hordeum secalinum*. *Juncus bufonius* is frequent across the *Agrostis capillaris* dominated cricket square. *Holcus mollis* is locally abundant in hay cut MG6a to the north of Tillies Farm. *Elymus repens* is abundant on the roadside verge beside the former Congregational Chapel ('The Studio' on the 1974 OS map).

Most amenity mown swards support frequent and/or locally abundant *Achillea millefolium, Hypochaeris radicata, Trifolium repens* (the only common forb across the cricket square), *Prunella vulgaris, Bellis perennis, Cerastium fontanum, Ranunculus repens, Potentilla reptans, Stellaria graminea, Plantago lanceolata* and *Taraxacum* agg. and can thus be very close in composition to MG7e; although species-poor stands of very heavily trampled *Lolium-T.repens* grassland in front of the Parrot Inn are closer to MG7a. *Ranunculus repens* is abundant in the coarse mown stand between Tumblers and Green Wicket with frequent *Trifolium repens*, locally abundant *Potentilla anserina* and occasional *Cirsium arvense, Heracleum sphondylium* and *Rumex obtusifolius*. Most trampled paths support only a scattering of forbs such as *Taraxacum* agg., *Polygonum aviculare, Plantago major* and *Trifolium repens*. They can thus be extremely close to OV23c and further recording may indeed show this community to be present in small quantity. Hay cut stands, most of which are shaded to some degree, support a scattering of meadow forbs such as *Centaurea nigra* and *Lotus corniculatus*, but grass:forb ratio is always low. In boundary edge stands woodland/hedge species such as *Hedera helix, Urtica dioica, Anthriscus sylvestris* and *Rubus fruticosus* can be present. A very small stand of *Pteridium-Rubus* (W25a but too small to map separately) is present in boundary edge MG6a to the north of Tillies Farm.

Bryophytes were barely searched for during fieldwork, although *Calliergonella cuspidata* and *Rhytidiadelphus squarrosus* were both noted to be at least locally common in the amenity mown MG6a in front of Green Wicket.

MG6b (*Lolium perenne-Cynosurus cristatus grassland, Anthoxanthum odoratum* sub-community)

MG6b is the most common grassland community at Forest Green. It is for the most part similar in composition to MG5c, but swards typically lack the diversity of that community and grass:forb ratio is relatively low. Nevertheless, all stands are mid-summer hay cut.

Swards are dominated by *Agrostis capillaris, Holcus lanatus* and/or *Festuca rubra* with *Anthoxanthum odoratum* and *Luzula campestris*. *Lolium perenne* can be locally common but is usually sparse or absent. *Cynosurus cristatus* is rare throughout. Other species include locally common *Alopecurus pratensis* (notably in recently disturbed swards opposite Tillies Barn), *Holcus mollis, Poa trivialis, Agrostis canina* and *Agrostis stolonifera*. *Phleum bertolonii, Dactylis glomerata, Poa pratensis, Schedonorus arundinaceus* and, on the margins of MG1a, *Arrhenatherum elatius* are occasional.

The most common forbs are the same as those for MG5c, although the cover of key MG5 indicators, notably *Centaurea nigra* and *Lotus corniculatus*, is usually low and there is very little *Potentilla erecta* or *Pimpinella saxifraga*. To the west of the cricket pavilion *Potentilla* x *mixta* is very common; seemingly in place of *Potentilla erecta*.

Bryophytes appear for the most part to be poorly represented; although *Rhytidiadelphus squarrosus, Kindbergia praelonga, Pseudoscleropodium purum* and *Brachythecium rutabulum* are all at least locally frequent.

MG10a (*Holcus lanatus-Juncus effusus* rush-pasture, *Juncus effusus* sub-community)

MG10a is restricted to northern stands of low-lying wet grassland opposite Collins Farm and one recently restored stand of damp grassland on the eastern margins of the southern pond. Both stands are hay cut; although it is understood that arisings have not always been collected dur to the wet conditions.

Swards are for the most part dominated by *Holcus lanatus* with abundant *Juncus effusus* and frequent *Juncus conglomeratus* and *Anthoxanthum odoratum*. *Agrostis canina* and *Juncus acutiflorus* are locally abundant (central parts of the largest stand are very close to M23a); *Agrostis stolonifera* locally frequent. Scattered associates include *Arrhenatherum elatius, Festuca rubra, Schedonorus arundinaceus* and *Alopecurus pratensis*. *Carex leporina* and *Alopecurus geniculatus* are sparse. *Carex pendula* and *Deschampsia cespitosa* are scattered in the stand beside the southern pond.

The most common MG10a forbs are *Rumex acetosa, Lotus pedunculatus, Stellaria graminea, Centaurea nigra* and *Ranunculus repens*. *Galium palustre* is locally abundant and *Potentilla anserina* locally frequent. Scattered associates include *Rumex obtusifolius, Cardamine pratensis, Rumex sanguineus, Cirsium palustre, Ranunculus acris, Lathyrus pratensis* and *Plantago lanceolata*. Other species include *Heracleum sphondylium, Epilobium hirsutum* and *Angelica sylvestris*. 15 *Dactylorhiza fuchsii* plants were recorded within the largest stand. *Oenanthe crocata, Pulicaria dysenterica* and a little post-cut regeneration *Salix cinerea* are present in small quantity beside the southern pond.

No attempt was made to record bryophytes.

U4a (*Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, typical sub-community)

U4a at Forest Green is confined to base-poor low productivity hay cut grassland to the south of the cricket pitch. Swards are somewhat atypical of the community nationally with, for example, *Festuca rubra* virtually replacing *Festuca ovina*.

Swards are dominated by *Festuca rubra* and *Agrostis capillaris* or, in damper areas, *Agrostis canina* with abundant *Anthoxanthum odoratum, Luzula campestris* and *Danthonia decumbens*. *Nardus stricta* is locally abundant, *Holcus lanatus* frequent, *Deschampsia cespitosa* occasional and *Carex leporina* locally frequent. *Festuca ovina* is rare.

Potentilla erecta is abundant throughout U4a with rather more local *Galium saxatile*. All other forbs, including *Centaurea nigra, Lotus corniculatus, Lotus pedunculatus, Hypochaeris radicata* and *Rumex acetosa*, are infrequent, although *Pilosella officinarum* and *Succisa pratensis* are very locally abundant and *Achillea ptarmica* very locally frequent. *Ranunculus flammula* is frequent (usually amongst swathes of *Agrostis canina*) within the three ditches that fall within the boundary of mapped U4a.

By contrast to stands of neutral grassland, U4a swards are rather open, supporting carpets of *Rhytidiadelphus squarrosus*. *Calliergonella cuspidata* and *Hypnum jutlandicum* are locally abundant.

U4b (*Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, *Holcus lanatus-Trifolium repens* sub-community)

U4b differs only very slightly from U4a in supporting swards that appear to be a little more productive. It dominates the whole of the regularly mown cricket pitch, bar the infield (MG6a), and occurs within hay meadow mown grassland both to the north and south; although much of the stand to the north of the Ockley Road went uncut in 2019 to conserve *Campanula rotundifolia* plants which had not begun flowering by the time of the hay cut[7].

Swards are dominated by either *Festuca rubra* (hay cut stands), *Festuca rubra* and *Agrostis capillaris* (hay cut stands), or *Agrostis canina* (the cricket pitch) with *Anthoxanthum odoratum, Luzula campestris* (much less so across the cricket pitch) and *Holcus lanatus*. *Danthonia decumbens* is frequent across the cricket pitch but rather more local elsewhere (it was not seen at all within the stand to the south of the cricket pitch). *Juncus effusus* is frequent in the small stand of U4b to the south of the cricket pitch, but otherwise absent. *Juncus bufonius* is locally common within the cricket pitch stand but otherwise absent. *Carex leporina* is scattered across the cricket pitch and within the stand to the south of it. *Deschampsia cespitosa* was only recorded from the southernmost stand.

