Bernwood Area NVC Surveys of Woodland and Grassland Sites

Surveys of eleven woodland and grassland sites in North Buckinghamshire to identify and map vegetation using the NVC system.

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Originally drafted as separate reports by Alison Jukes. Amalgamated into a single document, discussion section added and revisions made by Graham Steven.

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Executive summary

A group of 11 woodland and grassland sites in north Buckinghamshire were visited in 2019 in order to identify the vegetation communities present and to map their extent using the National Vegetation Classification (NVC) system. The woodlands and grasslands are either already designated as Site of Special Scientific Interest (SSSI) or are under consideration for designation as part of a new, larger SSSI. The group of woodlands and the wider habitat complex has been identified as being of special importance because it supports the most northerly maternity colonies of Bechstein's bat in the UK. The woodlands and associated habitats are also of special interest in supporting diverse assemblages of invertebrates and the area is a national stronghold for the Black Hairstreak butterfly. The surveys identified several woodland habitat types as being present with variations of ash-field maple-dog's mercury woodland being the most widespread (NVC types W8a, W8b and W8c) but parts have a close fit with oak-bracken-bramble woodland (NVC types W10a and W10b). This is likely to reflect slight variations in soil type and soil chemistry. Two meadows are present supporting grassland with a close fit with the nationally rare meadow foxtail- greater burnet type (NVC type MG4).

Contents

Introduction

The sites, listed in Table 1, include four currently designated as SSSI and seven areas designated as Local Wildlife Site (a non-statutory designation). The Bernwood sites are grouped in an area located approximately 10km north west of Aylesbury and 10km east of Bicester.

The Natural England Field Unit was commissioned by the local area team of Natural England to carry out habitat classification surveys using the National Vegetation Classification (NVC) (Rodwell, 1991, 1992, 1993), specifically to provide detail on the vegetation communities present (type, area, location and species composition).

Table 1. List of the eleven sites surveyed

Site name	Grid reference	Area (ha)	Current designation	Main habitat(s)
Ham Home-cum-Hamgreen Wood	SP696190	23.0	SSSI	Woodland with grass rides
Grendon and Doddershall Woods	SP699208	69.5	SSSI	Woodland with grass rides
Finemere Wood	SP718218	46.1	SSSI	Woodland and grassland
Sheephouse Wood	SP702234	58.9	SSSI	Woodland with grass rides
Hewin's Wood	SP703216	1.9	Local Wildlife Site	Woodland
Decoypond Wood	SP695239	8.6	Local Wildlife Site	Woodland
Home Wood	SP714241	42.7	Local Wildlife Site	Woodland with grass rides
Romer, Greatsea and Balmore Woods	SP715231	75.5	Local Wildlife Site	Woodland with grass rides
Runt's Wood	SP725230	28.5	Local Wildlife Site	Woodland with grass rides

Site name	Grid reference	Area (ha)	Current designation	Main habitat(s)
Shrubs Wood	SP698245	8.2	Local Wildlife Site	Woodland
Grendon Meadows	SP699216	7.0	Local Wildlife Site	Grassland

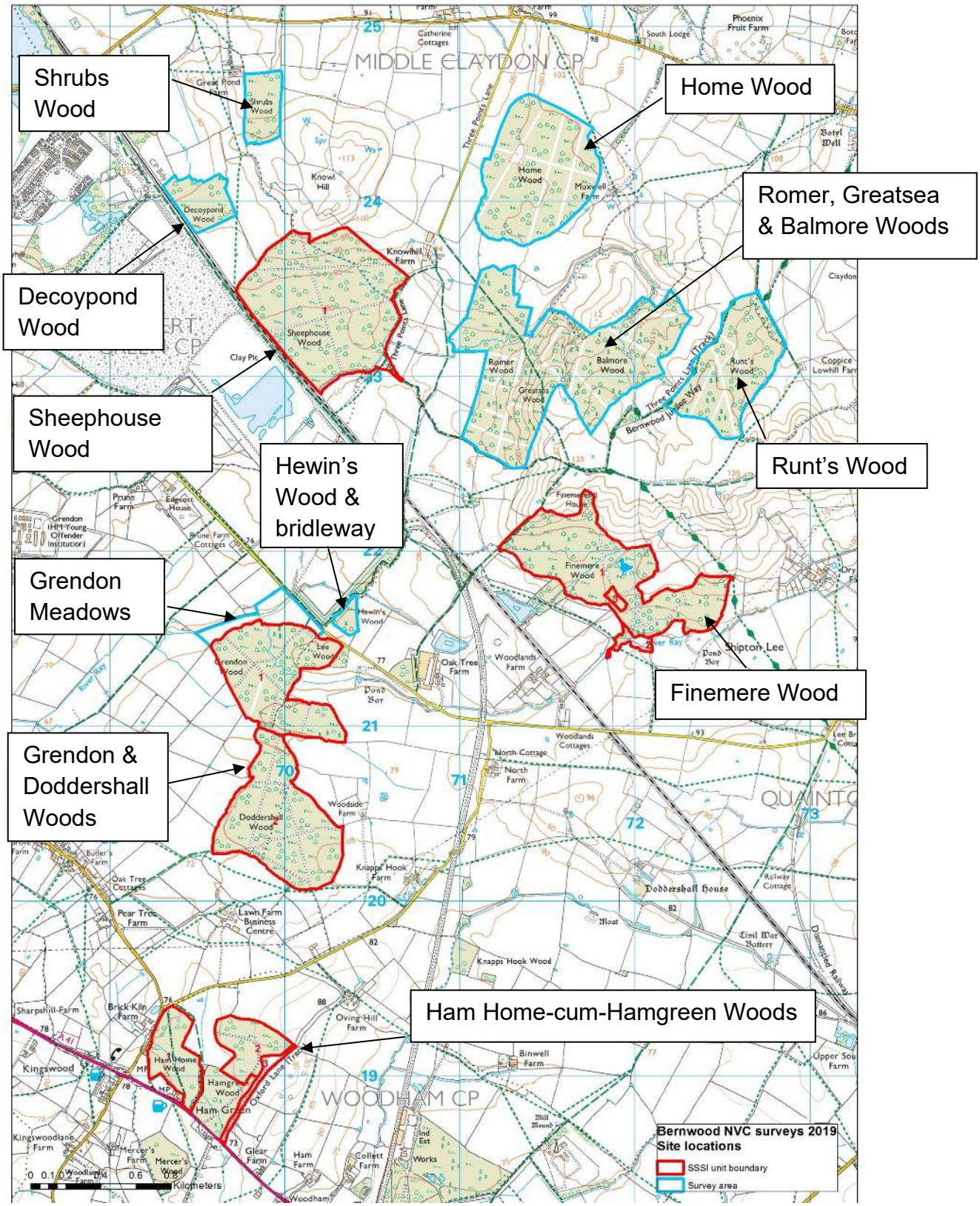

Figure 1 - Location of the eleven sites surveyed: Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Methodology

The surveys were carried out by Natural England Field Unit and Natural England area team staff on 9th to 11th April, 21st to 23rd May and 16th to 18th July 2019. Woodland areas were surveyed during April and May and grassland habitats surveyed in April and July.

The areas selected for survey were either previously known to be of special nature conservation interest or had been brought to the attention of Natural England through other surveys.

Each site selected for survey was subject to an initial walkover survey to identify the main habitat types present, identify community types within each habitat and to map their extent. All vegetation types were mapped, however, not all vegetation communities were sampled with quadrats. Woodland areas and some grassland areas were mapped and sampled with quadrats, while other vegetation types were mapped and descriptions given in the form of target notes.

Woodland surveys

Aerial photographs were used to assist in the mapping of areas of communities, sub-communities and habitat types in the field while walking the site. Grid references were taken for boundaries between sub-communities if this was not clear from aerial photographs e.g. for changes in the woodland field layer under the same canopy species.

Surveyors were instructed to record quadrats in homogeneous stands of woodland vegetation where possible (not on transitions or boundaries between two different vegetation types). The standard methodology for woodland NVC survey (JNCC, 2006) involves recording both a canopy/understorey quadrat and a field layer quadrat within the canopy quadrat. Within a homogeneous stand of woodland, a 4 x 4m or 10 x 10m field layer quadrat was marked out, a grid reference was recorded, and a photograph taken. 4 x 4m was generally used for more species-rich field layers with shorter swards, while 10 x 10m was used for taller vegetation and species-poor areas. Surveyors were asked to record which NVC sub-community it appeared to be closest to (using a summary sheet and keys to the sub-communities). All vascular plants and bryophytes (excluding epiphytes) present within the quadrat were recorded and percentage cover estimated for each species. For tree and shrub species present in the field layer, 'g' was used to show presence in the ground layer as a seedling e.g. *Fraxinus excelsior* (g). Estimated percentage cover of bare ground and leaf litter were also noted.

A canopy quadrat was then recorded in the area above and surrounding the field layer quadrat by walking the area, listing the species present in the canopy and understory and estimating percentage cover of each species. The standard size is a 50 x 50m area, however, in small stands or strips of woodland either the whole stand may be used or a

different shaped quadrat recorded. For woody species in the canopy and understory, 'c' is used to show presence in the canopy and 's' used to show presence as a shrub in the understory so it is possible to record both *Fraxinus excelsior* (c) and *Fraxinus excelsior* (s) in the same quadrat. Information on woodland structure was recorded thus: estimates of canopy and understory heights and percentage cover, percentage of each age-class for woody species (veteran, mature, young, sapling, seedling and coppice) and presence and amount of standing deadwood (estimated from ground-based visual observation).

Although this work was not primarily focussed on habitat condition, the level of deer impact was recorded at each quadrat by looking at signs such as browse lines, tracks, droppings etc. High impact effects would include features such as a clear browse line with a heavily-grazed field layer and few signs of woody species regeneration.

Notes on any additional features of interest within the quadrat area were also made, for example notes on structure, species of interest, ‘negative indicators’ and evidence of habitat management. Target notes were used to record and describe features, habitats and species over the rest of the site, such as ponds, ditches, non-native species and rare species. A grid reference was noted and a photograph taken where this provides useful information and a description of the feature recorded.

Surveyors were instructed to record at least one quadrat in each woodland type or sub-community present at each site with a large enough stand (ideally 50 x 50m), with multiple quadrats in more extensive areas of the same vegetation composition where possible. The standard methodology involves recording a minimum of 5 quadrats in each homogeneous stand of vegetation, to allow frequencies and constant species (those with a frequency of 4 or 5 out of 5) to be determined for each vegetation type. However, this is difficult if only one 50 x 50m quadrat can be recorded in small woodland blocks or areas of a particular sub-community. Areas with very sparse field layers or small, distinct patches of different field layers within a wider area have been described using target notes.

The lists of species recorded is not intended to be, nor should it be interpreted as a complete list for each site. Many species will have been overlooked because of the timing and nature of the surveys, and epiphytic bryophytes and lichens were not recorded.

Plant nomenclature used throughout this report generally follows Stace (2010).

Woodland data analysis

MAVIS (Smart et al. 2016) was used to compare the quadrat data with the published NVC data to give an indication of which NVC communities and sub-communities each stand is most similar to. MAVIS compares constancy values from recorded quadrats with the published NVC synoptic tables to give the top ten matching coefficients. Usually, a minimum of 5 quadrats is required in each stand of vegetation to calculate constancy values between 1 and 5; where a stand is small and only one quadrat can be recorded,

percentage cover can be used to give an indication of best fit instead. Percentage cover can be converted to constancy estimates using plot cover where <2% = 1, ≥2 and <5% = 2, ≥5 and <10% = 3, ≥10 and <20% = 4 and ≥20% = 5 (Dring 2000).

Keys to NVC communities, floristic tables and descriptions given in Rodwell (1991, 1992, 1993) were also compared with the quadrat data to help determine which (sub-)community is most similar. Vegetation stands which are not a good fit to NVC communities or sub-communities have been assigned general habitat types or described using the main species present.

Where possible, similar vegetation types were grouped for analysis and to produce floristic tables. To help group quadrats from different sites, Two-way indicator analysis (TWINSPAN) was used to help classify woodland quadrat data into floristically similar groupings (Hill, 2012). TWINSPAN is a program for classifying species and samples, producing an ordered two-way table of their occurrence. The process of classification is hierarchical; samples are successively divided into categories, and species are then divided into categories on the basis of the sample classification. The result of the TWINSPAN analysis is shown at Appendix 1.

Grassland surveys

Grassland rides and open areas were ‘target noted’ and described during the initial woodland surveys in early April. Sites identified as having grass rides and clearings were then re-visited later in the year (during May or July) to survey the grassland vegetation at a more appropriate time of year. Areas identified as species-rich grassland and/or potentially similar to communities of particular conservation interest (e.g. vegetation similar to NVC type MG4 or MG5) were sampled with quadrats to allow more detailed comparison with the NVC. Other areas were mapped and described using target notes.

Aerial photographs were used to assist in mapping areas and boundaries of different grassland types in the field while walking the site. Grid references were recorded for boundaries between vegetation types if this was not clear from the aerial photographs.

Surveyors were instructed to record quadrats in homogeneous stands of grassland vegetation where possible (not in transitions or at boundaries between two different vegetation types), in any significant open areas of grassland or species-rich areas. The standard methodology for grassland NVC mapping (JNCC, 2006) involves recording at least five 2 x 2m quadrats in each vegetation type, randomly located within an area of homogeneous vegetation. A 2 x 2m area was marked out, a grid reference recorded, and a photograph taken. Surveyors were asked to record which NVC sub-community it appeared to be closest to (using a summary sheet and keys to the sub-communities). All vascular plants and ground layer bryophytes present in the quadrat were noted and percentage cover estimated for each species. For tree and shrub species present in

grassland areas, 'g' was used to show presence as a seedling e.g. *Crataegus monogyna* (g). Sward height, percentage cover of bare ground and leaf litter were also noted.

Notes on any additional features of interest in the wider area around the quadrat were also made, such as observations of habitat structure, species of interest, negative indicators and signs of habitat management such as cutting or grazing. Target notes were used to record and describe features, habitats and species over the rest of the site, such as ponds, ditches, non-native species and rare species. A grid reference was recorded, and a photograph taken where useful, and a description of the feature recorded.

Grassland data analysis

MAVIS (Smart et al. 2016) was used to compare the quadrat data with the published NVC data, to give an indication of which NVC communities and sub-communities each stand is most similar to. MAVIS compares constancy values from recorded quadrats with the published NVC synoptic tables to give the top ten matching coefficients. Usually, a minimum of 5 quadrats is required in each stand of vegetation to calculate constancy values between 1 and 5; where a stand is small and only one quadrat can be recorded, this can be converted to constancy using plot cover where <2% = 1, ≥2 and <5% = 2, ≥5 and <10% = 3, ≥10 and <20% = 4 and ≥20% = 5 (Dring 2000).

Keys to NVC communities, floristic tables and descriptions given in Rodwell (1992) and Wallace and Prosser (2017) were also compared with the quadrat data to help determine closeness of fit to (sub-)community types. Vegetation stands which are not a good fit to NVC communities have been assigned general habitat types or described using the main species present.

Limitations

It is unlikely that any vegetation stand on a single site will have a perfect fit to the vegetation communities listed in Rodwell. The floristic tables for each community as described in Rodwell were assembled using quadrat samples from throughout Britain, where that vegetation type occurred and was sampled. When comparing data from a single area or site with the NVC there are likely to be species absent or species present which are not listed for that community, particularly if it is within an area not well sampled for the NVC. Software such as MAVIS is useful to give an indication of similar (sub-) communities but should not be used alone. Lack (or presence of) a particular species can give misleading results, therefore using the keys to (sub-)communities and community descriptions in Rodwell to help confirm the best fit is recommended.

There are particular difficulties matching modified vegetation types such as managed woodlands and plantations with the NVC. Preferential felling of a particular canopy species or planting of canopy species which would not naturally occur with a particular field layer type makes assignment to particular community types more difficult. In plantations, the

field layer is often most useful in determining which woodland type is the best fit. For example, some stands may have a *Quercus robur*-dominated canopy with typical W8a or W8c field layers due to loss of Ash and/or planting of *Quercus* spp., or mixed broadleaved plantation with a sparse understory over a W8c field layer. These areas are considered to be a best fit to the field layer sub-community; if thinning of canopy trees and natural regeneration were allowed to occur, it is likely that a more typical understory and canopy would develop over time.

Data analysis results

Quadrat data is given in Appendix 2 (Tables 1-8 for woodland and Tables 9-12 for grassland). An amalgamated list of all vascular plants and bryophytes recording during the surveys with scientific and common names is given at Appendix 3. Results of the analysis for woodland and grassland quadrats are given below.

Maps showing quadrat locations, boundaries of sub-communities and areas of each vegetation type are provided with the individual site reports.

Woodland

53 woodland quadrats were recorded during the surveys (Appendix 2, Tables 1-8). These were assigned an initial type in the field, using the keys in Rodwell, community descriptions and comparing with constant species listed for different sub-communities. The majority were determined to be similar to sub-communities of W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland and W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland. Individual quadrats were also run through MAVIS to check other potential matches.

The results from the TWINSPAN analysis (Appendix 1) separated out more acid vegetation types (W10) from more calcareous types (W8) well, with distinct groupings within W10 which correspond well with W10 sub-communities. The W8 groupings are less clear; there are distinct groupings more similar to different sub-communities, although they separate out in different places partly due to variation in understory and canopy species. Quadrat data for 7 groups of floristically similar woodland vegetation types are given in Appendix 2 (Tables 1 to 7), with the number of quadrats in each group between 1 and 19.

Ten quadrats (Appendix 2, Table 8) are either shown as borderline at different divisions (e.g corresponding to W8/W10, or W8a/W8b) or separated out into groups with higher degrees of modification. These vegetation types are not considered a good fit to the NVC, with mixtures of characteristic species from different sub-communities or communities present (mosaics or transitional areas), or disturbed plantation areas lacking a typical field layer. These areas have been mapped as e.g. W8/W10 or Pine with *Calamagrostis* and described separately within individual site reports.

The MAVIS results from the seven groupings of floristically similar quadrats are given in Table 2 below. Descriptions for each group and similarities to NVC sub-communities are described below.

Table 2. Potential NVC matches given by MAVIS for quadrat data from all woodland sites, grouped by floristically similar vegetation types. Numbers shown are matching coefficients, with higher numbers indicating a better fit. Communities and sub-communities which fit best when comparing data with keys, community descriptions and floristic tables are shown in bold.

Group 1 13 quadrats W8a	Group 2 1 quadrat W8b	Group 3 19 quadrats W8c	Group 4 4 quadrats W10a	Group 5 2 quadrats W10b	Group 6 3 quadrats W10d	Group 7 1 quadrat Wet woodland
W8a 62.12	**W8b 36.55**	W8a 59.96	**W10 49.90**	**W10b 41.82**	**W10d 47.15**	W6 32.88
W8 61.65	W8d 34.16	**W8 59.55**	W8d 47.31	W8f 39.86	**W10 43.45**	W6d 30.65
W8d 57.88	W8a 33.60	W8b 56.22	W10c 46.94	W10c 38.43	W10b 42.84	W6a 30.49
W8b 55.43	W8f 33.59	W8d 55.41	W10b 46.77	W8d 38.27	W10a 42.44	W2a 29.16
W8e 54.66	W10b 32.42	**W8c 55.38**	W8b 46.01	W8 38.04	W10c 42.27	W2 28.28
W8c 52.98	**W8 30.49**	W8e 52.55	W10e 45.56	W8b 37.61	W8b 40.16	W5a 26.76
W8f 49.01	W10 27.43	W10 52.13	W8 45.19	**W10 37.18**	W10e 40.05	W5c 24.51
W10 48.75	W10c 26.53	W10b 48.98	**W10a 44.35**	W8a 36.70	W25a 37.35	W1 24.10
W9 47.95	W8c 26.03	W10c 48.28	W8a 42.70	W8c 35.22	W8 36.31	W7a 24.05
W9a 47.55	W10a 25.96	W9a 47.55	W8e 42.66	W8e 34.11	W8d 36.14	**W5 23.62**

Group 1:

Oak *Quercus* spp. (*Q. robur* and/or *Q. petraea*) are the only constant canopy species with ash *Fraxinus excelsior* frequent and occasional field maple *Acer campestre,* birch *Betula pendula* and Scot's pine *Pinus sylvestris*. The understory has constant hazel *Corylus avellana*, hawthorn *Crataegus* spp. (*C. laevigata, C. monogyna* and hybrid) and ash with frequent field maple and blackthorn *Prunus spinosa*. The field layer has constant bluebell *Hyacinthoides non-scripta*, wood false-brome *Brachypodium sylvaticum,* cleavers *Galium aparine,* bramble *Rubus fruticosus* agg., hawthorn seedlings, *Kindbergia praelonga* and *Brachythecium rutabulum*. Frequently occurring species include dog's mercury *Mercurialis perennis,* rough meadow-grass *Poa trivialis,* tufted hair-grass *Deschampsia cespitosa,* herb Bennet *Geum urbanum,* lesser celandine *Ranunculus ficaria,* ground ivy *Glechoma hederacea* and lords-and-ladies *Arum maculatum*.

The top 7 matches given by MAVIS are W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland and the six W8 sub-communities, with W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community having the highest matching coefficient. The description of W8 woodland in Rodwell (1991) lists the constant species as *Acer campestre, Corylus avellana, Fraxinus excelsior, Rubus fruticosus* agg. and *Kindbergia praelonga*. The W8a sub-community has constant *Fraxinus excelsior, Quercus robur* and *Corylus avellana* in the canopy and understory with constant *Mercurialis perennis, Kindbergia praelonga* and *Rubus fruticosus* agg. in the field layer. Frequent field layer species include *Poa trivialis, Glechoma hederacea, Primula vulgaris, Hyacinthoides non-scripta, Brachythecium rutabulum* and *Geum urbanum*.

Group 1 is considered a good fit to W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community. The sample quadrats have constant *Quercus* spp. although ash is less frequent than would be expected; however, this is likely due to planting and preferential thinning and/or loss of ash from the canopy due to disease.

Group 2:

This vegetation type has an oak-dominated canopy with frequent hazel and hawthorn in the understory and occasional blackthorn. The field layer has frequent wood anemone *Anemone nemorosa* and dog's mercury with occasional *Hypnum cupressiforme,* bluebell, *Kindbergia paelonga* and blackthorn seedlings. Rarely occurring species include *Brachythecium rutabulum* and lesser celandine.

The top 4 matches given by MAVIS are sub-communities of W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, with W8b *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Anemone nemorosa* sub-community having the highest matching coefficient. W10b *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Anemone nemorosa* sub-community is also listed.

W8b is described as having a canopy with constant ash and frequent *Quercus robur* and an understorey with constant hazel and hawthorn. The field layer has constant *Kindbergia praelonga,* wood anemone*,* lesser celandine and bluebell with frequent dog's mercury and bramble.

Group 2 is considered to be closest to W8b *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Anemone nemorosa* sub-community. The matching coefficient is quite low, however, and only one stand was sampled as this vegetation type was only found in one area. Ash was notably absent from the canopy, likely due to management. Despite this the vegetation type is considered closer to W8b than W10b due to frequent dog's mercury and lack of characteristic W10 species such as bramble and bracken.

Group 3:

The canopy has constant oak (*Q. robur* and/or *Q. petraea*) and frequent ash. The understory has constant hazel, frequent hawthorn and occasional ash*,* blackthorn and field maple. The field layer has constant tufted hair-grass*,* bluebell, bramble, *Kindbergia praelonga, Thuidium tamariscinum* and hawthorn seedlings.

The top 6 matches from MAVIS are all W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland with W8a, W8b, W8c, W8d and W8e sub-communities listed. W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community has the highest matching coefficient, but using the key to woodland sub-communities in Rodwell (1991) gives W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community as the best fit due to constant and often dominant *Deschampsia cespitosa*. The description of W8c lists constant ash in the canopy with hazel in the understorey. The field layer has constant bramble and tufted hair-grass with frequent species including *Kindbergia praelonga,* bluebell, *Brachythecium rutabulum,* enchanter's nightshade and *Fissidens taxifolius*.

Group 3 is considered to match best with W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community. The lack of constant ash in the canopy and understory and the presence of constant oak in the canopy is likely due to planting and preferential thinning in plantations and/or loss of ash from the canopy due to disease.

Group 4:

This vegetation type has constant oak (*Q. robur* and/or *Q. petraea*) in the canopy and constant hazel and holly *Ilex aquifolium* in the understory. The field layer has constant bramble, bluebell, cleavers*,* honeysuckle *Lonicera periclymenum* and hawthorn seedlings. Frequent and occasional species include tufted hair-grass*, Kindbergia praelonga,* wood anemone*,* wood millet *Milium effusum* and bracken.

The best match given by MAVIS is W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland. Other potential matches include sub-communities of W10 (W10c, W10b, W10e, W10a) and W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland (W8d, W8b). W10 is described in Rodwell with constant *Quercus robur,* honeysuckle, bracken and bramble, while W8 has constant field maple*,* hazel, ash, dog's mercury, bramble and *Kindbergia praelonga*. There is some overlap between these two communities with ash listed as present in W10 woodland at a low frequency and abundance, hazel frequent in W10, and bramble constant in both. However, the lack of characteristic calcicolous herbs such as dog's mercury and the presence of constant honeysuckle makes this a better fit to W10.

Using the keys in Rodwell also leads to W10 with the best fitting sub-community given as W10a. W10a has constant bramble and bracken, with frequent *Quercus robur, Quercus petraea,* silver birch *Betula pendula,* hazel, honeysuckle and bluebell. The sub-communities W10b, W10c, W10d and W10e are not good fits due to the lack of *Anemone nemorosa* as a vernal dominant, no constant ivy *Hedera helix* or creeping softgrass *Holcus lanatus*, and sycamore *Acer pseudoplatanus,* wood sorrel *Oxalis acetosella* and broad buckler-fern *Dryopteris dilatata* infrequent or absent.

This vegetation type is therefore considered to be closest to W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community. The majority of constant species match but bracken and silver birch are infrequent and there is some overlap with W8.

Group 5:

The canopy has constant oak *Quercus* spp. (*Q. robur* and/or *Q. petraea*) with hawthorn (*Crateaegus laevigata, C. monogyna* and hybrid) and hazel in the understorey. The field layer has constant and abundant bramble and wood anemone, with constant cleavers*,* honeysuckle, *Brachythecium rutabulum* and *Kindbergia praelonga*. Frequent species include yellow archangel *Lamiastrum galeobdolon* and bluebell.

The best MAVIS match is W10b *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Anemone nemorosa* sub-community. Other potential fits are W10c, W8b, W8d and W8f. Constant oak, bramble and honeysuckle and the lack of characteristic calcicolous herbs such as dog's mercury make this a better fit to W10 than W8, although there is some overlap between the two.

The constant and abundant wood anemone makes this vegetation type a best fit to the W10 sub-community W10b *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Anemone nemorosa* sub-community.

Group 6:

There are no constant canopy species for this vegetation type as the same field layer was recorded under both *Quercus robur* and pine *Pinus* sp. dominated plantation woodlands. The understory is sparse with infrequent hawthorn and hazel. The field layer has constant bluebell, Yorkshire fog, bramble and cleavers, with frequent bracken and *Kindbergia praelonga*.

The best fit from MAVIS is W10d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community, with W10b, W10c and W10a also listed. W10d is described in Rodwell as a community often occurring in planted oak stands or conifer plantations with constant bramble, bracken and Yorkshire fog and frequent honeysuckle in the field layer. Bluebell can be abundant but is infrequent, generally having been eliminated from conifer plantations after 15-20 years and only re-establishing slowly in longer established broad-leaved plantations.

This vegetation type is considered a good fit to W10d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community.

Group 7:

One small stand of wet woodland was recorded with abundant birch *Betula* spp. (*B. pendula* and/or *B. pubescens*) and occasional poplar *Populus* sp. and alder *Alnus glutinosa* in the canopy. The understorey has frequent hawthorn and occasional grey willow *Salix cinerea* and blackthorn. The field layer is dominated by sedge *Carex* tussocks (possibly tufted sedge *Carex elata)* with frequent bryophytes including *Brachythecium rutabulum, Kindbergia praelonga* and *Calliergonella cuspidata*.

The matching coefficients from MAVIS are quite low, suggesting that this vegetation is not a good fit to the NVC. Potentially similar sub-communities are given from W6 *Alnus glutinosa-Urtica dioica* woodland, W2 *Salix cinerea-Betula pubescens-Phragmites australis* woodland and W5 *Alnus glutinosa-Carex paniculata* woodland. The community descriptions suggest that W6 is not a good fit due to the absence of *Urtica dioica* and W2 is not a good fit due to the absence of *Phragmites australis* in the field layer. W5 is described as having constant *Carex paniculata* but also occasionally having other bulky tussock-forming sedge species, including *Carex elata*. This community usually has constant alder with frequent grey willow and ash, and occasional downy birch and hawthorn in the canopy and understorey.

This wet woodland area is not considered a good fit to the described NVC communities, possibly because it is of relatively recent origin being derived from a former pond, but is closest to W5 *Alnus glutinosa-Carex paniculata* woodland.

Grassland rides and clearings

Grassland areas associated with woodland were mapped and described using target notes in the field. An assessment of the most similar NVC (sub-)communities was carried out using keys and (sub-)community descriptions from Wallace & Prosser (2017), which includes additional and updated grassland communities and sub-communities compared to Rodwell (1992). The most frequent grassland types mapped in rides and clearings were MG1 *Arrhenatherum elatius* grassland, MG6 *Lolium perenne–Cynosurus cristatus* grassland, MG7 *Lolium perenne* leys and related grasslands and MG9 *Holcus lanatus-Deschampsia cespitosa* grassland.

It is important to note that the NVC does not cater well with rides and clearings in woodland as none of the data samples used to define the described grassland communities were from woodland. Indeed, Rodwell specifically refers to ‘grassland around the margins of woodlands’ as being specifically excluded from surveys used to define the NVC grassland communities. This is because most grassland areas in British woodlands have a very different origin and management history to grasslands in the agricultural landscape. Therefore, the best that can usually be achieved is to suggest a closest match to the grassland community types in Rodwell (1992).

The approach adopted was to sample vegetation in the more extensive grass rides and grass-dominated clearings. These are in Finemere Wood, Home Wood, and Romer, Greatsea and Balmore Woods. Of these, Finemere Wood stands out in having a relatively large area of open grassland and scrub at its southern end which is likely to be derived from a traditionally-managed agricultural field (it is shown as such on the Ordnance Survey 25 inch map of 1841). Grendon and Doddershall Woods also includes an extensive network of broad grass rides with considerable variation in vegetation composition, from relatively species-poor areas to very species-rich grassland.

Quadrat data for the grass rides, clearings and more extensive grassland areas is given in Appendix 2, Tables 9-11. The MAVIS results from the three main areas are given below in Table 3. Descriptions for each group and similarities to NVC sub-communities are also provided. below.

Table 3. Potential NVC matches given by MAVIS from quadrat data sampled in grassland rides and clearings. Numbers shown are matching coefficients, with higher numbers indicating a better fit. Communities and sub-communities which are considered to fit best when comparing data with keys and floristic tables are shown in bold.

Finemere Wood clearings/open grassland 5 quadrats	Home Wood rides 10 quadrats	Romer, Balmore & Greatsea Woods grass rides 5 quadrats
MG4a 49.02	**MG6d 61.67**	**MG6d 52.87**
MG1e 47.97	MG4b 61.51	MG4 50.81
MG1 47.67	MG4v2 60.32	MG4b 50.73
MG4b 47.51	MG4c 56.75	MG4v2 49.85
MG1a 47.39	MG4a 55.90	MG8v2 49.75
MG1c 46.70	MG9a 53.94	MG8b 49.32
MG5a 46.31	MG8v2 53.77	MG4a 49.23
MG4v2 45.95	MG9 53.73	MG9a 47.19
MG9b 45.40	MG8b 53.59	MG8a 47.18
MG5 45.34	MG15b 53.05	MG5a 46.84

Finemere Wood – open grassland/scrub mosaic

The SSSI includes a fairly extensive area at the southern end consisting of tall grassland with patchy scrub. The grassland is closest in composition to MG1e *Arrhenatherum elatius* grassland, *Centaurea nigra* sub-community. It is relatively species-rich despite the presence of a tall, tussocky sward with abundant coarse grasses. Constant grass species are Red Fescue *Festuca rubra,* Common Couch *Elytrigia repens,* Cock's-foot *Dactylis glomerata* and Tall Fescue *Festuca arundinacea* with frequent False Oat-grass *Arrhenatherum elatius*. Constant forbs are Lady's Bedstraw *Galium verum,* Tufted Vetch *Vicia cracca,* Hogweed *Heracleum sphondylium,* Meadow Buttercup *Ranunculus acris,* Dandelion *Taraxacum officinale* agg., Yellow-rattle *Rhinanthus minor,* Creeping Thistle *Cirsium arvense* and Common Mouse-ear *Cerastium fontanum* with frequent Meadow Vetchling *Lathyrus pratensis,* Common Knapweed *Centaurea nigra* and Common Sorrel *Rumex acetosa*.

Home Wood – grass rides:

The relatively species-rich grassy rides have the constant grass species red fescue, creeping bent *Agrostis stolonifera,* Yorkshire fog and sweet vernal grass *Anthoxanthum odoratum* with the constant forbs meadowsweet *Filipendula ulmaria,* meadow vetchling, white clover *Trifolium repens,* sorrel and common mouse-ear.

The most similar sub-communities given by MAVIS are MG6d *Lolium perenne-Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community and various sub-communities of MG4 *Alopecurus pratensis-Sanguisorba officinalis* grassland. However, it lacks two of the constant species for MG4, *Sanguisorba officinalis* and *Ranunculus acris*. All of the constant species listed for MG6 are present with white clover, Yorkshire fog, common mouse-ear and red fescue also constant, however, ryegrass *Lolium perenne* and crested dogstail *Cynosurus cristatus* are infrequent. Preferential species listed for the MG6d sub-community include meadowsweet, creeping buttercup *Ranunculus repens,* red clover *Trifolium pratense,* cuckooflower *Cardamine pratensis*, sorrel and dandelion *Taraxacum officinale* agg. All these species except cuckooflower are present in the sample vegetation, with meadowsweet and sorrel constant.

This grassland is therefore considered to be most similar to MG6d *Lolium perenne-Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community. Some of the constant species for this sub-community are infrequent but most of the characteristic species are present.

Romer, Balmore and Greatsea Woods grass rides:

The wide track between Romer and Greatsea Woods has a species-rich, short sward. Constant graminoid species are creeping bent, tall fescue *Festuca arundinacea,* Yorkshire fog, crested dogstail, ryegrass, glaucous sedge *Carex flacca,* Timothy *Phleum pratense* and sweet vernal grass. Constant forb species are ribwort plantain *Plantago lanceolata,* creeping cinquefoil *Potentilla reptans,* red clover, white clover, meadowsweet, selfheal *Prunella vulgaris,* creeping Jenny *Lysimachia nummularia,* creeping buttercup, black medick *Medicago lupulina* and meadow vetchling. Constant bryophyte species are *Kindbergia praelonga* and *Brachythecium rutabulum*.

The most similar sub-communities given by MAVIS are MG6d *Lolium perenne-Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community and various sub-communities of MG4 *Alopecurus pratensis-Sanguisorba officinalis* grassland. However, the grassland is lacking three of the constant species for MG4 (red fescue, greater burnet and meadow buttercup). Five out of the 6 constant species for MG6 are present, with four species also constant in the sample vegetation (ryegrass, crested dogstail, white clover, Yorkshire fog). Preferential species listed for the MG6d sub-community include meadowsweet, creeping buttercup, red clover, cuckooflower, sorrel and dandelion. Most of these species except cuckooflower and sorrel are present in the sample vegetation, with meadowsweet, meadow buttercup and red clover constant.

This grassland is considered to be most similar to MG6d *Lolium perenne-Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community. Some of the constant species for this sub-community are absent or infrequent, but most of the characteristic species are present.

Grendon Meadows

The grassland at Grendon Meadows is quite different to other grass- and sedge-dominated vegetation encountered in the survey. These are two adjoining fields managed as part of a larger agricultural holding. The fields have very similar sward composition and character but there is a degree of variation associated with changes in topography and wetness across the fields. The main grassland vegetation was mapped and sampled with quadrats, and small areas of different vegetation types (in ditches, seasonal ponds etc.) were described using target notes. Quadrat data is given in Appendix 2, Table 12. Constant grass species are meadow foxtail *Alopecurus pratensis,* red fescue, sweet vernal grass, Yorkshire fog, creeping bent and ryegrass. Constant forb species are meadow buttercup*,* sorrel, common mouse-ear, red clover and creeping buttercup.

The best potential matches from MAVIS (Table 4) are sub-communities of MG6 *Lolium perenne-Cynosurus cristatus* grassland and MG4 *Alopecurus pratensis-Sanguisorba officinalis* grassland. All constant species from both communities are present in the sample vegetation. Comparing the characteristic species from the MG6d *Lolium perenne-Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community and MG4c *Alopecurus pratensis-Sanguisorba officinalis* grassland, *Holcus lanatus* sub-community indicates that MG4c is a better fit, as most of the constant species for this sub-community are present. MG4c is described as a more grass-dominated sub-community of MG4, with meadow foxtail, rough meadow-grass *Poa trivialis,* creeping bent*,* Yorkshire fog, sweet vernal grass and red fescue the main grass species present. The most frequent forbs are sorrel*,* greater burnet, cuckooflower and meadow vetchling.

Meadow foxtail, creeping bent, Yorkshire fog, sweet vernal grass, red fescue and sorrel are all constant in the sample vegetation, while rough meadow-grass*,* greater burnet, cuckooflower and meadow vetchling are also present but less frequent. Greater burnet was noted as frequent throughout but with a patchy distribution, therefore did not occur constantly in the sample quadrats.

The grassland here is considered to be a best fit to MG4c *Alopecurus pratensis-Sanguisorba officinalis* grassland, *Holcus lanatus* sub-community. Some constant species for this sub-community are infrequent, but the main characteristic species are present.

Table 4. Potential NVC matches given by MAVIS for quadrat data for Grendon Meadows. Numbers shown are matching coefficients, with higher numbers indicating a better fit. Communities and sub-communities which fit best when comparing data with keys and floristic tables are shown in bold.

Quadrats 1 to 5	Quadrats 6 to 8	Quadrats 9 to 11	All quadrats
MG4c 61.12	MG6d 65.80	**MG4c 63.26**	MG6d 65.95
MG4b 60.63	MG6b 61.65	MG6d 61.86	**MG4c 65.53**
MG4 60.39	**MG4c 60.04**	MG15b 59.08	MG4b 63.07
MG8d 58.82	MG8d 59.45	MG4b 58.37	MG4 61.78
MG6d 58.63	MG4b 59.43	MG4v2 58.18	MG15b 61.37
MG4v2 57.25	MG6a 58.23	MG6b 56.89	MG8d 61.33
MG8v2 56.31	MG15b 58.13	MG6a 55.35	MG4v2 61.15
MG8 55.53	MG4v2 57.60	MG6 55.23	MG6b 59.23
MG15b 54.56	MG4 57.05	MG15 55.00	MG15 58.95
MG9a 53.55	MG6 56.88	MG8d 54.87	MG8v2 58.23

Outputs and discussion

The main NVC communities encountered

Table 5 below lists the NVC communities and sub-communities identified at the 11 survey sites. The main community and sub-community types are described in more detail and how they fit (or vary) from the described vegetation types in Rodwell (1991, 1992, 1993, 1995, 2000) is discussed below.

Table 5. Summary of NVC communities and sub-communities mapped.

Woodland and scrub		
NVC code	**Community/sub-community name**	**Vernacular name**
W5	*Alnus glutinosa-Carex paniculata* woodland	Alder-Greater Tussock-sedge woodland
W8	*Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland	Ash-Field Maple-Dog's Mercury woodland
W8a	*Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community	Ash-Field Maple-Dog's Mercury woodland, Primrose-Ground-ivy sub-community
W8b	*Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Anemone nemorosa* sub-community	Ash-Field Maple-Dog's Mercury woodland, Wood Anemone sub-community
W8c	*Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community	Ash-Field Maple-Dog's Mercury woodland, Tufted Hair-grass sub-community
W10	*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland	Pedunculate Oak-Bracken-Bramble woodland
W10a	*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community	Pedunculate Oak-Bracken-Bramble woodland, Typical sub-community
W10b	*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Anemone nemorosa* sub-community	Pedunculate Oak-Bracken-Bramble woodland, Wood Anemone sub-community

Woodland and scrub		
NVC code	**Community/sub-community name**	**Vernacular name**
W10d	*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community	Pedunculate Oak-Bracken-Bramble woodland, Yorkshire-fog sub-community
W21	*Crataegus monogyna-Hedera helix* scrub	Hawthorn-Ivy scrub
W22	*Prunus spinosa-Rubus fruticosus* scrub	Blackthorn-Bramble scrub

Grassland communities		
NVC code	**Community/sub-community name**	**Vernacular name**
MG1	*Arrhenatherum elatius* grassland	False Oat-grass grassland
MG1e	*Arrhenatherum elatius* grassland, *Centaurea nigra* sub-community	False Oat-grass grassland, Common Knapweed sub-community
MG4c	*Alopecurus pratensis-Sanguisorba officinalis* grassland, *Holcus lanatus* sub-community	Meadow Foxtail-Great Burnet grassland, Yorkshire-fog sub-community
MG6	*Lolium perenne–Cynosurus cristatus* grassland	Perennial Rye-grass-Crested Dog's-tail grassland
MG6d	*Lolium perenne–Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community	Perennial Rye-grass-Crested Dog's-tail grassland, Meadowsweet sub-community
MG7	*Lolium perenne* leys and related grasslands	Perennial Rye-grass leys and related grasslands
MG9	*Holcus lanatus-Deschampsia cespitosa* grassland	Yorkshire-fog-Tufted Hair-grass grassland
MG13	*Agrostis stolonifera–Alopecurus geniculatus* grassland	Creeping Bent-Marsh Foxtail grassland

Swamp and mire communities		
NVC code	**Community/sub-community name**	**Vernacular name**
S28	*Phalaris arundinacea* tall-herb fen	Reed Canary-grass tall-herb fen
M23	*Juncus effusus/acutiflorus-Galium palustre* rush-pasture	Soft-rush/Sharp-flowered Rush-Marsh Bedstraw rush-pasture

Vegetation of open habitats		
NVC code	**Community/sub-community name**	**Vernacular name**
OV25	*Urtica dioica-Cirsium arvense* community	Common Nettle-Creeping Thistle community

The main woodland NVC communities

Woodland areas were sampled with quadrats where possible, with smaller areas mapped and described with target notes. 53 woodland quadrats were recorded across the sites, with the majority of the woodland closest to W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland and W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland.

The most commonly encountered woodland sub-communities are W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community (19 quadrats) and W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community (13 quadrats). Smaller areas of W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community (4 quadrats), W10d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community (3 quadrats), W10b *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Anemone nemorosa* sub-community (2 quadrats) and W8b *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Anemone nemorosa* sub-community (1 quadrat) are also present. One stand of wet woodland was recorded, closest to W5 *Alnus glutinosa-Carex paniculata* woodland. Additional scrub communities mapped are W21 *Crataegus monogyna-Hedera helix* scrub and W22 *Prunus spinosa-Rubus fruticosus* scrub, mostly present as small patches in woodland, ride edge habitat, woodland edge and hedgerows.

The woodlands in a wider context

Woodland of the W8 type is very distinctive, most commonly having ash as the dominant tree over a shrub layer of hazel and field maple, but often also having oak very frequent and forming a major component of the canopy. W8 in all its forms has a very wide distribution in Britain but as it is more or less confined to soils with at least a degree of base-enrichment it has a distinct bias towards the south and east. The W8a, W8b and W8c sub-communities are all mainly associated with the south eastern parts of Britain although W8c also occurs sparingly towards the north. W8 woodland is the characteristic woodland type of much of south central England on alluvial soils and soils derived from glacial drift, including heavy soils which are wet for much of the year but not subject to excessive waterlogging, as well as on limestone and Chalk. W8c is considered to be particularly characteristic of ash-oak woodland on moist, heavy soil with a coppice-with-standards management history, which favours the characteristically high cover and frequency of tufted hair-grass (Rodwell 1991). The more species-rich examples of W8 woodland are often considered to be of high nature conservation value and the community is well-represented in the SSSI series.

