

Vegetation Survey of Puttenham Down

Report to Puttenham Parish Council

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EXECUTIVE SUMMARY

Giles Groome, Consultant Ecologist was commissioned by Puttenham Parish Council to conduct a Phase II vegetation survey of Puttenham Down in July 2019.

Fieldwork comprised an extended Phase II walkover survey, mapping target notes to describe habitats and vegetation communities onto an aerial photograph and recording all vascular plants seen.

Seven habitats, 13 National Vegetation Classification (NVC) communities and 159 species of vascular plant were recorded during the survey. Five habitats fall within priority Biodiversity Action Plan (BAP) habitats that are included on the JNCC register of habitats for which local authorities have a 'biodiversity duty' under the Natural Environment and Rural Communities Act (2006). Two fall within habitats listed in Annex I of the 'Habitats Directive'. Four NVC communities are provisionally classified as regionally 'Very Local/Rare'. Six species are nationally and/or locally rare, scarce and/or threatened.

In addition to detailing methodology, results and an evaluation of the importance of recorded features, this report includes a number of recommendations to improve the wildlife value of Puttenham Down.

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1 INTRODUCTION

1.1 Background

Giles Groome, Consultant Ecologist was commissioned by Puttenham Parish Council to conduct a Phase II vegetation survey of Puttenham Down in July 2019.

1.2 Study Objectives

- To conduct a Phase II vegetation survey of Puttenham Down
- To report results in the form of a written report, including site description, target notes, species lists, evaluation, recommendations and site maps

1.3 Personnel

All fieldwork, data digitisation and reporting were conducted by Dr Giles Groome CEcol CEnv MCIEEM.

2 METHODOLOGY

2.1 Fieldwork

All fieldwork was undertaken during warm, dry, sunny conditions over the course of 8 hours on 16th July 2019.

2.1.1 Walkover Survey and Target Note Recording

The survey comprised an extended Phase II walkover survey, mapping target notes to describe different habitats and vegetation communities onto an aerial photograph (downloaded from Google Earth) and recording all vascular plants seen. Bryophytes were only recorded where they comprised a significant element of the vegetation.

2.1.2 Species Recording

During the walkover survey two species lists were compiled: one for grassland and grassland/scrub mosaics; the other for woodland and scrub. Lists only comprise vascular plants and have been sub-divided into canopy/trees, understorey/scrub and field layer/grassland. At the end of recording species frequency/abundance per list was defined using the DAFOR system:

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

Species nomenclature follows Stace (2019).

2.2 Data Input and Analysis

2.2.1 Data Input

Species lists were entered into an Excel spreadsheet immediately after fieldwork.

2.2.2 GIS Mapping

The aerial photograph used during fieldwork was imported into MapInfo V7.5 GIS as a non-georeferenced picture file and target notes (plus their boundaries) mapped over it.

2.3 Constraints and Limitations

2.3.1 Undefined Western Boundary

The western boundary of Puttenham Down is not marked on the ground. Therefore, prior to survey it was agreed to use a small clump of Ash trees (clearly visible on the aerial photograph) as the western limit of survey (see Map 1, Target Note 3). It is almost certain that this lies beyond the land owned by Puttenham Parish Council.

2.3.2 Species Recording Limitations

Whilst every effort was made to record all vascular plant species present, it is inevitable that some species, especially when in their immature state and/or only amongst impenetrable vegetation, will have been overlooked. In addition, any strictly vernal species will have been missed altogether. However, fieldwork was conducted within the optimal time of year for grassland recording and the number of missed species should be minimal.

3 RESULTS

3.1 Site Description

Puttenham Down, centre site grid reference SU926482, lies on the southern side of the Hogs Back within the Surrey Hills Area of Outstanding Natural Beauty (AONB). Western parts lie within an Area of High Archaeological Potential. All is common land (Hogs Back Downs No. CL.190) and covers an area of approximately 3.7ha.

Most of the site overlies Lewes Nodular Chalk (part of the White Chalk Subgroup of rocks formerly referred to as Upper Chalk), with southern areas overlying Holywell Nodular Chalk (also part the White Chalk Subgroup but formerly referred to as Middle Chalk). Soils, comprising chalky silt loams, are classified as Newmarket series brown rendzinas.

Most of the northern part of Puttenham Down supports forb-rich, and commonly forb-dominated, grassland. Whilst much of this is coarse, subject to widespread scrub encroachment and broadly neutral in character (NVC classified as MG1e and MG1d with smaller patches of MG1a, MG1b and MG6a, as well as scrubby stands of W24a, W24b and OV24b), small areas of relict chalk grassland (CG3b) remain. These are of considerable nature conservation importance and support a range of nationally declining calcicolous species including *Centaurea debeauxii* (Chalk Knapweed), *Bromopsis erecta* (Upright Brome), *Hippocrepis comosa* (Horseshoe Vetch), *Centaurea scabiosa* (Greater Knapweed), *Leontodon hispidus* (Rough Hawkbit), *Primula veris* (Cowslip) and *Scabiosa columbaria* (Small Scabious). Surrey Scarce *Aquilegia vulgaris* (Columbine) and *Crepis biennis* (Rough Hawk's-beard) are also present along with English Red List 'Near Threatened' *Fragaria vesca* (Wild Strawberry) and *Euphrasia nemorosa* (Common Eyebright).

All southern areas support woodland. Most falls within the internationally important category of *Taxus baccata* (Yew) woodland (W13a), with smaller areas of *Fraxinus excelsior* (Ash) woodland (W8d), all of which exhibit signs of Ash Dieback Disease, and, smaller still, *Fagus sylvatica* (Beech) woodland (W12a). Whilst most stands are, as is characteristic of their type, species-poor, species include Red Data Book 'Near threatened', English Red List, 'Near Threatened', Surrey Scarce *Cynoglossum officinale* (Hound's-tongue), as well as English Red List 'Near Threatened' *Fragaria vesca* (Wild Strawberry) and *Sanicula europaea* (Sanicle).

A mixed *Crataegus monogyna* (Hawthorn) hedgerow (W21d) runs along part of the northern boundary.