Potentilla erecta is again the most common species, although it becomes infrequent in some of the densest *Festuca rubra* swards to the north of the Ockley Road. *Galium saxatile* is also very common (although largely absent from the stand to the south of the cricket pitch) with *Hypochaeris radicata, Rumex acetosa* and patchy *Pilosella officinarum*. *Trifolium repens* is common across the cricket pitch but otherwise largely absent. Other species include occasional and/or locally frequent *Stellaria graminea, Lotus corniculatus* and, notably within the mown cricket pitch, *Achillea millefolium*. *Chamomilla nobile* is abundant around much of the cricket square. Elsewhere there is a little *Centaurea nigra, Pimpinella saxifraga, Cerastium fontanum* and *Plantago lanceolata*.

The moss *Rhytidiadelphus squarrosus* is again very abundant, except where cover has been suppressed by recent *Festuca rubra* growth.

U20a (*Pteridium aquilinum-Galium saxatile* community*, Anthoxanthum odoratum* sub-community)

The single stand of U20a, bisected by a trampled (MG6a) path, is situated to the north of the Parrot Inn. All lies within the area that is mid-summer hay cut, although it is understood that arisings are not collected.

Vegetation bordering mapped W21a scrub is dominated by *Pteridium aquilinum* with *Holcus lanatus, Arrhenatherum elatius, Alopecurus pratensis* and abundant suckering *Prunus spinosa*. Beside the road, U20a comprises more open *Pteridium* swards with *Agrostis capillaris, Phleum bertolonii, Holcus mollis, Poa trivialis, Lolium perenne* and *Alopecurus pratensis*.

No attempt was made to record bryophytes.

'Bare'

The single stand of mapped 'bare' covers the annual bonfire night fire site. At the time of the April visit it was entirely unvegetated. However, by mid-June scattered plants, including *Sonchus asper, Veronica persica, Plantago major, Epilobium parviflorum, Veronica arvensis, Cerastium glomeratum, Polygonum depressum, Rumex obtusifolius, Sonchus arvensis, Alliaria petiolata, Trifolium dubium, Taraxacum* agg and *Plantago lanceolata*, had colonised the margins. Other species undoubtedly colonise later in the season; although composition presumably changes from year to year.

[7] No *Campanula rotundifolia* was seen here during the 2020 botanical survey, but plants were observed during a later visit undertaken as part of the entomological survey.

2 Tall-herb Ruderal Communities

Two tall-herb ruderal communities were mapped during fieldwork.

OV24b (*Urtica dioica-Galium aparine* community, *Arrhenatherum elatius-Rubus fruticosus agg.* sub-community)

The single stand of OV24b mapped during fieldwork lies on the boundary of the Green between the Parrot Inn and The Studio. It is largely composed of species-poor past flail mown *Urtica dioica* with *Glechoma hederacea, Rubus fruticosus, Galium aparine, Cirsium arvense, Rumex sanguineus, Dactylis glomerata* and *Arrhenatherum elatius*. No attempt was made to record bryophytes.

OV27b (*Chamaenerion angustifolium community, Urtica dioica-Cirsium arvense* sub-community)

OV27b is restricted to two irregularly flail mown boundary stands; one between the Parrot Inn and The Studio; the other to the west of the southern pond.

Both are dominated by *Chamaenerion angustifolium* with locally common *Ranunculus repens, Holcus mollis, Cirsium arvense, Urtica dioica, Galium aparine, Glechoma hederacea, Poa trivialis* and *Rumex sanguineus*. The stand to the west of the southern pond borders a boundary ditch and is markedly richer, supporting scattered *Alopecurus pratensis, Arrhenatherum elatius* and *Dactylis glomerata* with sparse *Iris pseudacorus, Epilobium montanum, Deschampsia cespitosa, Scrophularia nodosa, Hypericum tetrapterum, Galium palustre, Digitalis purpurea* and *Cirsium palustre*. No attempt was made to record bryophytes.

3 Pond Communities

Six aquatic, emergent and/or draw-down classifications were mapped across Forest Greens' two ponds.

A20 (*Ranunculus peltatus* community)

A20 is confined to the open water and summer-exposed draw-down of the southern pond, which is understood to be maintained by the mechanical clearance of bulky emergent vegetation every four years; the last time being in November 2018.

The open water component of the community, surveyed using grapnel sampling on 22/6/20, is composed of abundant submerged and floating leaved *Ranunculus peltatus, Callitriche* sp./spp. (no fruits were found to confirm identification) and the aquatic liverwort *Riccia fluitans*. Subsurface *Lemna trisulca* is frequent as is submerged *Potamogeton berchtoldii*. There is also a little floating *Lemna minor* and *Lemna minuta*.

The draw-down at the time of survey extended some 1-3m from pond banks (the pond is understood to become virtually dry by late summer in drought years). *Ranunculus peltatus* is abundant here too with frequent *Myosotis scorpioides*, locally frequent *Callitriche* sp./spp. (including at least some *Callitriche stagnalis*) and occasional *Typha latifolia, Lycopus europaeus, Sparganium erectum* and *Juncus articulatus*. *Ranunculus flammula, Persicaria hydropiper, Potentilla anserina, Lotus pedunculatus* and *Juncus acutiflorus* are also present with a little bankside *Juncus effusus*.

'P.crispus' [non-referable submerged *Potamogeton crispus* vegetation]

This non-referable classification covers all the open waters of the northern pond. It comprises, as determined by grapnel sampling undertaken on 22/6/20, abundant and locally dominant submerged *Potamogeton crispus* but nothing else. Patches of unvegetated draw-down (up to 2m in extent) were present at the time of survey along the eastern margin of the pond beneath the shade of an adjacent *Salix* x *fragilis* tree.

S12a (*Typha latifolia* swamp, *Typha latifolia* sub-community)

The single stand of S12a on the eastern margins of the southern pond is dominated by *Typha latifolia* (+/- the only species rooted in water at the time of survey on 22/6/20), with locally abundant draw-down *Iris pseudacorus* and *Myosotis scorpioides*, and locally frequent scrambling *Solanum dulcamara*. *Lycopus europaeus* is occasional, with sparse *Sparganium erectum, Alisma plantago-aquatica, Ranunculus flammula, Juncus effusus* and *Callitriche* sp./spp. (no fruits were found to confirm identification).

S14a (*Sparganium erectum* swamp, *Sparganium erectum* sub-community)

The very small stand of S14a on the southern/south-eastern margins of the northern pond comprises a monoculture of emergent *Sparganium erectum*.

S23 (Other water-margin vegetation)

S23 is confined to the northern margins of the southern pond. At the time of survey on 22/6/20 1-3m of it was drawn-down.

The stand is dominated by *Iris pseudacorus* with locally abundant *Callitriche stagnalis* (confirmed by numerous fruits) and/or *Myosotis scorpioides* in gaps between dense *Iris*. *Solanum dulcamara* and *Rubus fruticosus* are patchily prominent in the draw-down beneath the shade of adjacent trees. All other species, including *Typha latifolia, Ranunculus flammula, Lycopus europaeus* and *Juncus effusus*, are rare.

S28a (*Phalaris arundinacea* tall-herb fen, *Phalaris arundinacea* sub-community)

The small stand of S28a on the southern and south-western margins of the northern pond comprises a monoculture of emergent *Phalaris arundinacea*.

4 Scrub Communities

Three scrub communities were mapped during fieldwork.

W21a (*Crataegus monogyna-Hedera helix* scrub, *Hedera helix-Urtica dioica* sub-community)

The single stand of mapped W21a comprises relatively recently established scrub-woodland that has encroached upon former grassland from the adjacent hedgebank boundary.

Supporting rare canopy *Quercus robur*, it is dominated by more-or-less impenetrable *Prunus spinosa* over field layer *Hedera helix* with sparse *Galium aparine, Rubus fruticosus* and *Stellaria holostea*. *Pteridium aquilinum* is present on the margins of mapped U20a.

W24a (*Rubus fruticosus-Holcus lanatus* underscrub, *Cirsium arvense-Cirsium vulgare* sub-community)

The three stands of W24a comprise underscrub encroached former grassland dominated by dense, very species-poor *Rubus fruticosus* and *Urtica dioica*.