NVC type W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland is widespread and very common over much of southern Britain, extending also into parts of Scotland but becoming replaced in the cooler and wetter parts of Britain by W11 *Quercus petraea-Betula-Oxalis acetosella* woodland. W10 is often considered to represent the climax community which would naturally occur across much of lowland Britain, but most stands show modification to a greater or lesser degree through management intervention. The W10b *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Anemone nemorosa* sub-community is the most geographically restricted of the W10 sub-communities, showing a distinct south-eastern distribution. The W10d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community is described by Rodwell as being more typical of oak plantations and other heavily-modified oak woodlands. W10 woodland is widely represented in the SSSI series in England.

Other woodland types present

Some woodland stands in the survey area are considered to have a poor fit to the NVC; 10 quadrats were recorded in mosaics, transitional communities or highly modified/disturbed areas. These have been mapped and described separately, for example as transitions between W8/W10, transitions between different W8 sub-communities, or plantations with *Calamagrostis epigejos* dominant or abundant in the field layer. It is not unusual to find areas which do not have a close similarity to the published descriptions of woodland NVC types as there is a continuum of variation between the main community types, and management history and modification of woodlands can have a significant effect on their composition.

The main grassland NVC communities

The most common grassland types mapped and described in rides and clearings are MG1 *Arrhenatheum elatius* grassland, MG6 *Lolium perenne-Cynosurus cristatus* grassland, MG7 *Lolium perenne* leys and related grasslands and MG9 *Holcus lanatus-Deschampsia cespitosa* grassland. Three of the more species-rich areas which had similarities to communities of particular conservation interest were sampled with quadrats. An open grassland area on the edge of Finemere Wood is closest to MG1e *Arrhenatheum elatius* grassland, *Centaurea nigra* sub-community, and rides in Home Wood and between Romer and Greatsea Woods are closest to MG6d *Lolium perenne-Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community. The grassland at Grendon Meadows, is closest to MG4c *Alopecurus pratensis-Sanguisorba officinalis* grassland, *Holcus lanatus* sub-community with small pockets of MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland, S28 *Phalaris arundinacea* tall-herb fen and M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture vegetation types.

The grasslands in a wider context

MG1 is a very common vegetation type, distributed throughout most of lowland Britain extending into the fringes of the uplands, riversides and coastal areas. It is a characteristic grassland type of road verges, tracksides, field margins and similar situations where the vegetation is mown only once a year late in the growing season, if at all. It is also commonly associated with abandoned fields which have been taken out of agricultural production, representing the early stage of succession to scrub and woodland. MG1 can be derived from a wide range of other grassland types where false-oat is able to assume dominance through relaxation or abandonment of regular management. It is usually possible to reverse this process through a resumption of cutting and grazing management although the vegetation may be highly impoverished through the loss of low-growing plants. The MG1e sub-community is characteristic of situations where the vegetation is derived from more species-rich grassland communities including MG5 *Cynosurus cristatus - Centaurea nigra grassland*, which one could speculate may be the case at Finemere Wood.

MG6 grassland is generally derived from other grassland types through management (ie application of fertilisers), or may be derived from re-sown leys (MG7) as it is characterised by a high frequency of perennial ryegrass, commonly sown to improve the nutritional value of grassland for grazing animals. The MG6d sub-community is a recently-described sub-community (Wallace and Prosser 2017) considered to represent stands of semi-improved grassland on damp, brown earth soils in which meadowsweet is very frequent, usually managed by hay cropping and aftermath grazing. The sub-community is thought to be widespread in lowland England and not under threat. Its occurrence in woodland rides is likely to represent a long-established habitat in which plant diversity is affected through the influences of shading, occasional ground disturbance, nutrient input through leaf fall,

irregular management and competition from tall-growing plants. It is interesting to note that the most species-rich areas of grassland in the ride systems tend to be in parts which are very open and subject to several cuts per year, for example in Grendon Wood, where there are patches with similarities to MG5c *Cynosurus cristatus – Centaurea nigra* grassland: *Danthonia decumbens* sub-community. MG5c is rare in lowland England.

MG4 grassland is a nationally-rare and threatened vegetation type with concentrations in the Thames, Severn, Great Ouse and Yorkshire Ouse valleys. It is typically associated with alluvial soils in river valleys where groundwater level varies through the year but soils are not waterlogged during most of the growing season. Most stands are subject to at least occasional winter flooding. Grassland of this type is mostly managed as hay meadow with aftermath grazing. The MG4c sub-community is the most grass-dominated variant, which may reflect nutrient input through fertiliser application or deposition of nutrient-rich silt in floodwater. MG4 is highly sensitive and readily impoverished through changes in management, fertiliser application, changes in the flooding or groundwater regime, ground damage such as poaching or management neglect.

Whilst the purpose of the survey was not to assess the nature conservation interest of the areas it is worth noting that several notable species were encountered in the course of the work. Some of these are very scarce in north Buckinghamshire.

Table 6. Notable plant species encountered during the survey.

Species name	common name	location	comments
Carex elata (not confirmed)	Tufted sedge	Decoypond Wood	Previously thought extinct in Bucks
Carex pallescens	Pale sedge	Grendon & Doddershall Woods; Home Wood (not confirmed)	Rare in Bucks
Carex strigosa	Thin-spiked wood sedge	Romer Wood	Scarce in Bucks north of Chilterns
Hordelymus europaeus	Wood barley	Finemere Wood	Formerly Nationally Scarce. Rare in Bucks outside Chilterns.
Oenanthe fistulosa	Tubular water-dropwort	Grendon Meadows	NERC Act Section 41 Priority Species

Species name	common name	location	comments
Ranunculus auricomus	Goldilocks buttercup	Grendon & Doddershall Woods; Home Wood; Sheephouse Wood	Scarce in Bucks north of Chilterns
Silaum silaus	Pepper saxifrage	Grendon Meadows	Scarce in Bucks
Sorbus torminalis	Wild service tree	Sheephouse Wood	Rare in Bucks

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Appendices

Appendix 1. Maps and figures

OS mapping copyright

Individual site descriptions and survey data

Ham Home-cum-Hamgreen Woods

Overview

Ham Home-cum-Hamgreen Woods SSSI (23 ha) is situated at the southern edge of the complex of sites surveyed. It is Ancient Woodland and comprises broad-leaved woodland with grassy tracks and rides. The two parts of the SSSI are separated by an area of mixed broadleaf and conifer plantation on Ancient Woodland, the majority of which was subsequently felled after this survey. The site includes two small ponds and there is a line of well-structured scrub which has long been known to be a national stronghold for Black Hairstreak along Oxford Lane.

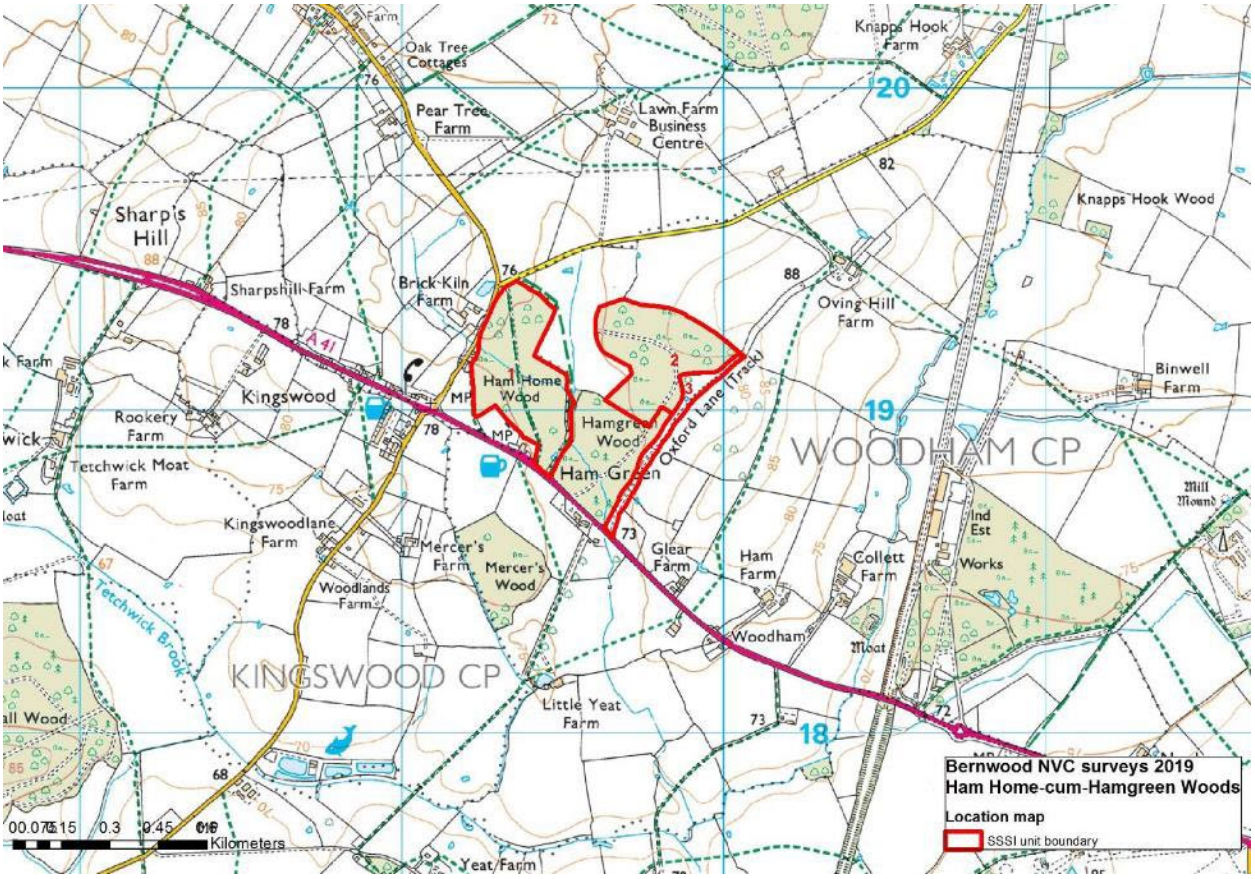


Figure 2. Location map – Ham-Home-cum-Hamgreen Woods SSSI. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

The survey was carried out by Alison Jukes of the Natural England Field Unit on 21st May 2019 following National Vegetation Classification (NVC) survey guidance (JNCC 2006).

Surrounding habitats include hedgerows, arable fields, and improved grassland, with roads along the south west and north west boundaries. The small settlement of Kingswood lies just to the south and south west. Two public footpaths run through the western part of the wood. Grendon and Doddershall Woods SSSI is 775 metres to the north, separated by agricultural land.

Ham Home-cum-Hamgreen Woods - A general view showing the typical structure with dense understory. Copyright Alison Jukes & Natural England.

Vegetation communities

Where distinct vegetation communities could be distinguished, these are mapped to NVC community or sub-community level and described in detail below. Where vegetation types are not a good fit to the described communities of the NVC (because they are transitions, highly modified etc.), a general habitat type has been assigned. The list of NVC communities identified is provided below in table 7. A map showing the survey area boundaries and vegetation communities is shown below as Figure 1.

Ham Home-cum-Hamgreen Woods - Woodland and scrub

The SSSI does not currently include the whole of the Ancient Woodland mapped in this area. There is a central plantation woodland area (PAW) excluded from the current SSSI. The majority of the SSSI woodland has a mixed Oak *Quercus* spp. and Ash *Fraxinus excelsior* canopy with a Hazel *Corylus avellana* understorey. The field layer is sparse with abundant leaf litter in some areas, but deer impact was

noted as low at the time of the survey with few signs of browsing and frequently occurring tree seedlings.

A large proportion of the woodland is referable to NVC type W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community. These areas have a mixed Oak and Ash canopy with Hazel and Hawthorn *Crataegus* spp. frequent in the understorey. Occasional species include Blackthorn *Prunus spinosa*, Elder *Sambucus nigra* and Wych Elm *Ulmus glabra*. The field layer has locally abundant Bluebell *Hyacinthoides non-scripta* with frequent species including False Brome *Brachypodium sylvaticum*, Enchanter's nightshade *Circaea lutetiana* and Primrose *Primula vulgaris*. Occasional species include Goldilocks Buttercup *Ranunculus auricomus*, Wood-sedge *Carex sylvatica*, Wood Avens *Geum urbanum*, Ground-ivy *Glechoma hederacea*, Dog's Mercury *Mercurialis perennis,* Barren Strawberry *Potentilla sterilis*, Lesser Celandine *Ranunculus ficaria* and Bramble *Rubus fruticosus* agg.

Ham Home-cum-Hamgreen Woods – a view of W8a woodland (SP6946818923). This shows the typical structure with large, mature oak and ash amongst a dense mixture of younger trees. Copyright Alison Jukes & Natural England

The northern part of the western block has a good fit with W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community. The canopy and understorey have close similarity to the W8a areas with a mixed Oak and Ash canopy, with Hazel and Hawthorn frequent in the understory. Aspen *Populus tremula* and Willow *Salix* spp. are also locally frequent. The field layer has frequent to abundant Tufted hair-grass *Deschampsia cespitosa* with occasional species including False Brome, Enchanter's nightshade, Wood Avens, Bluebell, Wood Millet *Milium effusum*, Wood Meadow-grass *Poa nemoralis*, Lesser Celandine and Bramble.

Small patches of scrub and hedgerow with a close fit to W22 *Prunus spinosa-Rubus fruticosus* scrub are present on the south western edge of the wood, with Blackthorn abundant to dominant and Bramble locally abundant.

Ham Home-cum-Hamgreen Woods - W22 scrub with abundant Blackthorn and Bramble (SP6994419089). Copyright Alison Jukes & Natural England.

The central part of the woodland outside the current SSSI boundary was not surveyed in detail but was observed to comprise an area of mixed broad-leaved

plantation with a W8 type field layer, a recently felled plantation area and some W8a woodland similar in character and composition to areas within the SSSI.

Ham Home-cum-Hamgreen Woods - Woodland rides

The main rides could be described as semi-improved neutral grassland with greater species-richness in wetter areas. These had been recently mown at the time of the survey. Bare areas were present from disturbance from vehicles, horses and winter inundation. The grassland is closest to NVC type MG6d *Lolium perenne–Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community with frequent graminoid species including Perennial Rye-grass *Lolium perenne*, Red Fescue *Festuca rubra*, Rough Meadow-grass *Poa trivialis*, Common Bent *Agrostis capillaris*, Creeping Bent *Agrostis stolonifera* and Yorkshire-fog *Holcus lanatus,* and occasional Meadow Fescue *Schedonorus pratensis* and Meadow Foxtail *Alopecurus pratensis*. Frequent forb species include Meadowsweet *Filipendula ulmaria*, Silverweed *Potentilla anserina*, White Clover *Trifolium repens*, Yellow Pimpernel *Lysimachia nemorum*, Creeping Jenny *Lysimachia nummularia*, Creeping Cinquefoil *Potentilla reptans*, Selfheal *Prunella vulgaris* and Wood Dock *Rumex sanguineus*. Greater Pond-sedge *Carex riparia* and Wood Small-reed *Calamagrostis epigejos* are locally frequent at ride edges.

Ham Home-cum-Hamgreen Woods – a typical view of the ride structure (SP6966819243). Copyright Alison Jukes & Natural England.

Other features

Two small ponds are present (Target notes 7 and 11). Emergent species include Greater Pond-sedge *Carex riparia*, Bulrush *Typha latifolia*, False Fox-sedge *Carex otrubae*, Soft-rush *Juncus effusus*, Water Mint *Mentha aquatica* and Water-plantain *Alisma plantago-aquatica*. Floating aquatic species noted include Ivy-leaved Duckweed *Lemna trisulca*, Sweet-grass *Glyceria* sp., Water-starwort *Callitriche* sp. and Broad-leaved Pondweed *Potamogeton natans*. Large Red Damselfly, Azure Damselfly and tadpoles were seen.

No veteran trees were noted, although very large, mature trees and very old coppice stools are frequent. Standing deadwood is rare but fallen deadwood is frequent.

Summary

Ham Home-cum-Hamgreen Woods SSSI is comprised of a mixed Oak and Ash canopy with Hazel and Hawthorn understorey. Most of the woodland has a field layer conforming to NVC type W8a (14.1ha) but with parts closer in composition to W8c (6.9ha). Small patches (0.1ha) of W22 scrub are present. Grassy rides (1.9ha) are moderately species-rich with some wetter areas, closest in composition to NVC type MG6d, and are managed by mowing. Two small ponds are present. The woodland structure is characterised by frequent large, mature trees and old coppice stools with typical W8 sub-community field layer. No veteran trees were noted and standing deadwood is rare, but fallen deadwood is frequent. Tree seedlings and saplings are present throughout the wood. Deer impacts appear low with few signs of br.owsing although some areas have a sparse field layer with abundant leaf litter. Although this survey was not primarily intended to assess habitat condition the condition of the woodland appears very good.

Table 7. Ham Home cum Hamgreen Woods SSSI - area of NVC communities/habitat types mapped

NVC (sub)-community / habitat type	Area (ha)
W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community	14.1
W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community	6.9

MG6d *Lolium perenne–Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community	1.9
W22 *Prunus spinosa-Rubus fruticosus* scrub	0.1
Total area	23

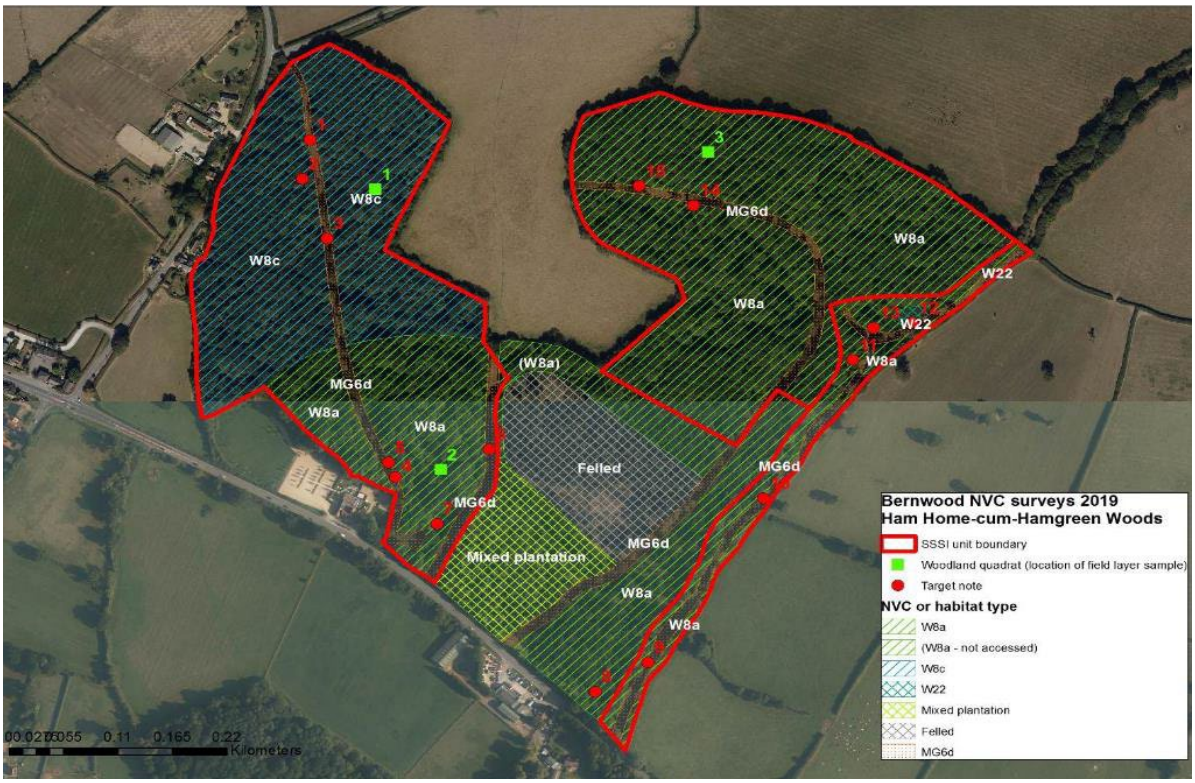


Figure 3. Ham Home-cum-Hamgreen Woods - National Vegetation Classification map with quadrat and target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™.

Table 8 Ham Home-cum-Hamgreen Woods -Target notes

Target note	Grid reference	Feature	Description
1	SP6933619295	Ash regeneration	Frequent Ash saplings at edge of ride
2	SP6932819251	W8c	Oak and Ash canopy, Hawthorn and Hazel understory. Ground flora with frequent tufted hair-grass, also patches of false brome, greater stitchwort and dog violet. Frequent Ash seedlings, some standing deadwood and fallen branches

Target note	Grid reference	Feature	Description
3	SP6935319184	Main ride	Recently mown. Species include ryegrass, rough meadow grass, creeping bent, m*eadowsweet* and wood dock. Bare areas from vehicles, horses, winter flooding.
4	SP6942218915	*Salix*	Small patch of willow trees with mixed ground flora (W8a type)
5	SP6941518931	Main ride	Wetter area with silverweed, yellow pimpernel, creeping Jenny, meadowsweet, creeping cinquefoil, dock, creeping bent, ryegrass and rough meadow grass. Disturbed/rutted with vehicle tracks and frequent bare ground
6	SP6951718946	Main ride	Recently mown grass-dominated sward. Ryegrass, meadow foxtail, meadowsweet, silverweed, creeping bent noted
7	SP6946418862	Pond	Approximately 10 x 15 m. Open water in centre, edges have greater pond-sedge, *Typha latifolia, Potamogeton natans,* brooklime, *Lemna trisulca,* water mint and water-plantain. Large red damselfly, azure damselfly, tadpoles
8	SP6962418673	Rides	Outside current SSSI boundary. W8a woodland including area with *Orchis mascula* (approx. 30 flower spikes noted). Other species include false brome, wood sedge, cowslip, greater stitchwort and meadowsweet
9	SP6967718706	Strip along Oxford Lane	Track has a grass-dominated sward, recently cut. Species include white clover, ryegrass, Yorkshire fog, yellow pimpernel. Essentially semi-improved neutral grassland with some wetter areas. Track edges have frequent Blackthorn and Hawthorn with an Oak and Ash canopy. Mixed ground flora with false brome. W8a closest fit.

Target note	Grid reference	Feature	Description
10	SP6979418891	Blackthorn scrub	No canopy trees on east side of track north of field boundary. Dense Blackthorn, sparse ground flora
11	SP6988419047	Pond	5 x 8 m. Recently cleared out? Species include *Typha latifolia, Carex otrubae, Callitriche* sp., *Glyceria* sp., *Juncus effusus* and *Myosotis* sp.
12	SP6994419089	Scrub	20 x 30 m area, Blackthorn and Bramble abundant
13	SP6990519083	*Calamagrostis*	Small patches of wood small-reed at edges of mown area
14	SP6972319221	Clearing	Open area 20 x 20 m. Larger trees taken out, some Hazel regrowth. Ground flora with false brome, bluebell, honeysuckle, wood anemone. Closest to W8a.
15	SP6966819243	Ride	Mown grass-dominated ride. Edges with *Carex riparia/acutiformis* locally frequent

Table 9 Quadrat data from Ham Home-cum-Hamgreen Woods

Quadrat number	Q1	Q2	Q3
Grid reference (field layer quadrat grid ref)	SP6940219239	SP6946818923	SP6973819281
NVC sub-community	W8c	W8a	W8a
Deer impact (none, low, med, high)	Low	Low	Low
Field layer			
Quadrat size (4x4m or 10x10m?)	4x4	4x4	4x4m
Field layer height (cm)	20	10	20
Bare ground (%)	0	<1	0
Litter (%)	50	5	50
Species: % cover, g = ground layer/seedling			
Acer campestre g	0	0	<1
Anemone nemorosa	0	0	<1
Brachypodium sylvaticum	5	1	40
Brachythecium rutabulum	<1	5	0
Carex sylvatica	0	2	0

Quadrat number	Q1	Q2	Q3
Circaea lutetiana	2	15	1
Crataegus spp. g	1	<1	1
Deschampsia cespitosa	30	2	0
Eurhynchium striatum	5	0	0
Fraxinus excelsior g	10	5	8
Galium aparine	0	1	0
Geum urbanum	1	2	2
Glechoma hederacea	0	0	2
Hyacinthoides non-scripta	<1	60	0
Hypericum hirsutum	0	<1	0
Hypnum cupressiforme	1	0	5
Kindbergia praelonga	2	2	2
Ligustrum vulgare g	1	0	0
Lonicera periclymenum	0	0	1
Milium effusum	5	0	0
Poa nemoralis	1	0	0
Polytrichum sp.	0	0	<1
Populus tremula g	5	0	<1
Potentilla sterilis	0	2	0
Primula vulgaris	0	15	0
Prunus spinosa g	0	0	1
Ranunculus ficaria	1	2	0
Rosa sp. g	1	0	<1
Rubus fruticosus agg. g	2	5	5
Thamnobryum alopecurum	0	2	0
Thuidium tamariscinum	1	1	2
Ulmus glabra g	0	1	0
Veronica chamaedrys	0	5	0
Viola sp.	1	2	1
Canopy & understorey			
Quadrat size (50x50m or other?)	50x50	50x50	50x50
Canopy height (estimate in m)	18	15	20
Canopy cover (%)	30	20	40
Understorey height (estimate in m)	5	10	5
Understorey cover (%)	70	80	50
Standing deadwood? (DAFOR)	R, but F fallen and dead limbs	Rare standing,	No standing, smaller fallen

Quadrat number	Q1	Q2	Q3
		some large fallen	branches and dead limbs
Age classes: estimate % cover or DAFOR			
Veteran	None	None	None
Mature	O	O	O
Young trees	O	R	R
Saplings	R	O	R
Seedlings	A	F	F
Coppice	A	A	F
% cover, c = canopy, s = shrub/understorey			
Corylus avellana s	40	60	20
Crataegus spp. s	30	15	30
Fraxinus excelsior c	10	10	10
Fraxinus excelsior s	0	2	1
Malus/Pyrus s	<1	0	1
Quercus sp. c	20	10	30
Sambucus nigra s	0	1	0
Ulmus glabra s	0	2	0

Table 10. Ham Home-cum-Hamgreen Woods - Amalgamated list of species recorded.

Scientific name	Common name
Acer campestre	Field Maple
Agrostis capillaris	Common Bent
Agrostis stolonifera	Creeping Bent
Alisma plantago-aquatica	Water-plantain
Alopecurus pratensis	Meadow Foxtail
Anemone nemorosa	Wood Anemone
Arum maculatum	Lords-and-Ladies
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Calliergonella cuspidata	Pointed Spear-moss
Callitriche sp.	Water-starwort
Carex otrubae	False Fox-sedge
Carex riparia	Greater Pond-sedge
Carex sylvatica	Wood-sedge

Scientific name	Common name
Circaea lutetiana	Enchanter's nightshade
Corylus avellana	Hazel
Crataegus spp.	Hawthorn species
Deschampsia cespitosa	Tufted Hair-grass
Epilobium sp.	Willowherb species
Eurhynchium striatum	Common Striated Feather-moss
Festuca rubra	Red Fescue
Filipendula ulmaria	Meadowsweet
Fraxinus excelsior	Ash
Galium aparine	Cleavers
Geum urbanum	Wood Avens
Glechoma hederacea	Ground-ivy
Glyceria sp.	Sweet-grass species
Holcus lanatus	Yorkshire-fog
Hyacinthoides non-scripta	Bluebell
Hypericum hirsutum	Hairy St John's-wort
Hypnum cupressiforme	Cypress-leaved Plait-moss
Juncus effusus	Soft-rush
Kindbergia praelonga	Common Feather-moss
Lemna trisulca	Ivy-leaved Duckweed
Ligustrum vulgare	Wild Privet
Lolium perenne	Perennial Rye-grass
Lonicera periclymenum	Honeysuckle
Lysimachia nemorum	Yellow Pimpernel
Lysimachia nummularia	Creeping-Jenny
Malus/Pyrus	Apple/Pear species
Mentha aquatica	Water Mint
Mercurialis perennis	Dog’s Mercury
Milium effusum	Wood Millet
Myosotis sp.	Forget-me-not species
Orchis mascula	Early-purple Orchid
Poa nemoralis	Wood Meadow-grass
Poa trivialis	Rough Meadow-grass
Polytrichum sp.	Haircap moss species
Populus tremula	Aspen
Potamogeton natans	Broad-leaved Pondweed
Potentilla anserina	Silverweed
Potentilla reptans	Creeping Cinquefoil
Potentilla sterilis	Barren Strawberry

Scientific name	Common name
Primula veris	Cowslip
Primula vulgaris	Primrose
Prunella vulgaris	Selfheal
Prunus spinosa	Blackthorn
Quercus sp.	Oak species
Ranunculus auricomus	Goldilocks Buttercup
Ranunculus ficaria	Lesser Celandine
Rosa arvensis	Field rose
Rosa sp.	Rose species
Rubus fruticosus agg.	Bramble
Rumex sanguineus	Wood Dock
Rumex sp.	Dock species
Salix sp.	Willow species
Sambucus nigra	Elder
Schedonorus pratensis	Meadow Fescue
Thamnobryum alopecurum	Fox-tail Feather-moss
Thuidium tamariscinum	Common Tamarisk-moss
Trifolium repens	White Clover
Typha latifolia	Bulrush
Ulmus glabra	Wych Elm
Veronica beccabunga	Brooklime
Veronica chamaedrys	Germander Speedwell
Viola sp.	Violet species

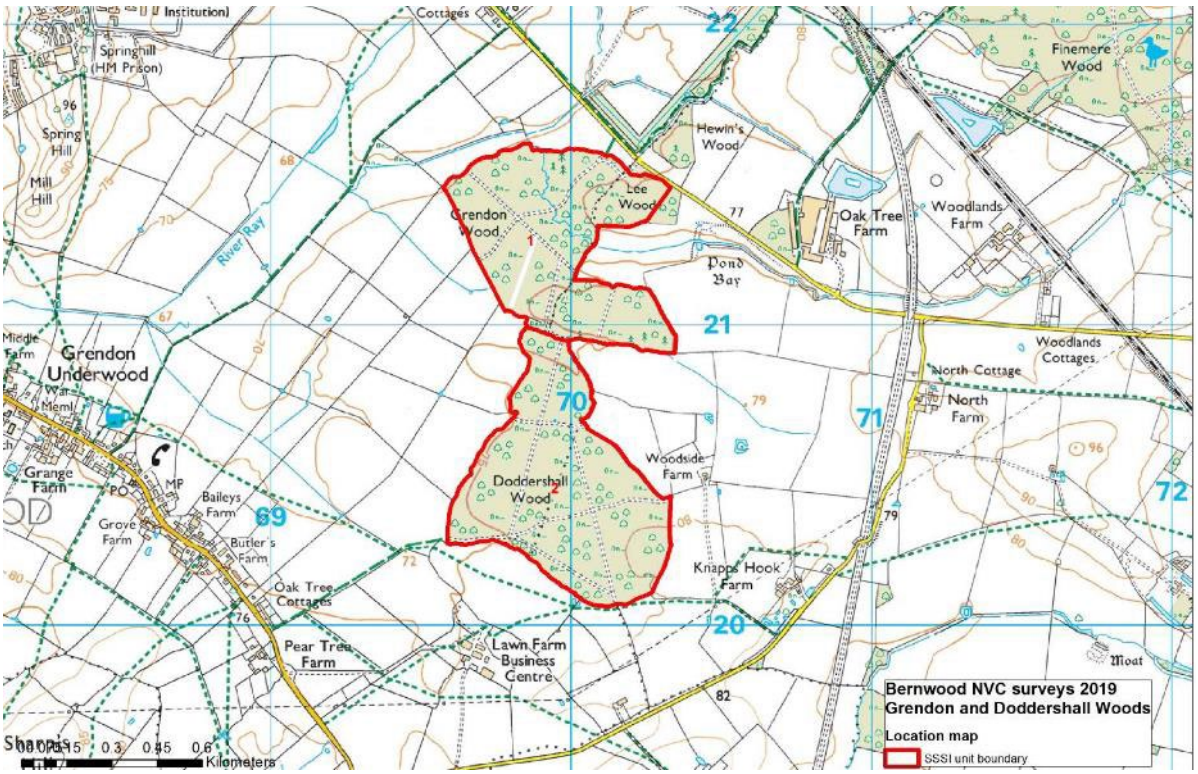
Grendon and Doddershall Woods

Overview

Grendon and Doddershall Woods is a fairly large block of woodland (69.5ha) situated between Ham Home-cum-Hamgreen Woods and Finemere Wood. The woods are designated as a Site of Special Scientific Interest (SSSI) and it is all mapped as Ancient Woodland. The site is made up by predominately broadleaved woodland with small areas of mixed and coniferous plantation woodland. There is an extensive network of broad, grassy rides. Surrounding habitats include hedgerows, agriculturally-improved grassland and arable fields to the east, west and south. There is a minor road just north of the wood. Hewin's Wood is 70 metres to the north west and Ham Home-cum-Hamgreen Woods SSSI is 775 metres to the south.

Surveys were carried out by Alison Jukes of the Natural England Field Unit and Natural England area team staff on 10th – 11th April and 22nd May 2019. This work followed National Vegetation Classification survey guidance (JNCC 2006).

Figure 4. Grendon and Doddershall Woods SSSI - location. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.



A view of the typical remnant coppice-with-standards structure of most parts of Grendon and Doddershall Woods. Copyright Alison Jukes & Natural England.

Grendon and Doddershall Woods - woodland and scrub

The majority of the woodland is Oak *Quercus* spp. standards with Hazel understory. There are a few small areas of plantation woodland. The blocks of woodland are often surrounded by narrow strips of dense Blackthorn or Willow *Salix* spp. scrub, with mown grass rides between blocks. Signs of Ash dieback caused by *Hymenoscyphus fraxineus* are present on Ash saplings, and dead or dying Oak trees were also noted in a few places. Evidence of deer browsing was seen including localised bark stripping on shrubs, browsed Bramble and Rose and a sparse field layer with abundant leaf litter in places.

A large proportion of the woodland is most similar to W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community. In these areas mature Oak is abundant in the canopy with occasional Ash. Hazel is abundant in the understory with Hawthorn, Blackthorn and Ash saplings occasional. The field layer is often quite sparse with abundant leaf litter. Occasional species include Lords-and-Ladies *Arum maculatum*, False Brome *Brachypodium sylvaticum*, Rough-stalked Feather-moss *Brachythecium rutabulum*, Wood-sedge *Carex sylvatica*, Tufted Hair-grass *Deschampsia cespitosa*, Wood Avens *Geum urbanum*, Ground-ivy *Glechoma hederacea*, Bluebell *Hyacinthoides*

non-scripta, Common Feather-moss *Kindbergia praelonga*, Dog's Mercury *Mercurialis perennis* and Primrose *Primula vulgaris*.

A view of the typical ground flora in areas with close similarity to W8a. Copyright Alison Jukes & Natural England.

Areas with a similar canopy and understory but with frequent to abundant Wood Anemone *Anemone nemorosa* in the field layer are closer in composition to W8b *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Anemone nemorosa* sub-community. This variation may reflect slight changes in soil chemistry. This sub-community occurs in mostly small, localised patches and has been mapped as mosaics with other W8 sub-communities.

A view of an area with W8b type field layer with abundant wood anemone (SP6980721225). Copyright Alison Jukes & Natural England.

Several parts of Grendon and Doddershall Woods have a composition with a close fit to W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community. These areas have Oak frequent to abundant in the canopy, with abundant Hazel, locally frequent Aspen *Populus tremula* and occasional Hawthorn and Blackthorn in the understory. The field layer has frequent to abundant Tufted Hair-grass and Wood-sedge, with rarely occurring species including Bugle *Ajuga reptans*, Wood Anemone *Anemone nemorosa*, Meadowsweet *Filipendula ulmaria*, Ground-ivy *Glechoma hederacea*, Compact Rush *Juncus conglomeratus*, Rough Meadow-grass *Poa trivialis*, Lesser Celandine *Ranunculus ficaria*, Bramble and Common Tamarisk-moss *Thuidium tamariscinum*. Areas where this sub-community occurs in localised patches in the field layer have been mapped as mosaics with other W8 sub-communities.

The northern part of the site (Grendon Wood and Lee Wood) has blocks of plantation woodland, with Oak, Poplar *Populus* sp. and Scot's Pine *Pinus sylvestris* dominated areas. These blocks have mature and semi-mature trees in the canopy with a mixed understory including Silver Birch *Betula pendula*, Hazel, Hawthorn, Ash, Blackthorn and Grey Willow *Salix cinerea*. The field layers are more disturbed/modified and although W8a and W8c species are present the areas are not a good fit to the described communities of the NVC. They are characterised by

abundant Wood Small-reed *Calamagrostis epigejos* and occasional species including Tufted Hair-grass, Wood-sedge and Yorkshire-fog *Holcus lanatus*. Rarely occurring species include Bugle, Wood Anemone, Ground-ivy, Bluebell, Primrose, Lesser Celandine and Bramble. There are also two mixed plantation areas, one with abundant Wood Small-reed in the field layer (Target note 5) and one with a W8a type field layer (Target note 8).

Pine plantation with abundant *Calamagrostis epigejos* (SP7017521458). Copyright Alison Jukes & Natural England.

Grendon and Doddershall Woods – grass rides

Grassy rides are present between woodland blocks which were mown short at the time of the survey. Several of the main rides are species-poor and grass-dominated with abundant Perennial Rye-grass *Lolium perenne* and occasional species including Greater Plantain *Plantago major*, Dandelion *Taraxacum officinale* agg. and White Clover *Trifolium repens*. These areas are closest to NVC type MG7 *Lolium perenne* leys and related grasslands which is generally regarded as being of low nature conservation value. However, the majority of the rides are more species-rich with frequent Perennial Rye-grass *Lolium perenne*, Sweet Vernal-grass *Anthoxanthum odoratum*, Cock's-foot *Dactylis glomerata*, Creeping Bent *Agrostis stolonifera*, Yorkshire-fog *Holcus lanatus*, Creeping Buttercup *Ranunculus repens*, Dandelion *Taraxacum* agg., Greater Plantain *Plantago major*, White Clover *Trifolium repens*, Red Clover *Trifolium pratense* and Creeping Cinquefoil *Potentilla reptans*. These areas are closest to MG6 *Lolium perenne–Cynosurus cristatus* grassland.

The broad, grass rides are a significant feature of Grendon and Doddershall Woods. Copyright Alison Jukes & Natural England.

The ride system includes wetter areas, closer in composition to MG6d *Lolium perenne–Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community. These areas have frequent Perennial Rye-grass *Lolium perenne*, Meadow Foxtail *Alopecurus pratensis*, Sweet Vernal-grass *Anthoxanthum odoratum*, Yorkshire fog *Holcus lanatus* and Cock's-foot *Dactylis glomerata*. Forbs include frequent Meadowsweet *Filipendula ulmaria* and occasional Cuckooflower *Cardamine*

pratensis, Devil's-bit Scabious *Succisa pratensis*, Creeping Cinquefoil *Potentilla reptans*, Lady's Bedstraw *Galium verum*, Common Bird's-foot-trefoil *Lotus corniculatus*, Common Knapweed *Centaurea nigra*, Silverweed *Potentilla anserina* and White Clover *Trifolium repens*. Of special note is the occurrence of Pale Sedge *Carex pallescens.* This is a very rare plant in Buckinghamshire.

There are also smaller patches with very high species-diversity with additional species including early purple orchid *Orchis mascula*, betony *Betonica officinalis*, tormentil *Potentilla erecta* and zigzag clover *Trifolium medium,* together with locally high cover of carnation sedge *Carex panicea*. These patches have some similarities to MG5c *Cynosurus cristatus- Centaurea nigra* grassland, *Danthonia decumbens* sub-community.

Grendon and Doddershall Woods - other features

Some wetland features are present providing valuable habitat diversity:

- narrow, steep-sided streams in Grendon Wood (Target notes 6 and 9). Species present here include Fool's-water-cress *Helosciadium nodiflorum*, Sweet-grass *Glyceria* sp. and Brooklime *Veronica beccabunga*.

- two small ponds in Doddershall Wood with Greater Pond-sedge *Carex riparia* and Sweet-grass *Glyceria* sp. frequent.

- ditches along some ride edges, mainly dry at the time of survey and some with Greater Pond-sedge *Carex riparia* locally frequent.

A view of a stream in Grendon and Doddershall Woods with fool's watercress (SP6995621377). Copyright Alison Jukes & Natural England.

In addition to this wetland element further habitat diversity is provided by narrow strips of dense scrub on the edges of the woodland blocks (not mapped separately). These are mainly dominated by dense Blackthorn with some strips of Willow *Salix* spp. scrub in the southern part of Doddershall Wood. Some recent management was evident with scrub cutting/flailing along ride edges.

Dense blackthorn forming good quality ride edge habitat in Grendon Wood (target note 10). Copyright Alison Jukes & Natural England.

No veteran trees were noted but large, mature trees are frequent to abundant throughout the woodland with old coppice stools also frequent. Occasional standing deadwood was noted with frequent dead branches and fallen deadwood.

The non-native Snowberry *Symphoricarpos albus* is frequent around both ponds (Target notes 23 and 27) and along the track leading to the northern part of the site (Target note 1). A single Butterfly-bush *Buddleja davidii* is present.

Summary

Most of the woodland (54.5ha) has a field layer closest to NVC type W8, although the canopy has abundant Oak and infrequent Ash. W8a is the most common sub-community with smaller areas closer to W8c and W8b. The rest (9.6ha) has a poorer fit to described NVC communities. There are plantation areas with mixed canopy composition and abundant Wood Small-reed in the field layer. Most of the grassland has a closest fit to MG6 (4.6ha) but there are more species-rich areas of c2.2 ha closest to MG6d, whilst a small proportion has a composition closer to MG7 (c0.8ha). There is good habitat diversity in the form of dense blackthorn and willow ride-edge and woodland-edge scrub, streams, ponds and ditches.

The woodland has frequent mature standard trees and mostly has a remnant coppice-with- standards structure. There is evidence of recent management including coppicing, scrub cutting/flailing along ride edges and mowing of rides. Deer pressure appears moderate with signs of browsing and bark stripping noted. The field layer is sparse in places, although this may be related more to shading effects than deer browsing. Woody species regeneration is variable, with seedlings and saplings rare to frequent in different areas.

The non-native species Snowberry and Butterfly-bush are present. Snowberry is considered invasive, spreading by suckers and can sometimes form dense thickets. Wood Small-reed is locally frequent to abundant mainly in the plantation woodland blocks and ride edges in the northern part of the wood. Wood Small-reed is a characteristic plant of lowland woods in south central England, particularly on clay-rich moist soils but it can be invasive in some situations (Natural England, 2015).