There is considerable potential for invertebrates. At least one Badger sett is present.

3.2 Target Notes

Target Notes are given in Section 6.2 and their locations and extent shown on Maps 1 and 2.

3.3 Species Lists

159 species of vascular plant were recorded during fieldwork. Full lists are given in Appendix I. A summary is given in Table 1.

Table 1 – Summary of species recording

Functional group	Number of species
Trees and shrubs	25
Other woody species	6
Graminoids (grasses, sedges and rushes)	23
Non-gramineaceous herbaceous species	104
Ferns	1

4 EVALUATION

4.1 Habitats

Seven broad habitats were recorded during surveys. Of these, five fall within priority Biodiversity Acton Plan (BAP) habitats that are included on the JNCC register of habitats for which local authorities have a 'biodiversity duty' under the Natural Environment and Rural Communities Act (2006). Two fall within habitats listed in Annex I of the 'Habitats Directive' (Council of the European Communities 1992). Table 2 (based on Maddock 2008, updated 2011, and European Commission 2013) provides a summary.

Table 2 – Summary of broad, priority BAP and Annex I habitats at Puttenham Down

Broad Habitat (NVC)	National Priority BAP Habitat	Annex I ('Habitats Directive') Habitat
Chalk Grassland (CG3b)	Lowland Calcareous Grassland	Semi-natural Grasslands and Scrubland facies on Calcareous Substrates (<i>Festuca-Brometalia</i>)
Neutral Grassland (MG1a, MG1b, MG1e, MG1d, MG6a)		
Ruderal (OV24b)		
Scrub (W21d, W24a, W24b)	Hedgerows (only Target Note 13)	
Ash Woodland (W8d)	Lowland Mixed Deciduous Woodland	
Beech Woodland (W12b)	Lowland Beech and Yew Woodland	
Yew Woodland (W13a)	Lowland Beech and Yew Woodland	<i>Taxus baccata</i> woods of the British Isles

4.2 Vegetation Communities

The presence of thirteen NVC communities was recorded during fieldwork (see Appendix II for community names). Table 3 gives a guide to the distribution and therefore conservation status of these, based on distribution notes given by Rodwell (1991 *et seq*) and considerable personal experience.

Table 3 – Guide to the national and regional distributions of recorded NVC communities

National = Great Britain excluding Northern Ireland

Regional = South East England (Oxfordshire and all counties, inc. Greater London, south and south-east of here)

NVC community	National Distribution	Regional Distribution
CG3b	Confined to calcareous soils, mostly in south-east England	Very Local/Rare
MG1a	Widespread and very common	Very Common
MG1b	Widespread and very common	Very Common
MG1d	Confined to calcareous soils in south-east England	Very Local/Rare
MG1e	Widespread but somewhat local	Local/Common
MG6a	Widespread and very common	Very Common
OV24b	Widespread and common	Common
W8d	Widespread and common	Common
W12b	Confined to calcareous soils in southern Britain	Very Local/Rare
W13a	Confined to the southern Chalk	Very Local/Rare
W21d	Confined to calcareous soils in southern Britain	Local
W24a	Widespread and very common	Very Common
W24b	Widespread and common	Common

4.3 Species

159 species of vascular plant were recorded during fieldwork. Of these, six are nationally and/or locally rare/scarce/threatened (Surrey Botanical Society 2016, Stroh *et al* 2014, JNCC 2019). A summary is given in Table 4.

Table 4 – Rare, scarce and/or threatened species

RDB = Red Data Book species (JNCC 2019). Near Threatened (species facing a high threat of extinction in the wild in the medium-term future)

ERL = English Red List (Stroh *et al* 2014), classifications as for RDB

Surrey Scarce = regarded as county scarce (Surrey Botanical Society 2016)

Taxon	English Name	Conservation Status
<i>Aquilegia vulgaris</i>	Columbine	Surrey Scarce
<i>Crepis biennis</i>	Rough Hawk's-beard	Surrey Scarce
<i>Cynoglossum officinale</i>	Hound's-tongue	RDB Near Threatened; ERL Near Threatened; Surrey Scarce
<i>Euphrasia nemorosa</i>	Common Eyebright	ERL Near Threatened
<i>Fragaria vesca</i>	Wild Strawberry	ERL Near Threatened
<i>Sanicula europaea</i>	Sanicle	ERL Near Threatened

5 RECOMMENDATIONS

5.1 Management

As well as several rare/scarse/threatened species, Puttenham Down supports both nationally and internationally important habitat, the nature conservation value of which would be considerably enhanced by appropriate management. A number of grant aid schemes are available to apply to for financial assistance.

5.1.1 Grassland Management

The most important areas in which to focus management are the grassland areas covered by Target Notes 2, 5, 12 and, to a lesser extent, 6, where the aim of management should be to restore species-rich chalk grassland. The most appropriate management to achieve this would be livestock grazing, ideally using a combination of cattle, ponies and sheep, grazed in conjunction with contiguous Surrey County Council grassland to the west. There can be little doubt that historically all of Puttenham Down was once livestock grazed.

There will be numerous difficulties in re-establishing grazing. Not least of these is the fact that the site is common land, which may make it difficult to fence; a prerequisite for non-shepherded grazing (although temporary fencing of selected areas could be employed with appropriate Common Land consent). In addition, the western part of the site lies within an Area of High Archaeological Potential. Whilst grazing itself should not be in conflict with archaeological interest, appropriate consultation, e.g. with the County Archaeologist, will be required before any grazing animals are put out here.

Assuming these difficulties can be overcome there is also the issue of the widespread use of the site for outdoor sex. The activity itself should not be in conflict with grazing, but might result in damage to the grazing infrastructure (e.g. damage to fencing) and potentially harm to grazing animals (e.g. in the form of deliberate animal abuse or from discarded waste, including prophylactics which cattle and ponies have been known to ingest). Such issues need to be considered prior to establishing the grazing infrastructure and accommodated if required, e.g. by provisioning services such as stiles installed to best effect.

Prior to re-establishing livestock grazing, there will also need to be carefully planned and executed stakeholder engagement within the local community. A water supply will also be required and livestock well-being as well as impact regularly monitored.