Much of the stand to the north of Green Wicket lies beneath the shade of a mature *Quercus robur* tree. A little scrubby *Quercus robur, Salix cinerea, Crataegus monogyna* and *Rosa canina* is also present.

The stand to the south-west of Collins Farm includes a narrow discontinuous belt, between dense *Rubus* and roadside MG1a, of *Epilobium hirsutum* with *Urtica dioica, Arrhenatherum elatius* and *Holcus lanatus*. In isolation this vegetation is closest to OV26d.

W24b (*Rubus fruticosus-Holcus lanatus* underscrub, *Arrhenatherum elatius-Heracleum sphondylium* sub-community)

W24b is confined to three small patches of boundary vegetation north of Holy Trinity Church and the margins of a ditch on the southern side of the access to Gosterwood Manor.

Stands to the north of Holy Trinity Church are composed of shaded *Rubus fruticosus* encroached MG1a, MG1b and MG6a grassland with *Urtica dioica* and locally abundant *Aegopodium podagraria*.

The other stand (bisected by a trampled MG6a classified path) covers three juvenile *Fraxinus excelsior* and one young *Quercus robur* tree over ditch and ditch bank margins of *Rubus fruticosus* with *Holcus lanatus* and *Arrhenatherum elatius*.

5 Woodland Communities

Three woodland communities were mapped during fieldwork.

W1 (*Salix cinerea-Galium palustre* woodland)

The one stand of (atypical) W1 is situated on the western edge of the southern pond. It comprises a post scrub-cut stand of regeneration *Salix cinerea* over a mixed, mostly open, field layer of *Lonicera periclymenum, Agrostis canina, Juncus effusus, Cirsium palustre, Urtica dioica, Deschampsia cespitosa, Holcus lanatus, Iris pseudacorus, Rubus fruticosus* and *Rumex sanguineus*.

W8a (*Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community)

With the exception of an atypical scrub-woodland stand to the north-east of Pond Cottage and another to the south-west of Collins Farm, W8a is confined to the northern boundaries of Forest Green. All has encroached upon former grassland, primarily from adjacent hedgerows (or shaws), within the last 150 years. Some trees, notably to the east of the Ockley Road (south of Collins Farm) are multi-stemmed suggesting they became established whilst the former grassland was still being grazed.

Stands are for the most part dominated by canopy *Quercus robur* or mixed *Quercus robur* and *Fraxinus excelsior* (almost all mature trees of which exhibit signs of Ash Dieback Disease). *Acer campestre* is sparse in the larger blocks to the north-east. *Ulmus procera, Aesculus hippocastanum, Tilia* x *europaea, Acer pseudoplatanus* and *Salix caprea* are present to the west (opposite Holy Trinity Church). *Salix cinerea* dominates the scrub-woodland stand to the north-east of Pond Cottage.

The understorey is somewhat variable. Across the largest expanse of Oak-Ash woodland to the south of Roxborough Park Farm, where there is some evidence of past forest cleaning, it can be markedly poor. By contrast, stands can be relatively dense to the far north or even, e.g. opposite Holy Trinity Church, very dense. The most common species across the community are *Crataegus monogyna, Corylus avellana* and *Prunus spinosa* with rather more scattered *Sambucus nigra, Ilex aquifolium, Taxus baccata, Salix cinerea,* recruitment *Acer campestre* and climbing *Hedera helix*. *Salix caprea* is very locally common in a winter-wet stand to the north of Holy Trinity Church.

The field layer is similarly variable, although all stands support abundant *Rubus fruticosus* and in canopy gaps, e.g. where there has been past thinning and/or where *Fraxinus* trees are severely affected by Ash Dieback Disease, the species can be markedly vigorous and impenetrable. Other more-or-less constant, but mostly only ever locally abundant/dominant, species include *Urtica dioica, Glechoma hederacea, Galium aparine, Mercurialis perennis, Geranium robertianum, Ficaria verna, Circaea lutetiana* and *Poa trivialis*. Less frequent but similarly locally common species include *Hyacinthoides non-scripta, Veronica chamaedrys, Dryopteris filix-mas, Lonicera periclymenum, Lamiastrum galeobdolon* ssp. *montanum, Viola riviniana,* seedling *Fraxinus excelsior, Ranunculus auricormis* and *Dryopteris dilatata*. *Carex remota, Juncus effusus* and *Iris pseudacorus* are locally very common in the winter-wet stand opposite Holy Trinity Church. *Ajuga reptans* is locally common in the scrub-woodland stand to the north-east of Pond Cottage. *Veronica montana* is very locally abundant in woodland to the south of Roxborough Park Farm. Scattered associates of mapped W8a include *Arum maculatum, Conopodium majus, Primula vulgaris, Moehringia trinervia, Veronica hederifolia* ssp. *lucorum, Heracleum sphondylium, Brachypodium sylvaticum* and *Anthriscus sylvestris*. *Dryopteris affinis* ssp. *borreri, Melica uniflora, Poa nemoralis* and *Tamus communis* are also present. *Carex remota, Carex pendula, Polystichum setiferum* and *Polystichum setiferum* are present beside the ditch boundary of W8a south of Roxborough Park Farm. Schedule 9 (Wildlife and Countryside Act 1981, as amended) *Lamiastrum galeobdolon* ssp. *argentatum* is present in woodland to the north of Roxborough Park Farm.

No attempt to record bryophytes from W8a was made during fieldwork.

W8d (*Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Hedera helix* sub-community)

W8d is confined to eastern and southern boundary stands of woodland and, in atypical form, the stand of trees to the north of the southern pond. Far southern stands are simply heavily shaded road verges.

All stands, bar the one adjacent to the pond, are dominated by *Quercus robur*; usually growing on boundary banks. The stand north of the pond comprises six trees; one each of *Quercus robur, Salix caprea, Salix* x *fragilis, Prunus avium, Betula pendula* and *Salix cinerea*.

Only stands to the north of the Parrot Inn support a defined understorey. Here *Prunus* x *fruticans* is abundant and locally dominant with locally abundant *Prunus spinosa*. *Crataegus monogyna, Corylus avellana* and climbing *Rosa canina* are occasional; *Prunus domestica* rare.

Hedera helix dominates the species-poor field layer of all stands of W8d with frequent and locally abundant *Rubus fruticosus*. *Ficaria verna* ssp. *verna* is abundant along the stretches of roadside W8d to the far south of the Green. *Lonicera periclymenum, Holcus lanatus, Anthriscus sylvestris* and *Urtica dioica* are locally abundant in the stand to the north of the pond. Scattered associates include *Galium aparine, Arum maculatum, Mercurialis perennis* and *Rosa arvensis*. Other species include pond- and/or ditch-side *Iris pseudacorus, Juncus effusus* and *Cirsium palustre*. *Hyacinthoides non-scripta* is rare but very locally frequent in W8d to the north of the Parrot Inn. A little *Pteridium aquilinum* is also present here.

No attempt to record bryophytes from W8d was made during fieldwork.

6 Artificial Habitats

'Pavilion'

This non-referable classification covers the cricket pavilion and its hardstanding surrounds.

'Hardstanding'

This non-referable classification covers all artificially surfaced habitats across Forest Green other than roads and the cricket pavilion. Most covers tarmac, brick-paved, gravel, scalpings or shingle dressed vehicular roads/drives/car parks. One car parking area close to the village hall supports geotextile matting.

Most mapped 'hardstanding' is devoid of vegetation; although trampling-tolerant species can be very locally frequent on the margins of gravel, scalpings or shingle dressed tracks, e.g. to the south of The Studio where 'Hardstanding' abutting MG6a includes locally abundant *Polygonum aviculare* with *Polygonum depressum* and *Plantago major*. Species such as *Poa annua, Lepidium didymum, Veronica serpyllifolia* ssp. *serpyllifolia, Trifolium micranthum, Bellis perennis, Achillea millefolium* and *Taraxacum* agg. are present amongst the geotextile surfaced parking area. Opposite here, on the northern edge of the former Congregational Chapel, the classification includes a very narrow (too small to map separately) verge from which the only *Fragaria vesca* seen during fieldwork was recorded. Several other, mostly exotic, species, e.g. *Oenothera* sp., *Allium paradoxum, Hyacinthoides* x *massartiana, Euphorbia peplus* and *Erigeron floribundus*, were either similarly only recorded from mapped 'Hardstanding' or largely restricted to it.