Table 11. Area of NVC communities/habitat types mapped at Grendon and Doddershall Woods

NVC (sub)-community / habitat type	Area (ha)
W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community	33.5
W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community	7.2

NVC (sub)-community / habitat type	Area (ha)
W8a/W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community/*Deschampsia cespitosa* sub-community	6.2
W8b/W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Anemone nemorosa* sub-community/*Deschampsia cespitosa* sub-community	4.9
Mixed plantation	4.1
W8a/W8b *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community/*Anemone nemorosa* sub-community	2.7
Oak + *Calamagrostis epigejos*	2.7
MG6 *Lolium perenne–Cynosurus cristatus* grassland	2.4
MG6d *Lolium perenne–Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community	2.2
Pine + *Calamagrostis epigejos*	1.9
Poplar plantation	0.9
MG7 *Lolium perenne* leys and related grasslands	0.8
Total area	69.5

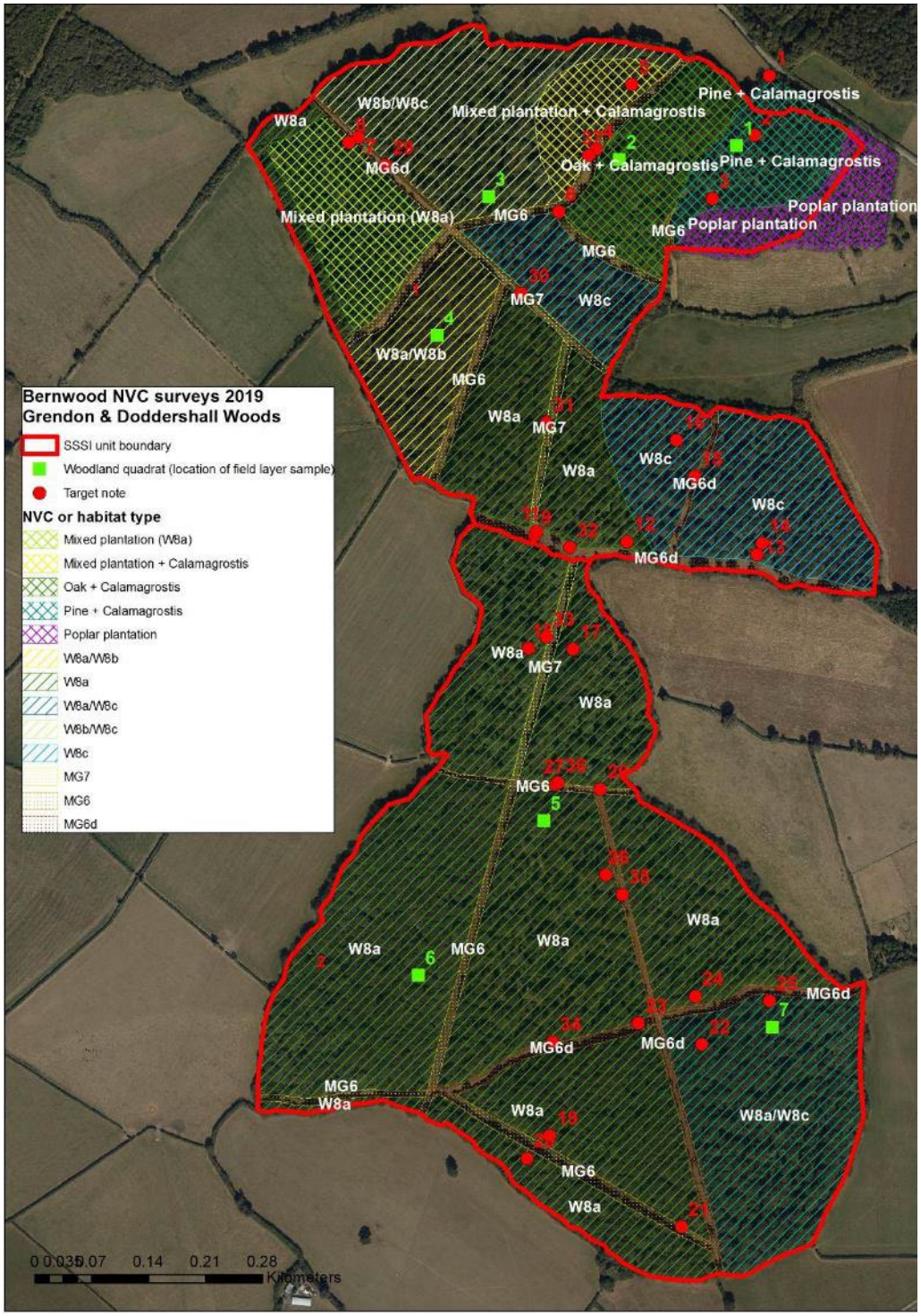


Figure 5. Grendon and Doddershall Woods National Vegetation Classification map with quadrat and target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021

Table 12. Target notes for Grendon and Doddershall Woods

Target note	Grid reference	Feature	Description
1	SP7021421547	Snowberry	Scattered bushes in hedge and along edge of woodland
2	SP7019721471	*Buddleja*	Single shrub
3	SP7014521393	Poplar plantation	Canopy dominated by Poplar with occasional Pine and Oak. Understory mainly Birch, some Blackthorn and Willow. Ground flora wood small-reed and bramble.
4	SP7000221454	Short-mown grassy ride	Species present include ryegrass, creeping buttercup, dandelion, creeping bent, silverweed and Yorkshire fog
5	SP7004621533	Mixed plantation with ground flora as Q1	Mixed plantation, even-aged, mostly young mature. Species include Pine, Oak, Alder, Birch and Cherry. Thinned/selectively felled. blackthorn scrub frequent with some hawthorn. Ground flora tufted hair-grass and wood small-reed with scattered wood anemone and honeysuckle
6	SP6995621377	Stream	Flowing steep-sided narrow stream with fool's watercress frequent. Open grassy area where rides join
7	SP6971021468	Grassy ride	Grassland ride, mown. Some woodland ground flora species with wood anemone frequent at edges
8	SP6969821462	Young plantation	Mixed Hazel, Ash, Oak, Alder, Birch. Frequent blackthorn. Wood small-reed locally abundant with locally frequent wood anemone and bramble. Scattered bluebell, primrose, tufted hair-grass, *Viola* sp. Deer browsing evident
9	SP6992620980	Steep-sided stream	Brooklime frequent, *Carex* spp. and *Glyceria* occasional
10	North part of site	Blackthorn hedges	Most blocks of woodland have narrow strips of dense Blackthorn scrub on boundaries
11	SP6992920985	Grassland area	Mown, mainly grass-dominated with some wetter areas
12	SP7004020972	Oak and Hazel coppice	Dense Hazel with blackthorn and bramble. Mixed ground flora at edges with woodruff, wood anemone, bluebell, wood false-brome and tufted hair-grass. Closest to W8a
13	SP7020020956	Dry ditch	Ditch along boundary with dense blackthorn on edge
14	SP7020620970	Oak + *Deschampsia cespitosa*	Canopy mainly Oak with occasional conifers. Understorey of Hazel coppice, Blackthorn, Willow, bramble. Field layer with abundant tufted hair-grass, frequent wood small-reed and occasional hairy brome. Dense understory/scrub, deadwood frequent. Aspen thicket on edge of ride. Closest to W8c
15	SP7012321052	Aspen and *Carex riparia*	Edge of wood with Aspen thicket. *Carex riparia* at edge of grassland ride, wet areas present

Target note	Grid reference	Feature	Description
16	SP7010121097	Aspen frequent	Oak and Birch with Hazel coppice and frequent Aspen. Mixed field layer with tufted hair-grass and wood small-reed. Ash saplings locally abundant. Closest to W8c
17	SP6997420840	Oak and Hazel coppice	Block of Oak and Hazel coppice. Mature Oak and recently coppiced Hazel with signs of deer browsing. Clearing with Downy Birch saplings, Blackthorn and Hawthorn. Wood small-reed locally abundant. Field layer mixed with scattered bluebell, primrose, wood anemone, dog's mercury and wood sedge. Closest to W8a
18	SP6991920841	Oak and Hazel coppice	Oak canopy and dense Hazel not cut for some time. Field layer diverse with wood anemone, bluebell, wood sedge, primrose and tufted hair-grass. Ash dieback and deer browsing evident. Closest to W8a
19	SP6994520243	Oak and Hazel coppice	Mature Oak standards with overgrown Hazel coppice. Field layer sparse with frequent leaf litter. Locally abundant bluebell. As quadrat 6 (sparse W8a field layer)
20	SP6991720215	Oak and Hazel coppice	Mature Oak standards with Hazel coppice. Ground flora mixed with wood false-brome locally abundant and scattered ground ivy, bluebell, wood sedge, primrose and wood anemone. Closest to W8a
21	SP7010720131	Willow hedge	Edges of woodland block with strip of willow scrub
22	SP7013220355	Oak and Hazel coppice	Oak standards with overgrown Hazel coppice. Ground flora patchy with locally abundant wood false-brome, tufted hair-grass and bluebell. Wood sedge frequent. Deer browsing evident. Closest to W8a with patches of W8c
23	SP7005420381	Pond and snowberry	Small pond adjoining ditches. *Carex riparia* and *Glyceria* sp. frequent. Snowberry forming hedge 20m length going west from pond.
24	SP7012420414	Oak with Hazel coppice	Small area with no standard trees only overgrown Hazel coppice. Field layer has wood false-brome locally abundant and scattered tufted hair-grass, primrose, bluebell and wood sedge. Browsing and bark stripping evident. Closest to W8a
25	SP7021520408	Aspen thicket with tall sedge	Main area of *Carex riparia* 20 x 10m
26	SP7001420563	Clearing with *Calamagrostis epigejos*	Gap with little canopy and understorey within block with Oak standards with Hazel coppice. Wood small-reed locally abundant. Ground flora with wood false-brome, tufted hair-grass and wood sedge
27	SP6995220674	Pond and *Symphoricarpos*	Pond with greater pond-sedge and *Glyceria* sp. Snowberry around edge of pond and along ride, approx. 25 m stretch. Smaller patches along ride on opposite side

Target note	Grid reference	Feature	Description
28	SP7000720668	Tormentil	Scattered plants at edge of ride on ditch banks
29	SP6974321434	Species-rich ride (MG6d)	Species present include sweet vernal grass, devilsbit scabious, meadowsweet, common knapweed, meadow foxtail, creeping cinquefoil, cuckooflower and *Carex pallescens*. Closest to MG6d
30	SP6991021277	Reseeded ride? (MG7)	Ryegrass abundant with occasional greater plantain and white clover. Closest to MG7
31	SP6994121118	Reseeded ride? (MG7)	As target note 30, MG7 type sward
32	SP6997020965	Grassland area	Mown grass area between north and south woods. Frequent species include ryegrass, meadow foxtail, creeping buttercup, silverweed and cocksfoot. Some wetter more species-rich areas present
33	SP6994120855	Reseeded ride? (MG7)	Ryegrass abundant with occasional greater plantain, silverweed, creeping buttercup and dandelion.
34	SP6994920358	Species-rich grassy ride (MG6d)	Species present include meadow foxtail, sweet vernal grass, meadowsweet, devilsbit scabious, ryegrass, creeping cinquefoil, lady's bedstraw and birdsfoot trefoil. Closest to MG6d
35	SP7003420539	Grassy ride (MG6d)	Species present include cocksfoot, ryegrass, sweet vernal grass, white clover, meadowsweet, meadow foxtail, creeping cinquefoil. Closest to MG6d
36	SP6995520676	Grassy ride (MG6)	Grass-dominated with ryegrass, sweet vernal grass, cocksfoot, meadow foxtail, creeping buttercup, greater plantain, white clover, dandelion and silverweed
37	SP6999321446	Grassy ride (MG6)	Grass-dominated with ryegrass, sweet vernal grass, meadow foxtail, greater plantain, creeping buttercup, red clover, tufted vetch, silverweed, creeping bent and Yorkshire fog

Table 13. Quadrat data for Grendon and Doddershall Woods

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Grid reference (field layer quadrat grid ref)	SP7017521458	SP7003121441	SP6987021395	SP6980721225	SP6993820629	SP6978420440	SP7021920376
NVC sub-community (or closest description)	Pine with *Calamagrostis* (W8)	Oak with *Calamagrostis* (W8)	W8b/c	W8b	W8a	W8a	W8c
Deer impact (none, low, med, high)	M (bark stripping)	M (bramble and rose)	M	M	M (low shrubs browsing frequent)	M	M (bark stripping and browsing)
Field layer							
Quadrat size (4x4m or 10x10m?)	10x10	4x4	4x4	4x4	4x4	4x4	4x4
Field layer height (cm)	40 cm tussocks	20	15	10	15	10	20
Bare ground (%)	2	0	1	<1	<1	1	1
Litter (%)	60	45	20	70	60	75	50
Species: % cover, g = ground layer/seedling							
Acer campestre g	0	0	0	0	0	<1	0
Agrostis stolonifera	0	2	0	0	0	0	0
Ajuga reptans	<1	2	0	0	0	0	1
Amblystegium serpens	0	0	0	0	0	<1	0
Anemone memorise	<1	15	20	30	0	0	1
Angelica sylvestris	<1	0	0	0	0	0	0
Atrichum undulatum	0	0	0	0	<1	0	0
Brachypodium sylvaticum	0	0	0	0	10	5	0
Brachythecium rutabulum	5	1	1	1	2	2	2
Bromopsis ramosa	0	0	0	0	1	0	0
Calamagrostis epigejos	60	40	5	0	0	0	0

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Calliergonella cuspidata	0	0	0	0	0	0	1
Carex sylvatica	5	10	10	1	15	10	20
Cirsium arvense	1	0	0	0	0	0	0
Crataegus spp. g	2	2	5	<1	1	1	0
Dactylis glomerata	<1	0	2	0	<1	<1	0
Deschampsia cespitosa	10	20	15	0	15	0	25
Eurhynchium striatum	0	<1	0	0	0	5	0
Filipendula ulmaria	0	0	0	0	0	<1	<1
Fissidens taxifolius	0	0	0	0	<1	<1	<1
Galium aparine	<1	0	0	0	<1	0	0
Geum urbanum	0	0	0	0	1	2	0
Glechoma hederacea	<1	1	5	0	0	1	<1
Holcus lanatus	2	2	30	0	0	0	0
Hyacinthoides non-scripta	<1	0	2	2	<1	20	0
Hypericum hirsutum	<1	0	1	0	0	0	0
Hypnum cupressiforme	0	<1	2	5	<1	1	1
Juncus conglomeratus	<1	0	0	0	<1	0	<1
Juncus effusus	0	1	0	0	0	0	0
Kindbergia praelonga	5	1	2	2	2	2	5
Lonicera periclymenum	0	0	0	0	2	0	1
Lophocolea bidentata	<1	0	0	0	0	0	0
Mercurialis perennis	0	0	0	10	0	0	0
Plagiochila sp.	0	0	0	0	0	0	<1
Poa trivialis	0	0	2	0	0	<1	<1
Polytrichum formosum	0	0	0	0	0	5	0

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Potentilla sterilis	0	0	1	0	0	0	0
Primula vulgaris	1	1	1	1	0	0	0
Prunus spinosa g	1	<1	0	2	<1	<1	0
Pseudoscleropodium purum	1	0	0	0	0	0	0
Ranunculus auricomus	0	0	0	0	1	1	1
Ranunculus ficaria	<1	1	0	1	0	0	0
Rosa sp. g	2	5	0	0	5	0	<1
Rubus fruticosus agg. g	2	2	2	0	0	<1	<1
Stachys sylvatica	0	0	<1	0	0	0	0
Thuidium tamariscinum	10	1	0	0	0	2	5
Veronica officinalis	0	0	1	0	0	0	0
Vicia sepium	<1	0	0	0	0	0	0
Viola sp.	0	0	2	0	0	<1	0
Canopy & understorey							
Quadrat size (50x50m or other?)	50x50	50x50	50x50	50x50	50x50	50x50	50x50
Canopy height (estimate in m)	18	25	25	30	20	18	20
Canopy cover (%)	20	65	40	90	60	50	35
Understorey height (estimate in m)	5	2	3	12	4	15	4
Understorey cover (%)	60	40	45	60	75	80	80
Standing deadwood (DAFOR)	Fallen deadwood/trees	Frequent dead limbs in trees	O	F dead branches and fallen deadwood	F (dead limbs in trees and one standing tree)	R	O
Tree age classes: cover or DAFOR for each							
Veteran	None	None	None	None	None	None	None
Mature	F (young mature)	A	A	A	A	A	F

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Young trees	R	None	None	None	R	R	R
Saplings	F	R	R	None	F	R	A
Seedlings	R	R	R	F (hawthorn and blackthorn)	O	F	R
Coppice	R (multi-stemmed willow)	F	A	A	A	A	F
% cover, c = canopy, s = shrub/understorey							
Betula pendula c	0	0	0	0	2	0	0
Betula pendula s	30	1	1	0	0	0	0
Corylus avellana s	0	30	40	50	60	65	40
Crataegus spp. s	5	10	5	10	5	20	5
Fraxinus excelsior c	0	0	0	0	0	5	0
Fraxinus excelsior s	2	0	0	0	15	1	0
Ilex aquifolium s	0	0	0	0	<1	0	0
Ligustrum vulgare s	0	0	0	0	<1	0	0
Pinus sylvestris c	15	0	0	0	0	0	0
Populus tremula s	0	0	0	0	0	0	40
Prunus spinosa s	2	1	0	5	2	2	<1
Quercus sp. c	5	65	40	90	58	45	35
Salix cinerea s	20	1	0	0	0	0	0

Table 14. Grendon and Doddershall Woods – amalgamated list of species recorded.

Scientific name	Common name
Acer campestre	Field Maple
Agrostis stolonifera	Creeping Bent
Ajuga reptans	Bugle
Alnus glutinosa	Alder
Alopecurus pratensis	Meadow Foxtail
Amblystegium serpens	Creeping Feather-moss
Anemone nemorosa	Wood Anemone
Angelica sylvestris	Wild Anglica
Anthoxanthum odoratum	Sweet Vernal-grass
Arum maculatum	Lords-and-Ladies
Atrichum undulatum	Common Smoothcap
Betonica officinalis	Betony
Betula pendula	Silver Birch
Betula pubescens	Downy Birch
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Bromopsis ramosa	Hairy Brome
Buddleja davidii	Butterfly-bush
Calamagrostis epigejos	Wood Small-reed
Calliergonella cuspidata	Pointed Spear-moss
Cardamine pratensis	Cuckooflower
Carex flacca	Glaucous sedge
Carex pallescens	Pale Sedge
Carex panicea	Carnation sedge
Carex riparia	Greater Pond-sedge
Carex sylvatica	Wood-sedge
Centaurea nigra	Common Knapweed
Cirsium arvense	Creeping Thistle
Corylus avellana	Hazel
Crataegus spp.	Hawthorn species
Dactylis glomerata	Cock's-foot
Deschampsia cespitosa	Tufted Hair-grass
Eurhynchium striatum	Common Striated Feather-moss
Filipendula ulmaria	Meadowsweet
Fissidens taxifolius	Pocket-moss
Fraxinus excelsior	Ash
Galium aparine	Cleavers
Galium odoratum	Woodruff
Galium verum	Lady's Bedstraw
Geum urbanum	Wood Avens

Scientific name	Common name
Glechoma hederacea	Ground-ivy
Glyceria sp.	Sweet-grass species
Helosciadium nodiflorum	Fool's-water-cress
Holcus lanatus	Yorkshire-fog
Hyacinthoides non-scripta	Bluebell
Hypericum hirsutum	Hairy St John's-wort
Hypnum cupressiforme	Cypress-leaved Plait-moss
Ilex aquifolium	Holly
Juncus conglomeratus	Compact Rush
Juncus effusus	Soft-rush
Kindbergia praelonga	Common Feather-moss
Ligustrum vulgare	Wild Privet
Lolium perenne	Perennial Rye-grass
Lonicera periclymenum	Honeysuckle
Lophocolea bidentata	Bifid Crestwort
Lotus corniculatus	Common Bird's-foot-trefoil
Mercurialis perennis	Dog's Mercury
Orchis mascula	Early purple orchid
Pinus sylvestris	Scot's Pine
Plagiochila sp.	Featherwort species
Plantago major	Greater Plantain
Poa trivialis	Rough Meadow-grass
Polytrichum formosum	Bank Haircap
Populus tremula	Aspen
Potentilla anserina	Silverweed
Potentilla erecta	Tormentil
Potentilla reptans	Creeping Cinquefoil
Potentilla sterilis	Barren Strawberry
Primula veris	Cowslip
Primula vulgaris	Primrose
Prunus avium	Cherry
Prunus spinosa	Blackthorn
Pseudoscleropodium purum	Neat Feather-moss
Quercus sp.	Oak species
Ranunculus auricomus	Goldilocks Buttercup
Ranunculus ficaria	Lesser Celandine
Ranunculus repens	Creeping Buttercup
Rosa arvensis	Field rose
Rosa sp.	Rose species
Rubus fruticosus agg.	Bramble
Salix cinerea	Grey Willow
Stachys sylvatica	Hedge Woundwort

Scientific name	Common name
Succisa pratensis	Devil's-bit Scabious
Symphoricarpos albus	Snowberry
Taraxacum officinale agg.	Dandelion
Thuidium tamariscinum	Common Tamarisk-moss
Trifolium medium	Zigzag clover
Trifolium pratense	Red Clover
Trifolium repens	White Clover
Veronica beccabunga	Brooklime
Veronica officinalis	Heath Speedwell
Vicia sativa	Common Vetch
Vicia sepium	Bush Vetch
Viola reichenbachiana	Early dog-violet
Viola sp.	Violet species undet.

Finemere Wood

Overview

Finemere Wood is made up mainly of broad-leaved woodland with smaller areas of grassland and scrub. It is an Ancient Woodland and is designated SSSI. Surrounding habitats include hedgerows, arable fields, improved grassland, a section of the upper reach of the River Ray and associated wet woodland/scrub. Public footpaths and bridleways run along the edges of the wood on the north west side and south and east corners. Romer, Greatsea and Balmore Woods is 250 metres to the north west and Hewin's Wood and Runt's Wood are both within 1km.

Surveys were carried out by Alison Jukes of the Natural England Field Unit and Natural England area team staff on 9th - 10th April and 23rd May 2019 following National Vegetation Classification survey guidance (JNCC 2006).

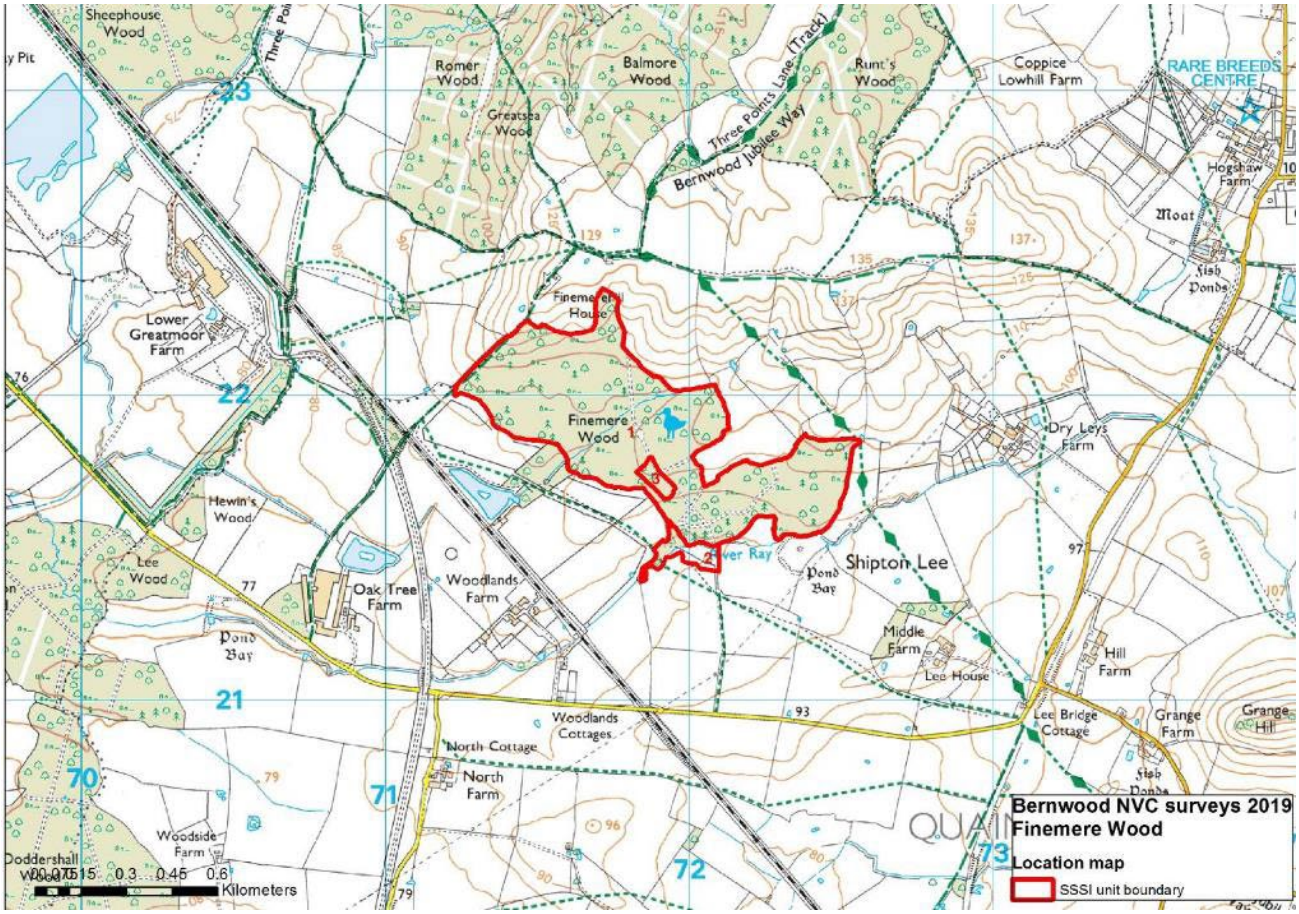


Figure 6. Finemere Wood - Location map. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Vegetation communities

Where distinct vegetation communities could be distinguished these are mapped to NVC community and sub-community level, and described below. Where vegetation types are not a good fit to the described communities of the NVC (transitions, modified areas, etc), a general habitat type has been assigned. A map showing the survey area boundaries and vegetation communities is provided below at Figure 7. Target notes and quadrat data are in Appendix 2 and a species list of vascular plants and bryophytes recorded during the survey is given in Appendix 3.

A view of the typical structure of Finemere Wood with mature trees of varying age and dense understory. (SP7207221687). Copyright Alison Jukes & Natural England.

Finemere Wood - Woodland and scrub

The majority of the woodland is closest to W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland with some transitions towards the more acidic W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, although very little typical W10 woodland is present. It is difficult to map clear boundaries between sub-communities as mosaics and transitional areas are frequent, therefore several areas are mapped as mixtures of two communities or sub-communities. The dominant canopy species are Oak *Quercus* spp., with both Pedunculate Oak *Quercus robur* and Sessile Oak *Q. petraea* present. Ash *Fraxinus excelsior* is infrequent in many areas although this is likely to be due

to historic preferential management for Oak or loss of Ash trees. Recent management includes thinning and coppicing in some areas. Deer impact varies from low to high across the woodland, with signs of browsing frequent and a sparse field layer in some areas, although this could be linked to shading effects rather than browsing.

The most frequent sub-community present is W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community. These areas have frequent mature Oak in the canopy with locally frequent Ash, often previously coppiced. Silver Birch *Betula pendula* and Scot's Pine *Pinus sylvestris* occur rarely. The understory has frequent Hazel *Corylus avellana* and Hawthorn *Crataegus* spp. and occasional Field Maple *Acer campestre* and Blackthorn *Prunus spinosa*. Rarely occurring species include Spindle *Euonymus europaeus*, Holly *Ilex aquifolium*, Rose *Rosa* sp., Willow *Salix* spp. and Elder *Sambucus nigra*. The field layer is sparse in some areas with frequent leaf litter. Bluebell *Hyacinthoides non-scripta* is locally abundant, False Brome *Brachypodium sylvaticum* locally frequent and occasional species include Tufted Hair-grass *Deschampsia cespitosa*, Cleavers *Galium aparine*, Ground-ivy *Glechoma hederacea* and Barren Strawberry *Potentilla sterilis*. Rarely occurring species include Bugle *Ajuga reptans*, Wood Anemone *Anemone nemorosa*, Lords-and-Ladies *Arum maculatum*, Dog's Mercury *Mercurialis perennis* and Lesser Celandine *Ranunuculus ficaria*. Of particular note is the presence of wood barley *Hordelymus europaeus*, although this appears to be rare. This plant has a very restricted distribution in the UK and is rare in Buckinghamshire north of the Chilterns. Also of interest is the presence of spurge laurel *Daphne laureola,* an uncommon plant in north Bucks.

Areas similar to W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community are also present, although often as a mosaic with W8a or with transitions towards W10. W8c areas have an Oak canopy with locally frequent Ash. The understory has frequent Hawthorn with occasional Hazel and Blackthorn. Rarely occurring species include Field Maple and Silver Birch. The field layer has abundant Tufted Hair-grass with occasional and rarely occurring species including Lords-and-Ladies, False Brome, Wood-sedge *Carex sylvatica* and Dog's Mercury. Areas considered transitional towards W10 have frequent Oak. in the canopy with occasional Scot's Pine and Silver Birch and rarely occurring Ash. Hawthorn is frequent in the understory with occasional Blackthorn. The field layer has locally abundant Tufted Hair-grass with locally frequent Bramble *Rubus fruticosus* agg. Occasional species include Wood Small-reed *Calamagrostis epigejos*, Ground-ivy *Glechoma hederacea*, Bluebell and Honeysuckle *Lonicera periclymenum*.

A view of typical field layer vegetation in W8a type woodland at Finemere Wood (SP7249821784). Copyright Alison Jukes and Natural England.

A view of the typical field layer vegetation in W8c type woodland at Finemere Wood (SP7189922051). Copyright Alison Jukes and Natural England.

Areas mapped as W8/W10 have abundant Oak in the canopy with occasional Scot's Pine and Silver Birch and infrequent Ash. The understorey has frequent Hazel and Hawthorn with occasional species including Blackthorn, Willow and Ash. The field layer is often sparse with abundant leaf litter in some areas. Bluebell is locally dominant in patches in the central part of the wood (quadrat 6), with scattered herbs typical of both W8 and W10, including Dog's Mercury, Yellow Archangel *Lamiastrum galeobdolon*, Greater Stitchwort *Stellaria holostea* and Wood Anemone. The western part of the wood is mapped as W8/W10 + *Calamagrostis*; this area is more disturbed in character with locally abundant Wood Small-reed *Calamagrostis epigejos*. Areas with typical W10 species including frequent Bramble, Bracken *Pteridium aquilinum* and Honeysuckle are present in a mosaic with typical W8 species, including frequent False Brome, Ground-ivy and Tufted Hair-grass.

A view of an area mapped as W8/W10 with Calamagrostis epigejos at Finemere Wood (SP7237321728). Copyright Alison Jukes and Natural England.

An area closest to W21 *Crataegus monogyna-Hedera helix* scrub is present in the southern part of the woodland. Scrub species present include Hawthorn, Dogwood *Cornus sanguinea* and Elder *Sambucus nigra* with patches of dense Blackthorn. The field layer is sparse in shady areas, with occasional Dog's Mercury, False Brome, Ground-ivy, Lords-and-Ladies, Bluebell and Bugle. Canopy trees are infrequent although this area is developing into scrubby W8a type woodland.

An area of mainly scrub with no good fit to the NVC has been mapped as Mixed scrub + *Calamagrostis*. Scrub species present include Willow *Salix* spp., Blackthorn and dense

Birch thickets. Canopy trees (mainly Oak) are sparse. There are rides and scallops within this area with abundant Wood Small-reed *Calamagrostis epigejos*.

A view of the area mapped as mixed scrub at Finemere Wood (SP7191221493). Copyright Alison Jukes and Natural England.

Finemere Wood - Grassland

Grassland areas are present in clearings, in an area of mixed scrub/grassland at the south east end and on the main ride. The main track into the woodland starts as a hard surface then has relatively species-poor, mown grassland further into the wood, closest to MG6 *Lolium perenne–Cynosurus cristatus* grassland or MG7 *Lolium perenne* leys and related grasslands. Other tracks and rides in the woodland are generally narrow and shaded with either frequent Perennial Rye-grass *Lolium perenne*, woodland field layer species or with Wood Small-reed *Calamagrostis epigejos* locally abundant.

The grassland and scrub area at the south eastern end has relatively species-rich grassland with a tall, tussocky sward. Constant grass species are red fescue *Festuca rubra,* couch grass *Elytrigia repens,* cocksfoot *Dactylis glomerata* and tall fescue *Festuca arundinacea* with frequent false-oat *Arrhenatherum elatius*. Constant forbs are lady's bedstraw *Galium verum,* tufted vetch *Vicia cracca,* hogweed *Heracleum sphondylium,* meadow buttercup *Ranunculus acris,* dandelion *Taraxacum officinale* agg., yellow rattle *Rhinanthus minor,* creeping thistle *Cirsium arvense* and common mouse-ear *Cerastium fontanum* with frequent meadow vetchling *Lathyrus pratensis,* common knapweed *Centaurea nigra* and sorrel *Rumex acetosa*. The most similar sub-communites shown by

MAVIS are variants of MG4 *Alopecurus pratensis-Sanguisorba officinalis* grassland and MG1 *Arrhenatherum elatius* grassland. Several of the characteristic constant species from MG4 are absent or infrequent, however, including greater burnet *Sanguisorba officinalis*. Using the updated key to grassland sub-communities (Wallace and Prosser, 2017) gives MG1e *Arrhenatherum elatius* grassland, *Centaurea nigra* sub-community and MG1a *Arrhenatherum elatius* grassland, *Festuca rubra* sub-community as the most likely best fits. MG1a is a grass-dominated community with constant false oat and cockfoot and frequent hogweed, ribwort plantain *Plantago lanceolata,* red fescue and creeping thistle. MG1e is a more species-rich sub-community with constant false oat, cocksfoot, Yorkshire fog *Holcus lanatus,* hogweed, ribwort plantain, red fescue, birdsfoot trefoil *Lotus corniculatus* and common knapweed. Other frequently-occuring species include yarrow *Achillea millefolium*, lady's bedstraw and meadow vetchling. This grassland is considered to be most similar to MG1e *Arrhenatherum elatius* grassland, *Centaurea nigra* sub-community. Species characteristic of this sub-community such as birdsfoot trefoil and common knapweed are present but have a somewhat patchy distribution. A number of calcicole species have been noted in this area in the past but there appears to be little of this element remaining.

A view of the area of tussocky grassland at the south east end of Finemere Wood mapped as MG1e (SP7208221453). Copyright Alison jukes and Natural England.

Near the centre of the wood is a small, open area mapped as MG6d *Lolium perenne–Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community + *Calamagrostis epigejos* which is cut and grazed by cattle. This area is not a good fit to the NVC, with abundant Wood Small-reed *Calamgarostis epigejos* in species-rich neutral grassland.

Frequent species include Meadowsweet *Filipendula ulmaria*, Meadow Vetchling *Lathyrus pratensis*, Sweet Vernal-grass *Anthoxanthum odoratum*, Cock's-foot *Dactylis glomerata* and Common Sorrel *Rumex acetosa* with occasional Ragged-Robin *Silene flos-cuculi*, Betony *Betonica officinalis* (which is scarce in Bucks), Tormentil *Potentilla erecta* and Meadow Foxtail *Alopecurus pratensis*.

A view of the 'meadow' area with a composition closest to MG6d and with abundant Calamagrostis epigejos (SP7177521878). Copyright Alison Jukes and Natural England.

Finemere Wood - other features

A small pond is present (Target note 17) with abundant Sweet-grass *Glyceria* sp. and Greater Pond-sedge *Carex riparia* at the edges. There is also a stream in the W21 scrub area, with Common Nettle *Urtica dioica* abundant along the banks (Target note 7).

Few veteran trees are present, although old Ash coppice stools are present and mature trees are frequent. Standing deadwood is rare although some fallen trees were noted.

Some areas of the woodland are fenced to exclude deer and there is some good re-growth from coppice stools in several areas.

Summary

Finemere Wood SSSI has 41.3ha of woodland, 2.9ha of scrub and 1.5ha of grassland. The remaining 0.5ha includes a track and small car park. There is a discrepancy in one

area where the SSSI boundary appears to extend out into an arable field. Most of the woodland is closest to NVC type W8, with a W8a field layer most frequent and smaller areas of W8c. Some areas show transitions towards W10, but there is very little typical W10 present. Only a small number of grassland rides are present. MG6/MG7 type grassland is present along part of the main access track/ride. Two grassland areas with scattered scrub are present, one with MG1e grassland (0.5ha) and the other closest to MG6d but with abundant Wood Small-reed (0.7ha). A small pond and stream provide habitat diversity.

The woodland has frequent mature standard trees and some old coppice stools. Recent management includes thinning and coppicing, with fencing of some areas to exclude deer and allow coppice regeneration. There is hay cropping and cattle grazing in the 'meadow' area. Deer impact varies from low to high across the site, with signs of browsing frequent and a sparse field layer in some areas, although this may be due to shading. Woody species regeneration is frequent in some areas with thickets of saplings, although seedlings are noted as rarely occurring or occasional throughout much of the woodland. Some locally scarce and notable plants are present.

Wood Small-reed *Calamagrostis epigejos* is locally frequent to abundant in many of the more open parts of the woodland, including the mixed scrub area and thinned/coppiced areas. Wood Small-reed *Calamagrostis epigejos* is a native species but is not listed in any of the NVC floristic tables for woodland and scrub or grassland, therefore these areas fit less well with the NVC. It is very frequent in the woodlands of the central lowlands of England, particularly on clay-rich, moist soils. It appears to benefit from disturbance associated with woodland management. It is known to be a competitive species which can be invasive in some situations (Natural England, 2015). However, the presence of this plant does not appear to pose a threat to the biodiversity of the woodland.

Table 15. Finemere Wood - Area of NVC communities/habitat types mapped

NVC (sub)-community / habitat type	Area (ha)
W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community	16.0
W8/W10 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland/*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland	10.7
W8c/W10 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community/*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland	9.6
W8a/W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community/*Deschampsia cespitosa* sub-community	3.5

NVC (sub)-community / habitat type	Area (ha)
Mixed scrub + *Calamagrostis epigejos*	2.0
W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community	1.5
W21 *Crataegus monogyna-Hedera helix* scrub	0.9
MG6d *Lolium perenne–Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community + *Calamagrostis epigejos*	0.7
MG1e *Arrhenatherum elatius* grassland, *Centaurea nigra* sub-community	0.5
MG6/7 *Lolium perenne–Cynosurus cristatus* grassland*/Lolium perenne* leys and related grasslands	0.3
Other (arable, track, car park)	0.5
Total area	46.2

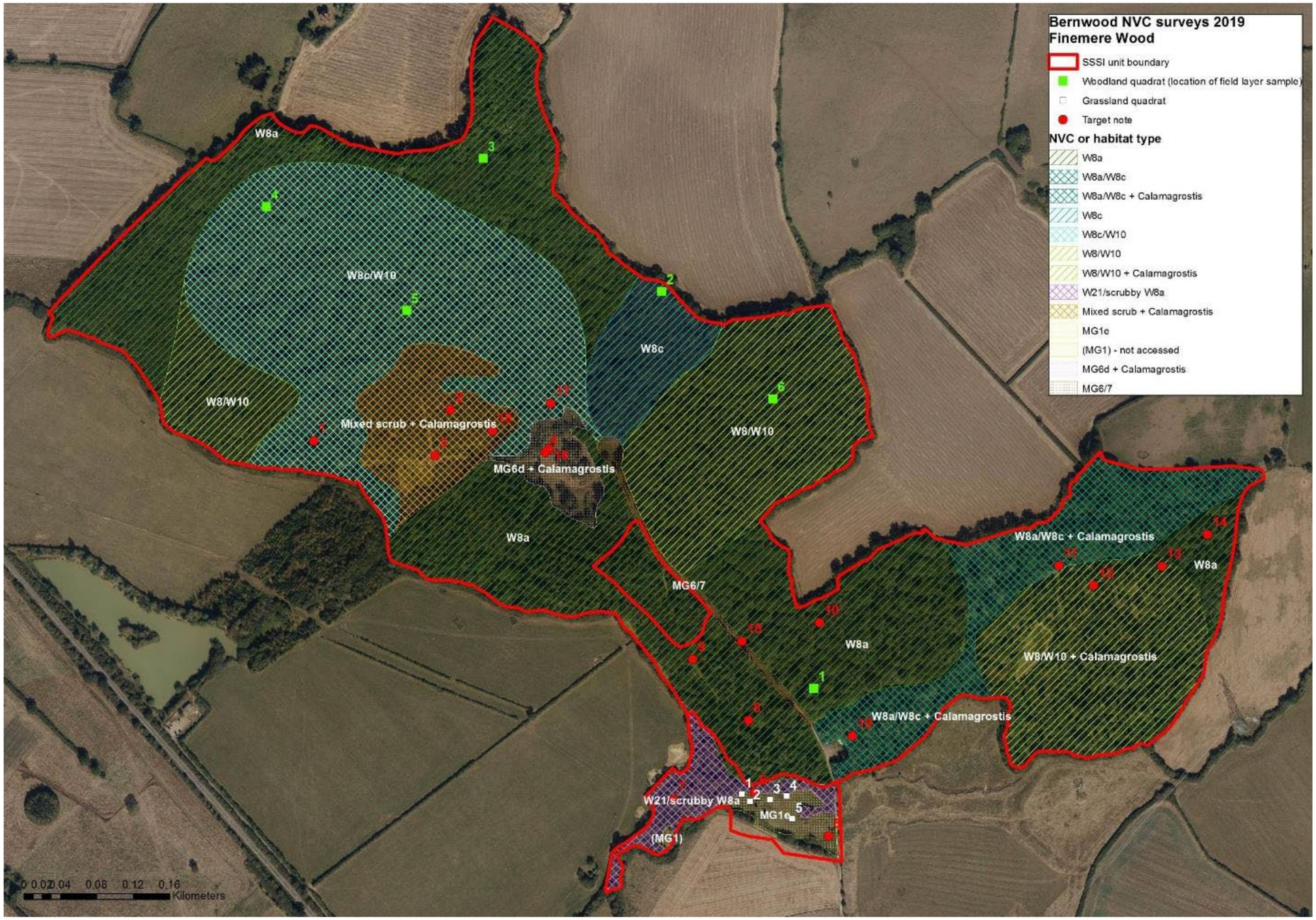


Figure 7. Finemere Wood - National Vegetation Classification map with quadrat and target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Table 16. Finemere Wood - target notes

Target note number	Grid reference	Feature	Description
1	SP7151721887	Felled area	Damp area with tufted hair-grass, rushes.
2	SP7166721921	Regeneration thicket	Abundant birch and willow saplings
3	SP7165021871	Rides and scallops	Good quality ride edge habitat. Brimstone and Peacock butterflies seen
4	SP7177121874	Clearing/ meadow	Grass cut and raked, Birch felled, several young Oak retained
5	SP7208221453	Species-rich grassland with scrub	Species-rich neutral grassland with false-oat, cocksfoot, red fescue abundant. Lady's bedstraw, cowslip, hogweed, meadowsweet, knapweed, meadow vetchling present. Closest to MG1e with coarse tussocky grasses dominant. Quadrats recorded
6	SP7200121501	*Phalaris arundinacea*	Two small patches with abundant *Phalaris arundinacea*
7	SP7191221493	Scrubby woodland	Patches of dense blackthorn with occasional hawthorn, elder, dogwood and occasional canopy trees. Ground flora sparse in shade, with occasional dog's mercury, wood false-brome, bluebell and bugle. Bryophytes locally abundant inc *Thuidium tamariscinum*. Closest to W21, developing into scrubby W8a.
8	SP7199421580	W8a type woodland	Ground flora has wood false-brome, tufted hair-grass and bluebell. Canopy mainly Oak and Ash with some Aspen. Pine and other conifers occasional to south. Understory of hawthorn, blackthorn and hazel. Closest to W8a with small patches of W8c where tufted hair-grass locally abundant.
9	SP7193321647	Small deer fence enclosure	Small area fenced off to allow coppice regeneration.
10	SP7207221687	W8a type woodland	Deer fence enclosure for coppice re-growth. Closest to W8a with a mixed ground flora inc bluebell, wood millet, wood anemone. Small patches with locally abundant tufted hair-grass (W8c). Canopy mainly Oak with Birch, understory of Hazel and Hawthorn.