Until such time as livestock grazing can be re-established, all areas of grassland should be managed by rotational cut and collect mowing. This should entail mowing selected stands either in late-March/early April (weather depending) and again in mid to late June or once only in late August/early September and rotating them from one year to the next. The initial aim of this type of mowing regime is to control competitive species, including invasive scrub, whilst at the same time retaining half the area of grassland as flower-rich meadow throughout the season (single late-summer cuts may achieve the latter but will not achieve the former). Removal of arisings is essential.

Scrub is an essential component of species-rich chalk grassland. However, both to facilitate cutting and because there is far too much of it, a programme of scrub management will need to be drawn up. Juvenile scrub is much more valuable to wildlife than mature scrub, so whatever is retained will need to be managed by rotational cutting. Management will require widespread and locally intensive scrub removal, resulting in the production of a large quantity of cut material. If this cannot be removed from site (only a relatively small amount of dead wood should be retained; all of it within the confines of retained scrub), it would be best to burn it on raised fire sites (e.g. using sheets of corrugated iron) to ensure that the ground beneath is not scorched. Burning should not be undertaken within the Area of High Archaeological Potential.

As part of the programme of scrub management all plants of *Reynoutria japonica* (Japanese Knotweed) should be removed as soon as possible. It may be possible to uproot plants but if not, they should be chemically treated using the least environmentally damaging herbicide available.

5.1.2 Woodland Management

The widespread use of the woodland for outdoor sex and the measures that have been taken (notably understorey removal) to make the site safer are not compatible with maintaining the high nature conservation interest of the woodland. It is therefore recommended efforts continue to prevent these damaging activities from occurring.

Assuming they are ultimately successful, the most appropriate management for stands of Yew and Beech woodland is largely non-intervention and allowing the recovery of the understorey. However, marginal stands, especially those with Ash, would be best treated by periodic coppicing to enhance the woodland/grassland edge ecotone. Consideration should be given to felling all mature Sycamores and removing recruitment as it appears.

5.2 Selection as a Site of Nature Conservation Importance

Puttenham Down supports both habitats and species that qualify it for selection as a Site of Nature Conservation Importance (SNCI). Therefore, not least to raise the profile of the sites' wildlife interest and make it easier to secure financial assistance, Puttenham Down (almost certainly in conjunction with adjacent County Council owned land to the west and considerable areas of grassland running alongside the A31) should be selected as an SNCI.

5.3 Surveys and Monitoring

5.3.1 Invertebrate Survey

It is highly likely that Puttenham Down supports one or more nationally important species of invertebrate. It is therefore recommended that an invertebrate survey is commissioned that includes recording across a full spring to late-summer season. It is important that the entomologists report includes an evaluation of invertebrate interest and notes on the habitat requirements of any rare/scarce/threatened species.

5.3.2 Vegetation Monitoring

It is important to monitor the condition of the grassland on a regular basis to ensure that management is having the desired effect. In grazing systems it is essential for setting the most appropriate grazing regime.

Photomonitoring is an easy, cheap and effective way to monitor grassland changes over time and should be established as soon as possible. As much of the grassland area as is practical should be covered and repeat photographs recorded at least annually on good weather days (slightly overcast is usually best) in mid-summer. Ideally spring and autumn photographs should also be recorded and comparisons made after each set of photographs is recorded.

Some form of species and structural monitoring is required for setting grazing targets but is also useful if stands are only mown. A streamlined system of recording can be used, selecting 'favourable' and 'unfavourable' target features for recording. Examples of 'favourable' features include presence/absence or estimated cover of *Centaurea debeauxii* (Chalk Knapweed), *Carex flacca* (Glaucous Sedge), *Bromopsis erecta* (Upright Brome), *Hippocrepis comosa* (Horseshoe Vetch), *Centaurea scabiosa* (Greater Knapweed), *Leontodon hispidus* (Rough Hawkbit), *Primula veris* (Cowslip) and *Scabiosa columbaria* (Small Scabious). Examples of 'unfavourable features' include presence/absence or estimated cover of scrub, agricultural weeds, coarse grasses, litter in excess of 25% and vegetation in excess of 50cm in height.

6 SITE MAPS

6.1 List of Maps

Map 1 – Western Puttenham Down

Map 2 – Eastern Puttenham Down

6.2 Target Notes for Maps 1 and 2

- 1) Dense *Rubus fruticosus* (Bramble) underscrub on bund [roadside, at least partially planted, scrub beyond] with patchy *Crataegus monogyna* (Hawthorn), *Buddleja davidii* (Butterfly-bush) and *Clematis vitalba* (Traveller's-joy) and occasional *Cornus sanguinea* (Dogwood), *Rosa canina* (Dog Rose) and *Ligustrum vulgare* (Wild Privet). Two patches of post-cut regeneration *Reynoutria japonica* (Japanese Knotweed) are also present. NVC = W24a and W24b.
- 2) Grassland/scrub mosaic, western parts of which may be beyond Parish Council ownership (See TN3). Stands of grassland, which have the appearance of having developed following the abandonment of livestock grazing, are mostly composed of coarse, forb-dominated swards in which the main grasses are *Bromopsis erecta* (Upright Brome), *Carex flacca* (Glaucous Sedge), *Arrhenatherum elatius* (False Oat-grass), *Holcus lanatus* (Yorkshire-fog), *Festuca rubra* (Red Fescue) and *Agrostis stolonifera* (Creeping Bent). *Festuca ovina* ssp. *ophiolicola* (Sheep's Fescue), *Avenula pubescens* (Downy Oat-grass), *Koeleria macrantha* (Crested Hair-grass) and *Poa angustifolia* (Narrow-leaved Meadow-grass) are also present, but either very infrequent or rare. The most abundant dicotyledonous forbs are *Origanum vulgare* (Marjoram), *Galium album* (Hedge Bedstraw) and *Leucanthemum vulgare* (Oxeye Daisy). *Centaurea debeauxii* (Chalk Knapweed), *Hypericum perforatum* (Perforate St John's-wort), *Clinopodium vulgare* (Wild Basil), *Agrimonia eupatoria* (Agrimony), *Plantago lanceolata* (Ribwort Plantain) and *Torilis japonica* (Upright Hedge-parsley) are frequent and/or locally abundant. *Fragaria vesca* (Wild Strawberry) is very locally common. Other species include rare/very rare *Hippocrepis comosa* (Horseshoe Vetch), *Aquilegia vulgaris* (Columbine), *Pilosella officinarum* (Mouse-ear-hawkweed), *Primula veris* (Cowslip) and *Scabiosa columbaria* (Small Scabious). More open swards, which support a much greater cover of graminoids but more by way of less competitive forbs, are restricted to paths and path edges. Amongst the most common species here are *Linum catharticum* (Fairy Flax), *Euphrasia nemorosa* (Common Eyebright), *Leontodon hispidus* (Rough Hawkbit), *Lotus corniculatus* (Common Bird's-foot-trefoil) and *Achillea millefolium* (Yarrow). Ground layer mosses (primarily *Calliergonella cuspidata* and *Homalothecium lutescens*) are virtually confined to these more open swards. NVC = atypical CG3b with patches transitional to MG1e.