'Roads'

Forest Green supports sections of three roads: Ockley Road (B2127), Horsham Road (unclassified) and Holmbury Road (B2126). They are entirely unvegetated.

APPENDIX IV – INVERTEBRATE SPECIES LISTS

Recorded between 22nd April and 2nd September 2020 by Jonty Denton. Nomenclature follows XX See Appendix V for Conservation Status categories.

Taxa	Common Name	Conservation Status
Mollusca - Hygrophila		
Physella acuta	a pond snail	common
Planorbis planorbis	a ramshorn snail	common
Mollusca - Littorinimorpha		
Potamopyrgus antipodarum	Jenkin's Spireshell	common
Mollusca - Pulmonata		
Aegopinella nitidula	a snail	common
Ambigolimax valentianus	a slug	common
Arion subfuscus	Dusky Slug	common
Cepaea nemoralis	Brown-lipped Snail	common
Deroceras reticulatum	Grey Field Slug	common
Limax maximus	a slug	common
Monacha cantiana	Kentish Snail	common
Oxychilus alliarius	a snail	common
Pupilla muscorum	a snail	common
Sphaerium corneum	Horny Orb Shell	common
Crustacea - Amphipoda		
Crangonyx pseudogracilis sens. str.	a water shrimp	common
Gammarus pulex sens. str.	a water shrimp	common
Crustacea - Isopoda		
Oniscus asellus	a woodlouse	common
Philoscia muscorum	a woodlouse	common
Porcellio scaber	a woodlouse	common
Arachnida - Araneae		
Agelena labyrinthica	Labyrinth Spider	common
Amaurobius fenestralis	a spider	common
Amaurobius similis	a spider	common
Anelosimus vittatus	a spider	common
Anyphaena accentuata	Buzzing Spider	common
Araneus diadematus	Garden Spider	common
Ballus chalybeius	Weevil Spider	NS
Bathyphantes gracilis	a money spider	common
Clubiona brevipes	a spider	common
Clubiona comta	a spider	common
Clubiona corticalis	a spider	common
Clubiona pallidula	a spider	common
Diaea dorsata	a crab spider	common
Dictyna uncinata	a spider	common
Enoplognatha ovata sens. str.	a spider	common
Erigone atra	a money spider	common
Erigone dentipalpis	a money spider	common
Ero aphana	a pirate spider	NS
Gibbaranea gibbosa	a spider	common
Gonatium rubens	a money spider	common
Harpactea hombergi	a spider	common
Hypomma bituberculatum	a money spider	common
Hypomma cornutum	a money spider	common
Hypsosinga pygmaea	a spider	common

Taxa	Common Name	Conservation Status
Larinioides cornutus	a spider	common
Linyphia hortensis	a money spider	common
Linyphia triangularis	a money spider	common
Mangora acalypha	Cricket Bat Spider	common
Marpissa muscosa	a jumping spider	NS
Metellina mengei	a long-jawed spider	common
Metellina segmentata	a long-jawed spider	common
Misumena vatia	a crab spider	common
Neriene montana	a money spider	common
Nuctenea umbratica	Walnut Spider	common
Paidiscura pallens	a spider	common
Pardosa hortensis	a wolf spider	common
Pardosa nigriceps	a wolf spider	common
Pardosa saltans	a wolf spider	common
Philodromus albidus	a false crab-spider	common
Philodromus dispar	a false crab-spider	common
Pholcomma gibbum	a spider	common
Pholcus phalangioides	Daddy-long-legs	common
Phylloneta sisyphia	a spider	common
Pirata piraticus	a wolf spider	common
Pisaura mirabilis	Nursey Tent Spider	common
Platnickia tinctum	a spider	common
Robertus lividus	a spider	common
Salticus scenicus	a jumping spider	common
Steatoda bipunctata	a spider	common
Tetragnatha extensa	a long-jawed spider	common
Tetragnatha montana	a long-jawed spider	common
Theridion mystaceum	a spider	common
Theridion varians	a spider	common
Theridiosoma gemmosum	Ray Spider	NS
Trematocephalus cristatus	a money spider	NS
Trochosa terricola	a wolf spider	common
Xysticus acerbus	a crab spider	NR
Xysticus cristatus	a crab spider	common
Zilla diodia	a spider	common
Zygiella x-*notata*	Window Frame Spider	common
Arachnida - Opiliones		
Dicranopalpus ramosus	a harvestman	common
Nemastoma bimaculatum	a harvestman	common
Opilio saxatilis	a harvestman	common
Paroligolophus agrestis	a harvestman	common
Arachnida - Trombidiformes		
Aceria aceriscampestris	a gall mite	common
Eriophyes similis	a gall mite	common
Insecta - Coleoptera		
Acalles misellus	a weevil	common
Acupalpus dubius	a ground beetle	common
Agabus bipustulatus	a diving beetle	common
Agabus sturmii	a diving beetle	common
Agrilus laticornis	a jewel beetle	local
Agriotes pallidulus	a click beetle	common
Altica carinthiaca	a flea beetle	local
Altica lythri	a flea beetle	common
Anacaena globulus	a water beetle	common
Anacaena limbata	a water beetle	common

Taxa	Common Name	Conservation Status
Anaspis fasciata	a scraptid beetle	common
Anaspis lurida	a scraptid beetle	local
Anaspis maculata	a scraptid beetle	common
Anaspis pulicaria	a scraptid beetle	common
Anaspis rufilabris	a scraptid beetle	common
Anisosticta novemdecimpunctata	Water Ladybird	local
Anobium fulvicorne	a woodworm	common
Anobium punctatum	a woodworm	common
Anotylus rugosus	a rove beetle	common
Anotylus tetracarinatus	a rove beetle	common
Anthocomus fasciatus	a malachite beetle	NS
Anthonomus pedicularius	a weevil	common
Anthrenus verbasci	a dermestid beetle	common
Aphthona euphorbiae	a flea beetle	common
Aphthona nonstriata	a flea beetle	local
Apion frumentarium	a seed weevil	common
Archarius pyrrhoceras	a weevil	common
Athous haemorrhoidalis	a click beetle	common
Badister bullatus	a ground beetle	common
Bembidion articulatum	a ground beetle	common
Bembidion biguttatum	a ground beetle	common
Bembidion dentellum	a ground beetle	common
Bembidion illigeri	a ground beetle	common
Bembidion lampros	a ground beetle	common
Bembidion varium	a ground beetle	common
Bisnius fimetarius	a rove beetle	common
Bruchidius varius	a bean weevil	common
Bruchus loti	a bean weevil	common
Bruchus rufimanus	a bean weevil	common
Cantharis cryptica	a soldier beetle	common
Cantharis rustica	a soldier beetle	common
Cartodere bifasciata	a lathriid beetle	common
Ceratapion carduorum	a seed weevil	common
Cercyon ustulatus	a water beetle	local
Ceutorhynchus cochleariae	a weevil	local
Ceutorhynchus obstrictus	a weevil	common
Chaetocnema concinna	a flea beetle	common
Chaetocnema hortensis	a flea beetle	common
Cis boleti	a ciid beetle	common
Coccinella septempunctata	7-spot Ladybird	common
Coeliodes transversealbofasciatus	a weevil	Nb
Colymbetes fuscus	a diving beetle	common
Cordylepherus viridis	a malachite beetle	common
Cortinicara gibbosa	a lathriid beetle	common
Crepidodera aurata	a leaf beetle	common
Cryptocephalus pusillus	a leaf beetle	common
Cyphon coarctatus	a marsh beetle	common
Cyphon padi	a marsh beetle	common
Dasytes aeratus	a dasytid beetle	common
Donacia cinerea	a reed beetle	NS
Donacia marginata	a reed beetle	common
Donacia simplex	a reed beetle	common
Donacia vulgaris	a reed beetle	common
Dorytomus taeniatus	a weevil	common
Drusilla canaliculata	a rove beetle	common
Dryops luridus	a dryopid beetle	common
Dytiscus marginalis	Great Diving Beetle	common
Elaphrus riparius	a ground beetle	common