Target note number	Grid reference	Feature	Description
11	SP7233521750	W8a/W8c	Oak and Ash canopy, Hazel understory, Willow occasional. Several recently coppiced areas fenced to exclude deer. Ground flora mixed with wood false-brome, wood sedge, tufted hair-grass. Occasional patches of wood small-reed.
12	SP7237321728	Open area with W10 field layer + *Calamagrostis*	Oak canopy, little understory. Occasional Willow, Blackthorn, Hazel and Birch. Field layer with bracken, bramble.and honeysuckle. Large patches of wood small-reed.
13	SP7244821749	W8 + *Calamagrostis*	Similar to Target note 12 but with W8 field layer species frequent, esp wood false-brome and tufted hair-grass. Open Oak canopy, little understory
14	SP7249821784	W8a type	End of track. Woodland ground flora closest to W8a inc dog's mercury with Oak canopy and Hazel, Blackthorn, Hawthorn and Willow forming a dense understory
15	SP7198721667	Main grass ride	Main species are ryegrass, greater plantain, creeping cinquefoil, creeping buttercup and white clover. Edges have some woodland species including wood sedge. Columbine (presumably planted) occasional. Smaller rides mostly very shady.
16	SP7177521878	*Calamagrostis*	Abundant wood small-reed in clearing. Some richer patches with betony, meadowsweet, ragged robin, tormentil, knapweed, marsh trefoil.
17	SP7177721928	Small pond	Abundant *Glyceria* sp. and *Carex riparia* at edges. Approx 8 x 8m
18	SP7171321898	Scrubby area	Abundant wood small-reed with patches of willow and blackthorn. Sparse canopy trees, mainly Oak.
19	SP7210821563	Scrubby area - W8a/W8c plus *Calamagrostis*	Field layer with wood false-brome, bugle, wood sedge and tufted hair-grass. Wood small-reed locally abundant. Patches of dense bramble, hawthorn, blackthorn and willow scrub. Occasional Oak trees

Table 17. Quadrat data from Finemere Wood woodland areas

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6
Grid reference (field layer quadrat grid ref)	SP72066 21615	SP718992 2051	SP71703 22197	SP714 652214 4	SP71619 22030	SP72021 21933
NVC sub-community	W8a	W8c	W8a	W8c	W8c	W8/W10
Deer impact (none, low, med, high)	Low	Low	Medium	Mediu m	High	Medium
Field layer						
Quadrat size (4x4m or 10x10m?)	4x4	4x4	4x4	4x4	4x4	4x4
Field layer height (cm)	15	5	6	25	20	9
Bare ground (%)	0	50	<1	2	1	0
Litter (%)	30	50	5	55	25	10
Species: % cover, g = ground layer/ seedling						
Acer campestre g	0	0	1	0	<1	0
Ajuga reptans	2	0	0	1	0	0
Alliaria petiolata	0	0	2	0	0	0
Anemone nemorosa	2	<1	<1	<1	0	<1
Angelica sylvestris	0	0	<1	0	0	0
Arum maculatum	1	2	0	0	0	0
Brachypodium sylvaticum	15	4	0	1	0	0
Brachythecium rutabulum	5	2	1	<1	<1	0
Calamagrostis epigejos	0	0	0	3	3	0
Carex sylvatica	0	4	0	1	1	0
Cirsium palustre	0	0	0	<1	0	0
Crataegus spp. g	5	1	<1	1	1	0
Dactylis glomerata	5	0	0	0	0	0
Deschampsia cespitosa	10	50	0	75	15	0
Fissidens taxifolius	0	<1	0	0	0	0
Fraxinus excelsior g	0	<1	0	0	0	0
Galium aparine	1	<1	10	0	<1	<1
Galium palustre	0	<1	0	0	0	0
Geum urbanum	0	0	0	<1	0	0
Glechoma hederacea	10	1	3	<1	3	0
Holcus lanatus	1	0	0	0	0	0
Hordelymus europaeus	1	0	0	0	0	0
Hyacinthoides non-scripta	15	<1	70	<1	3	95
Hypericum hirsutum	1	0	0	<1	0	0
Hypnum cupressiforme	2	0	<1	1	<1	0
Ilex aquifolium g	1	0	0	0	0	0
Juncus conglomeratus	1	0	0	0	0	0
Kindbergia praelonga	2	1	<1	<1	3	<1

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6
Lamiastrum galeobdolon	0	0	0	0	0	3
Lonicera periclymenum	1	0	0	<1	2	0
Mercurialis perennis	1	2	2	0	0	0
Moehringia trinervia	0	0	3	0	0	0
Plagiomnium undulatum	0	<1	0	0	0	0
Poa trivialis	0	<1	<1	0	0	0
Potentilla sterilis	10	0	0	0	0	0
Primula vulgaris	0	0	0	<1	0	0
Prunella vulgaris	0	0	0	0	<1	0
Prunus spinosa g	0	2	0	4	0	0
Ranunculus ficaria	1	1	0	<1	0	0
Ranunculus repens	0	<1	0	0	0	0
Rosa sp. g	1	0	0	0	<1	0
Rubus fruticosus agg. g	2	0	0	4	3	0
Rumex sanguineus	0	<1	0	0	<1	0
Stachys sylvatica	0	2	0	0	0	0
Stellaria holostea	0	0	0	0	1	0
Thamnobryum alopecurum	0	<1	0	0	0	0
Thuidium tamariscinum	0	1	0	1	0	0
Urtica dioica	1	0	0	0	0	0
Veronica chamaedrys	0	0	<1	0	0	0
Vicia sepium	1	0	0	0	<1	0
Viola sp.	1	0	1	1	0	0
Canopy & understorey						
Quadrat size (50x50m or other?)	50 x 50	50x50	50x50	50x50	50x50	50x50
Canopy height (estimate in m)	20	27	30	28	28	25
Canopy cover (%)	40	85	80	70	45	80
Understorey height (estimate in m)	4	7	9	4	6	5
Understorey cover (%)	70	40	30	60	95	55
Standing deadwood? (DAFOR)	No standing dead wood but large fallen tree	R	R	None	R	R
Age classes: estimate % cover or DAFOR						
Veteran	None	35% veteran Ash coppice stools	10% old Ash coppice stools	None	None	None
Mature	F (young mature)	F	F	F	O	A
Young trees	O	F	F	F	F	F

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6
Saplings	O	O	O	O	F	O
Seedlings	F	R	R	R	R	R
Coppice	A	O (not including Ash stools)	O	None	None	F
Species: % cover, c = canopy; s = shrub/understorey						
Acer campestre s	20	<1	1	1	1	0
Betula pendula c	2	0	0	4	2	0
Betula pendula s	5	<1	0	0	2	0
Betula pubescens c	0	0	0	0	1	0
Betula pubescens s	0	0	3	0	0	0
Corylus avellana s	40	10	5	1	1	20
Crataegus laevigata s	0	0	<1	0	0	0
Crataegus spp. s	30	26	15	30	25	15
Euonymus europaeus	1	0	0	0	0	0
Fraxinus excelsior c	0	45	10	3	1	0
Fraxinus excelsior s	0	0	0	1	0	1
Ilex aquifolium s	2	0	0	1	0	0
Malus cf. *sylvestris*	0	0	0	0	0	1
Pinus sylvestris c	0	0	1	10	1	0
Prunus spinosa s	5	4	0	10	5	0
Quercus sp. c	30	35	37	25	10	80
Rosa sp. s	1	0	0	0	0	0
Salix spp. s	1	0	0	0	0	0
Sambucus nigra s	0	0	<1	0	0	0

Table 18. Quadrat data from Finemere Wood grassland areas

	Q1	Q2	Q3	Q4	Q5		
Grid reference	SP71987 21499	SP7199 621491	SP7201 821493	SP7203 621497	SP7204 221472		
Quadrat size	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m		
Vegetation type	MG1e	MG1e	MG1e	MG1e	MG1e		

	Q1	Q2	Q3	Q4	Q5		
Sward height cm	30cm (tussocky)	30	30	40	50		
Bare ground %	5	2	<1	<1	0		
Leaf litter %	30	30	40	80	80		
Scientific name % cover	Q1	Q2	Q3	Q4	Q5	Cover range	Frequency
Festuca rubra	20	20	40	20	30	20-40	5
Elytrigia repens	10	5	5	20	50	5-50	5
Dactylis glomerata	20	15	10	5	5	5-20	5
Galium verum	25	25	5	10	5	5-25	5
Vicia cracca	5	15	5	15	10	5-15	5
Festuca arundinacea	30	25	30	20	1	1-30	5
Heracleum sphondylium	2	10	2	10	10	2-10	5
Brachythecium rutabulum	0	15	20	5	5	5-20	4
Ranunculus acris	5	2	2	0	1	1-5	4
Taraxacum officinale.	1	2	5	0	5	1-5	4
Rhinanthus minor	2	1	2	0	<1	1-2	4
Cirsium arvense	2	2	2	1	0	1-2	4
Cerastium fontanum	1	0	1	<1	<1	1	4

	Q1	Q2	Q3	Q4	Q5		
Arrhenatherum elatius	0	0	5	30	5	5-30	3
Lathyrus pratensis	5	1	5	0	0	1-5	3
Centaurea nigra	1	2	10	0	0	1-10	3
Rumex acetosa	1	0	0	<1	2	1-2	3
Anthoxanthum odoratum	5	0	0	5	0	5	2
Bromus hordeaceus	2	5	0	0	0	2-5	2
Potentilla reptans	2	5	0	0	0	2-5	2
Lotus corniculatus	1	0	5	0	0	1-5	2
Angelica sylvestris	0	2	1	0	0	1-2	2
Hypericum hirsutum	1	0	1	0	0	1	2
Ranunculus repens	1	0	0	1	0	1	2
Tragopogon pratensis	0	1	1	0	0	1	2
Primula veris	0	0	10	0	0	10	1
Achillea millefolium	0	2	0	0	0	2	1
Viola hirta	0	0	2	0	0	2	1
Kindbergia praelonga	0	0	2	0	0	2	1
Agrostis stolonifera	0	0	0	0	2	2	1
Vicia hirsuta	1	0	0	0	0	1	1
Carex flacca	0	1	0	0	0	1	1
Dipsacus fullonum	0	1	0	0	0	1	1

	Q1	Q2	Q3	Q4	Q5		
Medicago lupulina	0	1	0	0	0	1	1
Acer campestre (g)	0	<1	0	0	0	1	1
Geranium molle	0	0	<1	0	0	1	1
Crataegus spp. (g)	0	0	1	0	0	1	1
Acrocarpous bryophyte	0	0	<1	0	0	1	1

Table 19. Finemere Wood - Combined list of species recorded during survey.

Scientific name	Common name
Acer campestre	Field Maple
Achillea millefolium	Yarrow
Agrostis stolonifera	Creeping Bent
Ajuga reptans	Bugle
Alliaria petiolata	Garlic Mustard
Alopecurus pratensis	Meadow Foxtail
Anemone nemorosa	Wood Anemone
Angelica sylvestris	Wild Angelica
Anthoxanthum odoratum	Sweet Vernal-grass
Anthriscus sylvestris	Cow Parsley
Aquilegia vulgaris	Columbine
Arrhenatherum elatius	False Oat-grass

Scientific name	Common name
Arum maculatum	Lords-and-Ladies
Betonica officinalis	Betony
Betula pendula	Silver Birch
Betula pubescens	Downy Birch
Betula spp.	Birch species undet.
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Bromus hordeaceus	Soft-brome
Calamagrostis epigejos	Wood Small-reed
Carex flacca	Glaucous Sedge
Carex riparia	Greater Pond-sedge
Carex sylvatica	Wood-sedge
Centaurea nigra	Common Knapweed
Cerastium fontanum	Common Mouse-ear
Cirsium arvense	Creeping Thistle
Cirsium palustre	Marsh Thistle
Cornus sanguinea	Dogwood
Corylus avellana	Hazel

Scientific name	Common name
Crataegus laevigata	Midland Hawthorn
Crataegus monogyna	Hawthorn
Crataegus spp.	Hawthorn species
Dactylis glomerata	Cock's-foot
Daphne laureola	Spurge-laurel
Deschampsia cespitosa	Tufted Hair-grass
Dipsacus fullonum	Wild Teasel
Elytrigia repens	Common Couch
Euonymus europaeus	Spindle
Festuca arundinacea	Tall Fescue
Festuca rubra	Red Fescue
Filipendula ulmaria	Meadowsweet
Fissidens taxifolius	Pocket-moss
Fraxinus excelsior	Ash
Galium aparine	Cleavers
Galium palustre	Marsh-bedstraw
Galium verum	Lady's Bedstraw
Geranium molle	Dove's-foot Crane's-bill

Scientific name	Common name
Geum urbanum	Wood Avens
Glechoma hederacea	Ground-ivy
Glyceria sp.	Sweet-grass species
Heracleum sphondylium	Hogweed
Holcus lanatus	Yorkshire-fog
Hordelymus europaeus	Wood Barley
Hyacinthoides non-scripta	Bluebell
Hypericum hirsutum	Hairy St John's-wort
Hypnum cupressiforme	Cypress-leaved Plait-moss
Ilex aquifolium	Holly
Juncus conglomeratus	Compact Rush
Kindbergia praelonga	Common Feather-moss
Lamiastrum galeobdolon	Yellow Archangel
Lathyrus pratensis	Meadow Vetchling
Listera ovata	Common Twayblade
Lolium perenne	Perennial Rye-grass
Lonicera periclymenum	Honeysuckle
Lotus corniculatus	Common Bird's-foot-trefoil

Scientific name	Common name
Luzula sp.	Wood-rush species
Malus cf. *sylvestris*	Apple species (possibly Crab Apple)
Medicago lupulina	Black Medick
Mercurialis perennis	Dog's Mercury
Milium effusum	Wood Millet
Moehringia trinervia	Three-nerved Sandwort
Phalaris arundinacea	Reed Canary-grass
Pinus sp.	Pine species
Pinus sylvestris	Scots Pine
Plagiomnium undulatum	Hart's-tongue Thyme-moss
Plantago major	Greater Plantain
Poa trivialis	Rough Meadow-grass
Populus tremula	Aspen
Potentilla erecta	Tormentil
Potentilla reptans	Creeping Cinquefoil
Potentilla sterilis	Barren Strawberry
Primula veris	Cowslip
Primula vulgaris	Primrose

Scientific name	Common name
Prunella vulgaris	Selfheal
Prunus spinosa	Blackthorn
Pteridium aquilinum	Bracken
Quercus petraea	Sessile Oak
Quercus robur	Pedunculate Oak
Quercus spp.	Oak species
Ranunculus acris	Meadow Buttercup
Ranunculus ficaria	Lesser Celandine
Ranunculus repens	Creeping Buttercup
Rhinanthus minor	Yellow-rattle
Rosa arvensis	Field rose
Rosa sp.	Rose species
Rubus fruticosus agg.	Bramble
Rumex acetosa	Common Sorrel
Rumex sanguineus	Wood Dock
Salix spp.	Willow species
Sambucus nigra	Elder
Scrophularia sp.	Figwort species

Scientific name	Common name
Silene flos-cuculi	Ragged-Robin
Stachys sylvatica	Hedge Woundwort
Stellaria holostea	Greater Stitchwort
Taraxacum officinale agg.	Dandelion
Thamnobryum alopecurum	Fox-tail Feather-moss
Thuidium tamariscinum	Common Tamarisk-moss
Tragopogon pratensis	Goat's-beard
Trifolium repens	White Clover
Urtica dioica	Common Nettle
Veronica chamaedrys	Germander Speedwell
Vicia cracca	Tufted Vetch
Vicia hirsuta	Hairy Tare
Vicia sepium	Bush Vetch
Viola hirta	Hairy Violet
Viola sp.	Violet species undet.

Sheephouse Wood

Overview

Sheephouse Wood SSSI is 58.9ha in size and is mainly broadleaved woodland with small areas of recent plantation, scrub and grassy rides and clearings. It is Ancient Woodland though some parts show modification in composition. Surrounding habitats include hedgerows, agriculturally improved permanent grassland and arable fields. The HS2 railway line lies on the south west boundary and a public footpath runs along the eastern edge. Four Local Wildlife Sites are nearby: Decoypond Wood (260 metres to the north west), Romer Wood (300 metres to the east), Home Wood (470 metres to the north east) and Shrubs Wood (500 metres north).

The surveys were carried out by Natural England Field Unit and Natural England area team staff on 10th – 11th April and 17th July 2019 following National Vegetation Classification survey guidance (JNCC 2006).

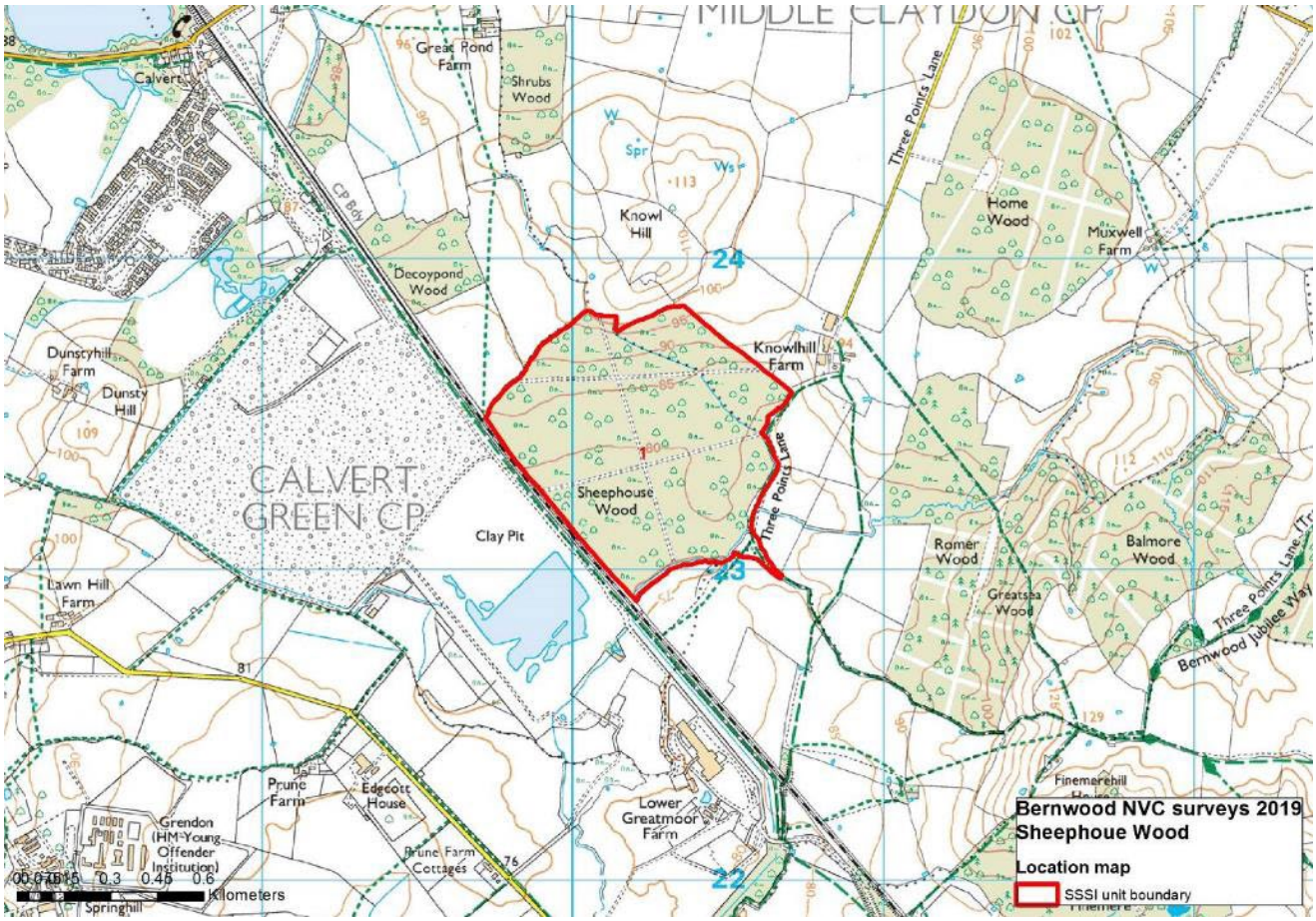


Figure 8. Location map – Sheephouse Wood SSSI. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

A view of W8a type woodland at Sheephouse Wood SSSI (SP7047823700). Copyright Alison Jukes and Natural England.

Vegetation communities

Descriptions of NVC communities and sub-communities mapped at Sheephouse Wood are given below. Where vegetation types are not a good fit to the NVC (transitions, disturbed areas etc.), a general habitat type has been assigned. A map showing the survey area boundaries and vegetation communities is presented as figure 9 below. Target notes are at table 20 and quadrat data is provided in table 21. A list of vascular plants and bryophytes recorded during the survey is given in table 22.

Woodland and scrub

The majority of the woodland is closest in composition to W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis woodland* and W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland. Mosaics and transitional areas are frequent, therefore several areas have been mapped as mixtures of two communities or sub-communities. The dominant canopy species are Oak *Quercus* spp. with some Birch *Betula* spp. and Ash *Fraxinus excelsior*. Deer impact is estimated as high in several parts of the wood, with browse lines visible on the understorey. A large area of the woodland has a sparse field layer and abundant leaf litter, possibly due to a combination of deer impact and shade.

A strip of woodland along the northern edge of the woodland is closest to W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community. This sub-community is also present in a mosaic in the north eastern woodland block. The canopy has abundant Oak and locally frequent Ash with a mixed understorey including Hazel *Corylus avellana*, Hawthorn *Crataegus* spp., Blackthorn *Prunus spinosa* and Field Maple *Acer campestre*. Rarely occurring species include Holly *Ilex aquifolium*, Apple *Malus* sp., Cherry *Prunus avium* and Willow *Salix* spp. The field layer has locally abundant Bluebell *Hyacinthoides non-scripta* and Dog's Mercury *Mercurialis perennis* with occasional and rarely occurring species including Wood Anemone *Anemone nemorosa*, Lords-and-Ladies *Arum maculatum*, False Brome *Brachypodium sylvaticum*, Tufted Hair-grass *Deschampsia cespitosa*, Cleavers *Galium aparine*, Wood Avens *Geum urbanum*, Ground-ivy *Glechoma hederacea*, Common Ivy *Hedera helix*, Wood Millet *Millium effusum*, Rough Meadow-grass *Poa trivialis*, Primrose *Primula vulgaris*, Bramble *Rubus fruticosus* agg., Hedge Woundwort *Stachys sylvatica* and Greater Stitchwort *Stellaria holostea*.

Areas closest to W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community mainly have an Oak-dominated canopy with locally frequent Ash. The understorey has frequent to abundant Hazel and Hawthorn with occasional Blackthorn. The field layer has frequent to abundant Tufted Hair-grass with locally abundant Wood-sedge *Carex sylvatica* and Bluebell. Occasional species include Rough-stalked Feather-moss *Brachythecium rutabulum*, Common Striated Feather-moss *Eurhynchium striatum*, Lesser Celandine *Ranunculus ficaria* and Common Tamarisk-moss *Thuidium tamariscinum*. This field layer is often in mosaics with patches closer to W8a or with areas transitional towards W10, with more frequent Bramble and Honeysuckle *Lonicera periclymenum* and fewer calcicoles.

A view showing the typical ground layer vegetation in one of the damp areas of Sheephouse Wood with abundant tufted hair-grass. This is mapped as W8c woodland (SP7052623508). Copyright Alison Jukes and Natural England.

There is a strip of woodland mapped as W10a/W10b on the western boundary of the site, with a field layer mosaic with patches closest to W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community and W10b *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Anemone nemorosa* sub-community. The canopy is dominated by Oak with rarely occurring Pine *Pinus* sp. and frequent Hazel and Hawthorn in the understorey. The field layer has locally abundant Wood Anemone and abundant Bramble. with occasional species including Cleavers *Galium aparine* and Honeysuckle.

A view of the ground layer vegetation of Sheephouse Wood in an area mapped as W10b woodland with wood anemone local frequent (SP6986623377). Copyright Alison Jukes and Natural England.

Areas mapped as W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland generally have a sparse field layer with frequent leaf litter. These areas have an Oak-dominated canopy with occasional Birch and frequent Hazel and Hawthorn in the understorey. The sparse field layer has scattered Bluebell, Honeysuckle and Bramble. The infrequent Ash and Field Maple and rarely occurring calcicolous herbs make these areas a better fit to W10 than W8, however, the sparse field layer makes classification difficult.

Areas mapped as W8/W10 have a mixture of typical W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland and W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland species, with Oak and Ash in the canopy and Hawthorn, Hazel and Blackthorn in the understorey. The mixed field layer species include scattered Bluebell, Honeysuckle, Bramble, Wood Anemone, Lesser Celandine, Tufted Hair-grass, Primrose, Yorkshire fog *Holcus lanatus*, Wood-sedge *Carex sylvatica*, Wood Millet *Milium effusum* and Yellow Archangel *Lamiastrum galeobdolon*.

There are two areas of dense recent plantation with young, mixed broadleaved tree species. Oak and Birch are frequent with Ash, Lime *Tilia* sp., Hornbeam *Carpinus betulus*, Cherry, Field Maple, Hawthorn, Blackthorn, Poplar *Populus* sp. and Willow *Salix* spp. occasional. The field layers have scattered W8 and W10 species including Tufted Hair-grass, Honeysuckle, Bluebell, Bramble, Greater Stitchwort, Violet *Viola* sp. and Lesser Celandine.

A small area in the south east corner of the site next to a stream is closest to W22 *Prunus spinosa-Rubus fruticosus* scrub with abundant Blackthorn. Willow and Elder *Sambucus nigra* are occasional with Bramble, Tufted Hair-grass, Common Nettle *Urtica dioica* and Pendulous Sedge *Carex pendula* in the field layer.

Sheephouse Wood - Grassland

There are wide, grassy rides separating woodland blacks and several small clearings are present in the woodland. The rides are mainly grass-dominated with tall swards at the time of the survey. The majority are closest to MG9 *Holcus lanatus-Deschampsia cespitosa* grassland in composition with abundant Yorkshire fog *Holcus lanatus*, Tufted Hair-grass *Deschampsia cespitosa* and Creeping Bent *Agrostis stolonifera* and locally abundant Wood Small-reed *Calamagrostis epigejos*. Occasional species include Sweet Vernal-grass *Anthoxanthum odoratum*, Betony *Betonica officinalis*, False Fox-sedge *Carex otrubae*, Meadowsweet *Filipendula ulmaria*, Compact Rush *Juncus conglomeratus*, Soft-rush *Juncus effusus*, Greater Bird's-foot-trefoil *Lotus pedunculatus*, Tormentil *Potentilla erecta*, Devil's-bit Scabious *Succisa pratensis* and Smooth Tare *Vicia tetrasperma*.

A view of one of the main rides in Sheephouse Wood supporting MG9 type grassland with patches of Calamagrostis epigejos at the margins (SP7019823441). Copyright Alison Jukes and Natural England.

Several rides in the northern part of the woodland are closer to MG1 *Arrhenatherum elatius* grassland in composition with abundant False Oat-grass *Arrhenatherum elatius* and Yorkshire fog and frequent Timothy *Phleum pratense*, Cock's-foot *Dactylis glomerata* and Creeping Bent *Agrostis stolonifera*. Occasional species include Betony, Tufted Hair-grass,

Meadow Vetchling *Lathyrus pratensis*, Creeping Cinquefoil *Potentilla reptans*, Bush Vetch *Vicia sepium* and Smooth Tare. One small area is forb-dominated with few grasses (Target note 32), possibly having re-colonised after disturbance. Frequent species here include Creeping Cinquefoil, Tormentil *Potentilla erecta*, Betony, Meadow Vetchling, Greater Bird's-foot-trefoil and Meadowsweet.

Clearings in the wood have grassland similar to MG9 which is likely to have developed from a W8c field layer as some woodland species are still present. Wood Small-reed is also abundant. Clearings at the edge of rides are dominated by Wood Small-reed, with one area also with abundant Sedge (probably Lesser Pond-sedge *Carex acutiformis*).

A view of one of the grass rides in Sheephouse Wood with MG1 type sward (SP7015223655). Copyright Alison Jukes and Natural England.

A view of one of the clearings in Sheephouse Wood dominated by wood small-reed and sedge (SP7015923631). Copyright Alison Jukes and Natural England.

Sheephouse Wood - Other features

A stream is present as well as shallow ditches along the edge of some rides. The locally rare Wild Service-tree *Sorbus torminalis* was recorded in two locations (SP6998323190 and SP6993123676). Many of the trees in the canopy are relatively young, but mature trees and veterans were noted in some areas. Standing deadwood is rare to occasional. Some dead trees have obvious cracks and holes. Lots of fallen wood is present (mostly branches).

Summary

Most of the site is woodland and scrub (55.2ha of 58.9ha) with 3.7ha of grass rides and clearings. The majority is closest to W8 and W10 types, but much of the woodland has field layers which are mosaics of different sub-communities, transitional vegetation types or with a sparse field layer making classification difficult. Areas close to W8a, W8c, W10a and W10b in composition are present. There are also two areas of broadleaf plantation (3.6ha) and a small area of W22 type scrub (0.7ha). Most of the ride vegetation is closest to MG9, with some MG1 in rides in the northern part of the site. Wood Small-reed dominated vegetation with no good fit to the NVC is also present. A stream and ditches add habitat diversity.

The woodland is mainly Oak-dominated, mostly of young, mature trees and some mature and veteran trees. Deer pressure appears quite high with obvious browse lines and sparse field layer cover in parts. Woody species regeneration is generally low, with seedlings and saplings rare to occasional, but there are occasional pockets with frequent saplings (mainly Ash) with some Hawthorn and Blackthorn seedlings.

Table 19. Sheephouse Wood - Area of NVC communities/habitat types mapped

NVC (sub)-community / habitat type	Area (ha)
W8c/W10 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community/*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland	17.5
W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland	15.8
W8/W10 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland/*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland	7.5
W8a/W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community/*Deschampsia cespitosa* sub-community	5.0
Plantation (dense mixed broadleaved trees)	3.6
W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community	2.8
MG9 *Holcus lanatus-Deschampsia cespitosa* grassland	2.5
W10a/W10b *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community/*Anemone nemorosa* sub-community	2.0
MG1 *Arrhenatherum elatius* grassland	0.8

NVC (sub)-community / habitat type	Area (ha)
W22 *Prunus spinosa-Rubus fruticosus* scrub	0.7
W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* type	0.3
Calamagrostis epigejos dominated vegetation	0.2
MG1/MG9 *Arrhenatherum elatius* grassland/*Holcus lanatus-Deschampsia cespitosa* grassland	0.2
Total area	58.9

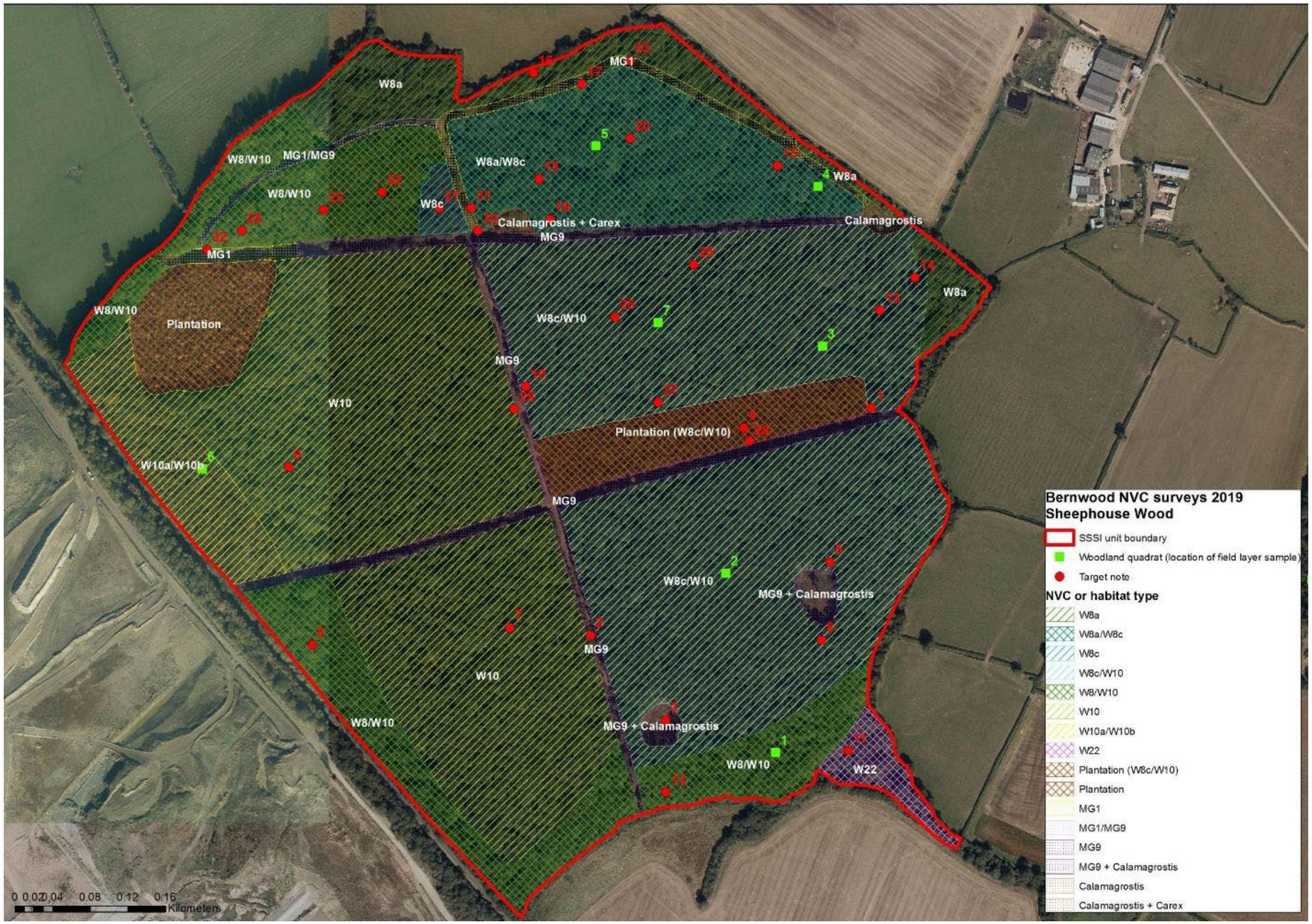


Figure 9. Sheephouse Wood - National Vegetation Classification map with quadrat and target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Table 20. Sheephouse Wood - Target notes

Target note	Grid reference	Feature	Description
1	SP7057823442	Grass dominated ride	Wide grass ride dominated by Yorkshire fog with cocksfoot, soft rush, tormentil and meadowsweet. There is a strip 3m wide along southern edge with abundant *Carex* sp. (cf. *C. acuta)* and tufted hair-grass and locally dominant wood small-reed.
2	SP7027923200	Grass dominated ride	Similar to TN1 but without the wetter margin and with devilsbit scabious. Narrow and more shaded with some woodland field layer species present including wood anemone, bluebell and primrose.
3	SP7035923110	Glade	Grassy glade similar to rides. Abundant Yorkshire fog, tufted hair-grass and wood small-reed with occasional wood anemone. Closest to MG9
4	SP7044223421	Broadleaved plantation over W8c/W10 ground flora	Young broadleaved plantation. Dense and some of the trees are not growing well. Oak and Birch frequent, with Ash, Lime, Hornbeam, Wild Cherry and Field Maple occasional. Hawthorn, Blackthorn, Poplar and Willow present. Ground flora has frequent tufted hair-grass, honeysuckle, *Pseudoscleropodium purum, Thuidium tamariscinum,* locally frequent bluebell, occasional bramble (deer grazed). Smaller amounts of greater stitchwort and dog violet. Large stumps present. Possible evidence of impeded drainage and slightly acidic.

Target note	Grid reference	Feature	Description
5	SP7053423278	Area with abundant leaf litter and sparse ground flora	Oak dominant over abundant Hawthorn and frequent Hazel. Blackthorn rare. Mainly leaf litter with scattered / rare primrose, wood anemone and mosses such as *Thuidium tamariscinum, Atrichum undulatum* and *Brachythecium rutabulum*. Some dead wood on the ground and standing
6	SP7052523195	W8c/W10	Frequent tufted hair-grass, locally frequent *Thuidium tamariscum* and bluebell, occasional wood sedge, *Brachythecium rutabulum* and rarely occurring *Mnium hornum* with patches of leaf litter. Scattered species include false brome, greater stitchwort, holly, wood millet, *Polytrichum formosum, Hypnum cupressiforme,* bugle, honeysuckle, bramble. Deer and dense shade impacting the ground flora
7	SP7019323208	Area with abundant leaf litter and sparse ground flora (closest to W10)	Oak -dominated with occasional Birch (many fallen or stumps remaining). Abundant Hawthorn, occasional Hazel and rarely occurring Holly and Apple (*Malus* cf. *sylvestris*). Very patchy with scattered mosses and sparse field layer with bluebell, false brome, honeysuckle, bramble, primrose, wood anemone, *Thuidium tamariscinum, Hypnum cupressiforme* and *Polytrichastrum formosum*. Mostly shady.
8	SP6998323190	Wild service-tree	Wild service-tree present and small amount of elm in Oak-dominated woodland.

Target note	Grid reference	Feature	Description
9	SP6995823379	Area with abundant leaf litter and sparse ground flora (closest to W10)	Similar to TN7 with dominant Oak and rare Ash and Birch. Ash regeneration restricted to small areas. Understorey has abundant Hawthorn and occasional Hazel. Ground flora largely leaf litter and patches of bryophytes. Small patches of bluebell with hairy woodrush, enchanter's nightshade, wood anemone, and patchy bramble. Small amounts of greater stitchwort, yellow archangel and holly. Ash saplings locally frequent. *Thuidium tamariscinum* present
10	SP7021023465	Deer fence	Deer fence.
11	SP7055323077	Blackthorn scrub next to stream	Small area with abundant Blackthorn on the other side of stream, with occasional Willow and Elder, with pendulous sedge in field layer.
12	SP7035923033	W10 type	Small patch where the field layer is made up of abundant bluebell, locally abundant greater stitchwort, frequent wood anemone. Canopy Oak-dominated over Hawthorn and occasional Hazel
13	SP7058723546	Glade	Scattered planted Oak. The field layer is similar to the others in the woodland with locally abundant wood small-reed, locally frequent greater stitchwort, bramble and honeysuckle. Small amounts of wood anemone, bluebell and dog violet.
14	SP7062423581	Glade	As TN13

Target note	Grid reference	Feature	Description
15	SP7047823700	Closest to W8a with patches W8c	Oak is dominant with occasional Field Maple over frequent Hazel and Hawthorn (including Midland Hawthorn and hybrid) and occasional Crab Apple, Holly and Blackthorn. Bluebell is dominant in the field layer with occasional wood anemone, greater stitchwort, bramble, dog violet. and rare dog's mercury, primrose, enchanter's nightshade. Ash saplings locally frequent. *Fissidens* sp., *Atrichum undulatum* and *Mnium hornum* are present. In localised areas this field layer grades to locally abundant tufted hair-grass. Ash is prominent in the canopy in parts with associated increase in dog's mercury and field maple.
16	SP7021823799	W8a type	Oak/Ash/Field Maple over Hazel. Field layer has abundant bluebell, frequent dog's mercury and occasional greater stitchwort.
17	SP7027023787	Scalloped edge to ride	Open glade/ride. Abundant wood small-reed and bramble, with greater stitchwort, wood anemone, Goldilocks buttercup.
18	SP7022423686	W8a with patches W8c	Oak and Ash with scattered Field Maple over frequent Hazel, Blackthorn and Hawthorn. A couple of the Ash are large and multi-stemmed. Some old honeysuckle vines present. Field layer is made up of frequent bluebell with occasional dog's mercury, yellow archangel, enchanter's nightshade, wood sedge, wood millet. Lots of young Ash saplings present. This grades to areas where tufted hair-grass becomes frequent with dog's mercury, bluebell, greater stitchwort and bramble.

Target note	Grid reference	Feature	Description
19	SP7023623643	W8a/W8c type	Oak with occasional Ash and Field Maple over Hawthorn and Hazel. The field layer is made up of abundant bluebell, tufted hair-grass and occasional yellow archangel, bramble. Smaller amounts of wood millet, primrose, bugle, barren strawberry, dog violet. Lots of sapling Ash and seedling Blackthorn. Sapling Dogwood also present (rarely occurring)
20	SP7032123729	Patch of W8c	Canopy and understorey similar to the wider area. A localised area of abundant tufted hair grass with frequent dog's mercury, Smaller amounts of bluebell, yellow archangel, wood sedge, dog violet, primrose. Lots of Ash saplings
21	SP7011823655	W8c type	Field layer similar to TN20. Dominant Oak with occasional Ash over frequent Hawthorn, locally frequent Blackthorn and occasional Hazel
22	SP7005723672	W8/W10 type	Oak dominant with scarce Ash. Hawthorn is abundant with occasional Hazel. Lots of Ash saplings. Bluebell abundant with frequent yellow archangel and occasional honeysuckle. Small amounts of wood sedge, wood millet, wood anemone, and bramble. Seedling guelder rose noted. Mixture of W8 and W10 species
23	SP6999523653	Similar to TN22	Patchy field layer. Similar to TN22 but lots of leaf litter

Target note	Grid reference	Feature	Description
24	SP6990823631	W8/W10 and Wild Service-tree	Canopy dominated by Oak over Hawthorn and Blackthorn. Honeysuckle occasional as a climber. Field layer has frequent bramble and yellow archangel, occasional bluebell, wood anemone. Lots of Ash saplings.
25	SP7030523539	W8c type woodland	Oak with rare Ash over Blackthorn, Hawthorn and sparse Holly. Field layer has frequent tufted hair-grass and bluebell with occasional honeysuckle, dog's mercury, greater stitchwort. *Thuidium tamariscinum* locally frequent. Some Ash regeneration. Parts have mix of bluebell, primrose, hairy woodrush and bramble. Small conifer stand.
26	SP7038923595	Area with abundant leaf litter, sparse ground flora	Dominant Oak with abundant Hawthorn and occasional Hazel. Holly rare. Patchy Bluebell with leaf litter and Ash regeneration. W8 and W10 species
27	SP7035123448	Area with abundant leaf litter and sparse ground flora	Similar to TN26. Oak dominant over Hawthorn and Hazel. Patchy leaf litter with small patches of Bluebell and sparse Wood Anemone, Honeysuckle, Bramble and Hawthorn seedlings/saplings
28	SP7044823407	Grass dominated ride	Main species creeping bent, Yorkshire fog, tufted hair-grass, wood small-reed, with occasional tormentil, devilsbit scabious, sweet vernal grass. Closest to MG9
29	SP7019823441	Grass dominated ride	As target note 28, closest to MG9. Additional species include false fox sedge, soft rush, wood sedge, meadowsweet. Quite species poor, rank but occasional patches of betony.

Target note	Grid reference	Feature	Description
30	SP7015923631	Grass dominated ride	Open area off ride dominated by *Calamagrostis epigejos* and *Carex* (cf. *acutiformis*)
31	SP7015223655	Grass dominated ride	MG1/MG9 with abundant false oat, Yorkshire fog, creeping bent, tufted hair-grass, occasional betony, bush vetch, but relatively species poor
32	SP6987123611	Early successional area	No good fit to NVC. Forb rich area with tormentil, betony, meadow vetchling, marsh trefoil, and meadowsweet. Recolonised after disturbance?
33	SP7032123812	Grass dominated ride	Wider parts of ride closest to MG1 with abundant false oat, Timothy and Yorkshire fog.