Stands of scrub and underscrub are dominated by *Rubus fruticosus* (Bramble) with frequent juvenile and post-cut regeneration *Crataegus monogyna* (Hawthorn) and *Rosa canina* (Dog Rose). Juvenile *Fraxinus excelsior* (Ash) is locally abundant. Other species include *Cornus sanguineus* (Dogwood), *Rhamnus cathartica* (Buckthorn) and *Clematis vitalba* (Traveller's-joy). NVC = W24a and W24b with parts developing as W21d.

- 2a) Dense *Rubus fruticosus* underscrub with abundant juvenile Ash Dieback Disease infected *Fraxinus excelsior*.
- 3) Clump of three *Fraxinus excelsior* (Ash) trees marking western limit of survey.
- 4) *Taxus baccata* (Yew) dominated woodland with frequent *Sorbus aria* (Whitebeam), *Fraxinus excelsior* (Ash) and climbing *Hedera helix* (Ivy). The mostly poor understory supports occasional *Ligustrum vulgare* (Wild Privet) and *Ilex aquifolium* (Holly) with locally abundant woodland-edge *Clematis vitalba* (Traveller's-joy) and *Sambucus nigra* (Elder). *Corylus avellana* (Hazel) is rare. The characteristically species-poor field layer is dominated by *Hedera helix* with a little *Brachypodium sylvaticum* (False-brome). A handful of *Cynoglossum officinale* (Hound's-tongue) plants are also present. NVC = W13a.
- 5) Coarse, presumably previously gang-mown, grassland (switching rather abruptly in composition from stands within TN2) dominated by *Arrhenatherum elatius* (False Oat-grass) with locally abundant *Holcus lanatus* (Yorkshire-fog) and frequent *Agrostis stolonifera* (Creeping Bent). *Lolium perenne* (Perennial Rye-grass) and *Phleum bertolonii* (Smaller Cat's-tail) are common on and beside trampled paths. The dicotyledonous forb component is dominated by swathes of *Pastinaca sativa* (Wild Parsnip) with abundant low-growth *Clematis vitalba* (Traveller's-joy). *Origanum vulgare* (Wild Marjoram),

Clinopodium vulgare (Wild Basil), *Galium album* (Hedge Bedstraw), *Hypericum perforatum* (Perforate St John's-wort), *Agrimonia eupatoria* (Agrimony) and *Sison amonum* (Stone Parsley) are frequent and/or locally abundant. *Heracleum sphondylium* (Hogweed) is very locally abundant on the margins of TN7 with *Rubus idaeus* (Raspberry). *Anthriscus sylvestris* (Cow Parsley) is also locally frequent here. Other species recorded from TN5 include *Pimpinella saxifraga* (Burnet-saxifrage), *Plantago lanceolata* (Ribwort Plantain), *Centaurea debeauxii* (Chalk Knapweed), *Daucus carota* ssp. *carota* (Wild Carrot), *Achillea millefolium* (Yarrow), *Tragopogon pratense* ssp. *minor* (Goat's-beard) and a single plant of *Centaurea scabiosa* (Greater Knapweed). NVC = atypical MG1d, with small stand of transitional MG1a/W24b (*Heracleum-Rubus*).