Taxa	Common Name	Conservation Status
Eledona agricola	a darkling beetle	local
Ennearthron cornutum	a ciid beetle	common
Epitrix pubescens	a flea beetle	local
Epuraea aestiva	a nitidulid beetle	common
Erichsonius cinerascens	a rove beetle	local
Exochomus quadripustulatus	Heather Ladybird	common
Gabrius appendiculatus	a rove beetle	common
Gabrius splendidulus	a rove beetle	common
Gastrophysa viridula	Dock Leaf Beetle	common
Grammoptera ruficornis	a longhorn beetle	common
Gyrinus substriatus	Common Whirlygig Beetle	common
Haliplus ruficollis	a water beetle	common
Harmonia axyridis	Harlequin Ladybird	common
Helochares lividus	a water beetle	local
Helophorus brevipalpis	a water beetle	common
Helophorus minutus	a water beetle	common
Helophorus obscurus	a water beetle	common
Heterocerus fenestratus	a crawling water-beetle	common
Heterocerus marginatus	a crawling water-beetle	NS
Hippodamia variegata	Adonis' Ladybird	local
Hydrobius fuscipes	a water beetle	common
Hydroporus angustatus	a diving beetle	common
Hydroporus palustris	a diving beetle	common
Hydroporus planus	a diving beetle	common
Hydroporus tessellatus	a diving beetle	common
Hygrotus inaequalis	a diving beetle	common
Hylesinus varius	a weevil	common
Hyphydrus ovatus	a diving beetle	common
Ilybius ater	a diving beetle	common
Ilybius chalconatus	a diving beetle	local
Ilybius fuliginosus	a diving beetle	common
Laccobius bipunctatus	a water beetle	common
Laccophilus minutus	a diving beetle	common
Lathrobium terminatum	a rove beetle	common
Lesteva longoelytrata	a rove beetle	common
Limnebius truncatellus	a water beetle	common
Longitarsus pratensis	a flea beetle	common
Longitarsus suturellus	a flea beetle	common
Malachius bipustulatus	a malachite beetle	common
Malthinus flaveolus	a soldier beetle	common
Malthinus seriepunctatus	a soldier beetle	common
Malthodes marginatus	a soldier beetle	common
Malthodes minimus	a soldier beetle	common
Mecinus pascuorum	a weevil	common
Mecinus pyraster	a weevil	common
Meligethes aeneus	Common Pollen Beetle	common
Microcara testacea	a marsh beetle	common
Mogulones asperifoliarum	a weevil	common
Monotoma picipes	a monotomid beetle	common
Myllaena dubia	a rove beetle	common
Nedyus quadrimaculatus	a weevil	common
Ochina ptinoides	Ivy Woodworm	local
Ochthebius bicolon	a water beetle	local
Ocyusa maura	a rove beetle	common
Orchestes pilosus	a weevil	common
Orchestes signifer	a weevil	common
Paradromius linearis	a ground beetle	common
Paromalus flavicornis	a clown beetle	local

Taxa	Common Name	Conservation Status
Pelenomus olssoni	a weevil	RDB 3
Perapion violaceum	a seed weevil	common
Philonthus decorus	a rove beetle	common
Phloeonomus pusillus	a rove beetle	common
Phyllobius pyri	a weevil	common
Plagiodera versicolora	a leaf beetle	common
Plateumaris sericea	a reed beetle	common
Pogonocherus hispidus	a longhorn beetle	common
Propylea quattuordecimpunctata	14-spot Ladybird	common
Pseudovadonia livida	a longhorn beetle	local
Psylliodes affinis	a flea beetle	common
Psylliodes chrysocephala	a flea beetle	common
Psyllobora vigintiduopunctata	22-spot Ladybird	common
Pyrochroa coccinea	Black-headed Cardinal	local
Pyrochroa serraticornis	Red-headed Cardinal	common
Rhagonycha fulva	a soldier beetle	common
Rhagonycha limbata	a soldier beetle	common
Rhantus exsoletus	a diving beetle	local
Rhinoncus leucostigma	a weevil	common
Rhyzobius litura	a ladybird	common
Rugilus orbiculatus	a rove beetle	common
Rutpela maculata	a longhorn beetle	common
Scolytus intricatus	a weevil	common
Sitona humeralis	a weevil	common
Sitona lineatus	a weevil	common
Sphaeroderma testaceum	a flea beetle	common
Stenocorus meridianus	a longhorn beetle	local
Stenolophus mixtus	a ground beetle	local
Stenus bifoveolatus	a camphor beetle	common
Stenus boops	a camphor beetle	common
Stenus brunnipes	a camphor beetle	common
Stenus clavicornis	a camphor beetle	common
Stenus fornicatus	a camphor beetle	Nb
Stenus impressus	a camphor beetle	common
Stenus juno	a camphor beetle	common
Stenus latifrons	a camphor beetle	common
Subcoccinella vigintiquattuorpunctata	24-spot Ladybird	common
Tachinus rufipes	a rove beetle	common
Tachyporus chrysomelinus	a rove beetle	common
Tachyporus nitidulus	a rove beetle	common
Telmatophilus typhae	a cryptophagid beetle	common
Trichosirocalus troglodytes	a weevil	common
Tychius picirostris	a weevil	common
Tytthaspis sedecimpunctata	16-spot Ladybird	common
Xantholinus linearis	a rove beetle	common
Insecta - Dermaptera		
Forficula auricularia	Common Earwig	common
Insecta - Diptera		
Acinia corniculata	a picture-winged fly	[RDB 1]
Beris vallata	a soldier fly	common
Bibio marci	St.Mark's Fly	common
Bombylius major	Common Beefly	common
Chaetostomella cylindrica	a picture-winged fly	common
Cheilosia albitarsis	a hoverfly	common
Cheilosia vernalis	a hoverfly	common
Chloromyia formosa	a soldier fly	common

Taxa	Common Name	Conservation Status
Chrysogaster solstitialis	a hoverfly	common
Dasineura urticae	Nettle Gall Fly	common
Dilophus febrilis	Fever Fly	common
Empis livida	an empid fly	common
Empis nigripes	an empid fly	common
Empis tessellata	an empid fly	common
Epistrophe eligans	a hoverfly	common
Epistrophe grossulariae	a hoverfly	common
Eriothrix rufomaculata	a tachinid fly	common
Eristalis arbustorum	a hoverfly	common
Eristalis interruptus	a hoverfly	common
Eristalis pertinax	a hoverfly	common
Eristalis tenax	a hoverfly	common
Eupeodes corollae	a hoverfly	common
Eupeodes luniger	a hoverfly	common
Ferdinandea cuprea	a hoverfly	common
Gymnochaeta viridis	a tachinid fly	common
Gymnosoma rotundatum	a tachinid fly	RDB 3
Helophilus pendulus	a hoverfly	common
Helophilus trivittatus	a hoverfly	common
Hydrellia griseola	an empid fly	common
Lejogaster metallina	a hoverfly	common
Limnia unguicornis	a snail-killing fly	common
Lonchoptera lutea	a fly	common
Loxocera albiseta	a psilid fly	common
Lucilia sericata	Greenbottle	common
Machimus atricapillus	a robberfly	common
Macrodiplosis pustularis	a gall midge	common
Macrodiplosis roboris	a gall midge	common
Melanostoma scalare	a hoverfly	common
Mesembrina meridiana	a muscid fly	common
Neuroctena anilis	a fly	common
Nyctia halterata	a sarcophagid fly	common
Pachygaster atra	a soldier fly	common
Palloptera muliebris	a fly	common
Paragus haemorrhous	a hoverfly	common
Pegomya solennis	Dock Leaf-mining Fly	common
Phytomyza ilicis agg.	Holly Leaf-mining Fly	common
Pipunculus campestris	a fly	common
Platycheirus albimanus	a hoverfly	common
Pollenia rudis	Cluster Fly	common
Ptychoptera contaminata	a false cranefy	common
Rhagio scolopaceus	a rhagionid fly	common
Sarcophaga carnaria	a sarcophagid fly	common
Sarcophaga variegata	a sarcophagid fly	common
Scaeva pyrastri	a hoverfly	common
Sciara hemerobioides	a sciardi fly	common
Sphaerophoria scripta	a hoverfly	common
Syrphus ribesii	a hoverfly	common
Syrphus vitripennis	a hoverfly	common
Tachina fera	a tachinid fly	common
Tachina lurida	a tachinid fly	common
Tetanocera elata	a snail-killing fly	common
Tetanocera ferruginea	a snail-killing fly	common
Tipula oleracea	a cranefly	common
Tipula vernalis	a cranefly	common
Urophora jaceana	a picture-winged fly	common
Urophora quadrifasciata	a picture-winged fly	common