Table 21. Quadrat data from Sheephouse Wood

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Grid reference (field layer quadrat grid ref)	SP7047623 075	SP7042323 266	SP7052623 508	SP7052123 678	SP7028523 721	SP6986623 377	SP7035123 533
NVC sub-community	W8/W10	W8c	W8c	W8a	W8a	W10b	W8c
Deer impact (none, low, med, high)	High	High	Medium	High - definite browse line on shrub layer	Medium	Low	High
Field layer							
Quadrat size (4x4m or 10x10m?)	4x4	4 x4	4x4	4x4	4x4	4x4	4x4
Field layer height (cm)	15	20	17	5	4	15	15
Bare ground (%)	1	2	1	2	7	0	<1
Litter (%)	25	25	35	23	30	25	25

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Species: % cover, g = ground layer/seedling							
Acer campestre g	0	0	0	0	<1	0	0
Anemone nemorosa	5	1	<1	1	0	65	<1
Arum maculatum	0	0	0	0	<1	0	0
Atrichum undulatum	0	<1	0	<1	0	0	0
Brachypodium sylvaticum	0	0	0	<1	0	0	0
Brachythecium rutabulum	<1	4	0	0	0	<1	0
Calamagrostis epigejos	0	0	<1	0	0	0	0
Carex sylvatica	0	55	0	0	0	0	2
Circaea lutetiana	0	1	1	0	0	<1	0
Crataegus spp. g	<1	1	1	<1	<1	<1	<1

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Deschampsia cespitosa	0	10	60	<1	0	0	30
Dicranum scoparium	0	0	0	<1	0	0	0
Eurhynchium striatum	0	<1	1	0	1	<1	5
Fissidens taxifolius	0	0	<1	0	0	0	0
Fraxinus excelsior g	0	0	0	<1	0	0	0
Galium aparine	20	0	<1	<1	10	15	<1
Geranium robertianum	0	0	2	0	0	0	0
Geum urbanum	0	0	1	0	1	0	<1
Glechoma hederacea	0	0	0	0	<1	0	<1
Hedera helix	0	0	0	<1	0	0	0
Hyacinthoides non-scripta	75	1	0	80	3	1	45

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Hypnum cupressiforme	1	0	0	<1	<1	0	0
Kindbergia praelonga	<1	2	2	1	<1	1	1
Lapsana communis	0	0	0	0	<1	0	0
Lonicera periclymenum	0	1	0	0	0	2	1
Mercurialis perennis	0	0	0	0	45	0	<1
Milium effusum	0	0	1	4	<1	<1	1
Mnium hornum	0	0	0	<1	0	0	0
Poa sp.	0	0	0	6	0	0	0
Poa trivialis	0	0	0	3	30	0	0
Primula vulgaris	0	0	0	<1	0	0	0
Prunus spinosa g	<1	0	1	3	0	0	<1

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Ranunculus ficaria	0	<1	0	0	0	0	4
Rosa sp. g	0	0	0	<1	0	0	0
Rubus fruticosus agg. g	1	1	2	<1	<1	50	0
Rumex sanguineus	0	0	0	0	<1	0	0
Stachys sylvatica	2	0	0	0	2	0	0
Stellaria holostea	0	0	0	4	1	0	2
Thuidium tamariscinum	0	2	<1	<1	0	0	10
Urtica dioica	1	0	1	0	0	0	0
Vicia sp.	0	1	0	0	0	0	0
Viola sp.	1	0	0	0	0	0	0
Canopy & understorey							

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Quadrat size (50x50m or other?)	50 x 50	50 x 50	50x50	50x50	50x50	50x50	50x50
Canopy height (estimate in m)	25	27	20	18	12	14	17
Canopy cover (%)	65	90	90	60	80	80	90
Understorey height (estimate in m)	6	6	3	7	6	4	6
Understorey cover (%)	80	70	65	50	35	45	45
Standing deadwood? (DAFOR)	R	O	R	None	None	None	R
Age classes: estimate % cover or DAFOR (all species)							
Veteran	O (semi-mature but diseased)	None	None	None	25	None	None
Mature	A (young mature)	R	Young mature 90	20	50	None	10 old Ash coppice

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Young trees	O	D	3	30	15	80	35
Saplings	N	O (all Hawthorn)	1	2	1	1	6
Seedlings	R	R (Hawthorn)	1	1	<1	None	1
Coppice	O	O	10	8	10	5	3
% cover, c = canopy; s = shrub/understorey							
Acer campestre c	1	0	0	0	0	0	0
Acer campestre s	0	0	1	1	1	0	0
Corylus avellana s	40	25	40	8	10	10	3
Crataegus laevigata s	5	0	1	1	0	0	0
Crataegus monogyna s	34	0	4	6	0	25	0

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Crataegus spp. s	0	45	14	5	25	15	40
Fraxinus excelsior c	3	0	0	0	30	0	10
Fraxinus excelsior s	0	0	0	1	0	0	0
Ilex aquifolium s	0	0	<1	1	0	0	0
Malus cf. *sylvestris*	0	0	0	1	0	0	0
Pinus spp. c	0	0	0	0	0	5	2
Populus tremula c	2	0	0	0	0	0	0
Prunus spinosa s	1	0	25	6	0	0	5
Prunus spp. (cherry) s	0	0	0	1	0	0	0
Quercus sp. c	59	90	90	60	50	75	80
Ribes rubrum s	0	0	<1	0	0	0	0

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Salix spp. s	0	0	0	1	0	0	0

Table 22. Sheephouse Wood SSSI – Amalgamated list of species recorded

Scientific name	Common name
Acer campestre	Field Maple
Agrostis stolonifera	Creeping Bent
Ajuga reptans	Bugle
Anemone nemorosa	Wood Anemone
Anthoxanthum odoratum	Sweet Vernal-grass
Arrhenatherum elatius	False Oat-grass
Arum maculatum	Lords-and-Ladies
Atrichum undulatum	Common Smoothcap
Betonica officinalis	Betony
Betula spp.	Birch species
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Calamagrostis epigejos	Wood Small-reed
Carex cf. acuta	Sedge (possibly Slender Tufted-sedge)
Carex cf. acutiformis	Sedge (possibly Lesser Pond-sedge)
Carex otrubae	False Fox-sedge
Carex pendula	Pendulous Sedge
Carex sp.	Sedge species unident.
Carex sylvatica	Wood-sedge
Carpinus betulus	Hornbeam
Circaea lutetiana	Enchanter's-nightshade
Cornus sanguinea	Dogwood
Corylus avellana	Hazel
Crataegus laevigata	Midland Hawthorn
Crataegus monogyna	Hawthorn
Crataegus spp.	Hawthorn species
Dactylis glomerata	Cock's-foot
Deschampsia cespitosa	Tufted Hair-grass
Dicranum scoparium	Broom Fork-moss
Digitalis purpurea	Foxglove
Eurhynchium striatum	Common Striated Feather-moss
Filipendula ulmaria	Meadowsweet
Fissidens taxifolius	Pocket-moss
Fraxinus excelsior	Ash
Galium aparine	Cleavers
Geranium robertianum	Herb-Robert
Geum urbanum	Wood Avens
Glechoma hederacea	Ground-ivy
Hedera helix	Common Ivy

Scientific name	Common name
Holcus lanatus	Yorkshire-fog
Hyacinthoides non-scripta	Bluebell
Hypericum sp.	St John's-wort species
Hypnum cupressiforme	Cypress-leaved Plait-moss
Ilex aquifolium	Holly
Juncus conglomeratus	Compact Rush
Juncus effusus	Soft-rush
Kindbergia praelonga	Common Feather-moss
Lamiastrum galeobdolon	Yellow Archangel
Lapsana communis	Nipplewort
Lathyrus pratensis	Meadow Vetchling
Lonicera periclymenum	Honeysuckle
Lotus pedunculatus	Greater Bird's-foot-trefoil
Luzula pilosa	Hairy Wood-rush
Malus cf. *sylvestris*	Apple species (possibly Crab Apple)
Mercurialis perennis	Dog's Mercury
Milium effusum	Wood Millet
Mnium hornum	Swan's-neck Thyme-moss
Myosotis sp.	Forget-me-not species
Phleum pratense	Timothy
Pinus spp.	Pine species
Poa sp.	Meadow-grass
Poa trivialis	Rough Meadow-grass
Polytrichum formosum	Bank Haircap
Populus tremula	Aspen
Potentilla erecta	Tormentil
Potentilla reptans	Creeping Cinquefoil
Potentilla sterilis	Barren Strawberry
Primula vulgaris	Primrose
Prunus spinosa	Blackthorn
Prunus avium	Cherry
Pseudoscleropodium purum	Neat Feather-moss
Quercus sp.	Oak species
Ranunculus auricomus	Goldilocks Buttercup
Ranunculus ficaria	Lesser Celandine
Ribes rubrum	Red Currant
Rosa arvensis	Field rose
Rosa sp.	Rose species
Rubus fruticosus agg.	Bramble
Rumex sanguineus	Wood Dock
Salix spp.	Willow species

Scientific name	Common name
Sambucus nigra	Elder
Scrophularia sp.	Figwort species
Sorbus torminalis	Wild Service-tree
Stachys sylvatica	Hedge Woundwort
Stellaria holostea	Greater Stitchwort
Succisa pratensis	Devil's-bit Scabious
Thuidium tamariscinum	Common Tamarisk-moss
Tilia sp.	Lime species
Tsuga heterophylla	Western Hemlock-spruce
Ulmus sp.	Elm species
Urtica dioica	Common Nettle
Viburnum opulus	Guelder-rose
Vicia sepium	Bush Vetch
Vicia sp.	Vetch species unident.
Vicia tetrasperma	Smooth Tare
Viola sp.	Violet species undet.

Hewin’s Wood

Overview

Hewin’s Wood is a small area of plantation on Ancient Woodland roughly 1.9ha in size. It is part of a larger mosaic of habitats including scrub and grassland. The wood is designated as a Local Wildlife Site. Surrounding habitats include hedgerows, semi-improved grassland and arable fields to the east and south. A strip of woodland is present along the north west boundary with a public footpath and ditch. Grendon and Doddershall Woods SSSI is 70 metres to the south west, separated by a small grass field and minor road.

The survey was carried out by Natural England Field Unit and Natural England area team staff on 10th April 2019 following National Vegetation Classification (NVC) survey guidance (JNCC 2006).

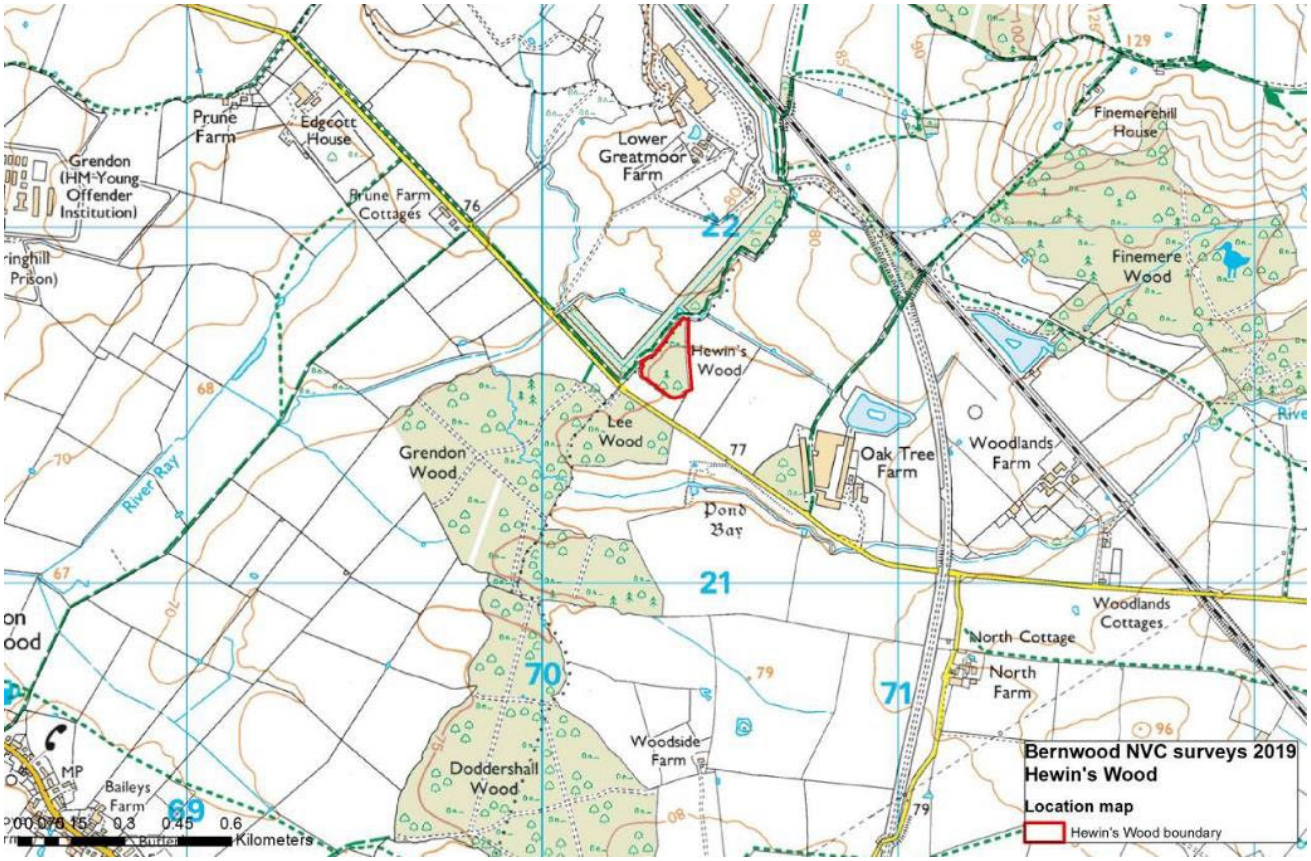


Figure 9. Location map – Hewin’s Wood (area surveyed outlined in red). Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

A view of the central part of the oak plantation in Hewin's Wood showing the relatively open canopy. Copyright Alison Jukes and Natural England.

Vegetation communities

Descriptions of NVC communities and sub-communities mapped are given below. Where vegetation types are not a good fit to the NVC a general habitat type has been assigned. A map showing the survey area boundaries and vegetation communities is at Figure 9. Target notes and quadrat data are at Table 25 and a list of vascular plants and bryophytes recorded during the survey is at Table 26.

Woodland and scrub

Hewin's Wood is an area of mixed plantation woodland with an even-aged Pedunculate Oak *Quercus robur* canopy with some Pine *Pinus* spp. The majority of trees are relatively young, with no veteran or old mature trees present within the main body of the woodland, but there are several near-veteran trees along the western margin where there is also a ditch/stream feature. Very little understorey is present, estimated at 2% cover, with rarely occurring Downy Birch *Betula pubescens*, Hawthorn and Grey Willow *Salix cinerea*. The field layer has frequent Bramble, Rose, Tufted Hair-grass and Wood Small-reed. Deer browsing is evident on Bramble and Rose. Occasional or rarely occurring species include Honeysuckle, Wood sedge, Wood Anemone, False Brome and Bluebell. The ground layer is sparse with low bryophyte cover and high leaf litter cover. This wood is considered to have no good fit to the NVC, with some features of both W8 *Fraxinus excelsior-Acer*

campestre-Mercurialis perennis woodland and W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland. There are broad thickets of Blackthorn and Hawthorn, closest to W21 *Crataegus monogyna-Hedera helix* scrub forming a margin around the woodland on the eastern and south western edges.

Other features

No standing dead trees were recorded although some dead branches were noted.

Summary

Table 23 shows the extent of different communities/habitat types present at Hewin's Wood. In the area surveyed there is 1.9ha of relatively young, mixed plantation woodland with a sparse understorey, W8/W10 type field layer and frequent Wood Small-reed. 0.3ha of W21 hedgerow was mapped along the boundary.

Table 23. Hewin's Wood - area of NVC communities/habitat types mapped

NVC (sub)-community / habitat type	Area (ha)
Mixed plantation (W8/W10 field layer + *Calamagrostis epigejos*)	1.9
W21 *Crataegus monogyna-Hedera helix* scrub	0.3
Total area	2.2

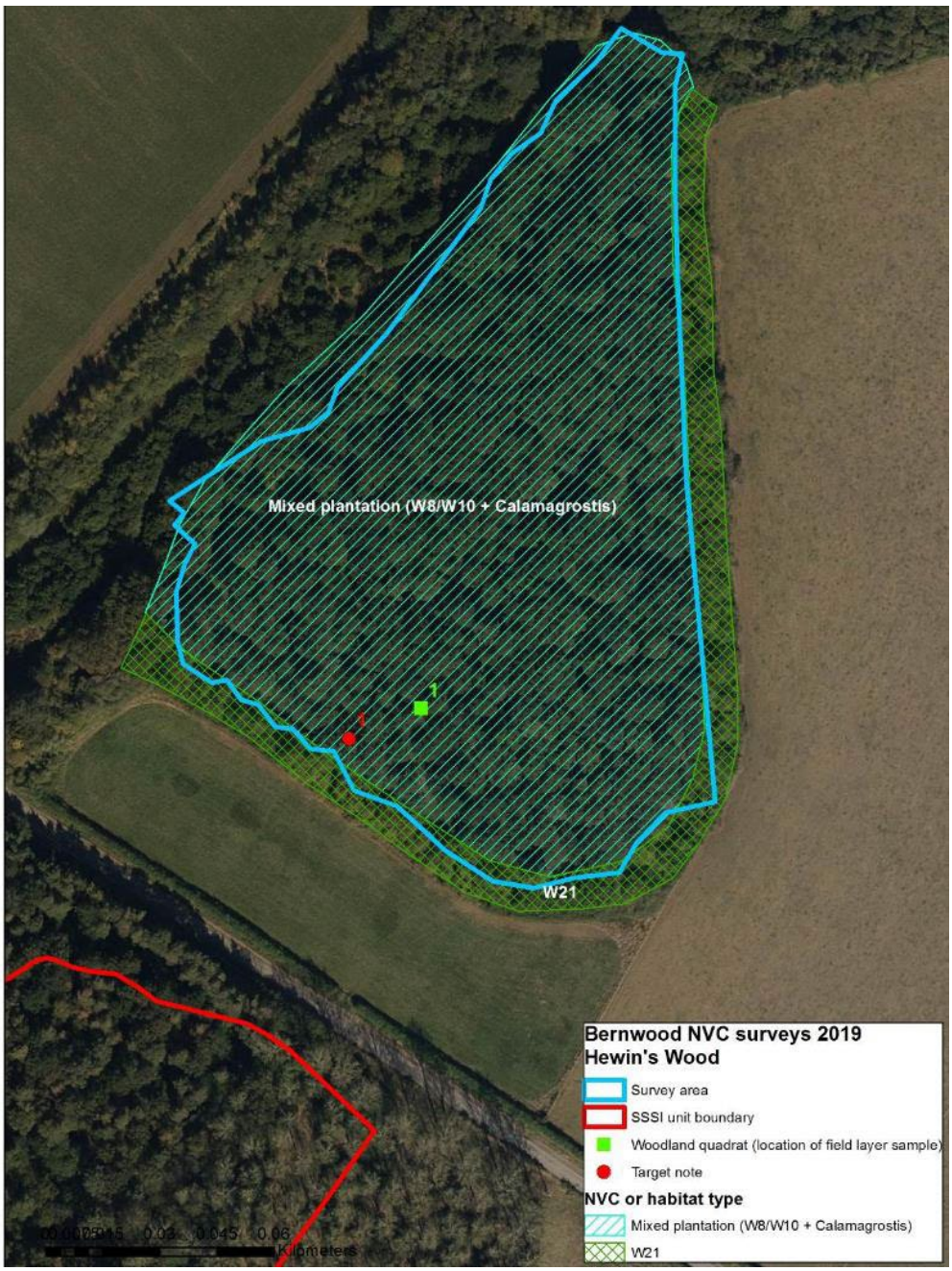


Figure 10. Hewin's Wood - National Vegetation Classification map with quadrat and target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Table 24. Hewin's Wood - Target notes

Target note	Grid reference	Feature	Description
1	SP7032 321561	Hedge	Dense thicket forming broad margin to wood with *Prunus spinosa, Crataegus laevigata, Lonicera periclymenum*

Table 25. Hewin's Wood - Quadrat data

Quadrat number	Q1
Grid reference (field layer quadrat grid ref)	SP7034221569
NVC sub-community	Mixed plantation (Pine/Oak) with W8/W10 + *Calamagrostis* ground flora
Deer impact (none, low, med, high)	Medium (bramble and rose)
Field layer	
Quadrat size (4x4m or 10x10m?)	10x10
Field layer height (cm)	30
Bare ground (%)	1
Litter (%)	70
Species: % cover, g = ground layer/seedling	
Anemone nemorosa	2
Angelica sylvestris	<1
Arum maculatum	1
Brachypodium sylvaticum	2

Quadrat number	Q1
Brachythecium rutabulum	2
Calamagrostis epigejos	10
Campylopus sp.	<1
Carex sp. (?yellow sedge)	1
Carex sylvatica	3
Cirsium palustre	1
Crataegus spp. g	2
Dactylis glomerata	1
Deschampsia cespitosa	15
Galium aparine	1
Holcus lanatus	2
Hyacinthoides non-scripta	1
Hypericum hirsutum	1
Hypnum cupressiforme	1
Kindbergia praelonga	2
Lapsana communis	<1
Ligustrum vulgare g	1
Lonicera periclymenum	5
Lophocolea bidentata	<1

Quadrat number	Q1
Rosa sp. g	10
Rubus fruticosus agg. g	25
Rumex acetosa	1
Thuidium tamariscinum	1
Vicia cracca	1
Vicia sepium	1
Viola sp.	1
Canopy & understorey	
Quadrat size (50x50m or other?)	Whole stand
Canopy height (estimate in m)	25
Canopy cover (%)	60
Understorey height (estimate in m)	2 (occasional shrubs)
Understorey cover (%)	2
Standing deadwood? (DAFOR)	None, some dead branches
Age classes: estimate % cover or DAFOR for each (all species together)	
Veteran	None
Mature	Occasional young mature
Young trees	Abundant

Quadrat number	Q1
Saplings	None
Seedlings	Occasional (*Crataegus* & privet)
Coppice	None
Species: % cover, c = canopy; s = shrub/understorey	
Betula pubescens s	<1
Crataegus hybrid s	<1
Crataegus laevigata s	2
Cupressus sp. s	<1
Pinus sylvestris c	10
Quercus robur c	50
Salix cinerea s	<1

Table 26. Hewin's Wood – Amalgamated list of species recorded.

Scientific name	Common name
Anemone nemorosa	Wood Anemone
Angelica sylvestris	Wild Angelica
Arum maculatum	Lords-and-Ladies
Betula pubescens	Downy Birch
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Calamagrostis epigejos	Wood Small-reed
Campylopus sp.	Moss species
Carex sp.	Sedge species
Carex sylvatica	Wood-sedge

Scientific name	Common name
Cirsium palustre	Marsh Thistle
Crataegus hybrid	Hawthorn hybrid
Crataegus laevigata	Midland Hawthorn
Crataegus spp.	Hawthorn species
Cupressus sp.	Cypress
Dactylis glomerata	Cock's-foot
Deschampsia cespitosa	Tufted Hair-grass
Galium aparine	Cleavers
Holcus lanatus	Yorkshire-fog
Hyacinthoides non-scripta	Bluebell
Hypericum hirsutum	Hairy St John's-wort
Hypnum cupressiforme	Cypress-leaved Plait-moss
Kindbergia praelonga	Common Feather-moss
Lapsana communis	Nipplewort
Ligustrum vulgare	Wild Privet
Lonicera periclymenum	Honeysuckle
Lophocolea bidentata	Bifid Crestwort
Pinus sylvestris	Scots Pine
Prunus spinosa	Blackthorn
Quercus robur	Pedunculate Oak
Rosa sp.	Rose species
Rubus agg.	Bramble
Rumex acetosa	Common Sorrel
Salix cinerea	Grey Willow
Thuidium tamariscinum	Common Tamarisk-moss
Vicia cracca	Tufted Vetch
Vicia sepium	Bush Vetch
Viola sp.	Violet species

Decoypond Wood

Overview

Decoypond Wood is a relatively small (8.6ha) block of woodland on the north west side of the Bernwood complex. It is Ancient Woodland and is designated as a Local Wildlife Site. It is bounded by the HS2 railway line along its south west edge but is otherwise set in a farmed landscape with permanent pasture to the north east and south east. Sheephouse Wood SSSI is 260m to the south east and Shrubs Wood Local Wildlife Site is 230m to the north east, with connections to both of these provided by hedgerows.

The majority of Decoypond Wood is Oak and Ash woodland with various field layer types and one small area of wet woodland.

The survey was carried out by Natural England Field Unit and Natural England area team staff on 9 April 2019 following National Vegetation Classification (NVC) survey guidance (JNCC 2006).

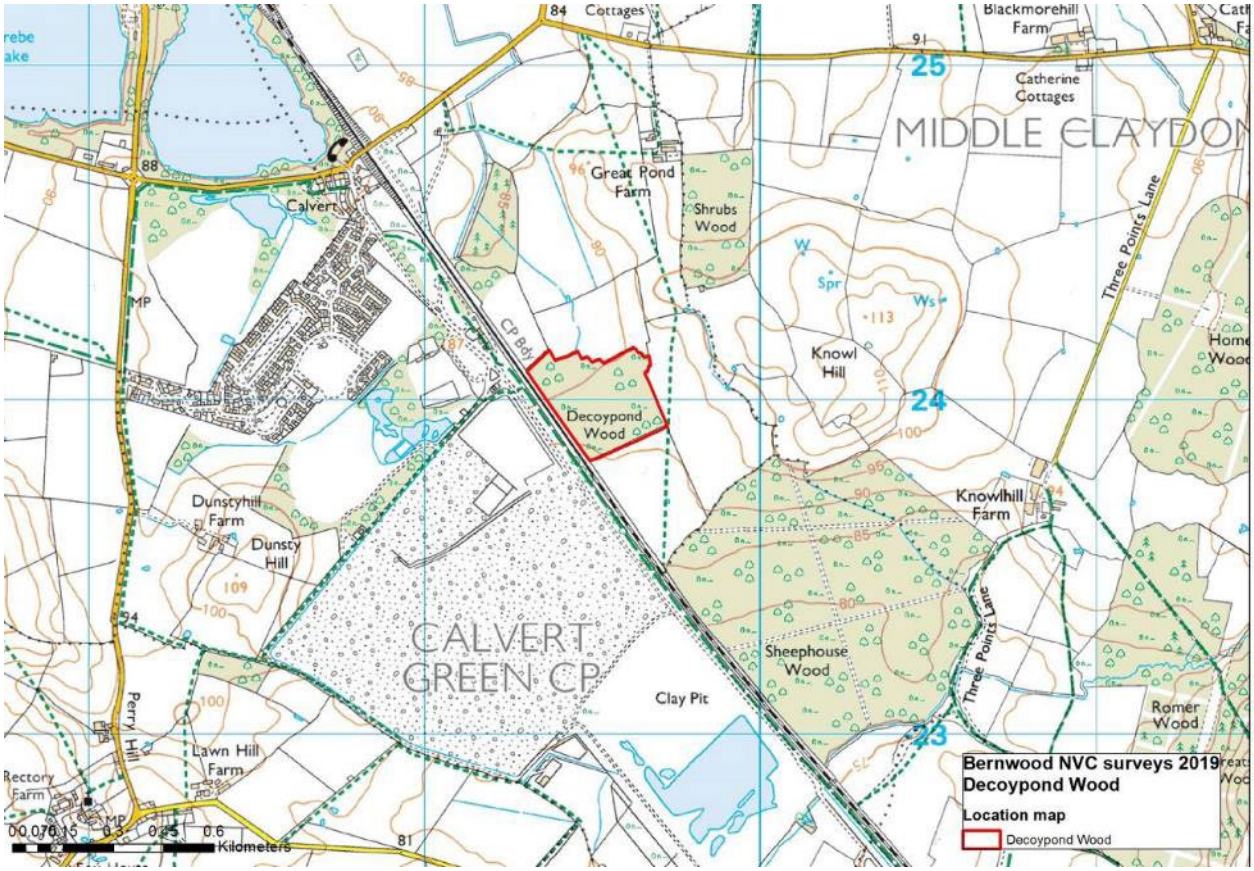


Figure 12. Decoypond Wood – location (area surveyed outlined in red). Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

A view of W8a type woodland at Decoypond Wood with typically sparse field layer (SP6966523938). Copyright Alison Jukes and Natural England.

Vegetation communities

Descriptions of NVC communities and sub-communities identified and mapped are given below. Where vegetation types are not a good fit to the NVC (because they are transitions, disturbed areas etc.), a general habitat type has been assigned. A map showing the survey area boundaries and vegetation communities is at Figure 11, target notes and quadrat data at tables 27 and 28. A list of vascular plants and bryophytes recorded during the survey is given at table 29.

Decoypond Wood - Woodland and scrub

The majority of the woodland has a dense Oak-dominated canopy with some Ash, and Hazel and Hawthorn in the understorey. Hazel and Ash appear to have been coppiced in the past, based on tree form. Canopy trees are mainly mature but no veteran trees were noted. Some young trees are present but seedlings/saplings are rare. Much of the wood has a sparse field layer with frequent leaf litter. Deer impact is considered to be moderate with signs of browsing evident in some areas particularly on Bramble.

The central part of the wood has Oak dominant in the canopy and Hazel and Hawthorn in the understorey. The field layer has locally abundant Bluebell with large areas sparsely vegetated, often covered in leaf litter. This is closest to W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community. The southern part of the wood also has a sparse field layer with frequent leaf litter. Small patches with abundant

Ground-ivy *Glechoma hederacea*, frequent False Brome and locally abundant Bluebell make this part a better fit to W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community. Ditch banks in other parts of the wood have a similar community with frequent Ground-ivy and Primrose (target note 4).

The north east part of the woodland has Oak standards, old overgrown Ash coppice and frequent Hawthorn in the understorey with locally abundant Bluebell. Other field layer species include Wood Anemone, Cleavers *Galium aparine*, Yellow Archangel and Greater Stitchwort. As species from both W8 and W10 communities are present this has been mapped as W8/W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland/*Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, ie it is considered to be transitional between both communities.

In the area mapped as W8/W10 a small patch of W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community field layer was noted (target note 3) with abundant Tufted Hair-grass and frequent Wood-sedge.

An area on the site boundary in the north west corner is closest to W10b *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Anemone nemorosa* sub-community with Oak, Hazel, abundant Bramble and frequent Wood Anemone.

A view of W8/W10 type woodland at Decoypond Wood (SP6964424043). Copyright Alison Jukes and Natural England.

A view of W10b type woodland at Decoypond Wood (SP6940424098). Copyright Alison Jukes and Natural England.

A small area of wet woodland is present near the centre of the site (the old decoy pond?) with abundant Birch and occasional Grey Willow *Salix cinerea*, Poplar *Populus* sp. and Alder *Alnus glutinosa* in the canopy and Hawthorn and Blackthorn in the understorey. The field layer is dominated by Lesser Pond-sedge *Carex acutiformis*. Of special note is the possible occurrence of Tufted Sedge *Carex elata* though this could not be confirmed. This plant is considered extinct in Bucks so it is notable if the identification is correct. This area is not a good fit to the NVC but is considered to be closest to W5 *Alnus glutinosa-Carex paniculata* woodland.

A view of the wet hollow in the centre of Decoypond Wood with sedge swamp (SP6945224002). Copyright Alison Jukes and Natural England.

Decoypond Wood - other features

A small stream (target note 2) and wet ditches with banks (target note 4) are present. No rides or significant clearings are present. Occasional standing deadwood, dead branches and fallen trees were noted. Areas with several dead/dying Oak trees are present (target note 1).

Wetland features are a significant component of the habitat at Decoypond Wood. This view shows a shallow stream feature with lots of in-channel deadwood (a valuable habitat for specialised invertebrates). Copyright Alison Jukes and Natural England.

Summary

The majority of the woodland at Decoypond Wood (total extent 8.6ha) is closest to sub-communities of W8 and W10, although in many areas the field layer is sparse with leaf litter dominant. This could be due to canopy shading, but there is also evidence of deer browsing. 3.8ha has a reasonably close fit to W10a. 1.8ha is closest in composition to W8a, with patches of Bluebell, Ground-ivy and False Brome in the field layer. A further 1.8ha has characteristic species of both W8 and W10 and has therefore been mapped as W8/W10. 0.7ha is closest to W8b with Oak, Hazel, Bramble and Wood Anemone. A small area (0.5ha) of wet woodland probably representing a former pond is present. No significant rides or clearings are present. Banks, wet ditches and a small stream were noted.

Table 26. Decoypond Wood - Area of NVC communities/habitat types mapped

NVC (sub)-community / habitat type	Area (ha)
W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community	3.8
W8/W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland/*Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland	1.8
W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community	1.8
W10b *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Anemone nemorosa* sub-community	0.7
Wet woodland (closest to W5 *Alnus glutinosa-Carex paniculata* woodland)	0.5
Total area	8.6

Figure 13. Decoypond Wood - National Vegetation Classification map with quadrat and target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Table 27. Decoypond Wood - Target notes

Target note	Grid reference	Feature	Description
1	SP6962024028	Dead oaks	Area with dead/dying oaks and sparse ground flora (due to leaf fall?). Some recently deceased, others with lost bark etc. Hawthorn and ash seedlings present
2	SP6960024082	Small stream	Half metre wide, meandering stream. Frequent dead wood
3	SP6960124092	W8c type woodland	10m diameter circle with abundant *Deschampsia cespitosa* and frequent *Carex sylvatica*
4	SP6942724029	Wet ditch	Wet ditch with banks. Immediate area has W8 *Glechoma-Primula* sub-community
5	SP6966523938	Nutrient enrichment ?	Small patches with abundant ground ivy and nettle, possible evidence of localised nutrient

Target note	Grid reference	Feature	Description
			enrichment. Frequent plastic debris from adjacent landfill site. Spindle tree noted.

Table 28. Quadrat data from Decoypond Wood

Quadrat number	Q1	Q2	Q3
Grid reference (field layer quadrat grid ref)	SP6964424043	SP6940424098	SP6945224002
NVC sub-community	W8/W10	W10b	closest to W5
Deer impact (none, low, med, high)	Low	Medium (browsed bramble)	Low
Field layer			
Quadrat size (4x4m or 10x10m?)	4x4	4x4	4x4
Field layer height (cm)	20	50	30
Bare ground (%)	0	0	0
Litter (%)	50	80	50
Species: % cover, g = ground layer/seedling			
Anemone nemorosa	1	30	0
Brachythecium rutabulum	5	2	20
Calliergonella cuspidata	0	0	2
Carex sp. (cf. *C. elata*)	0	0	80
Cirriphyllum piliferum	2	0	0
Eurhynchium striatum	1	0	0
Galium aparine	25	2	1
Hyacinthoides non-scripta	60	0	0
Hypnum cupressiforme	0	1	0
Kindbergia praelonga	5	1	10
Lamiastrum galeobdolon	2	2	0
Lonicera periclymenum	0	1	0
Plagiomnium undulatum	1	0	0
Poa trivialis	2	0	0
Rubus fruticosus agg. g	0	50	0
Rumex sp.	0	0	2
Stellaria holostea	30	0	0
Veronica hederifolia	1	0	0
Canopy & understorey			
Quadrat size (50x50m or other?)	50 x 50	50 x 50	Wet woodland area

Quadrat number	Q1	Q2	Q3
Canopy height (estimate in m)	30	30	25 (plus v tall poplar)
Canopy cover (%)	70	50	80
Understorey height (estimate in m)	6	5	3
Understorey cover (%)	30	40	40
Standing deadwood? (DAFOR)	O standing, F fallen trees	Dead branches and fallen dead wood	Fallen trees
Age classes: estimate % cover (all species together)			
Veteran	None	None	None
Mature	A	F	F
Young trees	O	O	F
Saplings	R	O	O
Seedlings	R	R	R
Coppice	O old coppice	F	R
Species: % cover, c = canopy; s = shrub/understorey			
Acer campestre s	0	1	0
Alnus glutinosa c	0	0	5
Betula spp. c	0	0	60
Corylus avellana s	0	20	0
Crataegus spp. s	40	30	30
Fraxinus excelsior c	50	1	0
Populus sp. c	0	0	10
Prunus spinosa s	0	0	5
Quercus sp. c	20	50	0
Salix cinerea s	0	0	10

Table 29. Decoypond Wood – amalgamated list of species recorded.

Scientific name	Common name
Acer campestre	Field Maple
Alnus glutinosa	Alder
Anemone nemorosa	Wood Anemone
Betula spp.	Birch species
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Calliergonella cuspidata	Pointed Spear-moss
Carex spp.	Sedge species
Carex sylvatica	Wood-sedge
Cirriphyllum piliferum	Hair Pointed Feather-moss
Corylus avellana	Hazel
Crataegus spp.	Hawthorn species
Deschampsia cespitosa	Tufted Hair-grass
Euonymus europaeus	Spindle
Eurhynchium striatum	Common Striated Feather-moss
Fraxinus excelsior	Ash
Galium aparine	Cleavers
Glechoma hederacea	Ground-ivy
Hyacinthoides non-scripta	Bluebell
Hypnum cupressiforme	Cypress-leaved Plait-moss
Kindbergia praelonga	Common Feather-moss
Lamiastrum galeobdolon	Yellow Archangel
Lonicera periclymenum	Honeysuckle
Plagiomnium undulatum	Hart's-tongue Thyme-moss
Poa trivialis	Rough Meadow-grass
Populus sp.	Poplar species
Primula vulgaris	Primrose
Prunus spinosa	Blackthorn
Quercus sp.	Oak species
Rubus agg.	Bramble
Rumex sp.	Dock species
Salix cinerea	Grey Willow
Stellaria holostea	Greater Stitchwort
Urtica dioica	Common Nettle
Veronica hederifolia	Ivy-leaved Speedwell

Romer, Greatsea and Balmore Woods

Overview

These three woods form a single block of woodland but there is considerable variation in composition. They lie east of Sheephouse Wood SSSI and north of Finemere Wood SSSI. All three woods are designated as a Local Wildlife Site and mapped as Ancient Woodland. They include areas of plantation and old-growth woodland, and there are grass rides.

Surveys were carried out by Alison Jukes of the Natural England Field Unit and Natural England area team staff on 10th-11th April 2019 and 16th-17th July 2019 following National Vegetation Classification (NVC) survey guidance (JNCC 2006).

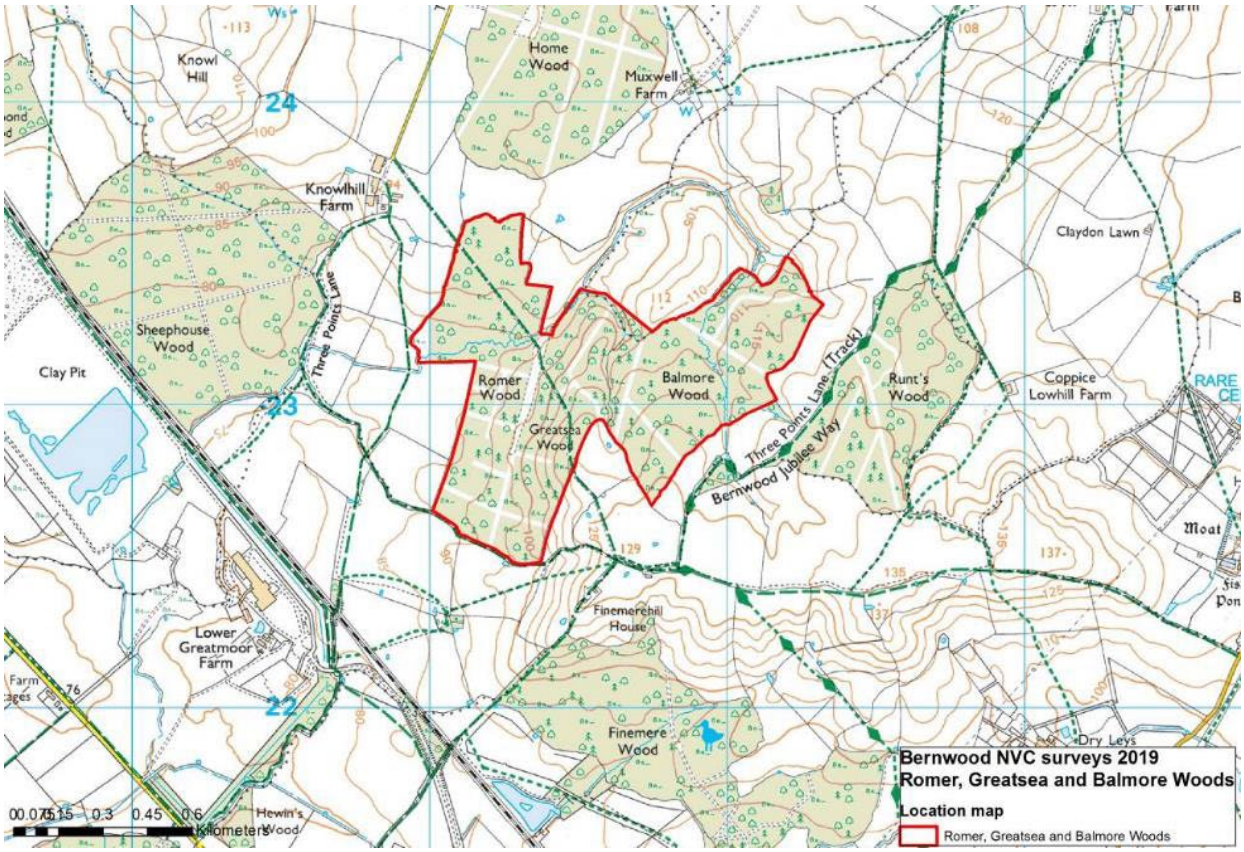


Figure 14. Location map – Romer, Greatsea and Balmore Woods. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Surrounding habitats include hedgerows, arable fields and agriculturally-improved grassland. Public footpaths run along the southern edge and along a surfaced track through Romer and Greatsea Woods. Further woodland blocks lie to the north, east, south and west of the three woods. To the west, Sheephouse Wood SSSI is connected by a 300m strip of woodland along the public footpath to Romer Wood and to the south,

Finemere Wood SSSI lies 300m south of Greatsea Wood. Other woods include Home Wood, 120 m north of Romer Wood, and Runt's Wood, 120 metres east of Balmore Wood, partially connected by a strip of woodland.

A view showing W8a type woodland in Balmore Wood (SP7194723322). Copyright Alison Jukes and Natural England.

Vegetation communities

Where distinct vegetation communities could be distinguished, these are mapped to NVC community and sub-community level, and these are described below. Where vegetation types are not a good fit to the described communities of the NVC (transitions, highly modified etc.), a general habitat type has been assigned.

A map showing the survey area boundaries and vegetation communities is at Figure 13, target notes and quadrat data are provided at tables 30 and 31. A list of vascular plants and bryophytes recorded during the survey is at table 32.

Romer, Greatsea and Balmore Woods - woodland and scrub

All three woods include large areas of managed plantation woodland with some blocks recently clear-felled and areas of recent re-planting. Smaller blocks and strips of older, undisturbed woodland are also present. Despite the high degree of modification, the composition of most of the woodland conforms to the description of W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community. However, there is a clear distinction between remnant areas of relatively

undisturbed woodland and the areas managed as plantation, in the composition of the ground flora in particular.

Figure 15 shows the NVC communities identified. The areas mapped as W8c are semi-natural, relatively undisturbed 'old growth' woodland stands which have a moderately species-rich field layer. Areas mapped as W8c (poor) are the modified, recent plantation areas.

The 'old growth' W8c stands are confined to a strip at the southern edge of Romer and Greatsea Woods, two areas in the north of Romer and Greatsea Woods, and a small block in Balmore Wood. These areas have Oak *Quercus* spp., Silver Birch *Betula pendula* and Ash *Fraxinus excelsior* in the canopy with Hazel *Corylus avellana* and Hawthorn *Crataegus* spp. frequent in the understory. Occasional species include Field Maple *Acer campestre*, Dogwood *Cornus sanguinea*, Rose *Rosa* sp. and Blackthorn *Prunus spinosa*. The field layer has frequent Tufted Hair-grass *Deschampsia cespitosa* with occasional species including Bugle *Ajuga reptans*, Lords-and-Ladies *Arum maculatum*, False Brome *Brachypodium sylvaticum*, Wood-sedge *Carex sylvatica*, Bluebell *Hyacinthoides non-scripta*, Barren Strawberry *Potentilla sterilis*, Primrose *Primula vulgaris*, Lesser Celandine *Ficaria verna* and Common Tamarisk-moss *Thuidium tamariscinum*.

The W8c (poor) stands are present in all three woodlands, occupying most of Romer Wood, the southern part of Greatsea Wood and the centre of Balmore Wood. The most abundant canopy species in these areas are Oak or Pine *Pinus* spp. with some Ash. The understory is generally sparse. Species present include Hawthorn, Hazel, Rose and Aspen *Populus tremula*. Tufted Hair-grass is the most abundant species in the field layer with locally frequent Wood Small-reed *Calamagrostis epigejos*. Occasional and rarely occurring species include False Brome, Wood-sedge, Meadowsweet *Filipendula ulmaria*, Yorkshire-fog *Holcus lanatus*, Bluebell and Barren Strawberry.

The southern part of Balmore Wood is closest in composition to W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community. The canopy has abundant Oak, occasional Birch *Betula* spp. and with Hazel and Hawthorn frequent in the understorey. The field layer has locally dominant Bluebell with abundant Bramble *Rubus fruticosus* agg. and frequent Bracken *Pteridium aquilinum*. There are also areas which are transitional between W8c and W10a, particularly in Romer Wood. In these areas the field layer has species typical of W8c with frequent to abundant Tufted Hair-grass and occasional species including Wood-sedge, Enchanter's nightshade *Circaea lutetiana* and Ground-ivy *Glechoma hederacea*. However, Bramble is abundant to dominant with occasional Honeysuckle *Lonicera periclymenum*, which is more typical of W10 woodland, although Bracken is notably infrequent.

The northern part of Balmore Wood has woodland closest in composition to W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland*, Primula vulgaris-Glechoma hederacea* sub-community. There is also a strip of W8a woodland on the southern

boundary of Greatsea Wood. These areas have similar field layers with mixtures of typical W8a herbs including False Brome, Enchanter's nightshade, Ground-ivy, Dog's Mercury *Mercurialis perennis*, Primrose and Lesser Celandine. Bluebell is locally abundant. The canopy in Balmore Wood is mainly Oak-dominated, with Hazel, Hawthorn and Field Maple in the understorey. The smaller area in Greatsea Wood has a more typical W8 canopy and understorey, with abundant Ash, frequent Oak and occasional Hazel, Hawthorn and Field Maple.