- 6) Central expanse of, presumably previously regularly mown and trampled, coarse grassland (switching rather abruptly in composition from stands within TN5) with marginal stands of encroachment ruderal/underscrub. Forb-poor grassland swards are largely dominated by *Agrostis stolonifera* (Creeping Bent) and *Holcus lanatus* (Yorkshire-fog) with *Phleum bertolonii* (Smaller Cat's-tail) and, besides trampled paths, *Lolium perenne* (Perennial Rye-grass). Ruderal/underscrub stands to the north support a mixture of *Urtica dioica* (Common Nettle), *Clematis vitalba* (Traveller's-joy), *Rubus fruticosus* (Bramble), *Galium aparine* (Cleavers) and *Heracleum sphondylium* (Hogweed) with occasional *Artemisia vulgaris* (Mugwort), *Cirsium arvense* (Creeping Thistle), *Sison amonum* (Stone Parsley) and *Ballota nigra* (Black Horehound). To the (shaded) south stands support a mixture of *Urtica dioica*, *Anthriscus sylvestris* (Cow Parsley), *Arrhenatherum elatius* (False Oat-grass), *Heracleum sphondylium*, *Clematis vitalba* and *Geum urbanum* (Wood Avens). NVC = MG1b, MG6a, OV24b and W24b.
- 7) *Fraxinus excelsior* (Ash) dominated woodland with abundant climbing *Hedera helix* (Ivy) and rare *Acer campestre* (Field Maple) over a mixed understorey of occasional *Rhamnus cathartica* (Buckthorn), climbing *Clematis vitalba* (Traveller's-joy), recruitment *Acer campestre*, *Crataegus monogyna* (Hawthorn), *Cornus sanguinea* (Dogwood), *Ulmus procera* (English Elm) and *Taxus baccata* (Yew). The species-poor field layer is dominated by carpets of *Hedera helix* with a little *Ligustrum vulgare* (Wild Privet), *Brachypodium sylvaticum* (False-brome), *Sanicula europaea* (Sanicle) and *Clematis vitalba*. NVC = atypical W8d.
- 8) *Fagus sylvatica* (Beech) woodland with abundant climbing *Hedera helix* (Ivy) and very rare (confined to the far south-west) *Fraxinus excelsior*. Most of the understorey has been recently cleared, leaving only a little *Ilex aquifolium* (Holly), *Ligustrum vulgare* (Wild Privet) and juvenile *Sorbus aria* (Whitebeam). The ground layer supports carpets of *Hedera helix* with frequent regeneration *Ligustrum vulgare*, locally abundant *Brachypodium sylvaticum* (False-brome) and a little *Sanicula europaea* (Sanicle). NVC = atypical W12b.
- 9) Part thinned and widely understorey cleared *Taxus baccata* (Yew) woodland with scattered *Sorbus aria* (Whitebeam) and rare *Fagus sylvatica* (Beech), *Acer pseudoplatanus* (Sycamore) and *Fraxinus excelsior* (Ash) (although see Target Note 9a). The impoverished understorey supports sparse *Ilex aquifolium* (Holly), *Sambucus nigra* (Elder), climbing *Clematis vitalba* (Traveller's-joy) and *Corylus avellana* (Hazel). The field layer is dominated by carpets of *Hedera helix* (Ivy), except under the densest *Taxus* where there is little or no ground flora, with locally abundant *Sanicula europaea* (Sanicle) and *Geum urbanum* (Wood Avens) and very locally frequent *Viola riviniana* (Common Dog-violet), *Geranium robertianum* (Herb-Robert) and, otherwise largely absent, *Rubus fruticosus* (Bramble). *Brachypodium sylvaticum* (False-brome) and *Clematis vitalba* are abundant where the canopy is more open following canopy cutting and understorey clearance, along with species such as *Sison amonum* (Stone Parsley), *Galium album* (Hedge Bedstraw), *Arctium lappa* (Greater Burdock), *Lapsana communis* (Nipplewort), *Torilis japonica* (Upright Hedge-parsley), *Origanum vulgare* (Wild Marjoram), *Mycelis muralis* (Wall Lettuce), *Clinopodium vulgare* (Wild Basil), *Hypericum perforatum* (Perforate St John's-wort), *Rubus idaeus* (Raspberry), *Pentaglottis sempervirens* (Green Alkanet), *Fragaria vesca* (Wild Strawberry), *Prunella vulgaris* (Selfheal) and *Inula conyzae* (Ploughman's-spikenard). A patch of *Aegopodium podagraria* (Ground-elder) is present to the south of the cafe. NVC = W13a.
- 9a) *Fraxinus excelsior* dominated stands. NVC = atypical W8d.
- 9b) Mixed *Fraxinus-Taxus* woodland with understorey *Ilex aquifolium* that has not been recently cleared. NVC = atypical W8d.