Taxa	Common Name	Conservation Status
Insecta - Ephemeroptera		
Cloeon dipterum	a mayfly	common
Insecta - Hemiptera		
Acanthosoma haemorrhoidale	Hawthorn Shieldbug	common
Alebra albostriella	a leafhopper	common
Allygus mixtus	a leafhopper	common
Anthocoris confusus	a flower bug	common
Anthocoris nemoralis	a flower bug	common
Anthocoris nemorum	a flower bug	common
Aphrophora alni	a hopper	common
Arboridia ribauti	a leafhopper	common
Arthaldeus pascuellus	a leafhopper	common
Balclutha punctata	a leafhopper	common
Blepharidopterus angulatus	a plant bug	common
Brachycaudus cardui	an aphid	common
Capsus ater	a plant bug	common
Chartoscirta cincta	a shore bug	local
Chilacis typhae	a seed bug	common
Cicadella viridis	a leafhopper	common
Cixius nervosus	a cixid hopper	common
Closterotomus norwegicus	a plant bug	common
Conomelus anceps	a delphacid bug	common
Coreus marginatus	Dock Bug	common
Corixa punctata	Common Corixid	common
Deltocephalus pulicaris	a leafhopper	common
Deraeocoris flavilinea	a plant bug	common
Deraeocoris lutescens	a plant bug	common
Derephysia foliacea	Ivy Lace-bug	local
Dictyla convergens	Forget-me-not Lacebug	local
Dicyphus epilobii	a plant bug	common
Dicyphus globulifer	a plant bug	common
Dicyphus stachydis	a plant bug	common
Ditropis pteridis	a delphacid bug	common
Doratura stylata	a leafhopper	common
Drepanosiphum platanoidis	an aphid	common
Dryophilocoris flavoquadrimaculatus	a plant bug	common
Empoasca vitis	a leafhopper	common
Eupelix cuspidata	a leafhopper	local
Eupteryx aurata	a leafhopper	common
Eurydema oleracea	Brassica Bug	common
Eurygaster testudinaria	Tortoise Bug	common
Euscelis incisus	a leafhopper	common
Gerris argentatus	a pondskater	local
Gerris lacustris	a pondskater	common
Gerris odontogaster	a pondskater	common
Hardya melanopsis	a leafhopper	common
Harpocera thoracica	a plant bug	common
Hesperocorixa sahlbergi	a corixid bug	common
Heterogaster urticae	a seed bug	common
Heterotoma planicornis	a plant bug	common
Himacerus major	a damsel bug	common
Himacerus mirmicoides	a damsel bug	common
Hydrometra stagnorum	Water Measurer	common
Iassus lanio	a leafhopper	common
Ilyocoris cimicoides	Saucer Bug	common
Issus coleoptratus	Ivy Froghopper	common

Taxa	Common Name	Conservation Status
Jassargus distinguendus	a leafhopper	local
Javesella dubia	a delphacid bug	common
Kleidocerys resedae	a seed bug	common
Kosswigianella exigua	a delphacid bug	common
Leptopterna dolabrata	a plant bug	common
Liocoris tripustulatus	a plant bug	common
Lygus pratensis	a plant bug	common
Macropsis glandacea	a leafhopper	Nb
Macrosiphoniella artemisiae	an aphid	common
Macrosteles sexnotatus	a leafhopper	common
Macustus grisescens	a leafhopper	common
Megacoelum infusum	a plant bug	common
Megalocoleus molliculus	a plant bug	common
Megophthalmus scanicus	a leafhopper	local
Microlophium carnosum	an aphid	common
Microvelia reticulata	Least Water Cricket	common
Miris striatus	a plant bug	common
Myrmus miriformis	a squash bug	local
Nabis rugosus	a damsel bug	common
Neophilaenus lineatus	a hopper	common
Nepa cinerea	Water Scorpion	common
Notonecta glauca	a backswimmer	common
Notonecta maculata	a backswimmer	common
Notonecta viridis	a backswimmer	common
Notostira elongata	a plant bug	common
Nysius senecionis	a seed bug	common
Orius majusculus	a flower bug	common
Orthops campestris	a plant bug	common
Orthotylus ochrotrichus	a plant bug	common
Orthotylus prasinus	a plant bug	common
Palomena prasina	Common Green Shieldbug	common
Pediopsis tiliae	a leafhopper	Nb
Pentatoma rufipes	Forest Bug	common
Philaenus spumarius	Cuckoo Spit	common
Pilophorus perplexus	a plant bug	common
Pinalitus cervinus	a plant bug	common
Pithanus maerkelii	a plant bug	common
Plagiognathus arbustorum	a plant bug	common
Plagiognathus chrysanthemi	a plant bug	common
Plea minutissima	Least Backswimmer	common
Podops inuncta	Turtle Bug	common
Psallus assimilis	a plant bug	common
Psallus flavellus	a plant bug	common
Psallus perrisi	a plant bug	common
Psallus varians	a plant bug	common
Pseudoloxops coccineus	a plant bug	common
Psyllopsis fraxini	a psyllid bug	common
Psyllopsis fraxinicola	a psyllid bug	common
Rhabdomiris striatellus	a plant bug	common
Saldula saltatoria	a shore bug	common
Sigara dorsalis	a corixid bug	common
Sigara nigrolineata	a corixid bug	common
Stenocranus minutus	a delphacid bug	common
Tachycixius pilosus	a cixid hopper	common
Temnostethus gracilis	a flower bug	common
Thamnotettix dilutior	a leafhopper	common
Trioza remota	Oak Psyllid Bug	common
Typhlocyba quercus	a leafhopper	common

Taxa	Common Name	Conservation Status
Velia caprai	Water Cricket	common
Insecta - Hymenoptera		
Amblyteles armatorius	an ichneumon wasp	common
Andrena fulva	a solitary bee	common
Andrena haemorrhoa	a solitary bee	common
Andricus kollari	a gall wasp	common
Andricus lignicola	a gall wasp	common
Andricus quercuscalicis	a gall wasp	common
Aneugmenus padi	a sawfly	common
Apis mellifera	Hive Bee	common
Athalia cordata	a sawfly	common
Biorhiza pallida	a gall wasp	common
Bombus lapidarius	a bumblebee	common
Bombus lucorum sensu lato	a bumblebee	common
Bombus pascuorum	a bumblebee	common
Bombus pratorum	a bumblebee	common
Bombus terrestris	a bumblebee	common
Chelostoma campanularum	Harebell Bee	common
Colletes hederae	Ivy Mining Bee	common
Diplolepis rosae	a gall wasp	common
Dolichovespula media	Median Wasp	[Na]
Ectemnius continuus	a solitary wasp	common
Formica fusca	an ant	common
Hylaeus communis	White Faced Bee	common
Ichneumon sarcitorius	an ichneumon wasp	common
Lasioglossum calceatum	a solitary bee	common
Lasioglossum leucozonium	a solitary bee	common
Lasioglossum malachurum	a solitary bee	common
Lasioglossum morio	a solitary bee	common
Lasioglossum pauxillum	a solitary bee	common
Lasioglossum villosulum	a solitary bee	common
Lasius brunneus	Brown Tree Ant	Na
Lasius flavus	Yellow Meadow Ant	common
Lasius niger	Brown Ant	common
Megachile centuncularis	a solitary bee	common
Myrmica scabrinodis	a red ant	common
Neuroterus albipes	a gall wasp	common
Neuroterus numismalis	a gall wasp	common
Neuroterus quercusbaccarum	a gall wasp	common
Nomada flava	a solitary bee	common
Nomada flavoguttata	a solitary bee	common
Nomada goodeniana	a solitary bee	common
Osmia bicornis	a solitary bee	common
Pemphredon lugubris	a solitary wasp	common
Pimpla rufipes	an ichneumon wasp	common
Rhadinoceraea micans	a sawfly	common
Strongylogaster multifasciata	a sawfly	common
Vespa crabro	Hornet	common
Vespula vulgaris	Common Wasp	common
Insecta - Lepidoptera		
Acrobasis advenella	a pyralid moth	common
Aglais io	Peacock	common
Agriphila straminella	a micromoth	common
Anthocharis cardamines	Orange Tip	common
Archips podana	a torticoid moth	common
Argyresthia bonnetella	a micromoth	common