A view of the typical structure in the 'old growth' W8c type woodland in Greatsea Wood (SP7166923250). Copyright Alison Jukes and Natural England.

A view of W10a type woodland in Balmore Wood (SP7211223066). Copyright Alison Jukes and Natural England.

A view of oak plantation woodland with a W8c type field layer in Balmore Wood (SP7181523211). Copyright Alison Jukes and Natural England.

The remaining woodland blocks not previously described include plantations. These include conifer plantations, Poplar plantations in Romer Wood, a small area of Beech plantation in Greatsea Wood and areas of new planting including a small area of Willow saplings in Romer Wood. Dense conifer plantations are present in Greatsea Wood with a sparse field layer and in Balmore Wood there are areas of conifer with a field layer closest in composition to W10d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community, which had been felled by time of the July survey. This area had locally abundant Bluebell with frequent Bramble, Bracken and Yorkshire-fog beneath a mature Pine-dominated canopy.

Romer, Greatsea and Balmore Woods - Grassland

Grass rides are present throughout the group of woodlands. Most had a tall, grass-dominated sward at the time of survey, although some areas around recently-felled woodland blocks in Balmore Wood were disturbed with frequent bare ground.

The majority of the ride vegetation has similarities to MG9 *Holcus lanatus-Deschampsia cespitosa* grassland, with abundant Yorkshire-fog, Tufted Hair-grass, Creeping Bent and Creeping Buttercup. Occasional species include Greater Bird's-foot-trefoil, Lesser Spearwort *Ranunculus flammula*, Glaucous Sedge, Hairy Sedge *Carex hirta*, Soft-rush *Juncus effusus*, Marsh Thistle *Cirsium palustre* and Devil's-bit Scabious. A notable feature is the presence of betony *Betonica officinalis* (which is rare in Bucks) though this is very localised. Wood Small-reed and Tall Fescue are locally abundant.

A more species-rich grass-dominated community with a shorter sward is present on part of the main ride between Romer and Greatsea Woods and in Romer Wood. This vegetation is most similar to MG6d *Lolium perenne-Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community. Constant graminoids are Creeping Bent *Agrostis stolonifera,* Tall Fescue *Schedonorus arundinaceus,* Yorkshire-fog*,* Crested Dog's-tail*,* Perennial Rye-grass*,* Glaucous Sedge *Carex flacca,* Timothy and Sweet Vernal-grass. Constant forbs are Ribwort Plantain*,* Creeping Cinquefoil*,* Red Clover*,* White Clover*,* Meadowsweet*,* Selfheal*,* Creeping-Jenny*,* Creeping Buttercup*,* Black Medick and Meadow Vetchling.

A view of one of the broad grass rides in Romer, Greatsea and Balmore Woods with MG6d-type community (SP7125223119). Copyright Alison Jukes and Natural England.

Romer, Greatsea and Balmore Woods - other features

There are several streams in the old-growth woodland areas (Target notes 1, 5 and 9) with species present which were not found in other parts of the wood. There is a noticeable increase in abundance and diversity of lichens and bryophytes, including *Nowellia curvifolia* (which is rare in Bucks) on deadwood and trees next to a stream in Greatsea Wood. Thin-spiked wood-sedge *Carex strigosa* (uncommon in Bucks) was noted on stream banks in Romer Wood, and the leafy liverwort *Plagiochila* sp. (possibly *P. asplenioides*) and the moss *Climacium dendroides* (both of which are rare in Bucks) were noted in Balmore Wood.

Managed plantation areas generally have even-aged young or mature trees in the canopy with few veteran trees or standing deadwood. Older trees and standing and fallen deadwood are more frequent in the old growth, less disturbed areas. A veteran Oak was noted on the boundary of Romer Wood (Target note 3) in the strip of woodland along the public footpath.

Deer impact was noted as low throughout the woodland. A pheasant pen is present in Balmore Wood (Target note 8), with some associated impact on the field layer. Beehives are present on the edge of the main ride between Romer and Greatsea Woods (Target

note 11) and in Romer Wood (Target note 13). Both Raven and Red Kite appear to be nesting in Balmore Wood or nearby.

This stream in Balmore Wood provides valuable habitat diversity (SP7194723322). Copyright Alison Jukes and Natural England.

An impressive veteran oak at the edge of Romer Wood (SP7100022657). Copyright Alison Jukes and Natural England.

Summary

The majority of this habitat complex is woodland (70.7ha) with grass rides (4.1ha). Most of the woodland is managed as plantation (c 55.5ha) including broadleaf, conifer, recently-felled and newly-planted areas. Approximately 15.2ha is older growth, less-modified woodland. The most common woodland type conforms to the W8c sub-community, with smaller areas of W10a and W8a. The majority of the rides have a composition close to MG9, with a more species-rich area with a close fit to MG6d. A single veteran tree was noted close to the edge of the woodland. The group of woodlands has good habitat connectivity and there is some connectivity to the surrounding landscape via strips of woodland and hedgerows. The areas of older growth woodland have remnant coppice-with-standards structure with W8c, W8a or W10a field layers. Several natural streams occur in these stands with associated bryophyte-rich areas. There is no evidence of recent management in these areas, in contrast to the plantation areas. The southern edge of the woodland along the public right of way supports a strip of W8a and W8c woodland with excellent structure and diversity. The plantation areas mapped as W8c (poor) have been heavily disturbed by forestry activities and have an impoverished field layer dominated by Tufted Hair-grass and Wood Small-reed. However, for the most part typical W8c field layer species are present throughout the plantation areas at low frequency.

Table 30. Romer, Greatsea and Balmore Woods - Area of NVC communities/habitat types

NVC (sub)-community / habitat type	Area (ha)
W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community (disturbed, species-poor field layer)	32.4
Recently-felled W8 and W10 areas (on July 2019 visit)	11.0
W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community (old stand, species-rich field layer)	6.6
W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community	5.3
W8c/W10a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community/*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community	4.6
Conifer plantation	4.5
MG9 *Holcus lanatus-Deschampsia cespitosa* grassland	3.7
W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community	3.3
Poplar plantation (W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community field layer)	1.5
Other (road)	0.8

NVC (sub)-community / habitat type	Area (ha)
New planting	0.7
Beech plantation (W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community field layer)	0.7
MG6d *Lolium perenne–Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community	0.4
Total area	75.5

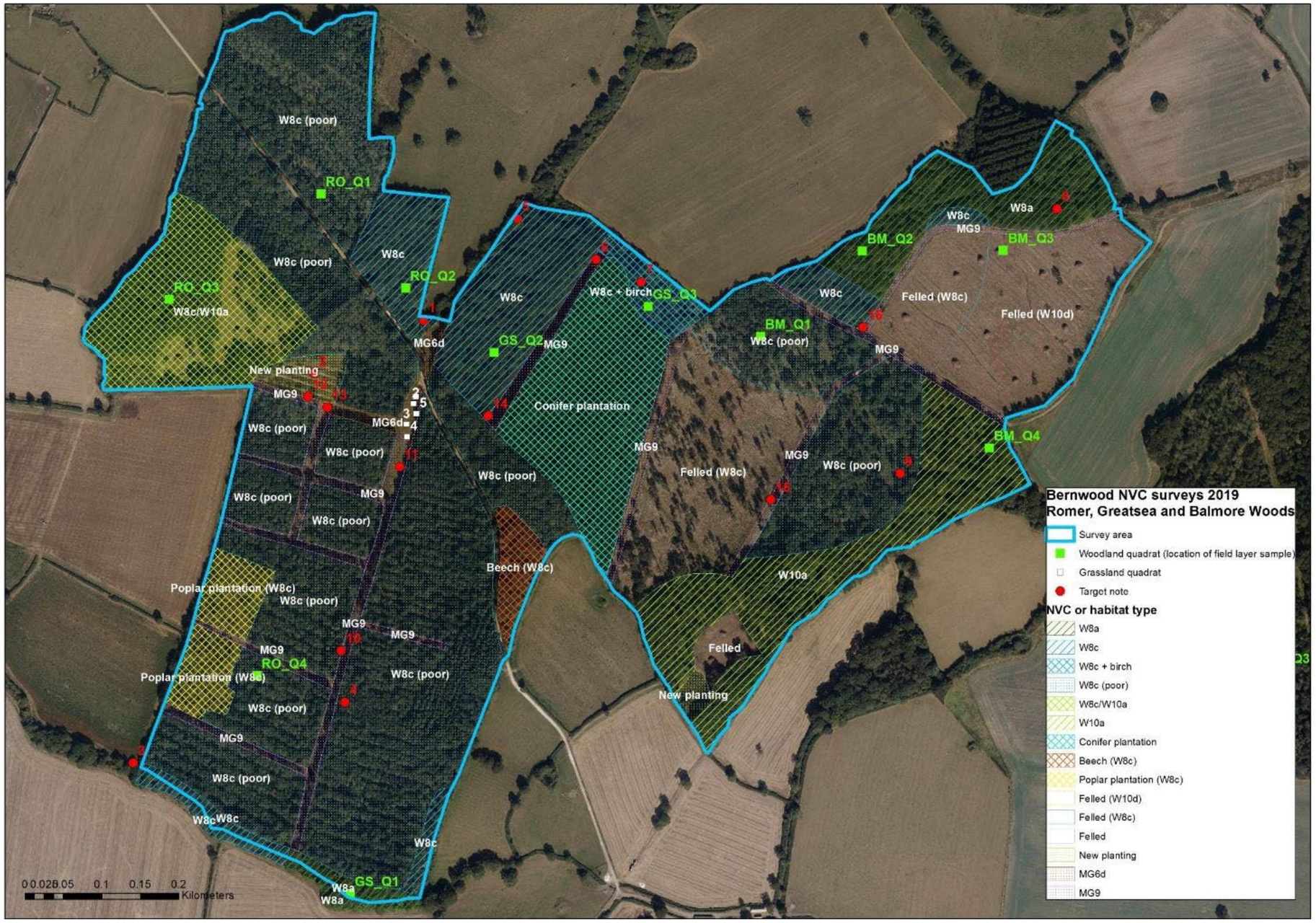


Figure 15. Romer, Greatsea and Balmore Woods - National Vegetation Classification map with quadrat and target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Table 31. Romer, Greatsea and Balmore Woods - Target notes

Target note	Grid reference	Feature	Description
1	SP7137723232	Stream valley	Stream valley at edge of Romer Wood has *Carex strigosa* on banks.
2	SP7123523163	New planting	Wet area with Willow saplings planted. Area mulched and ground flora with rushes, tufted hair-grass, Yorkshire fog, wood small-reed. Betony noted nearby.
3	SP7100022657	Old growth with veteran	Next to right-of-way is a veteran oak with high potential for roosting bats. Woodland continues as narrow strip - good connectivity for bats
4	SP7127522736	Pollution indicator?	Free-living algae *Trentepohlia* (orange-coloured) on Oak
5	SP7149923364	Humid stream valley	Large fallen decaying Oak. Many moss species of humid ravine woodland. *Nowellia curvifolia* noted. Some rock exposures. Likely to be good for wetland invertebrates. Mosses growing up trees and lichens not seen elsewhere.
6	SP7160123311	Plantation	Spruce plantation, 15-30 cm dbh. Dense, shaded. One species of moss only, poor ground flora. On slope, next to stream, good potential for restoration as next to good W8c old-growth.
7	SP7166023282	Birch	Silver birch trees in W8c old-growth woodland. Next to Pine plantation on slope
8	SP7220023377	Pheasant pen	Evidence of ground flora impacted by pheasants. More *Rumex sanguineus*. W8a, less species diversity in ground flora but with Bluebell carpets and occasional Primrose. Canopy has mature Oak and younger Oak. Understory is Field Maple and Hawthorn. Pen appears recently disused. Feeders and water pipes left in situ.
9	SP7199623033	Stream	Stream with tight sinuous meanders, W8c woodland on banks. Hawthorn understory with tufted hair-grass, bluebell. Bryophytes noted along the stream include *Plagiochila cf. asplenioides* and *Climacium dendroides,* both notable.

Target note	Grid reference	Feature	Description
10	SP7127022803	Wet ride, moderately species-rich (MG9)	Southern end of main ride most similar to MG9 with abundant Yorkshire fog, tufted hair-grass, creeping bent, lesser spearwort (rare elsewhere in the Bernwood complex), creeping buttercup, plus *Carex flacca, Carex otrubae, Juncus conglomeratus, Juncus articulatus, Cirsium palustre, Succisa pratensis*
11	SP7134623042	Grass ride (MG9)	Grass-dominated ride frequently used by vehicles. Approx. 50 brick bee hives along eastern edge. Sward has abundant tall fescue, Yorkshire fog, tufted hair-grass plus occasional meadowsweet.
12	SP7122723133	Planting with wood small-reed	Recently cleared, grassy area planted with Willow and Poplar with abundant wood-small-reed.
13	SP7125223119	Neutral grassland (MG6d)	Small area similar to quadrats. Tall fescue, Yorkshire fog, creeping bent abundant with crested dogstail, sweet vernal-grass, meadowsweet, meadow vetchling, betony, devilsbit scabious and *Carex flacca*.
14	SP7146123108	MG9/ *Calamagrostis*	Grass ride with abundant tufted hair-grass, wood small-reed and marsh thistle.
15	SP7182822999	Track with tall grass verges	Closest to MG9 with abundant tufted hair-grass, marsh thistle and marsh trefoil.
16	SP7194823223	Crossroads on rides/tracks	Ride to north east previously grass dominated, but much used during recent woodland management. Ride to west grass-dominated. Ride to south east well-used, bare ground and flattened vegetation. Ride to south grass-dominated, flattened by vehicle use.

Table 32. Romer Wood - woodland quadrat data

Quadrat number	RO_Q1	RO_Q2	RO_Q3	RO_Q4
Grid reference (field layer quadrat grid ref)	SP7124423396	SP7135423274	SP7104723259	SP7116122770
NVC sub-community	W8c	W8c	W8c/W10a	closest to W8c
Deer impact (none, low, med, high)	Low	Low	Low	Low
Field layer				
Quadrat size (4x4m or 10x10m?)	4x4	4x4	4x4	4x4
Field layer height (cm)	15	10	40	15
Bare ground (%)	0	1	0	0
Litter (%)	50	80	90	50
Species: % cover, g = ground layer/ seedling				
Acer campestre g	0	1	0	0
Ajuga reptans	0	1	0	0
Anemone nemorosa	1	2	0	1
Arum maculatum	1	0	0	0
Brachypodium sylvaticum	0	1	0	5
Calamagrostis epigejos	5	0	0	0
Carex sylvatica	1	0	2	1
Circaea lutetiana	0	1	1	0
Crataegus spp. g	0	1	0	1
Deschampsia cespitosa	80	20	20	40
Eurhynchium striatum	2	15	1	5
Ficaria verna	0	2	0	0
Filipendula ulmaria	5	0	0	0
Fraxinus excelsior g	5	1	1	0
Galium aparine	0	0	0	1
Glechoma hederacea	0	0	1	0
Hedera helix	0	1	0	0
Hyacinthoides non-scripta	10	5	1	0
Hypericum hirsutum	0	0	0	2
Kindbergia praelonga	2	3	0	0
Lamiastrum galaeobdolon	0	10	0	0
Lonicera periclymenum	10	1	5	10

Quadrat number	RO_Q1	RO_Q2	RO_Q3	RO_Q4
Mnium hornum	1	0	0	0
Poa trivialis	0	0	1	1
Populus tremula g	0	0	0	1
Potentilla sterilis	1	1	0	0
Primula vulgaris	0	1	0	2
Rosa sp. g	20	0	0	0
Rubus fruticosus agg. g	20	0	90	10
Thuidium tamariscinum	2	1	0	0
Valeriana officinalis	1	0	0	1
Vicia sepium	1	0	0	1
Viola sp.	0	1	0	1
Canopy & understorey				
Quadrat size (50x50m or other?)	50x50	50x50	50x50	50x50
Canopy height (estimate in m)	25	20	25	20
Canopy cover (%)	60	95	80	50
Understorey height (estimate in m)	6	8	8	6
Understorey cover (%)	30	60	10	20
Standing deadwood (DAFOR)	R	O	No	No
Age classes: estimate % cover (all species together)				
Veteran	5	5	0	0
Mature	60	70	0	0
Young trees	5	20	80	50
Saplings	25	3	2	10
Seedlings	2	2	1	1
Coppice	5	10	0	0
Species: % cover, c = canopy; s = shrub/understorey				
Acer campestre s	0	1	0	0
Betula pendula c	0	25	10	0
Chamaecyparis lawsoniana	1	0	0	0
Cornus sanguineus	10	0	0	0
Corylus avellana s	10	10	0	0
Crataegus hybrid s	0	5	0	0
Crataegus spp. s	10	20	5	15
Fraxinus excelsior c	15	0	0	10

Quadrat number	RO_Q1	RO_Q2	RO_Q3	RO_Q4
Fraxinus excelsior s	15	1	2	0
Picea abies	1	0	0	0
Pinus spp. c	40	0	0	0
Populus tremula s	0	0	0	10
Quercus sp. c	10	30	80	30
Rosa sp. s	20	1	0	0
Rubus fruticosus agg. s	20	0	0	0
Salix caprea s	1	0	0	0

Table 33. Woodland quadrat data from Greatsea Wood

Quadrat number	GS_Q1	GS_Q2	GS_Q3
Grid reference (field layer quadrat grid ref)	SP7128222487	SP7146923190	SP7166923250
NVC sub-community	W8a	W8c	W8c with Birch
Deer impact (none, low, med, high)	Low	Low	Low
Field layer			
Quadrat size (4x4m or 10x10m?)	4x4	4x4	4x4
Field layer height (cm)	20	5	10
Bare ground (%)	0	0	20
Litter (%)	30	80	35
% cover, g = ground layer/seedling			
Acer campestre g	1	0	0
Ajuga reptans	0	1	0
Arum maculatum	2	0	1
Brachypodium sylvaticum	30	10	2
Brachythecium rutabulum	0	0	1
Carex sylvatica	0	0	5
Cirriphyllum piliferum	0	0	1
Crataegus spp. g	0	2	0
Deschampsia cespitosa	0	15	25
Eurhynchium striatum	1	2	0
Ficaria verna	0	1	1
Fissidens taxifolius	1	0	4
Fraxinus excelsior g	1	1	0
Galium aparine	5	0	0
Geranium robertianum	1	1	0
Glechoma hederacea	2	0	0
Hyacinthoides non-scripta	40	0	1
Hypnum cupressiforme	0	1	0
Kindbergia praelonga	1	1	1
Lamiastrum galeobdolon	1	5	0
Ligustrum vulgare g	0	1	0
Lonicera periclymenum	0	1	0
Lophocolea bidentata	0	0	1
Mercurialis perennis	1	0	0

Quadrat number	GS_Q1	GS_Q2	GS_Q3
Mnium hornum	0	0	1
Plagiomnium undulatum	0	1	1
Polytrichum formosum	0	1	0
Populus tremula g	0	2	0
Potentilla sterilis	0	1	0
Prunus spp. g	0	1	0
Rubus fruticosus agg. g	5	1	0
Rumex sanguineus	1	0	0
Stellaria media	1	0	0
Thamnobryum alopecurum	1	0	0
Thuidium tamariscinum	0	2	10
Veronica chamaedrys	10	1	1
Viola sp.	1	1	0
Canopy & understorey			
Quadrat size (50x50m or other?)	50x50	50x50	50x50
Canopy height (estimate in m)	15	25	20
Canopy cover (%)	90	90	95
Understorey height (estimate in m)	6	8	5
Understorey cover (%)	20	50	10
Standing deadwood? (DAFOR)	O	O	O
Age classes: estimate % cover			
Veteran	0	0	0
Mature	5	70	30
Young trees	50	40	70
Saplings	1	10	25
Seedlings	2	5	1
Coppice	10	10	30
% cover, c = canopy; s = shrub/ understorey			
Acer campestre c	5	0	0
Betula pendula c	0	0	60
Cornus sanguineus	0	0	1
Corylus avellana s	0	10	30
Crataegus hybrid s	10	25	10
Crataegus spp. c	0	0	10
Fraxinus excelsior c	50	10	2
Fraxinus excelsior s	10	20	0
Prunus spinosa s	5	2	0
Quercus sp. c	30	80	10
Quercus sp. s	0	5	0

Table 34. Woodland quadrat data from Balmore Wood

Quadrat number	BM_Q1	BM_Q2	BM_Q3	BM_Q4
Grid reference (field layer quadrat grid ref)	SP7181523211	SP7194723322	SP7213023323	SP7211223066
NVC sub-community	W8c with Oak	W8a	W10d with Pine	W10a
Deer impact (none, low, med, high)	Low	Low	Low	Low
Field layer				
Quadrat size (4x4m or 10x10m?)	4x4	4x4	4x4	4x4
Field layer height (cm)	8	10	20	20
Bare ground (%)	1	2	5	0
Litter (%)	90	60	5	15
Species: % cover, g = ground layer/ seedling				
Acer campestre g	0	1	0	0
Anemone nemorosa	0	0	0	1
Angelica sylvestris	0	1	0	0
Brachypodium sylvaticum	0	15	0	0
Brachythecium rutabulum	1	2	1	0
Calamagrostis epigejos	0	0	0	1
Carex sylvatica	1	2	0	0
Circaea lutetiana	0	1	0	0
Conocephalum sp.	0	3	0	0
Crataegus spp. g	1	1	0	1
Deschampsia cespitosa	20	1	0	0
Dryopteris cf. *carthusiana*	0	0	1	0
Eurhynchium striatum	1	2	10	0
Ficaria verna	0	1	0	0
Fissidens taxifolius	0	1	0	0
Galium aparine	1	1	5	5
Geranium robertianum	0	2	0	0
Geum urbanum	0	1	0	0
Holcus lanatus	3	0	10	0
Hyacinthoides non-scripta	1	70	80	95
Hypnum cupressiforme	5	0	0	1
Isothecium myosuroides	0	1	0	0

Quadrat number	BM_Q1	BM_Q2	BM_Q3	BM_Q4
Kindbergia praelonga	0	1	1	0
Lamiastrum galaeobdolon	0	5	0	0
Lapsana communis	0	0	2	0
Lonicera periclymenum	1	1	0	0
Lophocolea bidentata	0	0	2	0
Mercurialis perennis	0	4	0	0
Mnium hornum	0	6	0	0
Plagiochila sp.	0	1	0	0
Poa trivialis	1	1	2	0
Primula vulgaris	0	2	0	0
Prunus spp. g	1	1	0	0
Pteridium aquilinum	0	0	20	10
Rubus fruticosus agg. g	1	2	20	60
Rumex acetosa	0	1	0	0
Rumex sanguineus	0	0	2	0
Stellaria media	1	0	0	0
Thamnobryum alopecurum	0	2	0	0
Thuidium tamariscinum	1	0	0	0
Veronica chamaedrys	0	1	0	0
Viola sp.	0	2	0	0
Canopy & understorey				
Quadrat size (50x50m or other?)	50x50	50x50	50x50	50x50
Canopy height (estimate in m)	20	20	25	18
Canopy cover (%)	60	90	60	70
Understorey height (estimate in m)	1.5	6	4	8
Understorey cover (%)	5	20	5	25
Standing deadwood? (DAFOR)	R very little	O	None	O
Age classes: % cover (all species)				
Veteran	0	0	0	0
Mature	0	30	70	60
Young trees	90	60	10	20
Saplings	10	1	10	5
Seedlings	1	1	1	1
Coppice	0	20	0	15
% cover, c = canopy; s = shrub/ understorey				
Acer campestre s	0	5	0	0

Quadrat number	BM_Q1	BM_Q2	BM_Q3	BM_Q4
Betula spp. s	0	0	0	10
Corylus avellana s	0	20	2	20
Crataegus hybrid s	0	20	2	10
Fraxinus excelsior s	0	0	2	0
Pinus spp. c	0	0	60	0
Populus tremula s	10	0	0	0
Quercus sp. c	60	90	0	60

Table35. Quadrat data from grass ride between Romer Wood and Greatsea Wood

	Q1	Q2	Q3	Q4	Q5		
Grid reference	SP713 67231 33	SP713 64231 24	SP713 55230 97	SP713 56230 81	SP713 68231 11		
Quadrat size	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m		
Vegetation type	MG6d	MG6d	MG6d	MG6d	MG6d		
Sward height cm	30	20	25	10	15		
Bare ground %	0	2	1	1	1		
Leaf litter %	10	10	20	5	10		
% cover	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	Cover range (Domin)	Constancy
Agrostis stolonifera	25	30	20	20	10	4-6	5
Schedonorus arundinaceus	15	10	10	8	15	4-5	5
Plantago lanceolata	10	5	20	15	15	4-5	5
Potentilla reptans	20	15	10	15	20	4-5	5
Holcus lanatus	5	5	10	5	5	4	5
Cynosurus cristatus	5	5	10	10	10	4	5
Lolium perenne	15	2	5	2	5	2-5	5
Trifolium pratense	10	5	10	10	2	2-4	5
Trifolium repens	2	2	5	10	10	2-4	5
Brachythecium rutabulum	5	5	5	5	2	2-4	5
Carex flacca	1	15	10	20	20	1-5	5
Filipendula ulmaria	8	5	2	5	1	1-4	5
Prunella vulgaris	2	1	5	2	1	1-4	5
Lysimachia nummularia	<1	2	2	1	1	1-2	5
Kindbergia praelonga	2	2	2	1	1	1-2	5
Phleum pratense	10	5	5	0	5	4	4
Anthoxanthum odoratum	0	2	5	5	5	4	4
Ranunculus repens	2	2	1	2	0	1-2	4
Medicago lupulina	2	1	0	<1	1	1-2	4
Lathyrus pratensis	2	0	1	1	2	1-2	4
Deschampsia cespitosa	5	5	0	0	5	4	3
Ranunculus acris	0	2	2	0	2	3	3

	Q1	Q2	Q3	Q4	Q5		
Lotus corniculatus	0	2	0	15	8	3	3
Juncus inflexus	2	10	0	0	1	1-4	3
Plantago major	1	0	0	1	1	1	3
Carex otrubae	5	2	0	0	0	2-4	2
Dactylis glomerata	2	2	0	0	0	2	2
Mentha sp.	0	1	0	0	<1	2	2
Lotus pedunculatus	0	<1	1	0	0	2	2
Cerastium fontanum	0	0	1	0	1	2	2
Carex sylvatica	0	0	0	10	10	2	2
Cirsium seedling	0	0	0	<1	<1	2	2
Taraxacum officinale	1	0	5	0	0	1-4	2
Juncus articulatus	1	0	0	1	0	1	2
Salix sapling	1	0	0	0	1	1	2
Equisetum arvense	<1	0	0	0	0	1	1
Trifolium dubium	1	0	0	0	0	1	1
Centaurium erythraea	0	<1	0	0	0	1	1
Sonchus asper	0	<1	0	0	0	1	1
Vicia tetrasperma	0	1	0	0	0	1	1
Picris echioides	0	1	0	0	0	1	1
Mentha arvensis	0	0	<1	0	0	1	1
Vicia sp.	0	0	1	0	0	1	1
Juncus effusus	0	0	<1	0	0	1	1
Hypericum perforatum	0	0	0	<1	0	1	1
Succisa pratensis	0	0	0	1	0	1	1
Calliergonella cuspidata	0	0	0	5	0	1	1
Hypericum hirsutum	0	0	0	0	<1	1	1
Rubus fruticosus agg.	0	0	0	0	1	1	1

Table 36. Romer, Greatsea and Balmore Woods – combined list of species recorded.

Scientific name	Common name
Acer campestre	Field Maple
Agrostis stolonifera	Creeping Bent
Ajuga reptans	Bugle
Anemone nemorosa	Wood Anemone

Scientific name	Common name
Angelica sylvestris	Wild Angelica
Anthoxanthum odoratum	Sweet Vernal-grass
Arum maculatum	Lords-and-Ladies
Betonica officinalis	Betony
Betula pendula	Silver Birch
Betula spp.	Birch species
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Calamagrostis epigejos	Wood Small-reed
Calliergonella cuspidata	Pointed Spear-moss
Carex flacca	Glaucous Sedge
Carex hirta	Hairy Sedge
Carex otrubae	False Fox-sedge
Carex strigosa	Thin-spiked Wood-sedge
Carex sylvatica	Wood-sedge
Centaurea nigra	Common Knapweed
Centaurium erythraea	Common Centaury
Cerastium fontanum	Common Mouse-ear
Chamaecyparis lawsoniana	Lawson's Cypress
Circaea lutetiana	Enchanter's nightshade
Cirriphyllum piliferum	Hair Pointed Feather-moss
Cirsium arvense	Creeping Thistle
Cirsium palustre	Marsh Thistle
Cirsium seedling	Thistle seedling
Climacium dendroides	Tree-moss
Conocephalum sp.	Liverwort species
Cornus sanguinea	Dogwood
Corylus avellana	Hazel
Crataegus x *media*	Hawthorn hybrid
Crataegus spp.	Hawthorn species
Cynosurus cristatus	Crested Dog's-tail
Dactylis glomerata	Cock's-foot
Deschampsia cespitosa	Tufted Hair-grass
Dryopteris cf. *carthusiana*	Narrow Buckler-fern
Equisetum arvense	Field Horsetail
Eurhynchium striatum	Common Striated Feather-moss
Ficaria verna	Lesser Celandine
Filipendula ulmaria	Meadowsweet
Fissidens taxifolius	Pocket-moss
Fraxinus excelsior	Ash
Galium aparine	Cleavers

Scientific name	Common name
Geranium robertianum	Herb-Robert
Geum urbanum	Wood Avens
Glechoma hederacea	Ground-ivy
Hedera helix	Common Ivy
Holcus lanatus	Yorkshire-fog
Hyacinthoides non-scripta	Bluebell
Hypericum hirsutum	Hairy St John's-wort
Hypericum perforatum	Perforate St John's-wort
Hypnum cupressiforme	Cypress-leaved Plait-moss
Isothecium myosuroides	Mouse-tail Moss
Juncus articulatus	Jointed Rush
Juncus conglomeratus	Compact Rush
Juncus effusus	Soft-rush
Juncus inflexus	Hard Rush
Kindbergia praelonga	Common Feather-moss
Lamiastrum galaeobdolon	Yellow Archangel
Lapsana communis	Nipplewort
Lathyrus pratensis	Meadow Vetchling
Ligustrum vulgare	Wild Privet
Lolium perenne	Perennial Rye-grass
Lonicera periclymenum	Honeysuckle
Lophocolea bidentata	Bifid Crestwort
Lotus corniculatus	Common Bird's-foot-trefoil
Lotus pedunculatus	Greater Bird's-foot-trefoil
Lysimachia nummularia	Creeping-Jenny
Medicago lupulina	Black Medick
Mentha arvensis	Corn Mint
Mentha sp.	Mint species
Mercurialis perennis	Dog's Mercury
Mnium hornum	Swan's-neck Thyme-moss
Nowellia curvifolia	Rustwort
Phleum pratense	Timothy
Picea abies	Norway Spruce
Picris echioides	Bristly Oxtongue
Pinus spp.	Pine species
Plagiochila sp.	Featherwort species
Plagiomnium undulatum	Hart's-tongue Thyme-moss
Plantago lanceolata	Ribwort Plantain
Plantago major	Greater Plantain
Poa trivialis	Rough Meadow-grass
Polytrichum formosum	Bank Haircap

Scientific name	Common name
Populus tremula	Aspen
Potentilla reptans	Creeping Cinquefoil
Potentilla sterilis	Barren Strawberry
Primula vulgaris	Primrose
Prunella vulgaris	Selfheal
Prunus spinosa	Blackthorn
Prunus spp.	Cherry species
Pteridium aquilinum	Bracken
Quercus sp.	Oak species
Ranunculus acris	Meadow Buttercup
Ranunculus flammula	Lesser Spearwort
Ranunculus repens	Creeping Buttercup
Rosa arvensis	Field rose
Rosa sp.	Rose species
Rubus fruticosus agg.	Bramble
Rumex acetosa	Common Sorrel
Rumex sanguineus	Wood Dock
Salix caprea	Goat Willow
Salix sapling	Willow species
Schedonorus arundinaceus	Tall Fescue
Scrophularia sp.	Figwort species
Sonchus asper	Prickly Sow-thistle
Stellaria media	Common Chickweed
Succisa pratensis	Devil's-bit Scabious
Taraxacum officinale agg.	Dandelion
Thamnobryum alopecurum	Fox-tail Feather-moss
Thuidium tamariscinum	Common Tamarisk-moss
Trifolium dubium	Lesser Trefoil
Trifolium pratense	Red Clover
Trifolium repens	White Clover
Ulmus glabra	Wych Elm
Valeriana officinalis	Common Valerian
Veronica chamaedrys	Germander Speedwell
Vicia cracca	Tufted Vetch
Vicia sepium	Bush Vetch
Vicia sp.	Vetch species
Vicia tetrasperma	Smooth Tare
Viola sp.	Violet species undet.

Runt's Wood

Overview

Runt's Wood lies just to the east of the Romer, Greatsea and Balmore group of woodlands and is connected to those by mature hedgerows. It is a relatively large wood (28.5ha), mostly comprised of managed plantation woodland. It is designated as a Local Wildlife Site and is mapped as Ancient Woodland. Most of the canopy is made up by native broadleaved trees with small areas of non-native conifers. Surrounding habitats are hedgerows, semi-improved pasture and arable fields. A bridleway and public footpaths run along the edges of the woodland on three sides. There is a small, unnamed wood with good quality old-growth woodland a short distance to the south west.

The surveys were carried out by Natural England Field Unit and Natural England area team staff on 9th April 2019 and 18th July 2019 following National Vegetation Classification survey guidance (JNCC 2006).

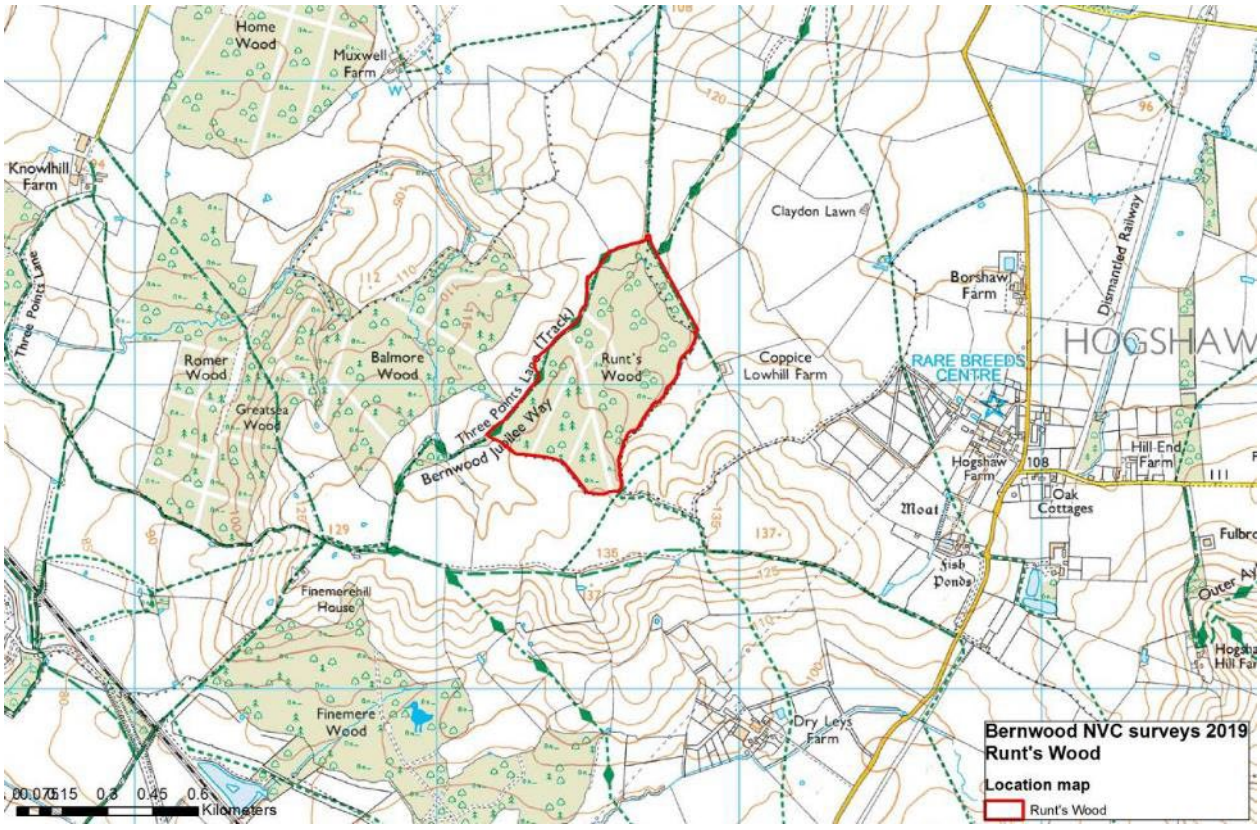


Figure 16. Runt's Wood – Location map (area surveyed outlined in red). Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

A view of woodland in the north eastern section of Runt's Wood which has a W10a type field layer (SP7263623274). Copyright Alison Jukes and Natural England.

Vegetation communities

Descriptions of NVC communities and sub-communities mapped are given below. Where vegetation types are not a good fit to the NVC (because they are transitions, disturbed areas etc.), a general habitat type has been assigned. A map showing the survey area boundaries and vegetation communities is at Figure 15, target notes and quadrat data at tables 38 and 39. A list of all vascular plants and bryophytes recorded during the survey is at table 40.

Runt's Wood - Woodland and scrub

Runt's Wood is a managed plantation woodland with a recent selective fell of young and mature Ash. In general terms the canopy is dominated by Pedunculate Oak *Quercus robur* with some Sessile Oak *Q. petraea*. A scattering of mixed conifers is also present but only under Lawson's Cypress *Chamaecyparis lawsoniana* has this greatly reduced the ground flora. The understorey is generally sparse and only present in certain areas, with Hazel and Hawthorn the most frequent species. Elsewhere it has been cleared and it appears likely that regeneration has been suppressed by deer as browsing was evident throughout, especially on Bramble. A single roe deer was observed.

The main area of plantation has a Pedunculate Oak-dominated canopy with some areas of mixed conifers. The canopy trees are young and even-aged, often planted in lines. The understorey is very sparse with rarely occurring Hawthorn. These more modified areas have a field layer closest to W10d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community with abundant Yorkshire-fog, locally abundant Bracken and frequent Bramble. Occasional species include Tufted Hair-grass, Greater Stitchwort and Cleavers *Galium aparine*.

A view of an area of oak plantation with W10d type field layer in Runt's Wood (SP7259723146). Photo: Alison Jukes.

Some areas of Runt's Wood are more established with mature canopy trees. The north eastern part of the site has abundant mature Oak with Hazel and Hawthorn in the understorey. The field layer has abundant Bramble, locally abundant Bracken and Bluebell with occasional Yellow Archangel, Wood-sorrel *Oxalis acetosella*, Bugle *Ajuga reptans*, Tufted Hair-grass and Cleavers. This is closest in composition to W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community.

Strips on the north eastern and south eastern edges of the woodland are similar with an Ash and Oak canopy, Hawthorn and Hazel understorey and herbs indicative of calcareous soils are present in the field layer. Species present include frequent Dog's Mercury and occasional Bluebell, Primrose, Enchanter's-nightshade, Lords-and-Ladies, False Brome, Lesser Celandine, Wood Anemone and Tufted Hair-grass. These areas are closest to W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community.

The obscure transition zone between W10 and W8 and preferential management for Oak mean that the edges of the communities are often difficult to distinguish and there is overlap between the two types.

A view of an area with W8a type composition in Runt's Wood (SP7264022880). Copyright Alison Jukes and Natural England.

Runt's Wood – Grass rides

Rides are present throughout the managed planation areas. Most are narrow and heavily-shaded with a field layer closest in composition to W10d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community rather than a grassland community, although Yorkshire-fog is abundant along with frequent Bracken and Bramble.

Wider, less-shaded, grass-dominated rides are also present and these had a tall sward at the time of the survey. These areas have similarities to MG9 *Holcus lanatus-Deschampsia cespitosa* grassland with abundant Yorkshire-fog, Tufted Hair-grass and Creeping Bent. Occasional species include Soft-rush, Marsh Thistle, Meadowsweet, Cock's-foot and Broad-leaved Dock *Rumex obtusifolius*. Ride edges have occasional patches of Wood Small-reed and Reed Canary-grass *Phalaris arundinacea*.

A view of a relatively species-poor ride in Runt's Wood with just occasional forbs such as marsh thistle and meadowsweet (SP7263922913). Copyright Alison Jukes and Natural England.

In addition to the grassy rides there is an open area of grassland at the northern edge of Runt's Wood, mostly dominated by coarse grasses with frequent ruderal species. False Oat-grass, Yorkshire-fog, Common Couch *Elytrigia repens*, Creeping Bent and Timothy are abundant. Ruderal species present include Creeping Thistle, Common Nettle and Hogweed *Heracleum sphondylium* with occasional Teasel *Dipsacus fullonum* and Great Willowherb *Epilobium hirsutum*. This area has been mapped as MG1/OV25 *Arrhenatherum elatius* grassland/*Urtica dioica-Cirsium arvense* community.

A view of the open, grassy area at the north end of Runt's Wood. It is not particularly species-rich but provides habitat diversity and nectar sources for invertebrates (SP7267223457). Copyright Graham Steven and Natural England.

Runt's Wood - Other features

A small, shaded pond is present with Marsh-bedstraw *Galium palustre* on the margins and Sweet-grass *Glyceria* sp. (possibly *Glyceria fluitans*). There are several large, near-veteran trees around the edges of the wood and in adjoining hedgerows. Standing deadwood is generally rare, but fallen deadwood is present in the W10a and W8a woodland areas. Several log piles were noted.

Summary

Runt's Wood has 24.8ha of woodland, with 14.8ha of this Oak-dominated plantation with a sparse understorey and a W10d type field layer. The remaining 10ha is less-modified woodland with mature canopy trees, a well-developed understorey and more species-rich field layer. 7.2ha of this is closest in composition to W10a with Oak, Hazel and Hawthorn, with Bramble, Bracken and Bluebell in the field layer. 2.8ha is closest to W8a with more Ash in the canopy and herbs indicative of calcareous soils in the field layer. Tree saplings and seedlings are rare throughout, possibly due to deer impact and there is clear evidence of browsing. Grass-dominated areas are present in an open area on the edge of the wood (0.5ha of MG1/OV25) and in wide rides (1.1ha closest to MG9). 0.9ha of narrow, shaded rides essentially have a W10d field layer rather than a grassland community. A small, shaded pond is present.