- 10) Recently heavily disturbed stand around telegraph pole dominated by *Cirsium vulgare* (Spear Thistle) over bare chalk. Other species include *Jacobaea vulgaris* (Common Ragwort), *Reseda luteola* (Wild Mignonette), *Sonchus asper* (Prickly Sow-thistle), *Myosotis arvensis* (Field Forget-me-not), *Epilobium tetragonum* (Square-stemmed Willowherb) and *Epilobium parviflorum* (Hoary Willowherb). A single plant of *Cynoglossum officinale* (Hound's-tongue) is also present. Margins support regeneration *Ligustrum vulgare* (Wild Privet) and *Cornus sanguineus* (Dogwood). NVC = No NVC equivalent.
- 11) *Fraxinus excelsior* (Ash) dominated woodland (part open canopy) with abundant climbing *Hedera helix* (Ivy) and, largely confined to the north-west corner, *Acer pseudoplatanus* (Sycamore). The understorey is largely dominated by *Crataegus monogyna* (Hawthorn) and *Clematis vitalba* (Traveller's-joy) with scattered *Taxus baccata* (Yew), *Cornus sanguineus* (Dogwood) and *Sambucus nigra* (Elder). The field layer is dominated by *Hedera helix* with locally abundant/dominant *Sanicula europaea* (Sanicle) and *Brachypodium sylvaticum* (False-brome), and scattered *Geranium robertianum* (Herb-Robert) and *Geum urbanum* (Wood Avens). Open canopy stands are dominated by dense *Rubus fruticosus* (Bramble) and *Urtica dioica* (Common Nettle) with climbing *Clematis vitalba*. NVC = atypical W8d.
- 12) Forb-rich, presumably previously regularly mown, grassland of OS marked 'Picnic Area'. The graminoid element is largely dominated by *Arrhenatherum elatius* (False Oat-grass) and, especially prominent by woodland edges, *Brachypodium sylvaticum* (False-brome) with *Agrostis stolonifera* (Creeping Bent), *Holcus lanatus* (Yorkshire-fog) and *Dactylis glomerata* (Cock's-foot). The forb element is dominated by *Centaurea debeauxii* (Chalk Knapweed), *Origanum vulgare* (Wild Marjoram), *Plantago lanceolata* (Ribwort Plantain), *Hypericum perforatum* (Perforate St John's-wort) and *Galium album* (Hedge Bedstraw) with *Agrimonia eupatoria* (Agrimony), *Clinopodium vulgare* (Wild Basil), *Lotus corniculatus* (Common Bird's-foot-trefoil), *Euphrasia nemorosa* (Common Eyebright), *Odontites vernus* ssp. *serotinus* (Red Bartsia), *Medicago lupulina* (Black Medick), *Jacobaea erucifolia* (Hoary Ragwort), *Prunella vulgaris* (Selfheal) and *Jacobaea vulgaris* (Common Ragwort). *Pastinaca sativa* (Wild Parsnip) is locally abundant. Other species include occasional *Fragaria vesca* (Wild Strawberry), *Leucanthemum vulgare* (Oxeye Daisy) and *Hypericum hirsutum* (Hairy St John's-wort). *Crepis biennis* (Rough Hawk's-beard), *Anacamptis pyramidalis* (Pyramidal Orchid), *Viola hirta* (Hairy Violet) and *Eupatorium cannabinum* (Hemp-agrimony) are also present. In addition to the occasional trees and more established scrub, primarily toward the west, swards support frequent and locally abundant juvenile recruitment and regeneration scrub. *Crataegus monogyna* (Hawthorn), *Fraxinus excelsior* (Ash), *Cornus sanguinea* (Dogwood) and *Rubus fruticosus* (Bramble), which can also be locally abundant/dominant, are the most common species, with locally common *Clematis vitalba* (Traveller's-joy). More established scrub is largely dominated by *Fraxinus excelsior* and *Crataegus monogyna* with associated *Cornus sanguineus* and *Ligustrum vulgare* (Wild Privet). A handful of *Acer pseudoplatanus* (Sycamore) and *Sorbus aria* (Whitebeam) trees are present toward the far west. NVC = MG1e with small patches of MG1d and juvenile W21d.
- 12a) Stands of lightly trampled chalk grassland within the wider expanse of TN12. Mostly dominated by *Carex flacca* (Glaucous Sedge) with *Festuca ovina* ssp. *ophiolithicola* (sheep's Fescue), *Agrostis stolonifera* (Creeping Bent), unusually small quantities of *Bromopsis erecta* (Upright Brome) and very locally frequent *Danthonia decumbens* (Heath-grass). Forbs that rarely occur beyond these stands include *Leontodon hispidus* (Rough Hawkbit), *Linum catharticum* (Fairly Flax), *Anacamptis pyramidalis*, *Pilosella officinarum* (Mouse-ear-hawkweed) and *Ranunculus bulbosus* (Bulbous Buttercup). Ground layer mosses (primarily *Calliergonella cuspidata* and *Pseudoscleropodium purum*) are virtually confined to these more open swards. NVC = atypical CG3b.
- 12b) Clump of juvenile Ash Dieback Disease infected *Fraxinus excelsior* around single *Fagus sylvatica* 'purpurea' (Copper Beech) tree with ground layer *Hedera helix*. NVC = atypical W8d.
- 12c) Clump of understorey cleared *Fraxinus excelsior* trees over field layer *Rubus fruticosus* and *Hedera helix* with *Brachypodium sylvaticum* and large patch of *Lotus pedunculatus* (Large Bird's-foot-trefoil). NVC = atypical W8d.
- 13) Roadside hedge (only viewed from southern side) supporting occasional juvenile *Prunus avium* (Wild Cherry), all originally planted, and *Fraxinus excelsior* (Ash) with rare *Fagus sylvatica* (Beech). The hedge itself is dominated by *Crataegus monogyna* (Hawthorn) (at least some of which appears to have been planted) and recruitment *Fraxinus excelsior* with *Cornus sanguineus* (Dogwood) and *Ligustrum vulgare* (Wild Privet). *Rhamnus cathartica* (Buckthorn) and *Rosa canina* (Dog Rose) are infrequent. The species-poor field layer is dominated by *Hedera helix* (Ivy). NVC = W21d.

W 0°40'23.52"



Vegetation Survey of Puttenham Down, 15th July 2019
Map 2 - Eastern Puttenham Down
Approximate scale @ A3 = 1:800



52"

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APPENDIX I – SPECIES LIST

Recorded 15th July 2019 by Giles Groome. Nomenclature follows Stace (2019).

Taxon	English Name	Woodland and Scrub	Grassland and Grassland/Scrub Mosaic
Canopy/Trees			
<i>Acer campestre</i>	Field Maple	R	
<i>Acer pseudoplatanus</i>	Sycamore	R	R
<i>Fagus sylvatica</i>	Beech	LD	
<i>Fagus sylvatica</i> 'purpurea'	Copper Beech		R
<i>Fraxinus excelsior</i>	Ash	A	O
<i>Hedera helix</i>	Ivy	A	R
<i>Prunus avium</i>	Wild Cherry	R	
<i>Sorbus aria</i>	Whitebeam	O	R
<i>Taxus baccata</i>	Yew	LD	
<i>Ilex aquifolium</i>	Holly	R	
Understorey/Scrub			
<i>Acer campestre</i>	Field Maple	R	
<i>Acer pseudoplatanus</i>	Sycamore	R	R
<i>Buddleja davidii</i>	Butterfly-bush	LF	
<i>Clematis vitalba</i>	Traveller's-joy	LA	LA
<i>Cornus sanguinea</i>	Dogwood	LA	LA
<i>Corylus avellana</i>	Hazel	O	
<i>Cotoneaster horizontalis</i>	Wall Cotoneaster		R
<i>Crataegus monogyna</i>	Hawthorn	LA	LA
<i>Fagus sylvatica</i>	Beech	R	
<i>Fraxinus excelsior</i>	Ash	O	LA
<i>Hedera helix</i>	Ivy	F	R
<i>Ilex aquifolium</i>	Holly	LA	
<i>Ligustrum vulgare</i>	Wild Privet	R	LF
<i>Prunus avium</i>	Wild Cherry	LF	
<i>Prunus spinosa</i>	Blackthorn	R	
<i>Reynoutria japonica</i>	Japanese Knotweed		R
<i>Rhamnus cathartica</i>	Buckthorn	O	R
<i>Rosa canina</i> agg.	Dog Rose	R	LF
<i>Salix caprea</i>	Goat Willow		R
<i>Salix cinerea</i> ssp. <i>oleifolia</i>	Grey Willow		R
<i>Sambucus nigra</i>	Elder	O	R
<i>Sorbus aria</i>	Whitebeam	R	R
<i>Tamus communis</i>	Black Bryony	R	
<i>Taxus baccata</i>	Yew	LA	
<i>Ulmus procera</i>	English Elm	LF	R
Field Layer/Grassland			
<i>Acer campestre</i>	Field Maple	R	R
<i>Acer pseudoplatanus</i>	Sycamore	R	R
<i>Achillea millefolium</i>	Yarrow		F
<i>Aegopodium podagraria</i>	Ground-elder	R	R
<i>Aesculus hippocastanum</i>	Horse-chestnut		R
<i>Agrimonia eupatoria</i>	Agrimony	R	F
<i>Agrostis capillaris</i>	Common Bent		R
<i>Agrostis stolonifera</i>	Creeping Bent		A
<i>Alliaria petiolata</i>	Garlic Mustard	LF	R
<i>Anacamptis pyramidalis</i>	Pyramidal Orchid		R