Taxa	Common Name	Conservation Status
Biston betularia	Peppered Moth	common
Bucculatrix ulmella	a micromoth	common
Calliteara pudibunda	Pale Tussock	common
Cameraria ohridella	a micromoth	common
Carcina quercana	a micromoth	common
Celastrina argiolus	Holly Blue	common
Celypha lacunana	a torticoid moth	common
Chrysoteuchia culmella	a micromoth	common
Cochylimorpha straminea	a torticoid moth	common
Coenonympha pamphilus	Small Heath	NT;BAP/s.41 Priority Species
Crambus lathoniellus	a micromoth	common
Crambus pascuella	a micromoth	common
Erannis defoliaria	Mottled Umber	common
Esperia sulphurella	a micromoth	local
Favonius quercus	Purple Hairstreak	local
Gonepteryx rhamni	Brimstone	common
Gracillaria syringella	a micromoth	common
Hemistola chrysoprasaria	Small Emerald	common
Luffia ferchaultella	a bagworm	common
Lycaena phlaeas	Small Copper	common
Lyonetia clerkella	a micromoth	common
Maniola jurtina	Meadow Brown	common
Melanargia galathea	Marbled White	common
Micropterix calthella	a micromoth	common
Nemophora degeerella	a longhorn moth	common
Nonagria typhae	Bulrush Wainscot	common
Notocelia uddmanniana	a torticoid moth	common
Ochlodes sylvanus	Large Skipper	common
Opisthograptis luteolata	Brimstone Moth	common
Orgyia antiqua	Vapourer	common
Pararge aegeria	Speckled Wood	common
Parornix anglicella	a micromoth	common
Parornix devoniella	a micromoth	common
Phyllonorycter coryli	a micromoth	common
Phyllonorycter corylifoliella	a micromoth	common
Phyllonorycter harrisella	a micromoth	common
Phyllonorycter oxyacanthae	a micromoth	common
Phyllonorycter quercifoliella	a micromoth	common
Pieris brassicae	Large White	common
Pieris rapae	Small White	common
Polyommatus icarus	a micromoth	common
Psyche casta	a bagworm	common
Pyronia tithonus	Gatekeeper	common
Stigmella hemargyrella	a micromoth	common
Thymelicus lineola	Essex Skipper	common
Thymelicus sylvestris	Small Skipper	common
Tyria jacobaeae	Cinnabar Moth	common
Vanessa atalanta	Red Admiral	common
Zygaena filipendulae	Six-spot Burnet	common
Insecta - Mecoptera		
Panorpa communis	a scorpion fly	common
Panorpa germanica	a scorpion fly	common
Insecta - Megaloptera		
Sialis lutaria	alder fly	common
Insecta - Neuroptera		

Taxa	Common Name	Conservation Status
Chrysopa perla	a green lacewing	common
Hemerobius humulinus	a brown lacewing	common
Micromus variegatus	a brown lacewing	common
Insecta - Odonata		
Aeshna cyanea	Southern Hawker	common
Aeshna mixta	Migrant Hawker	common
Calopteryx splendens	Beautiful Demoiselle	common
Coenagrion puella	Common Blue Damslefly	common
Libellula depressa	Broad-bodied Chaser	common
Platycnemis pennipes	White-legged Damselfly	local
Pyrrhosoma nymphula	Large Red Damselfly	common
Sympetrum striolatum	Common Darter	common
Insecta - Orthoptera		
Chorthippus brunneus	Common Field Grasshopper	common
Chorthippus parallelus	Meadow Grasshopper	common
Conocephalus discolor	Long-winged Conehead	common
Ectopsocus petersi	a barkfly	common
Elipsocus hyalinus	a barkfly	common
Isoperla grammatica	Yellow Sally	common
Leptophyes punctatissima	Speckled Bush-cricket	common
Metrioptera roeselii	Roesel's Bush cricket	common
Nemoura cinerea	a stonefly	common
Omocestus viridulus	Common Green Grasshopper	common
Pholidoptera griseoaptera	Dark Bush-cricket	common
Tetrix undulata	Common Ground-hopper	common
Valenzuela flavidus	a barkfly	common

APPENDIX V – CATEGORIES FOR RARE, SCARCE AND/OR THREATENED INVERTEBRATES

Red Data Book Category 1 (RDB 1) – Endangered

Definition: Taxa in danger of extinction in Great Britain and whose survival is unlikely if the causal factors continue operating.

Included are those taxa whose numbers have been reduced to a critical level or whose habitats have been so dramatically reduced that they are deemed to be in immediate danger of extinction. Also included are some taxa that are possibly extinct.

Criteria: Species which are known or believed to occur as only a single population within one 10 km square of the National Grid.

Species which only occur in habitats known to be especially vulnerable.

Species which have shown a rapid or continuous decline over the last twenty years and are now estimated to exist in five or fewer 10 km squares.

Species which are possibly extinct but have been recorded this century and if rediscovered would need protection.

Red Data Book Category 2 (RDB 2) - Vulnerable

Definition: Taxa believed likely to move into the endangered category in the near future if the causal factors continue operating.

Included are taxa of which most or all of the populations are decreasing because of over-exploitation, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security is not yet assured; and taxa with populations that are still abundant but are under threat from serious adverse factors throughout their range.

Criteria: Species declining throughout their range.

Species in vulnerable habitats.

Red Data Book Category 3 (RDB 3) – Rare

Definition: Taxa with small populations in Great Britain that are not at present endangered or vulnerable, but are at risk.

These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

Criterion: Species which are estimated to exist in only fifteen or fewer 10 km squares. This criterion may be relaxed where populations are likely to exist in over fifteen 10 km squares but occupy small areas of especially vulnerable habitat

Nationally Scarce Category A - Notable A (Na)

Definition: Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and are thought to occur in 30 or fewer 10 km squares of the National Grid or, for less well recorded groups, within seven or fewer vice-counties.

Nationally Scarce Category B - Notable B (Nb)

Definition: Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 31 and 100 10 km squares of the National Grid or, for less well recorded groups, within eight and twenty vice-counties.

Nationally Scarce - Notable (N)

Definition: Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 16 to 100 10 km squares of the National Grid. Species within this category are often too poorly known for their status to be more precisely estimated.

Summary of the IUCN categories and criteria.

REGIONALLY EXTINCT (RE)
A taxon is Extinct when there is no reasonable doubt that the last individual has died. In this review the last date for a record is set at fifty years before publication.

CRITICALLY ENDANGERED (CR)
A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered.

ENDANGERED (EN)
A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered.

VULNERABLE (VU)
A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable.

NEAR THREATENED (NT)
A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

LEAST CONCERN (LC)
A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

DATA DEFICIENT (DD)
A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate.

NOT EVALUATED (NE)
A taxon is Not Evaluated when it is has not yet been evaluated against the criteria.