Table 37. Runt's Wood - Area of NVC communities/habitat types mapped

NVC (sub)-community / habitat type	Area (ha)
W10d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community	14.8
W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community	7.2
W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community	2.8
Other (track)	1.2
MG9 *Holcus lanatus-Deschampsia cespitosa* grassland	1.1
W10d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community field layer (on shaded rides)	0.9
MG1/OV25 *Arrhenatherum elatius* grassland/*Urtica dioica-Cirsium arvense* community	0.5
Total area	28.5

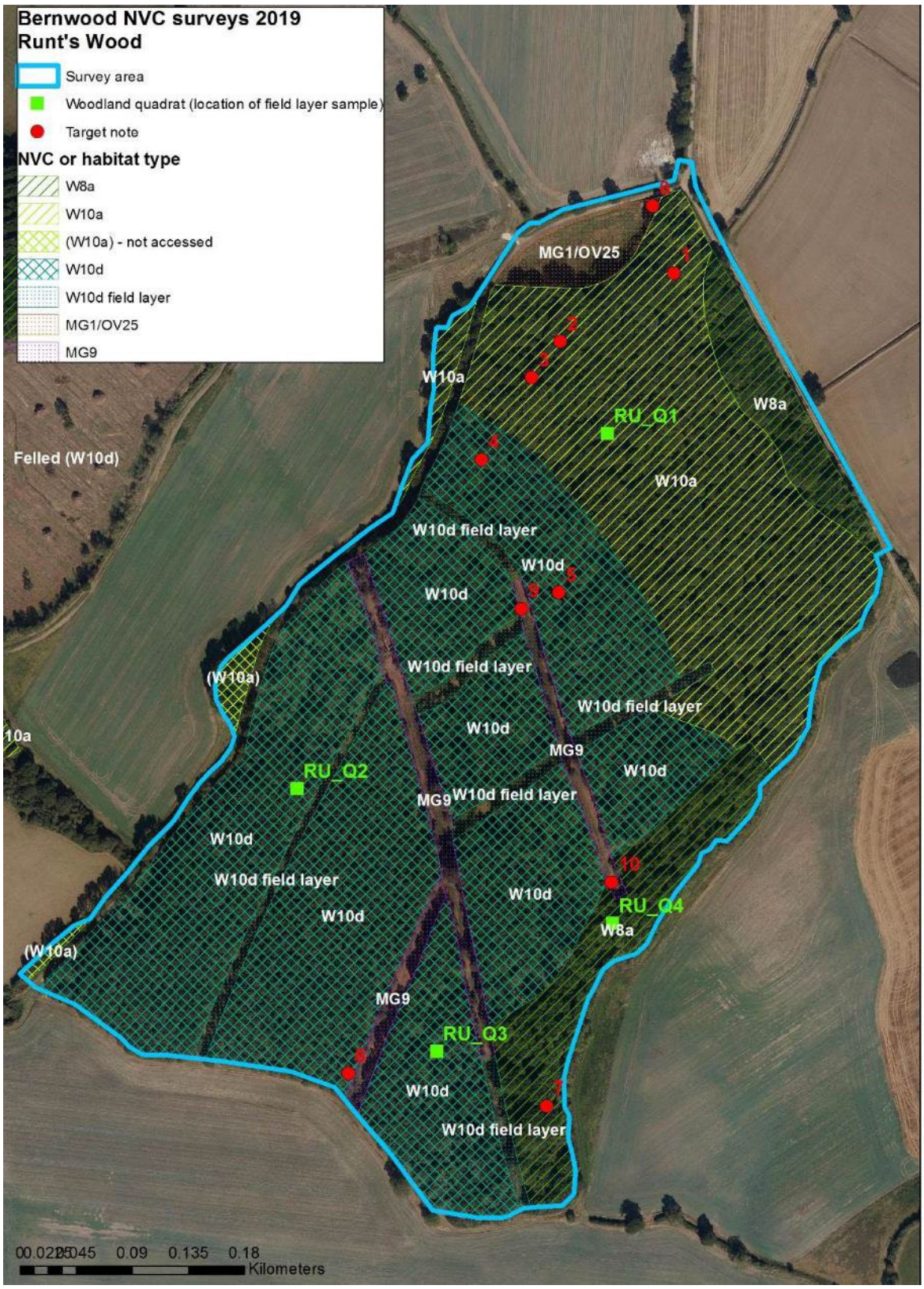


Figure 17. Runt's Wood - National Vegetation Classification map with quadrat and target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Table 38. Runt's Wood - Target notes

Target note	Grid reference	Feature	Description
1	SP7268923403	Small pond	Overshaded but has small amount of marsh bedstraw on margins and *Glyceria* cf. *fluitans*
2	SP7259823348	Richer field and shrub layer	Woodland with affinities with W8.
3	SP7257523319	Hybrid Poplar stand	Tall trees, sparse herb layer
4	SP7253523253	Recent management	Closer affinity to W10, oak over bracken, bramble, cleavers, Yorkshire-fog, most ash felled
5	SP7259723146	Mixed conifers	Lawson's cypress, Western hemlock
6	SP7242822759	Beehives	Row of about 10, not all active
7	SP7258722733	Sycamore abundant	The only part where sycamore was found and here it is frequent to abundant with seedlings, saplings and young mature. Ash and oak present
8	SP7267223457	Clearing with MG1 grassland & ruderal	A tall sward with abundant false oat, Yorkshire fog, couch grass, creeping bent, Timothy. Patches of greater willowherb, hogweed, nettle, thistle, false fox-sedge.
9	SP7256723133	Wider part of ride	Closest to MG9 grassland with similarities to woodland ground flora (W10d). Ruderal species also present.
10	SP7263922913	Wider part of ride	Grassy and closest to MG9 in composition, rather species-poor with just occasional forbs such as marsh thistle.
11	Whole wood	General description of rides	Mainly tall sward with woodland ground flora (W10d) on narrow heavily-shaded rides. Wider areas mainly similar to MG9. Some small open areas on edge of wood or wider parts of rides have MG1 type grassland and ruderal species.

Table 39. Quadrat data from Runt's Wood

Quadrat number	Q1	Q2	Q3	Q4
Grid reference (field layer quadrat grid ref)	SP7263623 274	SP7238722 988	SP7249922 777	SP7264022 880
NVC sub-community	W10a	W10d	W10d	W8a
Deer impact (none, low, med, high)	Medium	Medium	Low	Medium
Field layer				
Quadrat size (4x4m or 10x10m?)	10x10	4x4	4x4	4x4
Field layer height (cm)	12	12	15	8
Bare ground (%)	2	0	0	3
Litter (%)	50	30	45	45
Species: % cover, g = ground layer/seedling				
Anemone nemorosa	0	0	0	1
Arum maculatum	0	0	0	2
Brachypodium sylvaticum	0	0	0	1
Brachythecium rutabulum	1	0	0	4
Carex sylvatica	0	0	0	<1
Crataegus spp. g	1	1	0	1
Deschampsia cespitosa	0	15	0	3
Fraxinus excelsior g	<1	0	0	0
Galium aparine	1	1	1	1
Holcus lanatus	0	30	55	0
Hyacinthoides non-scripta	7	20	30	15
Kindbergia praelonga	3	0	1	2
Lamiastrum galeobdolon	1	0	0	4
Lonicera periclymenum	1	5	0	0
Mercurialis perennis	0	0	0	10
Moehringia trinervia	<1	0	0	0
Oxalis acetosella	1	0	0	0
Plagiomnium undulatum	0	0	0	1
Poa trivialis	0	0	0	4
Polytrichum formosum	1	0	0	0
Polytrichum sp.	0	0	0	2
Pteridium aquilinum	0	0	40	0
Ranunculus ficaria	0	0	0	1
Rubus fruticosus agg. g	70	20	15	0
Stellaria holostea	0	2	0	0
Vicia hirsuta	1	0	0	0

Quadrat number	Q1	Q2	Q3	Q4
Canopy & understorey				
Quadrat size (50x50m or other?)	50 x 50	50 x 50	50 x 50	50 x 50
Canopy height (estimate in m)	18	22	25	25
Canopy cover (%)	75	80	75	60
Understorey height (estimate in m)	4	N/A	5	5
Understorey cover (%)	70	N/A	1	55
Standing deadwood (DAFOR)	R	None	R	R
Age classes: estimate % cover or DAFOR (all species together)				
Veteran	None	None	0	0
Mature	A (young mature)	None	0	0
Young trees	R (coppice)	D	75	60
Saplings	R	None	0	0
Seedlings	O	None	0	0
Coppice	A	None	0	0
Species: % cover, c = canopy; s = shrub/understorey				
Acer campestre s	1	0	0	0
Chamaecyparis lawsoniana	0	2	0	0
Corylus avellana s	45	0	0	5
Crataegus spp. s	32	0	0	47
Fagus sylvatica	0	0	2	0
Fraxinus excelsior c	2	0	1	50
Fraxinus excelsior s	0	0	0	2
Ilex aquifolium s	3	0	0	0
Pinus sylvestris c	0	0	2	0
Populus sp. c	1	0	0	0
Quercus petraea c	10	0	0	0
Quercus robur c	75	80	72	10
Tsuga heterophylla c/s	0	1	0	0

Table 40. Runt's Wood - Amalgamated list of species recorded.

Scientific name	Common name
Acer campestre	Field Maple
Acer pseudoplatanus	Sycamore
Agrostis stolonifera	Creeping Bent
Ajuga reptans	Bugle
Anemone nemorosa	Wood Anemone
Angelica sylvestris	Wild Angelica
Anthoxanthum odoratum	Sweet Vernal-grass
Anthriscus sylvestris	Cow Parsley
Arrhenatherum elatius	False Oat-grass
Arum maculatum	Lords-and-Ladies
Betula sp.	Birch
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Bromus hordeaceus	Soft-brome
Calamagrostis epigejos	Wood Small-reed
Carex otrubae	False Fox-sedge
Carex pendula	Pendulous Sedge
Carex sylvatica	Wood-sedge
Chamaecyparis lawsoniana	Lawson's Cypress
Circaea lutetiana	Enchanter's-nightshade
Cirsum arvense	Creeping Thistle
Cirsum palustre	Marsh Thistle
Conopodium majus	Pignut
Corylus avellana	Hazel
Crataegus spp.	Hawthorn species
Deschampsia cespitosa	Tufted Hair-grass
Dipsacus fullonum	Wild Teasel
Dryopteris filix-mas	Male-fern
Elytrigia repens	Common Couch
Epilobium hirsutum	Great Willowherb
Fagus sylvatica	Beech
Filipendula ulmaria	Meadowsweet
Fraxinus excelsior	Ash
Galium aparine	Cleavers
Galium palustre	Marsh-bedstraw
Geranium robertianum	Herb-Robert
Geum urbanum	Wood Avens
Glechoma hederacea	Ground-ivy
Glyceria sp.	Sweet-grass species
Hedera helix	Common Ivy

Scientific name	Common name
Heracleum sphondylium	Hogweed
Holcus lanatus	Yorkshire-fog
Holcus mollis	Creeping Soft-grass
Hyacinthoides non-scripta	Bluebell
Ilex aquifolium	Holly
Juncus effusus	Soft-rush
Kindbergia praelonga	Common Feather-moss
Lamiastrum galeobdolon	Yellow Archangel
Lapsana communis	Nipplewort
Larix sp.	Larch
Lathyrus pratensis	Meadow Vetchling
Lonicera periclymenum	Honeysuckle
Lotus pedunculatus	Greater Bird's-foot-trefoil
Mercurialis perennis	Dog's Mercury
Milium effusum	Wood Millet
Moehringia trinervia	Three-nerved Sandwort
Myosotis sylvatica	Wood Forget-me-not
Oxalis acetosella	Wood-sorrel
Phalaris arundinacea	Reed Canary-grass
Phleum pratense	Timothy
Picea abies	Norway Spruce
Pinus sylvestris	Scots Pine
Plagiomnium undulatum	Hart's-tongue Thyme-moss
Poa trivialis	Rough Meadow-grass
Polytrichum formosum	Bank Haircap
Polytrichum sp.	Haircap moss species
Populus sp.	Poplar species
Potentilla erecta	Tormentil
Potentilla sterilis	Barren Strawberry
Primula vulgaris	Primrose
Prunella vulgaris	Selfheal
Prunus sp.	Cherry species
Prunus spinosa	Blackthorn
Pseudotsuga menziesii	Douglas Fir
Pteridium aquilinum	Bracken
Quercus cf. *rubra*	Red Oak
Quercus petraea	Sessile Oak
Quercus robur	Pedunculate Oak
Ranunculus ficaria	Lesser Celandine
Ranunculus repens	Creeping Buttercup
Rosa arvensis	Field rose

Scientific name	Common name
Rubus agg.	Bramble
Rumex obtusifolius	Broad-leaved Dock
Rumex sanguineus	Wood Dock
Rumex sp.	Dock species
Sambucus nigra	Elder
Scrophularia sp.	Figwort species
Stellaria holostea	Greater Stitchwort
Stellaria media	Common Chickweed
Tsuga heterophylla	Western Hemlock-spruce
Urtica dioica	Common Nettle
Valeriana officinalis	Common Valerian
Veronica chamaedrys	Germander Speedwell
Veronica montana	Wood Speedwell
Vicia hirsuta	Hairy Tare
Vicia sepium	Bush Vetch
Vicia tetrasperma	Smooth Tare
Viola sp.	Violet species undet.

Home Wood

Overview

Home Wood lies at the northern end of the Bernwood complex of woodlands. It is 42.7 hectares in extent and consists of semi-natural and plantation woodland on Ancient Woodland. It is designated as a Local Wildlife Site. Surrounding habitats include hedgerows, improved grassland and arable fields. A public footpath runs through fields on the eastern edge of the wood. Romer, Greatsea and Balmore Woods lie 120 metres to the south and Sheephouse Wood SSSI is 470 metres to the south west. The wider landscape is made up by an open landscape of pastures, small woods and hedgerows, as well as parkland with veteran trees in the vicinity of Claydon House.

The surveys were carried out by Natural England Field Unit and Natural England area team staff on 9th-10th April 2019 and 16th July 2019 following National Vegetation Classification survey guidance (JNCC 2006).

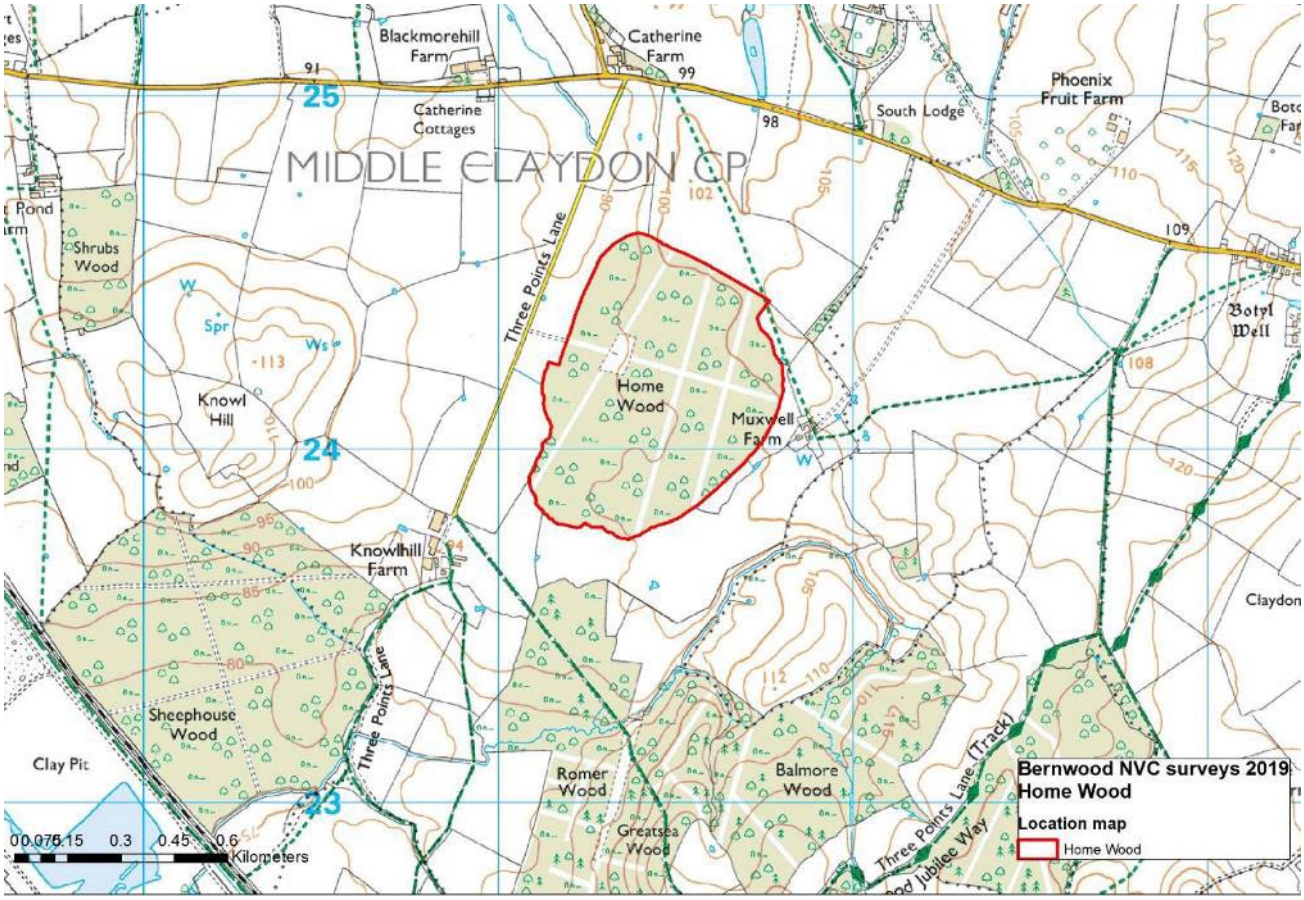


Figure 18. Home Wood – Location map (area surveyed outlined in red). Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

A view of old-growth woodland in Home Wood on the eastern side of the block which has W8c type composition (SP7166124087). Copyright Alison Jukes and Natural England.

Vegetation communities

Descriptions of NVC communities and sub-communities mapped are given below. Where vegetation types are not a good fit to the NVC (transitions, disturbed areas etc.), a general habitat type has been assigned. A map showing the survey area boundaries and vegetation communities is provided at Figure 17, target notes and quadrat data at tables 42, 43 and 44. A list of vascular plants and bryophytes recorded during the survey is given at table 45.

Home Wood - woodland and scrub

The eastern part of Home Wood has old-growth woodland with remnant coppice-and-standards structure. Other areas have had standards harvested and the understorey thinned out or removed, with some areas recently felled and replanted. Ancient Woodland indicator plants are present throughout the woodland but are concentrated in the eastern, least modified areas.

The majority of the woodland is closest in composition to W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community. In old-growth stands with mature canopy trees (quadrats 8 and 9), the canopy is dominated by Oak *Quercus* spp. with frequent Ash and a coppiced Hazel and Field Maple understorey. The field layer has frequent Tufted Hair-grass and locally frequent Bluebell, with

occasional species including False Brome, Remote Sedge, Enchanter's-nightshade, Wood Avens, Wood Millet, Rough Meadow-grass, Lesser Celandine and Bramble.

Other areas with a W8c field layer have either had most of the old, mature canopy standards removed, the understory thinned or have been felled and replanted. Younger Oak trees are mostly dominant in the canopy with Hazel and Hawthorn the most frequent understorey species where the understorey is still present. Tufted hair-grass is abundant or dominant in the field layer and Bluebell is locally frequent. Occasional species include Wood Small-reed, Wood-sedge, Dog's Mercury, Wood Millet, Lesser Celandine and Bramble.

One section on the north eastern side has areas of W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community in a mosaic with patches of W8c field layer. This area has mature Oak standards with old coppice and occasional Field Maple and Hawthorn in the understorey. The field layer has frequent Dog's Mercury and Lesser Celandine with locally frequent Bluebell. Occasional species include Tufted Hair-grass, Wood Avens, Wood Millet and, notably, Goldilocks Buttercup.

A view of one of the oak plantation areas in Home Wood with W8c type field layer (SP7126024300). Copyright Alison Jukes and Natural England.

Transitions from W8 towards W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland are frequent though this community is not fully expressed, with no Bracken *Pteridium aquilinum* present. Two small areas are closest to W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community, with Oak dominant in the canopy and understorey species include Hazel, Holly and Hawthorn. The

field layer has locally abundant Bramble and Bluebell, with occasional Wood Anemone, Honeysuckle and Greater Stitchwort *Stellaria holostea*.

A view of one of the areas with remnant coppice-with-standards structure and W8a type field layer (SP7174924298). Copyright Alison Jukes and Natural England.

Some areas have many of the features of W10 type woodland, particularly an increase in the prominence of bramble. Note the presence of a well-developed shrub layer in the background (SP7126024384). Copyright Alison Jukes and Natural England.

The block mapped as W10 + *Calamagrostis* is a mixed-species plantation with trees planted in rows. Oak and Silver Birch *Betula pendula* are frequent to abundant. The field layer has abundant Velvet Bent *Agrostis canina*, frequent Wood Small-reed and some more typical W10 species such as Bramble and Honeysuckle. The area mapped as W8 + *Calamagrostis* has been clear-felled and replanted, with Oak as the dominant species. Wood Small-reed is dominant in the field layer, with occasional and rarely occurring species typical of W8c present. These include Tufted Hair-grass, Lesser Celandine, Bluebell, Meadowsweet, Common Feather-moss *Kindbergia praelonga* and Barren Strawberry *Potentilla sterilis*. A small area mapped as conifer plantation is also present, with mixed conifers and a sparse field layer.

Wide, grass rides are present, mostly with narrow strips of scrub at the edges. The majority of the rides are relatively species-rich with the constant grass species Red Fescue *Festuca rubra,* Creeping Bent *Agrostis stolonifera,* Yorkshire-fog *Holcus lanatus* and Sweet Vernal-grass *Anthoxanthum odoratum* and the constant forbs Meadowsweet *Filipendula ulmaria,* Meadow Vetchling *Lathyrus pratensis,* Common Sorrel *Rumex acetosa* and Common Mouse-ear *Cerastium fontanum*. Frequent species include Meadow Fescue *Festuca pratensis*, False Oat-grass *Arrhenatherum elatius*, Common Bent *Agrostis capillaris*, Meadow Foxtail *Alopecurus pratensis*, Smooth Tare *Vicia tetrasperma*, Creeping-Jenny *Lysimachia nummularia* and Lesser Stitchwort *Stellaria graminea*. Crested Dog's-tail *Cynosurus cristatus* and Perennial Rye-grass *Lolium perenne* are present but infrequent. This grassland is considered to be most similar to MG6d *Lolium perenne-*

Cynosurus cristatus grassland, *Filipendula ulmaria* sub-community. There is also a small clearing adjacent to a ride with a similar species composition and patches of Wood Small-reed, mapped as MG6d + *Calamagrostis*. One ride is grass-dominated and less species-rich, mapped as MG6 *Lolium perenne-Cynosurus cristatus* grassland.

A view of one of the main rides in Home Wood. Copyright Alison Jukes and Natural England.

Parts of the ride system in Home Wood have high plant diversity and high forb cover, with composition closest to NVC type MG6d. Copyright Alison Jukes and Natural England.

Home Wood - other features

A small stream is present in an old-growth W8c area (Target note 3), with some bryophyte species present which are uncommon in the rest of the wood. Ditches with Greater Pond-sedge *Carex riparia* are present along some of the ride edges. Deer pressure appears to be low at present. A possible Wild Boar latrine was noted. Pheasant rearing takes place in the wood but does not appear to be detrimental at present. Veteran trees and standing dead trees are occasional in the older-growth woodland stands but are rare in the rest of the wood.

A view of the small stream in Home Wood which provides valuable habitat diversity (SP7164824039). Copyright Alison Jukes and Natural England.

Summary

Most of Home Wood is closest in composition to NVC type W8c, with a mixture of old-growth areas and more modified areas which have been selectively thinned. Some areas with a W8c field layer have been recently felled and replanted (1.2ha). Small areas of W8a/W8c mosaic (2.5ha) and woodland closest to W10a (2.3ha) are also present. Areas which do not fit well with the NVC have been mapped as W10 + *Calamagrostis* (2ha), W8 + *Calamagrostis* (1.7ha) and Conifer plantation (0.2ha). Most of the broad, grassy rides are relatively species-rich, closest to MG6d (2.9ha). One ride (0.5) is more grass-dominated and has been mapped as MG6. Other features include a stream and ditches. There are veteran trees and standing dead trees though both are localised.

Table 41. Home Wood - Area of NVC communities/habitat types mapped

NVC (sub)-community / habitat type	Area (ha)
W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community	29.4
MG6d *Lolium perenne–Cynosurus cristatus* grassland, *Filipendula ulmaria* sub-community (includes area mapped as MG6d + *Calamagrostis*)	2.9
W8a/W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community/*Deschampsia cespitosa* sub-community	2.5
W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community	2.3
W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland + *Calamagrostis epigejos*	2.0
W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland + *Calamagrostis epigejos*	1.7
Broadleaved plantation (W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community field layer)	1.2
MG6 *Lolium perenne–Cynosurus cristatus* grassland	0.5
Conifer plantation	0.2
Total area	42.7

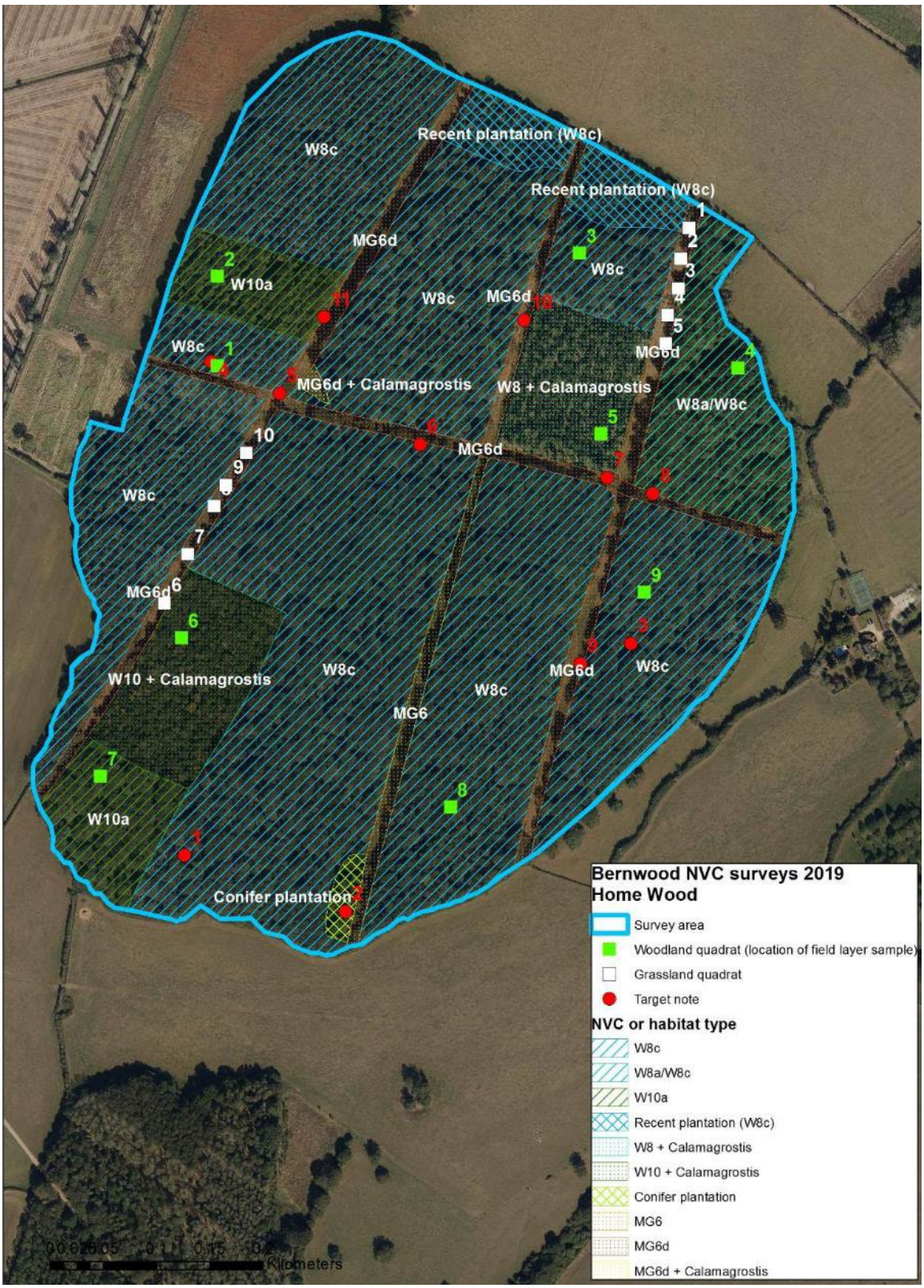


Figure 19. Home Wood - National Vegetation Classification map with quadrat and target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Table 42. Home Wood - Target notes

Target note	Grid reference	Feature	Description
1	SP7122923840	Understorey removed	Understorey removed to facilitate felling of mature Oak. Some coppice stools damaged, some destroyed, but most intact.
2	SP7138023787	Conifer plantation and latrine	Conifer plantation four trees wide with *Picea abies, Picea* cf. *pungens* and *Cupressus leylandii* (dominant). Ground flora depauperate W8. Large latrines on ride next to plantation. Boar?
3	SP7164824039	Small natural stream	Half metre wide and sinuous through W8c habitat. Old-growth woodland. Old coppiced Ash and Field Maple. Notably rich in bryophytes including scarce species (*Isothecium myosuroides, Neckera crispa, Anomodon viticulosus, Climacium dendroides)*
4	SP7125424304	Grass ride	Part shaded with ryegrass, creeping bent and meadow foxtail abundant and crested dogstail and rough meadow-grass occasional. Few forbs.
5	SP7131824274	Open area	Patches of wood small-reed. Occasional tufted vetch, meadowsweet and agrimony. Remainder of grassland as target note 4. However, meadow barley locally frequent, which is notable as appears generally absent/scarce in Bernwood rides.
6	SP7145024226	Grass ride	Frequent/abundant species include Timothy, ryegrass and creeping bent, with occasional crested dogstail, rough meadow grass and hairy sedge. Abundant butterflies.
7	SP7162624195	Ride with mixed vegetation	Patchy, with silverweed, creeping bent, false fox sedge and hairy sedge in wet ruts, drier areas with crested dogstail, white clover. Patches of *Carex riparia* in ditches
8	SP7166924180	Grass ride	Shaded, with abundant Timothy, creeping bent, Yorkshire fog and meadow foxtail.
9	SP7160124020	Species-rich ride	Small patches in centre more species rich (as quadrats). Occasional sedges include glaucous sedge, pale sedge (possibly) and oval sedge. Edges tall with locally abundant wood small-reed, greater pond-sedge. Scattered betony and tormentil.
10	SP7154824343	Ride with mixed vegetation	Narrow strip 2 - 3m wide in centre of ride species-rich, similar to quadrats. Edges with abundant false oat and wood small-reed, occasional meadowsweet.

Target note	Grid reference	Feature	Description
11	SP713602434 6	Grass ride	Broad range of grasses present including sweet vernal grass, red fescue and crested dogstail. Meadowsweet locally frequent.

Table 43. Home Wood - Quadrat data from woodland

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Grid reference (field layer quadrat grid ref)	SP7126024300	SP7126024384	SP7160024406	SP7174924298	SP7162024236	SP7122624044	SP7115023914	SP7147923885	SP7166124087
NVC sub-community	W8c	W10a	W8c	W8a	W8 + *Calamagrostis*	W10 + *Calamagrostis*	W10a	W8c	W8c
Deer impact (none, low, med, high)	Medium	Low	Low	Low	Medium	Low	Low	Low	Low
Field layer									
Quadrat size (4x4m or 10x10m?)	4x4	4x4	4x4	4x4	4x4	4x4	4x4	4x4	4x4
Field layer height (cm)	12	15	5	10	14	15	15	10	10
Bare ground (%)	1	0	4	2	0	0	0	2	10
Litter (%)	30	90	80	80	20	80	70	80	50
Species: % cover, g = ground layer/seedling									
Acer campestre g	0	0	0	<1	0	1	0	1	1
Agrostis canina	2	0	0	0	0	80	0	0	0
Anemone nemorosa	0	0	10	0	1	0	2	1	0
Arum maculatum	0	0	0	0	0	0	1	0	0
Brachypodium sylvaticum	1	0	0	0	0	0	0	2	1
Brachythecium rutabulum	0	0	5	2	0	0	0	1	1
Calamagrostis epigejos	10	0	0	0	95	25	0	0	0
Campylopus sp.	0	0	0	0	0	1	0	0	0
Carex flacca	0	0	0	0	<1	0	0	0	0
Carex remota	0	0	0	0	0	0	0	2	1
Carex sylvatica	1	0	1	0	0	0	0	0	0

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Circaea lutetiana	0	0	0	0	0	0	1	1	1
Crataegus spp. g	<1	5	3	2	0	0	0	1	1
Dactylis glomerata	3	1	0	0	1	0	0	0	0
Deschampsia cespitosa	80	5	50	10	5	0	1	20	25
Filipendula ulmaria	0	0	0	1	1	0	0	0	0
Fissidens taxifolius	0	0	1	1	0	0	0	0	1
Fraxinus excelsior g	0	0	1	1	0	0	0	1	1
Galium aparine	0	10	0	<1	2	1	0	0	1
Geum urbanum	0	0	0	1	0	0	0	2	1
Holcus lanatus	1	0	0	0	1	0	0	0	0
Hyacinthoides non-scripta	0	1	40	0	1	0	80	15	2
Hypnum cupressiforme	0	0	0	0	0	0	0	0	3
Ilex aquifolium g	0	1	<1	0	0	0	0	0	0
Juncus effusus	0	0	0	0	0	1	0	0	0
Kindbergia praelonga	10	1	3	2	10	2	0	1	2
Lonicera periclymenum	5	10	1	0	0	10	1	1	0
Lophocolea heterophylla	<1	0	<1	0	0	0	0	0	0
Mercurialis perennis	0	0	<1	40	0	0	0	0	0
Milium effusum	0	1	<1	2	0	0	1	1	1
Mnium hornum	0	0	1	0	0	0	0	0	0
Mycelis muralis	0	0	0	0	0	0	1	0	0
Poa trivialis	0	0	0	1	0	2	0	1	1
Potentilla sterilis	1	0	0	0	1	0	0	2	1
Prunus spp. g	1	0	<1	3	0	0	0	1	1
Ranunculus auricomus	0	0	0	1	0	0	0	0	0
Ranunculus ficaria	0	1	5	40	20	0	0	2	10

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Rosa sp. g	1	0	<1	0	0	0	0	0	0
Rubus fruticosus agg. g	5	80	5	1	1	20	5	5	5
Rumex acetosa	0	0	0	0	<1	0	0	0	0
Stellaria holostea	0	1	0	10	1	5	0	0	50
Stellaria media	0	1	0	0	0	0	0	0	0
Thuidium tamariscinum	0	0	1	0	0	0	0	0	0
Urtica dioica	0	0	0	2	1	0	0	0	0
Vicia sepium	1	0	0	1	1	0	0	0	0
Canopy & understorey									
Quadrat size (50x50m or other?)	50x50	50x50	50x50	50x50	50x50	50x50	50x50	50x50	50x50
Canopy height (estimate in m)	20m	20m	20m	18	10	10	30	20	25
Canopy cover (%)	85	90	90	90	5	10 larger trees, smaller trees underneath, total is 90%	90	90	70
Understorey height (estimate in m)	5m	10	6m	6	5	6	7	10	10
Understorey cover (%)	15	25	50	50	40	80	60	70	60
Standing deadwood (DAFOR)	None	None	None	None	None	None	O	O	O
Age classes: estimate % cover for each (all species together)									
Veteran	None	None	None	0	0	0	10	0	5
Mature	None	None	5	2	0	1	70	80	70
Young trees	100	100	10	80	100	97	10	10	10
Saplings	1 (deer browsed)	1	5	2	2	2	1	30	5

Quadrat number	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Seedlings	None	None	None	1	0	0	1	1	2
Coppice	None	None	80	30	0	0	55	25	15
Species: % cover, c = canopy, s = shrub/understorey									
Acer campestre s	0	0	1	5	1	0	0	0	16
Betula pendula c	0	0	0	0	0	1	0	0	0
Betula pendula s	0	0	0	0	1	20	0	0	0
Carpinus betulus s	<1	0	0	0	4	2	0	0	0
Corylus avellana s	0	0	0	0	0	0	55	0	25
Crataegus hybrid c	0	1	0	0	0	0	0	0	0
Crataegus hybrid s	0	0	5	5	1	0	2	3	0
Crataegus laevigata c	0	1	0	0	0	0	0	0	0
Crataegus laevigata s	1	10	0	0	1	0	0	0	0
Fraxinus excelsior c	1	1	0	0	0	0	0	10	10
Fraxinus excelsior s	0	2	2	1	2	0	0	20	5
Ilex aquifolium s	1	1	1	0	0	0	1	0	0
Populus sp. c	0	0	0	0	2	0	0	0	0
Prunus avium c	0	0	0	0	0	0	0	1	0
Prunus spinosa s	0	1	0	<1	10	0	0	0	0
Prunus avium s	0	0	1	5	0	0	0	0	0
Quercus sp. c	90	90	85	80	0	2	90	90	70
Quercus sp. s	0	0	0	0	15	80	0	5	5
Rosa sp. s	0	0	0	0	1	0	0	0	0
Salix cinerea s	0	0	0	0	1	0	0	0	0
Sambucus nigra s	0	0	0	0	0	0	1	1	0
Tilia platyphyllos c	0	0	0	0	0	0	0	1	0
Tsuga heterophylla c/s	0	0	0	0	0	0	0	2	0

Table 44. Quadrat data from Home Wood grass rides

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
Grid reference	SP71703 24430	SP7169 524401	SP716 93243 73	SP716 83243 48	SP716 81243 21	SP712 10240 77	SP712 32241 23	SP712 57241 68	SP712 68241 88	SP712 87242 18		
Quadrat size	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m		
Vegetation type	MG6d	MG6d	MG6d	MG6d	MG6d	MG6d	MG6d	MG6d	MG6d	MG6d		
Sward height cm	30	25	30	40	20	30	40	50	30	40		
Bare ground %	<1	1	<1	0	1	0	0	0	0	0		
Leaf litter %	40 tree leaves+ grass	20 tree leaves 10%	30	20	10	10	30	40	30	30		
Scientific name % cover (g = ground layer/seedling)	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	Cover range (Domin)	Constancy
Festuca rubra	30	50	50	20	30	20	10	5	40	5	4-7	5
Agrostis stolonifera	15	10	15	10	5	10	20	5	10	30	4-6	5
Holcus lanatus	30	5	5	10	10	5	10	15	5	10	4-6	5
Brachythecium rutabulum	30	10	10	2	10	5	5	5	5	5	2-6	5
Filipendula ulmaria	5	5	2	5	5	0	10	20	15	5	1-5	5
Lathyrus pratensis	<1	20	5	10	10	20	5	15	10	10	1-5	5
Trifolium repens	0	1	2	0	0	1	2	2	2	5	1-4	4

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
Anthoxanthum odoratum	10	5	2	5	2	5	1	0	0	5	1-4	4
Rumex acetosa	2	2	1	1	1	2	1	2	0	0	1-2	4
Cerastium fontanum	<1	<1	1	0	1	1	0	1	2	1	1-2	4
Festuca pratensis	5	2	0	0	10	30	2	0	0	5	2-6	3
Arrhenatherum elatius	2	0	0	15	0	5	20	0	5	0	2-5	3
Agrostis capillaris	10	5	15	15	5	2	0	0	0	0	2-5	3
Alopecurus pratensis	0	15	2	2	5	10	0	0	2	0	2-5	3
Vicia tetrasperma	0	0	5	0	20	5	1	20	5	0	1-5	3
Lysimachia nummularia	2	0	1	0	0	0	0	5	1	5	1-4	3
Stellaria graminea	<1	5	1	2	1	0	0	0	0	0	1-4	3
Phleum pratense	0	0	0	2	2	0	15	0	0	15	2-5	2
Potentilla reptans	0	0	0	0	0	0	2	5	15	15	2-5	2
Calamagrostis epijegos	0	0	5	2	0	0	0	0	15	0	2-5	2
Dactylis glomerata	0	0	0	0	0	0	0	2	15	2	2-5	2
Vicia hirsuta	0	0	2	10	10	0	2	0	0	0	2-4	2
Bromus racemosus	0	0	0	0	0	1	2	0	5	0	1-4	2
Cynosurus cristatus	0	0	0	0	0	1	2	0	5	10	1-4	2
Vicia cracca	10	0	1	10	0	0	2	0	0	0	1-4	2
Lotus pedunculatus	0	1	0	0	10	0	0	10	5	0	1-4	2
Vicia sepium	0	0	0	1	0	2	1	0	0	0	1-2	2
Trifolium pratense	0	0	0	0	0	2	0	1	0	1	1-2	2
Rubus fruticosus agg. (g)	0	1	0	0	0	0	1	1	0	0	1	2
Ranunculus repens	0	0	1	0	0	1	0	0	0	1	1	2
Festuca arundinacea	0	0	0	0	0	0	0	40	10	0	4-7	1
Carex hirta	0	0	0	0	0	0	0	20	0	10	4-5	1

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
Hordeum secalinum	0	0	0	0	0	0	10	0	0	0	4	1
Deschampsia cespitosa	0	0	0	0	0	0	0	5	0	5	4	1
Veronica chamaedrys	0	0	0	0	0	5	2	0	0	0	2-4	1
Prunus spinosa (g)	0	0	0	0	0	0	2	0	0	0	2	1
Calliergonella cuspidata	0	0	0	0	0	0	0	0	2	0	2	1
Lolium perenne	0	0	0	0	0	0	1	0	0	5	1-4	1
Conopodium majus	1	2	0	0	0	0	0	0	0	0	1-2	1
Prunella vulgaris	0	0	0	0	0	0	0	0	1	2	1-2	1
Heracleum sphondylium	0	0	0	0	0	0	1	0	0	0	1	1
Geranium dissectum	0	0	0	0	0	0	<1	0	0	0	1	1
Carex sylvatica	0	0	0	0	0	0	1	0	0	0	1	1
Taraxacum officinale agg.	0	0	0	0	0	1	0	0	0	0	1	1
Potentilla anserina	1	0	0	0	0	0	0	0	0	0	1	1
Ajuga reptans	0	0	0	0	0	0	0	0	1	0	1	1
Crataegus sp. (g)	0	0	0	0	0	<1	0	0	0	0	1	1

Table 45. Home Wood – Combined list of species recorded.

Scientific name	Common name
Acer campestre	Field Maple
Agrimonia eupatoria	Agrimony
Agrostis canina	Velvet Bent
Agrostis capillaris	Common Bent
Agrostis stolonifera	Creeping Bent
Ajuga reptans	Bugle
Alopecurus pratensis	Meadow Foxtail
Anemone nemorosa	Wood Anemone
Anomodon viticulosus	Rambling Tail-moss
Anthoxanthum odoratum	Sweet Vernal-grass
Arrhenatherum elatius	False Oat-grass
Arum maculatum	Lords-and-Ladies
Betonica officinalis	Betony
Betula pendula	Silver Birch
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Bromus racemosus	Smooth Brome
Calamagrostis epigejos	Wood Small-reed
Calliergonella cuspidata	Pointed Spear-moss
Campylopus sp.	Moss species
Carex flacca	Glaucous Sedge
Carex hirta	Hairy Sedge
Carex leporina	Oval Sedge
Carex otrubae	False Fox-sedge
Carex cf. *pallescens*	Pale Sedge
Carex remota	Remote Sedge
Carex riparia	Greater Pond-sedge
Carex sylvatica	Wood-sedge
Carpinus betulus	Hornbeam
Cerastium fontanum	Common Mouse-ear
Circaea lutetiana	Enchanter's-nightshade
Cirsium palustre	Marsh Thistle
Climacium dendroides	Tree-moss
Conopodium majus	Pignut
Corylus avellana	Hazel
Crataegus hybrid	Hawthorn hybrid
Crataegus laevigata	Midland Hawthorn
Crataegus spp.	Hawthorn species
Cupressus sp.	Cypress

Scientific name	Common name
Cynosurus cristatus	Crested Dog's-tail
Dactylis glomerata	Cock's-foot
Deschampsia cespitosa	Tufted Hair-grass
Festuca arundinacea	Tall Fescue
Festuca pratensis	Meadow Fescue
Festuca rubra	Red Fescue
Filipendula ulmaria	Meadowsweet
Fissidens taxifolius	Pocket-moss
Fraxinus excelsior	Ash
Galium album	Hedge Bedstraw
Galium aparine	Cleavers
Geranium dissectum	Cut-leaved Crane's-bill
Geum urbanum	Wood Avens
Heracleum sphondylium	Hogweed
Holcus lanatus	Yorkshire-fog
Hordeum secalinum	Meadow Barley
Hyacinthoides non-scripta	Bluebell
Hypericum hirsutum	Hairy St John’s-wort
Hypericum tetrapterum	Square-stalked St John’s-wort
Hypnum cupressiforme	Cypress-leaved Plait-moss
Ilex aquifolium	Holly
Isothecium myosuroides	Mouse-tail Moss
Juncus effusus	Soft-rush
Kindbergia praelonga	Common Feather-moss
Lathyrus pratensis	Meadow Vetchling
Lolium perenne	Perennial Rye-grass
Lonicera periclymenum	Honeysuckle
Lophocolea heterophylla	Variable-leaved Crestwort
Lotus pedunculatus	Greater Bird's-foot-trefoil
Lysimachia nummularia	Creeping-Jenny
Medicago lupulina	Black Medick
Mercurialis perennis	Dog's Mercury
Milium effusum	Wood Millet
Mnium hornum	Swan's-neck Thyme-moss
Mycelis muralis	Wall Lettuce
Neckera cripsa	Crisped Neckera
Phleum pratense	Timothy
Picea abies	Norway Spruce
Picea sp.	Spruce species
Poa trivialis	Rough Meadow-grass
Populus sp.	Poplar species

Scientific name	Common name
Potentilla anserina	Silverweed
Potentilla erecta	Tormentil
Potentilla reptans	Creeping Cinquefoil
Potentilla sterilis	Barren Strawberry
Prunella vulgaris	Selfheal
Prunus avium	Wild Cherry
Prunus spinosa	Blackthorn
Prunus avium	Cherry
Quercus sp.	Oak species
Ranunculus auricomus	Goldilocks Buttercup
Ranunculus ficaria	Lesser Celandine
Ranunculus repens	Creeping Buttercup
Rosa sp.	Rose species
Rosa arvensis	Field rose
Rubus fruticosus agg.	Bramble
Rumex acetosa	Common Sorrel
Salix cinerea	Grey Willow
Sambucus nigra	Elder
Stellaria graminea	Lesser Stitchwort
Stellaria holostea	Greater Stitchwort
Stellaria media	Common Chickweed
Taraxacum officnale agg.	Dandelion
Thuidium tamariscinum	Common Tamarisk-moss
Tilia platyphyllos	Large-leaved Lime
Trifolium pratense	Red Clover
Trifolium repens	White Clover
Tsuga heterophylla	Western Hemlock-spruce
Urtica dioica	Common Nettle
Veronica chamaedrys	Germander Speedwell
Vicia cracca	Tufted Vetch
Vicia hirsuta	Hairy Tare
Vicia sepium	Bush Vetch
Vicia tetrasperma	Smooth Tare

Shrubs Wood

Overview

Shrubs Wood is a relatively small (8.2ha) wood at the northern end of the Bernwood habitat complex. Most of the site is made up by older, established woodland with a small area of more recent plantation. There are rides present. The site is designated as a Local Wildlife Site and it is mapped as Ancient Woodland. It is set in a farmed landscape with surrounding habitats consisting of arable fields, agriculturally improved grassland and well-established hedgerows. Sheephouse Wood SSSI lies 500 metres to the south and Decoypond Wood is approximately 200 metres to the south west. A public footpath runs through the fields to the west of the wood but there is no public access to the wood itself.