Taxon	English Name	Woodland and Scrub	Grassland and Grassland/Scrub Mosaic
<i>Anisantha sterilis</i>	Barren Brome		R
<i>Anthriscus sylvestris</i>	Cow Parsley	R	LA
<i>Aquilegia vulgaris</i>	Columbine		R
<i>Arctium lappa</i>	Greater Burdock	O	R
<i>Arctium minus</i>	Lesser Burdock	R	R
<i>Arrhenatherum elatius</i>	False Oat-grass	R	A
<i>Artemisia vulgaris</i>	Mugwort		O
<i>Arum maculatum</i>	Lord's-and-ladies	R	
<i>Avenula pubescens</i>	Downy Oat-grass		R
<i>Ballota nigra</i>	Black Horehound		O
<i>Blackstonia perfoliata</i>	Yellow-wort		R
<i>Brachypodium sylvaticum</i>	False-brome	LA	LA
<i>Bromopsis erecta</i>	Upright Brome		LA
<i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i>	Soft Brome		R
<i>Buddleja davidii</i>	Butterfly-bush		R
<i>Calystegia silvatica</i>	Large Bindweed		R
<i>Campanula persicifolia</i>	Peach-leaved Bellflower		R
<i>Carduus crispus</i>	Wetted Thistle		R
<i>Carex divulsa</i> ssp. <i>leersii</i>	Grey Sedge	R	
<i>Carex flacca</i>	Glaucous Sedge		LA
<i>Centaurea debeauxii</i>	Chalk Knapweed		LA
<i>Centaurea nigra</i>	Common Knapweed		R
<i>Centaurea scabiosa</i>	Greater Knapweed		R
<i>Centaureum erythraea</i>	Common Centaury		R
<i>Cerastium fontanum</i>	Common Mouse-ear		O
<i>Chaerophyllum temulum</i>	Rough Chervil		R
<i>Cirsium arvense</i>	Creeping Thistle	R	O
<i>Cirsium vulgare</i>	Spear Thistle	R	O
<i>Clematis vitalba</i>	Traveller's-joy	O	LA
<i>Clinopodium vulgare</i>	Wild Basil		LA
<i>Cornus sanguinea</i>	Dogwood	R	LA
<i>Corylus avellana</i>	Hazel	R	
<i>Cotoneaster horizontalis</i>	Wall Cotoneaster		R
<i>Crataegus monogyna</i>	Hawthorn	R	LA
<i>Crepis biennis</i>	Rough Hawk's-beard		R
<i>Crepis capillaris</i>	Smooth Hawk's-beard		O
<i>Cynoglossum officinale</i>	Hound's-tongue	R	
<i>Dactylis glomerata</i>	Cock's-foot		F
<i>Danthonia decumbens</i>	Heath-grass		R
<i>Daucus carota</i> ssp. <i>carota</i>	Wild Carrot		R
<i>Epilobium montanum</i>	Broad-leaved Willowherb	R	R
<i>Epilobium parviflorum</i>	Hoary Willowherb		R
<i>Epilobium tetragonum</i>	Square-stemmed Willowherb		R
<i>Eupatorium cannabinum</i>	Hemp-agrimony	R	R
<i>Euphrasia nemorosa</i>	Common Eyebright		LF
<i>Festuca ovina</i> ssp. <i>ophiolicola</i>	Sheep's Fescue		LF
<i>Festuca rubra</i> agg.	Red Fescue		LF
<i>Fragaria vesca</i>	Wild Strawberry	LF	O
<i>Fraxinus excelsior</i>	Ash	O	O
<i>Galium album</i>	Hedge Bedstraw	R	LA
<i>Galium aparine</i>	Cleavers	O	LA
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill		R
<i>Geranium robertianum</i>	Herb-Robert	LF	R
<i>Geum urbanum</i>	Wood Avens	LA	LF
<i>Glechoma hederacea</i>	Ground-ivy	LA	R
<i>Hedera helix</i>	Ivy	A	R
<i>Helminthotheca echioides</i>	Bristly Oxtongue		R
<i>Heracleum sphondylium</i>	Hogweed	R	LA