GB Rarity Status Categories and Criteria

Nationally Rare (NR)
Native species which have not been recorded from more than 15 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 15 hectads. This category includes species which are probably extinct.

Nationally Scarce (NS)
Native species which are not regarded as Nationally Rare AND which have not been recorded from more than 100 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 100 hectads.

Other species status terminology.

Local
Species that are restricted in distribution either geographically or by habitat. Also used for species that are widespread but infrequently encountered, e.g. encountered in no more than 300 10km squares of the

national Ordnance Survey grid since 1970. Or those species listed as such, based upon modern geographical data, by ISIS (2010) and/or relevant recording schemes.

Widely Scattered
Generally distributed but at low densities.

Southern
Mainly or completely confined to southern England and/or its westerly or easterly regions – as indicated.

Common
Generally widespread throughout the UK.

Unknown
Usually indicates a lack of available data for difficult taxa but may also imply recent taxonomic confusion.

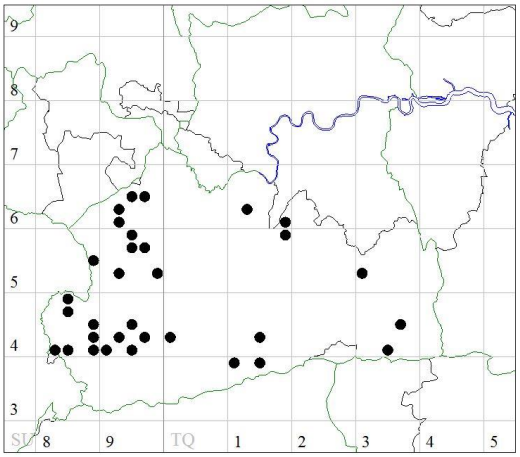
APPENDIX VI – NOTES ON RARE AND SCARCE INVERTEBRATE SPECIES

SPIDERS

Theridiosomatidae

***Theridiosoma gemmosum* The Ray Spider (Nationally Scarce B)**

A tiny globose orb weaver found low to the ground in wetlands. Local but not uncommon in Surrey. Found in emergent vegetation around the northern pond.



Distribution of *Theridiosoma gemmosum* in Surrey

Mimetidae

***Ero aphana* (RDB2 - proposed reassignment Nationally Scarce B)**

Until recently this species was only known from Chobham Common and a few sites in Dorset on heathland. However, it has since appeared at several other sites including synanthropic sites.

Linyphiidae

***Trematocephalus cristatus* (Nationally Scarce B)**

A tiny black money spider with red legs and distinct pattern of lines on head. It is found on foliage. Very local and restricted to South East England, but widespread and not uncommon in Surrey.

Salticidae

***Marpissa muscosa* (Notable A)**

Britain's largest jumping spider occurs under bark on trees and fence posts. It is locally common in South East England.

Thomisidae

***Xysticus acerbus* (Nationally Scarce)**

A dark crab spider found at ground level in a wide variety of situations, and seemingly on the increase with numerous recent records from a wide scattering of localities in Southern England.

COLEOPTERA

Chrysomelidae

***Donacia cinerea* (Nationally Scarce B)**

A reed beetle which lives on reedmace growing from standing water. Local but scattered in Surrey (Denton 2007).

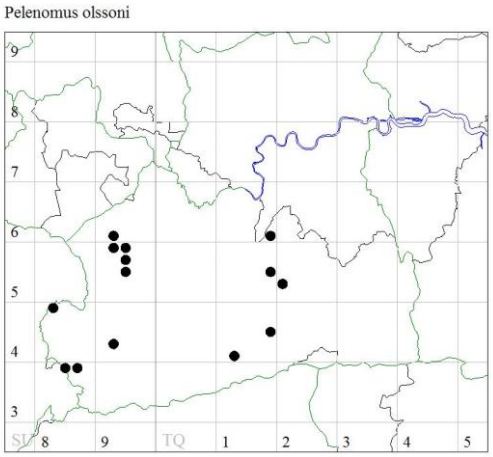
Curculionidae

***Coeliodes transversealbofasciatus* (NS)**

A small well marked weevil which lives on oak trees. Very local in England.

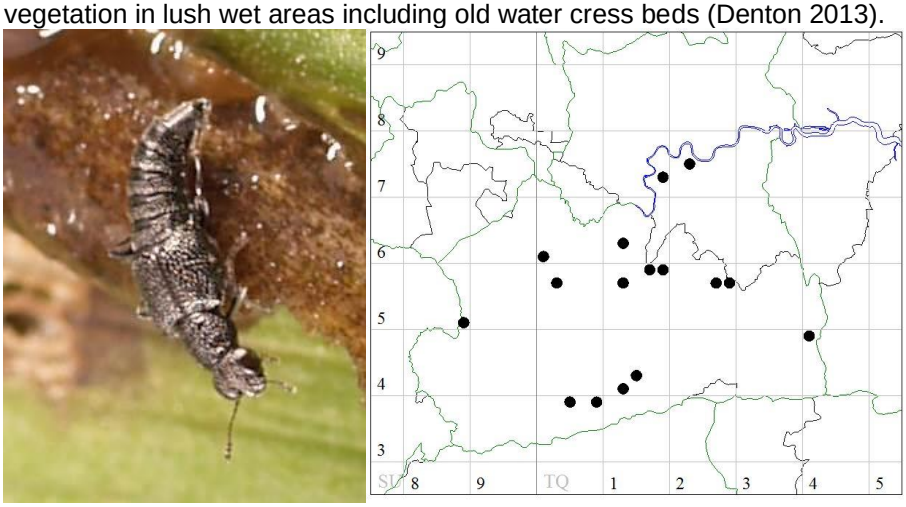
***Pelenomus olssoni* (RDB3)**

A small weevil which lives on Water-purslane (Denton 2007). Very local in England but no longer deserving of RDB status and should be reassigned as Nationally Scarce.



Distribution of *Pelenomus olssoni* in Surrey

Staphylinidae
***Stenus fornicatus* (Nationally Scarce)**
A tiny camphor beetle found in wetlands in Southern England. It is typically found amongst tall emergent vegetation in lush wet areas including old water cress beds (Denton 2013).



Distribution of *Stenus fornicatus* in Surrey

Heteroceridae
***Heterocerus marginatus* (Nationally Scarce)**
A well-marked burrowing water beetle found on bare or sparsely vegetated ground beside ponds and flowing water (Denton 2007) . Found with *H.fenestratus* around southern pond.

Malachiidae
***Anthocomus fasciatus* (Nationally Scarce)**
A pretty blue and red malachite beetle associated with dead wood and also found in outhouses and stables where it feeds on other insects. Not uncommon across Surrey (Denton 2005).

DIPTERA
Tephritidae
***Acinia corniculata* (RDB1)**
A distinctive picture winged fly associated with knapweed. It has become much more widespread over the past 20 years and should be reassigned as nationally scarce.

Tachinidae
***Gymnosoma rotundatum* (RDB3)**
A distinctive tachinid fly which is locally common in the Berks/Surrey/West Sussex/North Hampshire area. Should be reassigned as nationally scarce.

HEMIPTERA
Cicadellidae
***Pediopsis tiliae* (Nationally Scarce A)**
A brown and yellow hopper which lives exclusively on lime trees, local but widespread in the South-East.

***Macropsis glandacea* (Nationally Scarce A)**
A brown hopper which lives exclusively on elm trees, local but widespread in the South-East.

***Jassurgus distinguendus* (Very Local)**
A small hopper associated with grasses in open dry grassland. Although not listed as scarce this is only the second modern county record. The other was made by Graham Collins at Mitcham Common in 2008.

HYMENOPTERA
Formicidae
***Lasius brunneus* Bicolored Tree Ant (Nationally Scarce A)**
A two-coloured ant which lives on trees both living and dead nesting in cavities in the trunks and branches. A widespread southern species which should be downgraded to Notable B.

Vespidae
***Dolichovespula media* Median Wasp (Nationally Scarce A)**
Abundant in Surrey on arrival in the 1990s and now widespread, this has become a very scarce species in my experience!