Taxon	English Name	Woodland and Scrub	Grassland and Grassland/Scrub Mosaic
<i>Hippocrepis comosa</i>	Horseshoe Vetch		R
<i>Holcus lanatus</i>	Yorkshire-fog	R	A
<i>Hypericum hirsutum</i>	Hairy St John's-wort	R	R
<i>Hypericum perforatum</i>	Perforate St John's-wort	R	LA
<i>Ilex aquifolium</i>	Holly	O	
<i>Inula conyzae</i>	Ploughman's-spikenard	R	O
<i>Jacobaea erucifolia</i>	Hoary Ragwort		LF
<i>Jacobaea vulgaris</i>	Common Ragwort		O
<i>Koeleria macrantha</i>	Crested Hair-grass		R
<i>Lapsana communis</i>	Nipplewort	LF	R
<i>Leontodon hispidus</i>	Rough Hawkbit		LA
<i>Leontodon saxatilis</i>	Lesser Hawkbit		R
<i>Leucanthemum vulgare</i>	Oxeye Daisy		LA
<i>Ligustrum vulgare</i>	Wild Privet	F	LF
<i>Linum catharticum</i>	Fairy Flax		LF
<i>Lolium perenne</i>	Perennial Rye-grass		LA
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil		LA
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil	R	R
<i>Malva moschata</i>	Musk-mallow		O
<i>Medicago lupulina</i>	Black Medick		LA
<i>Melissa officinalis</i>	Balm		R
<i>Mycelis muralis</i>	Wall Lettuce	O	R
<i>Myosotis arvensis</i>	Field Forget-me-not	R	R
<i>Odontites vernus ssp. serotinus</i>	Red Bartsia		LF
<i>Origanum vulgare</i>	Wild Marjoram	LF	LA
<i>Pastinaca sativa</i>	Wild Parsnip	R	LA
<i>Pentaglottis sempervirens</i>	Green Alkanet	LF	R
<i>Phleum bertolonii</i>	Smaller Cat's-tail		LA
<i>Pilosella officinarum</i>	Mouse-ear-hawkweed		LA
<i>Pimpinella saxifraga</i>	Burnet-saxifrage		LF
<i>Plantago lanceolata</i>	Ribwort Plantain	R	F
<i>Plantago major</i>	Greater Plantain		R
<i>Poa angustifolia</i>	Narrow-leaved Meadow-grass		R
<i>Poa annua</i>	Annual Meadow-grass		R
<i>Poa pratensis</i>	Smooth Meadow-grass		R
<i>Poa trivialis</i>	Rough Meadow-grass	R	R
<i>Potentilla reptans</i>	Creeping Cinquefoil		R
<i>Primula veris</i>	Cowslip		LF
<i>Primula vulgaris</i>	Primrose	R	
<i>Prunella vulgaris</i>	Selfheal		F
<i>Prunus avium</i>	Wild Cherry	R	R
<i>Prunus spinosa</i>	Blackthorn	R	R
<i>Prunus x fruticans</i>	Hybrid Blackthorn		R
<i>Pteridium aquilinum</i>	Bracken		R
<i>Quercus robur</i>	Pedunculate Oak		R
<i>Ranunculus acris</i>	Meadow Buttercup		R
<i>Ranunculus bulbosus</i>	Bulbous Buttercup		LF
<i>Ranunculus repens</i>	Creeping Buttercup		R
<i>Reseda luteola</i>	Wild Mignonette		R
<i>Reynoutria japonica</i>	Japanese Knotweed		R
<i>Rhamnus cathartica</i>	Buckthorn	R	R
<i>Rosa canina agg.</i>	Dog Rose	R	R
<i>Rubus caesius</i>	Dewberry		LA
<i>Rubus fruticosus agg.</i>	Bramble	LD	LD
<i>Rubus idaeus</i>	Raspberry		LA
<i>Rumex acetosa</i>	Common Sorrel		R
<i>Rumex crispus</i>	Curled Dock		R
<i>Rumex obtusifolius</i>	Broad-leaved Dock		R

Taxon	English Name	Woodland and Scrub	Grassland and Grassland/Scrub Mosaic
<i>Rumex sanguineus</i>	Wood Dock		R
<i>Rumex x pratensis</i>	a hybrid Dock		R
<i>Salix caprea</i>	Goat Willow		R
<i>Sambucus nigra</i>	Elder	R	R
<i>Sanicula europaea</i>	Sanicle	LA	
<i>Scabiosa columbaria</i>	Small Scabious		R
<i>Schedonorus arundinaceus</i>	Tall Fescue		R
<i>Scorzoneroides autumnalis</i>	Autumn Hawkbit		R
<i>Silene vulgaris</i>	Bladder Campion		R
<i>Sison amomum</i>	Stone Parsley		LF
<i>Solanum dulcamara</i>	Bittersweet	R	R
<i>Solidago canadensis</i>	Canadian Goldenrod		R
<i>Sonchus asper</i>	Prickly Sow-thistle		R
<i>Sonchus oleraceus</i>	Smooth Sow-thistle		R
<i>Sorbus aria</i>	Whitebeam	R	R
<i>Stachys sylvatica</i>	Hedge Woundwort	R	
<i>Tamus communis</i>	Black Bryony	R	
<i>Taraxacum agg.</i>	Dandelion	R	O
<i>Taxus baccata</i>	Yew	R	
<i>Torilis japonica</i>	Upright Hedge-parsley	R	LF
<i>Tragopogon pratensis ssp. minor</i>	Goat's-beard		O
<i>Trifolium pratense</i>	Red Clover		O
<i>Trifolium repens</i>	White Clover		R
<i>Ulmus procera</i>	English Elm	R	
<i>Urtica dioica</i>	Common Nettle	LA	LA
<i>Veronica chamaedrys</i>	Germander Speedwell	R	R
<i>Vicia sativa ssp. segetalis</i>	Common Vetch		R
<i>Viola hirta</i>	Hairy Violet		R
<i>Viola odorata</i>	Sweet Violet	R	R
<i>Viola riviniana</i>	Common Dog-violet	R	

APPENDIX II – CHECKLIST OF NVC COMMUNITIES

Nomenclature given by Rodwell 1991 *et seq* has been updated to follow Stace (2019).

Woodland and Scrub Communities

W8d – *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland; *Hedera helix* sub-community

W12b – *Fagus sylvatica-Mercurialis perennis* woodland; *Sanicula europaea* sub-community

W13a – *Taxus baccata* woodland; *Sorbus aria* sub-community

W21d – *Crataegus monogyna-Hedera helix* scrub; *Viburnum lantana* sub-community

W24a – *Rubus fruticosus-Holcus lanatus* underscrub; *Cirsium arvense-Cirsium vulgare* sub-community

W24b – *Rubus fruticosus-Holcus lanatus* underscrub; *Arrhenatherum elatius-Heracleum sphondylium* sub-community

Grassland Communities

CG3b – *Bromopsis erecta* grassland; *Centaurea nigra* agg. sub-community

MG1a – *Arrhenatherum elatius* grassland; *Festuca rubra* sub-community

MG1b – *Arrhenatherum elatius* grassland; *Urtica dioica* sub-community

MG1d - *Arrhenatherum elatius* grassland; *Pastinaca sativa* sub-community

MG1e – *Arrhenatherum elatius* grassland; *Centaurea nigra* agg. sub-community

MG6a – *Lolium perenne-Cynosurus cristatus* grassland; typical sub-community

Vegetation of Open Habitats

OV24b – *Urtica dioica-Galium aparine* community; *Arrhenatherum elatius-Rubus fruticosus* sub-community