The surveys were carried out by Natural England Field Unit and Natural England area team staff on 9th April 2019 following National Vegetation Classification survey guidance (JNCC 2006).

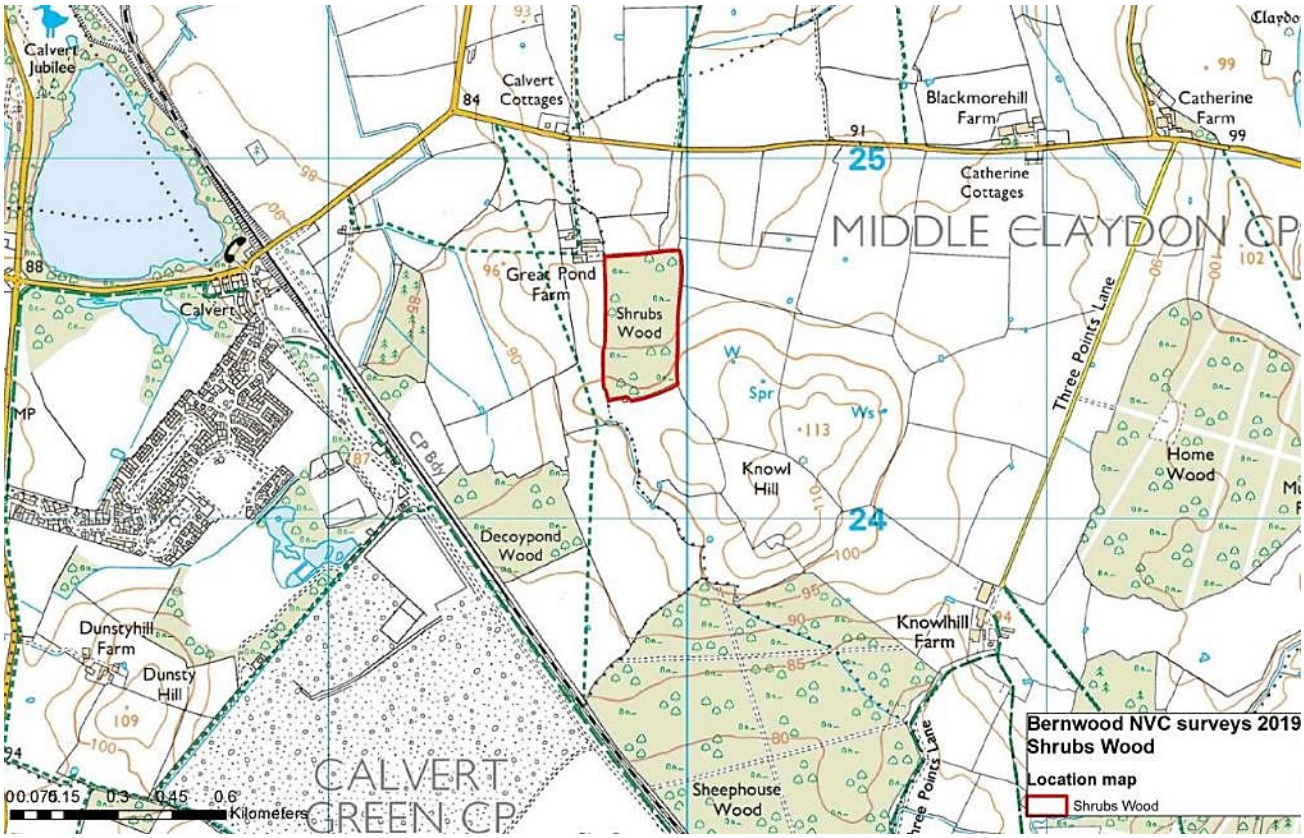


Figure 19. Location map – Shrubs Wood (area surveyed outlined in red). Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

A view of part of Shrubs Wood where there is remnant coppice-with-standards structure and carpeting bluebell, mapped as W10a. Copyright Alison Jukes and Natural England.

Vegetation communities

Descriptions of NVC communities and sub-communities mapped are given below. Where vegetation types are not a good fit to the NVC (transitions, disturbed areas etc.), a general habitat type has been assigned. A map showing the survey area boundaries and vegetation communities is provided as Figure 19. Target notes and quadrat data are at table 47 and 48. A list of vascular plants and bryophytes recorded during the survey is at table 49.

Shrubs Wood - Woodland and scrub

The majority of the woodland has an Oak-dominated canopy with some Ash and an old Hazel coppice understorey. Most of the trees are mature and even-aged with young trees, saplings and seedlings rare. The impact of deer appears to be low to moderate as evidence of browsing was not obvious, but there are few signs of tree regeneration.

The field layer throughout much of the wood is dominated by Bluebell but is otherwise relatively species-poor. This is considered closest in composition to W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community. The southern end of the wood has a different character and is closest in composition to W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma*

hederacea sub-community with patches of herbs indicative of calcareous soils, including locally frequent Dog's Mercury and occasional Lords-and-Ladies and Wood Avens.

A view of the area of Shrubs Wood consisting of abandoned hazel coppice with oak and ash standards with W8a type field layer. Copyright Alison Jukes and Natural England.

Part of Shrubs Wood consists of plantation with W8c type field layer. Copyright Alison Jukes and Natural England.

There is a strip of more recent plantation in the middle of the wood with mixed tree species including Oak, Birch, Ash and Alder. The trees are even-aged, young and planted in rows, with no understorey present. The field layer is closest in composition to W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community with abundant Tufted Hair-grass and frequent Lesser Celandine. Occasional or rarely occurring species include Wood sedge, Meadowsweet, Compact Rush and False Brome.

Shrubs Wood - Other features

The central rides have frequent Yorkshire-fog, Soft-rush, locally abundant Greater Pond-sedge and patches dominated by Wood Small-reed. This vegetation is not considered a good fit to the NVC grassland or swamp communities and has been mapped as *Carex/Calamagrostis*. Several dry and seasonally wet ditches are present on the boundaries of the site and along ride edges. No standing deadwood was recorded although occasional fallen trees and frequent dead branches are present in the main W10a/W8a woodland area.

A view of the ride in the plantation area with high cover of greater pond-sedge, wood false-brome and rush. Copyright Alison Jukes and Natural England.

Shrubs Wood has an interesting feature which may be the remains of an ancient ditch and bank on the southern boundary (SP6979124335). Copyright Alison Jukes and Natural England.

Summary

The majority of Shrubs Wood (6.4ha) is remnant Hazel coppice with Oak and Ash standards. 4.4ha has a composition close to W10a with Bluebell locally dominant in the field layer, but otherwise relatively species-poor. 2ha is closest in composition to W8a with patches of ground flora with calcareous herbs including Dog's Mercury. 1.3ha is recently-established broadleaved plantation with a W8c field layer with abundant Tufted Hair-grass. There are rides with Greater Pond-sedge and Wood Small-reed and dry and wet ditches.

Table 46. Shrubs Wood - Area of NVC communities/habitat types mapped

NVC (sub)-community / habitat type	Area (ha)
W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community	4.4
W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community	2.0
Plantation (W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community field layer)	1.3
Carex/Calamagrostis epigejos dominated vegetation	0.5
Total area	8.2

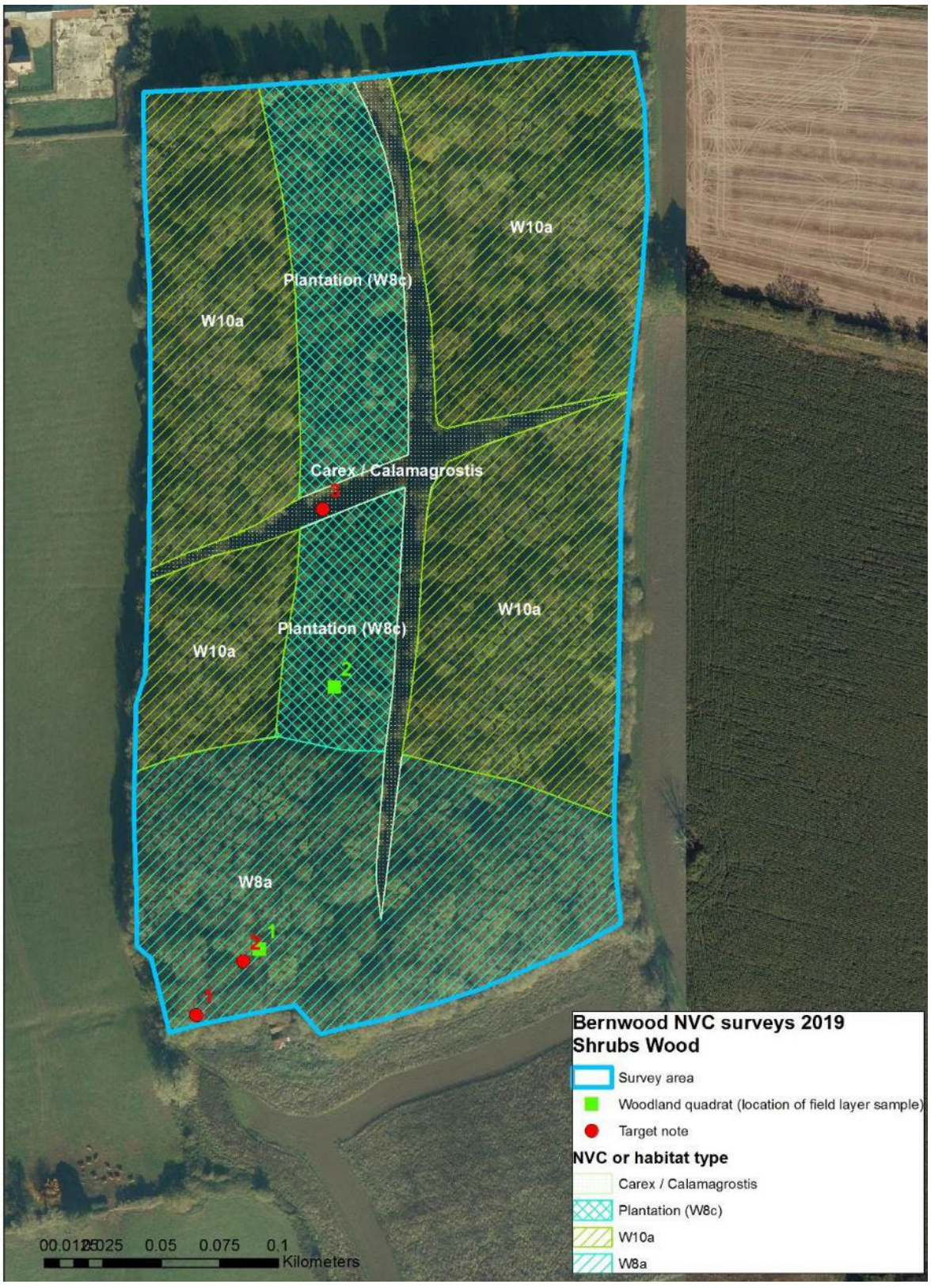


Figure 20. Shrubs Wood - National Vegetation Classification map with quadrat and target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Table 47. Shrubs Wood - Target notes

Target note	Grid reference	Feature	Description
1	SP6979124335	Dry ditch	Boundary bank/ditch feature
2	SP6981124358	Badgers	Badger latrine and signs of digging
3	SP6984524551	Ride	High cover of sedges, rushes and wood small-reed

Table 48. Quadrat data from Shrubs Wood

Quadrat number	Q1	Q2
Grid reference (field layer quadrat grid ref)	SP6981824363	SP6985024475
NVC sub-community	W8a	W8c plantation (Birch/Alder/ Ash/Oak)
Deer impact (none, low, med, high)	Low	Low
Field layer		
Quadrat size (4x4m or 10x10m?)	4x4	4x4
Field layer height (cm)	20	20
Bare ground (%)	0	5
Litter (%)	15	30
Species: % cover, g = ground layer/seedling		
Anemone nemorosa	0	1
Arum maculatum	2	0
Brachypodium sylvaticum	0	1
Brachythecium rutabulum	2	1
Carex sylvatica	0	5
Dactylis glomerata	0	2
Deschampsia cespitosa	0	25
Filipendula ulmaria	0	1
Fissidens taxifolius	0	1
Galium aparine	5	1
Geum urbanum	1	1
Hyacinthoides non-scripta	50	1
Hypnum cupressiforme	1	1
Juncus conglomeratus	0	1
Kindbergia praelonga	5	5
Lamiastrum galeobdolon	1	0
Mercurialis perennis	2	0
Poa trivialis	50	5
Ranunculus ficaria	8	35
Rubus fruticosus agg. g	0	5
Silene sp. (seedling)	1	0

Quadrat number	Q1	Q2
Stellaria holostea	0	5
Thuidium tamariscinum	0	1
Umbellifer *(cf. Chaerophyllum temulum)*	20	0
Urtica dioica	2	0
Vicia sepium	1	0
Canopy & understorey		
Quadrat size (50x50m or other?)	50 x 50	50 x 50
Canopy height (estimate in m)	30	18
Canopy cover (%)	50	80
Understorey height (estimate in m)	8	N/A
Understorey cover (%)	30	1
Standing deadwood? (DAFOR)	F fallen trees and dead branches	Dead sections of trees
Age classes: estimate % cover or DAFOR		
Veteran	None	None
Mature	A	None
Young trees	R	D
Saplings	R	None
Seedlings	R	None
Coppice	F	None
Species: % cover, c = canopy; s = shrub/ understorey		
Alnus sp. c	0	10
Betula spp. c	0	10
Corylus avellana s	30	1
Crataegus spp. s	5	0
Fraxinus excelsior c	30	10
Quercus sp. c	20	50

Table 49. Shrubs Wood – Amalgamated list of species recorded.

Scientific name	Common name
Alnus sp.	Alder species
Anemone nemorosa	Wood Anemone
Arum maculatum	Lords-and-Ladies
Betula spp.	Birch species
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Calamagrostis epigejos	Wood Small-reed
Carex riparia	Greater Pond-sedge

Scientific name	Common name
Carex sylvatica	Wood-sedge
Corylus avellana	Hazel
Crataegus spp.	Hawthorn species
Dactylis glomerata	Cock's-foot
Deschampsia cespitosa	Tufted Hair-grass
Filipendula ulmaria	Meadowsweet
Fissidens taxifolius	Pocket-moss
Fraxinus excelsior	Ash
Galium aparine	Cleavers
Geum urbanum	Wood Avens
Holcus lanatus	Yorkshire-fog
Hyacinthoides non-scripta	Bluebell
Hypnum cupressiforme	Cypress-leaved Plait-moss
Juncus conglomeratus	Compact Rush
Juncus effusus	Soft-rush
Kindbergia praelonga	Common Feather-moss
Lamiastrum galeobdolon	Yellow Archangel
Mercurialis perennis	Dog's Mercury
Poa trivialis	Rough Meadow-grass
Primula vulgaris	Primrose
Quercus sp.	Oak species
Ranunculus ficaria	Lesser Celandine
Rubus fruticosus agg.	Bramble
Silene sp. (seedling)	Campion species
Stellaria holostea	Greater Stitchwort
Thuidium tamariscinum	Common Tamarisk-moss
Umbellifer *(cf. Chaerophyllum temulum)*	Umbellifer (possible Rough Chervil)
Urtica dioica	Common Nettle
Vicia sepium	Bush Vetch

Grendon Meadows

Overview

The land referred to as Grendon Meadows consists of two grass fields with a total extent of around 7 hectares. The meadows are located immediately north of Grendon and Doddershall Woods Site of Special Scientific Interest (SSSI). These are two neutral grassland meadows with small patches of mire/swamp vegetation. The land is not currently designated as SSSI but is part of a Local Wildlife Site. Surrounding habitats include hedgerows and fields with more agriculturally improved and species-poor grassland to the north west, a field to the south west more similar in composition but less diverse than those surveyed and a hedgerow and road to the north east. The southern boundary of the site abuts the boundary of Grendon and Doddershall Woods SSSI.

The survey was carried out by Alison Jukes of the Natural England Field Unit on 22nd May 2019 following National Vegetation Classification survey guidance (JNCC 2006).

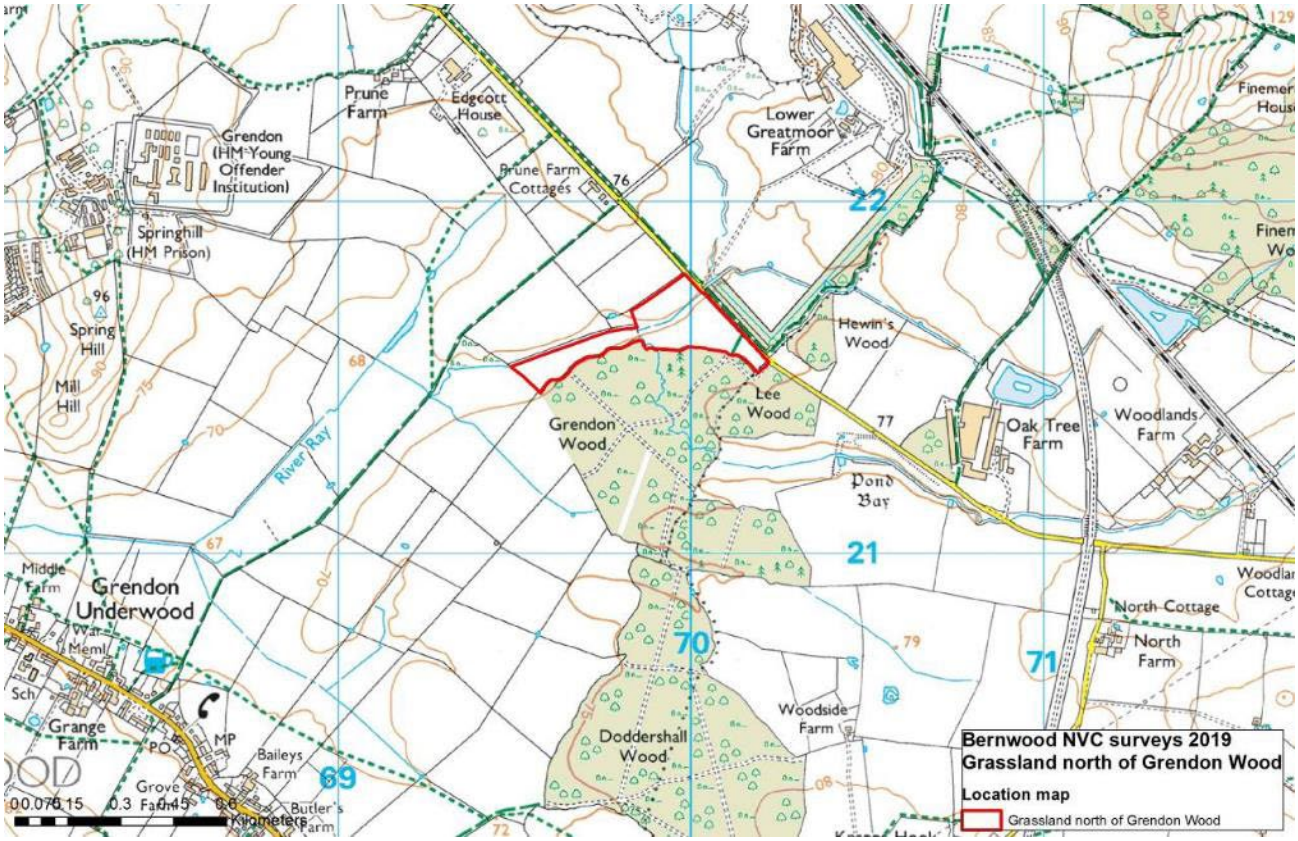


Figure 21. Grendon Meadows – Location map (area surveyed outlined in red). Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

A general view of western of the two fields at Grendon Meadows. Copyright Alison Jukes and Natural England.

Vegetation communities

Where distinct vegetation communities could be distinguished, these are mapped to NVC community or sub-community level, and these are described in detail below. In cases where vegetation types are not a close fit to the described communities of the NVC (where they may be transitions, disturbed areas etc.), a general habitat type has been assigned. A map showing the survey area boundaries and vegetation communities is at Figure 21, target notes and quadrat data in Appendix 2 and a species list of vascular plants and bryophytes recorded during the survey is given in Appendix 3.

Grassland

The two fields surveyed have a similar sward composition. This was recorded by means of standard 2 x 2 metre quadrats following NVC survey guidelines. Constant grass species (ie those occurring in all samples) are Meadow Foxtail *Alopecurus pratensis,* Red Fescue *Festuca rubra,* Sweet Vernal-grass *Anthoxanthum odoratum,* Yorkshire-fog *Holcus lanatus,* Creeping Bent *Agrostis stolonifera* and Perennial Rye-grass *Lolium perenne*. Constant forb species are Meadow Buttercup *Ranunculus acris,* Common Sorrel *Rumex acetosa,* Common Mouse-ear *Cerastium fontanum,* Red Clover *Trifolium pratense* and Creeping Buttercup *Ranunculus repens*. Rough Meadow-grass *Poa trivialis,* Great Burnet *Sanguisorba officinalis,* Cuckooflower *Cardamine pratensis* and Meadow Vetchling *Lathyrus pratensis* are also present but less frequent and have a patchy distribution.

This vegetation is considered to be a best fit to NVC type MG4c *Alopecurus pratensis-Sanguisorba officinalis* grassland, *Holcus lanatus* sub-community. MG4c is described as a more grass-dominated sub-community of MG4, with Meadow Foxtail, Rough Meadow-grass, Creeping Bent, Yorkshire-fog, Sweet Vernal-grass and Red Fescue the main grass species present. The most frequent forbs are Common Sorrel, Great Burnet, Cuckooflower and Meadow Vetchling. The 'grassy' nature of the sward may be related to management, such as application of nutrients, late cropping of the hay or variation in grazing levels.

An oblique view of the sward showing a patch of Great Burnet *Sanguisorba officinalis* in mainly grass-dominated MG4c type vegetation (SP7015321609). Copyright Alison Jukes and Natural England.

Marshy grassland, mire and swamp

Small patches of inundation communities, mire and swamp vegetation are present. No standing water was noted on the day of survey but there is evidence that there are seasonally wet depressions associated with ancient stream channels supporting these vegetation types.

The inundation vegetation includes small areas with abundant Marsh Foxtail *Alopecurus geniculatus* and Creeping Bent with a close similarity to MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland. Additional species present in this vegetation type include Creeping Buttercup *Ranunculus repens*, Tubular Water-dropwort *Oenanthe fistulosa* and Common Spike-rush *Eleocharis palustris*.

A view of Grendon Meadows showing a small area of MG13 *Agrostis stolonifera-Alopecurus geniculatus* type grassland in middle distance (SP6993221621). Copyright Alison Jukes and Natural England.

Two small patches with frequent Soft-rush *Juncus effusus* were mapped as M23/MG13 and M23 + *Carex*. These areas of wetland species are not a close fit to the NVC. They have mixtures of M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture species along with MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland species and Sedge species (Common Sedge *Carex nigra* and possible Lesser Pond-sedge *Carex acutiformis*). This type of transitional vegetation is not uncommon in situations where water levels are seasonally high.

A view of part of Grendon Meadows mapped as M23/MG13 with frequent soft rush. Copyright Alison Jukes and Natural England.

A long, narrow strip with abundant Reed Canary-grass *Phalaris arundinacea* is present in the western field. Additional species here include Creeping Bent *Agrostis stolonifera*, Marsh Foxtail *Alopecurus geniculatus*, Tubular Water-dropwort *Oenanthe fistulosa*, Creeping Buttercup *Ranunculus repens*, Common Spike-rush *Eleocharis palustris*, Common Sedge *Carex nigra* and Brown Sedge *Carex disticha*. This vegetation type has been mapped as S28 *Phalaris arundinacea* tall-herb fen with MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland.

A view of part of Grendon Meadows showing a strip with abundant Reed Canary-grass and MG13 preferential species, likely to represent a former river channel. Copyright Alison Jukes and Natural England.

Other features

It is worth noting that a Red Data List plant species was recorded during the survey. This is Tubular Water-dropwort *Oenanthe fistulosa* (categorised as Vulnerable). This species is locally frequent in patches of MG13 type vegetation, including areas mapped as M23/MG13 and S28/MG13. Two small areas with a single dominant species have been specifically noted on the maps; an area of Great Burnet *Sanguisorba officinalis* and an area of Common Sedge *Carex nigra*, both at the south west edge of the site. A small number of plants of pepper saxifrage *Silaum silaus* were also noted. All three species are uncommon in Buckinghamshire.

In the centre of the site a short row of Willow *Salix* spp. separates the fields, and a fence line with scattered shrubs including Hawthorn *Crataegus monogyna* is also present. Hedgerows on the margins of the site are closest to W21 *Crataegus monogyna-Hedera helix* scrub with abundant Hawthorn and Blackthorn. Although not surveyed in detail it was noted that the surrounding hedges include other shrub species including Field Rose *Rosa arvensis*, Field Maple *Acer campestre* and Wild Privet *Ligustrum vulgare*.

Although this survey was not primarily intended to include an assessment of habitat condition it was noted that the composition of the grassland does not include indications of

damaging activity such as ground disturbance, stock feeding, burning or drainage, nor are there weedy patches or indications of management neglect such as establishment of scrub.

Summary

Table 50 shows the extent of different communities/habitat types present on the site.

The majority of Grendon Meadows (6.4ha) is closest in composition to MG4c *Alopecurus pratensis-Sanguisorba officinalis* grassland, *Holcus lanatus* sub-community, a more grass-dominated sub-community of MG4. There was no evidence of recent management but the meadows appear to have at least an annual hay cut and aftermath grazing.

Small patches and mosaics of wetland vegetation in the fields include MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland, S28 *Phalaris arundinacea* tall-herb fen and M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture. These make up a small proportion of the total area, together roughly 0.3ha.

Tubular Water-dropwort *Oenanthe fistulosa* (Red Data List Vulnerable) is locally frequent in patches of MG13 type vegetation, including areas mapped as M23/MG13 and S28/MG13.

The fields appear to be well-managed and are in good condition.

Table 50. Grendon Meadows - Area of NVC communities/habitat types mapped

NVC (sub)-community / habitat type	Area (ha)
MG4c *Alopecurus pratensis-Sanguisorba officinalis* grassland, *Holcus lanatus* sub-community	6.41
Sanguisorba officinalis-dominated vegetation	0.16
S28/MG13 *Phalaris arundinacea* tall-herb fen/*Agrostis stolonifera–Alopecurus geniculatus* grassland	0.14
Other (hedgerow, woodland on boundary)	0.08
MG13 *Agrostis stolonifera–Alopecurus geniculatus* grassland	0.06
M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture + *Carex*	0.05
M23/MG13 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture/*Agrostis stolonifera–Alopecurus geniculatus* grassland	0.03
Carex nigra-dominated vegetation	0.03
Salix scrub	0.03
Total area	6.99

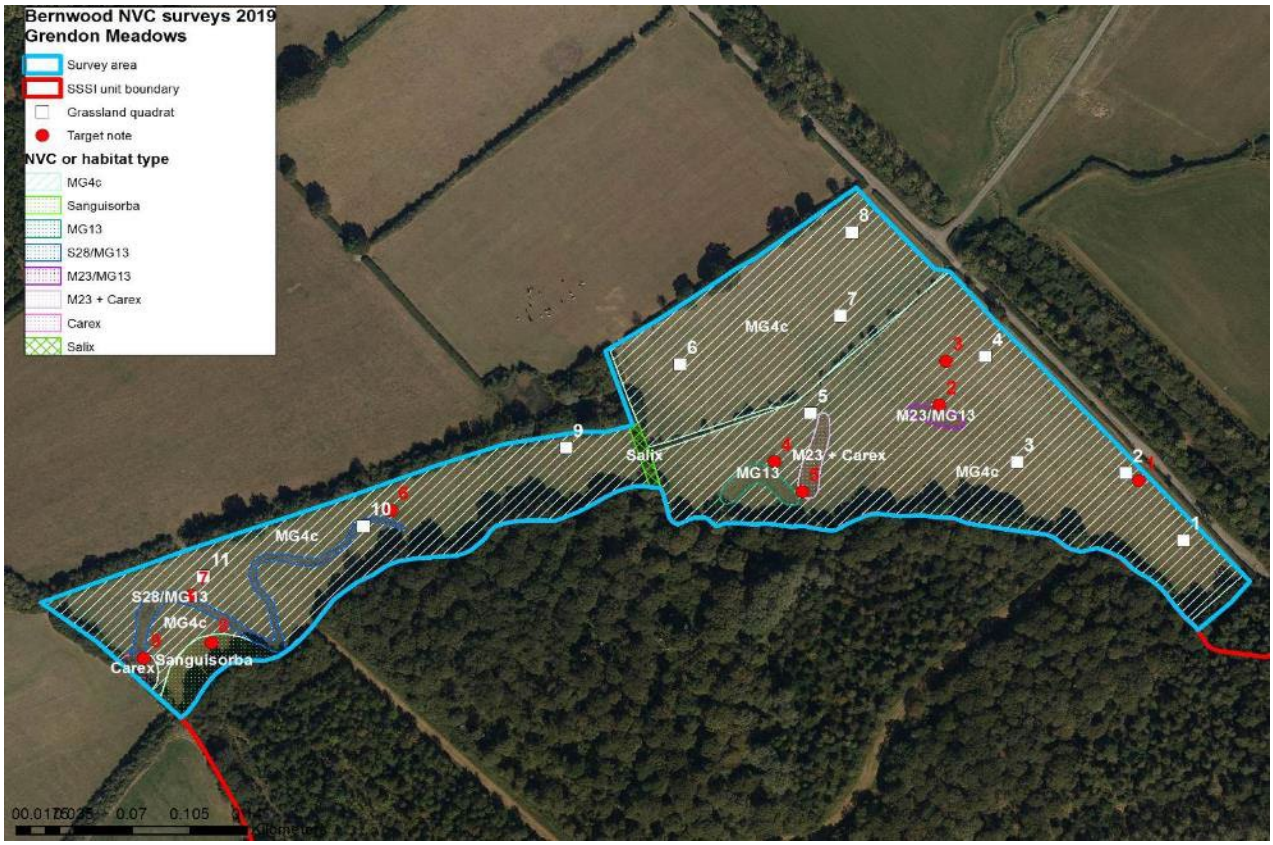


Figure 23. Grendon Meadows - NVC map with quadrat & target note locations. Aerial photography licensed to Natural England for PGA through Next Perspectives™. Contains, or is derived from, information supplied by Ordnance Survey. © Crown copyright and database rights 2022. Ordnance Survey 100022021.

Table 51. Grendon Meadows - Target notes

Target note	Grid reference	Feature	Description
1	SP7015321609	*Sanguisorba officinalis*	Small area approx. 1 x 2m with abundant *Sanguisorba officinalis*, otherwise as rest of sward.
2	SP7003221657	Wet hollow	Depression likely inundated in winter, with *Juncus effusus, Carex hirta, Ranunculus flammula, Ranunculus repens, Agrostis stolonifera, Oenanthe fistulosa, Mentha aquatica, Cardamine pratensis* and *Lotus pendunculatus*
3	SP7003621685	*Sanguisorba*	15 x 15m area with patchy *Sanguisorba officinalis*
4	SP6993221621	MG13 type	Horseshoe-shaped area approx. 10m in width, 40m across, with *Alopecurus geniculatus, Agrostis stolonifera, Oenanthe fistulosa, Ranunculus repens* and *Eleocharis palustris*

Target note	Grid reference	Feature	Description
5	SP6994921602	*Carex* spp.	*Carex* cf. *acutiformis* frequent in 5x5m patch. Occasional *Carex nigra.* Wider area with frequent *Juncus* spp.
6	SP6970021590	*Phalaris arundinacea*	Strip with abundant *Phalaris arundinacea* approx. 2m wide winding through middle of field. Other species include *Oenanthe fistulosa, Persicaria* sp*, Ranunculus repens, Alopecurus geniculatus, Agrostis stolonifera, Carex nigra* and *Carex disticha*
7	SP6957921536	*Phalaris*/ MG13	4m wide strip across field. with *Phalaris arundinacea, Alopecurus geniculatus, Agrostis stolonifera, Eleocharis palustris, Oenanthe fistulosa* and *Ranunculus repens*
8	SP6959121506	*Sanguisorba officinalis*	20m x 50m area with *Sanguisorba officinalis* dominant
9	SP6955021496	*Carex nigra*	*Carex nigra* dominated area, 15 x 10m. At end of curved MG13 area to the other side of fence

Table 52. Quadrat data from Grendon Meadows (cover values are estimated using standard DOMIN scale)

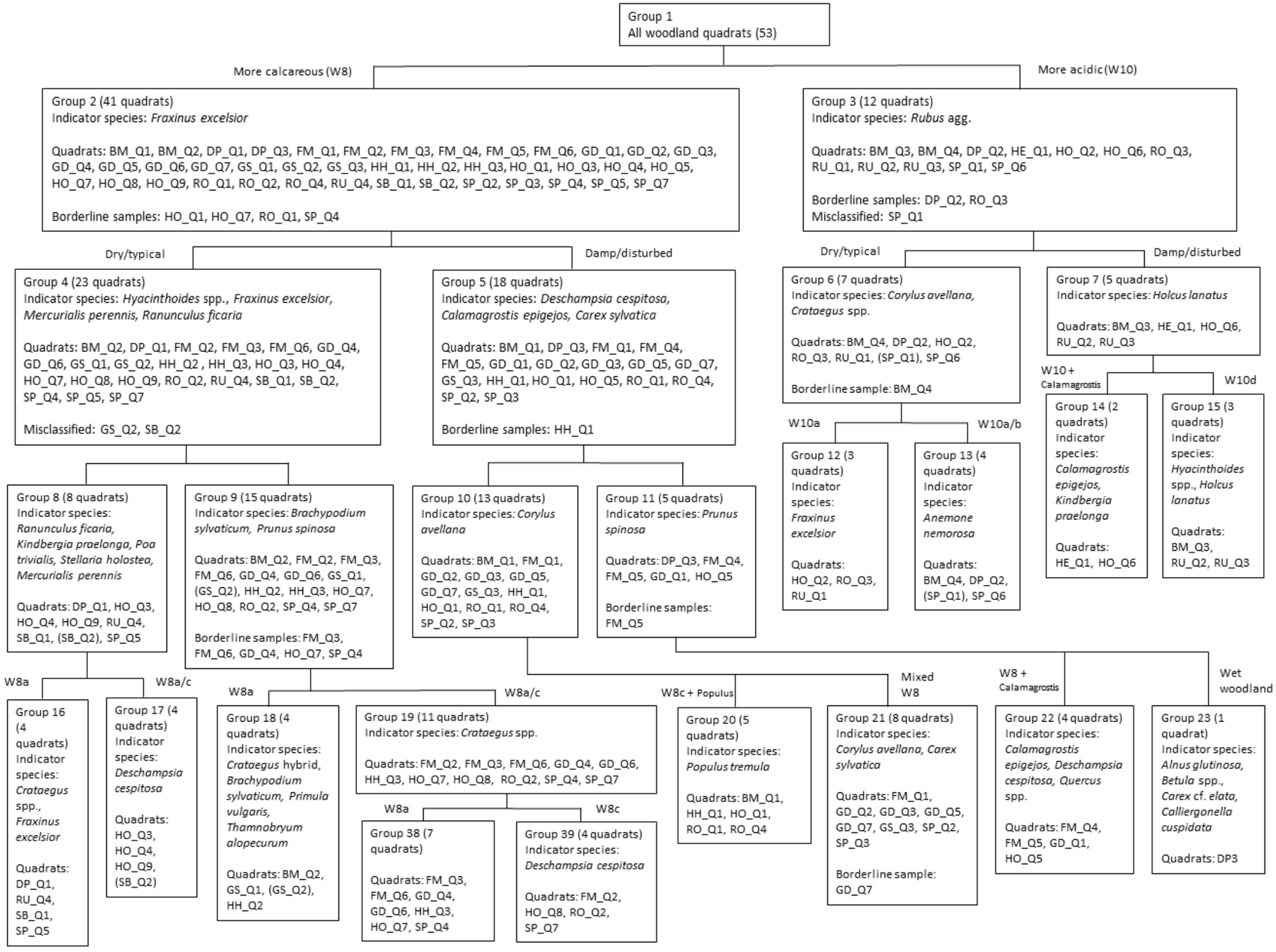
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11		
Grid reference	SP7018021571	SP7014521614	SP7007921621	SP7006021688	SP6995421652	SP6987521683	SP6997221714	SP6997921767	SP6980621630	SP6968321580	SP6958621548		
Quadrat size	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m		
Vegetation type	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c		
Sward height cm	15	15	10	15	25	15	15	15	25	15	10		
Bare ground %	<1	<1	5	2	0	0	0	0	0	0	<1		
Leaf litter %	5	10	20	2	2	20	2	10	1	5	5		
% cover	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Cover range (Domin)**	**Constancy**
Alopecurus pratensis	10	15	5	5	10	15	30	50	30	15	15	4-7	5
Festuca rubra	20	30	40	30	30	30	10	20	5	20	40	4-7	5
Anthoxanthum odoratum	20	20	10	30	10	10	10	10	0	5	5	4-6	5
Ranunculus acris	2	1	15	30	15	2	15	0	15	5	15	2-6	5
Holcus lanatus	2	5	5	10	10	10	5	5	5	5	5	2-4	5
Agrostis stolonifera	10	1	20	5	5	5	10	5	5	5	5	1-5	5
Rumex acetosa	10	5	10	5	0	1	5	5	2	<1	5	1-4	5
Lolium perenne	5	2	0	0	2	15	2	5	10	20	10	2-5	4
Cerastium fontanum	1	2	1	5	0	5	1	2	0	2	1	2-4	4
Trifolium pratense	10	2	2	2	3	1	0	5	0	0	10	2-4	4
Ranunculus repens	0	10	0	1	1	1	1	<1	5	5	2	1-4	4
Rhinanthus minor	40	30	5	30	15	1	0	0	2	0	0	2-7	3
Brachythecium rutabulum	20	5	10	5	5	2	0	5	0	0	0	2-5	3
Bromus hordeaceus	0	1	0	0	30	0	20	0	30	30	2	1-6	3
Trifolium repens	5	5	1	10	0	2	<1	0	0	0	1	1-4	3
Vicia sativa	0	<1	2	0	2	1	2	5	2	0	0	1-4	3
Kindbergia praelonga	1	2	1	0	0	0	1	1	<1	2	0	1-2	3
Sanguisorba officinalis	0	0	15	5	0	0	5	0	5	0	0	4-5	2
Cardamine pratensis	1	5	0	0	0	1	10	0	0	2	0	2-4	2
Lotus corniculatus	5	1	0	0	1	0	0	2	0	0	0	2-4	2
Calliergonella cuspidata	5	1	5	15	1	0	0	0	0	0	0	1-5	2
Trifolium dubium	0	0	0	1	2	20	5	0	0	0	0	1-5	2
Cynosurus cristatus	0	0	0	0	0	5	1	0	5	0	1	1-4	2
Deschampsia cespitosa	2	2	5	2	0	0	0	0	0	0	0	1-4	2
Potentilla reptans	1	0	1	5	1	0	0	0	1	0	0	1-4	2
Festuca arundinacea	15	0	0	0	0	0	0	0	0	0	0	5	1

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11		
Medicago lupulina	0	0	0	0	0	0	0	2	0	5	1	1-4	1
Persicaria sp.	0	0	0	0	0	0	0	0	1	5	0	1-4	1
Taraxacum officinale agg.	0	0	0	5	0	0	0	1	<1	0	0	1-4	1
Carex hirta	0	0	0	0	0	0	0	0	2	0	0	1	1
Centaurea nigra	0	0	0	2	0	0	0	0	0	0	0	1	1
Cirsium arvense	0	0	0	0	0	0	0	1	1	0	1	1	1
Lathyrus pratensis	0	0	0	0	0	0	0	0	0	2	0	1	1
Phalaris arundinaea	0	0	0	0	0	0	0	0	0	0	1	1	1
Plantago lanceolata	0	0	0	2	0	0	0	0	0	0	0	1	1
Poa trivialis	0	<1	0	0	0	0	0	0	0	0	0	1	1
Rumex sp.	0	0	0	0	0	0	0	0	0	1	0	1	1
Silaum silaus	0	0	0	1	0	0	0	0	0	0	0	1	1

Table 53. Grendon Meadows – Amalgamated list of species recorded during the survey.

Scientific name	Common name
Agrostis stolonifera	Creeping Bent
Alopecurus geniculatus	Marsh Foxtail
Alopecurus pratensis	Meadow Foxtail
Anthoxanthum odoratum	Sweet Vernal-grass
Brachythecium rutabulum	Rough-stalked Feather-moss
Bromus hordeaceus	Soft-brome
Calliergonella cuspidata	Pointed Spear-moss
Cardamine pratensis	Cuckooflower
Carex cf. *acutiformis*	Sedge species (possible Lesser Pond-sedge)
Carex disticha	Brown Sedge
Carex hirta	Hairy Sedge
Carex nigra	Common Sedge
Centaurea nigra	Common Knapweed
Cerastium fontanum	Common Mouse-ear
Cirsium arvense	Creeping Thistle
Crataegus monogyna	Hawthorn
Cynosurus cristatus	Crested Dog's-tail
Deschampsia cespitosa	Tufted Hair-grass
Eleocharis palustris	Common Spike-rush
Festuca arundinacea	Tall Fescue
Festuca rubra	Red Fescue
Holcus lanatus	Yorkshire-fog
Juncus effusus	Soft-rush
Kindbergia praelonga	Common Feather-moss
Lathyrus pratensis	Meadow Vetchling
Lolium perenne	Perennial Rye-grass
Lotus corniculatus	Common Bird's-foot-trefoil
Lotus pedunculatus	Greater Bird's-foot-trefoil
Medicago lupulina	Black Medick
Mentha aquatica	Water Mint
Oenanthe fistulosa	Tubular Water-dropwort
Persicaria sp.	Bistort/Knotweed species
Phalaris arundinaea	Reed Canary-grass
Plantago lanceolata	Ribwort Plantain
Poa trivialis	Rough Meadow-grass
Potentilla reptans	Creeping Cinquefoil
Prunus spinosa	Blackthorn
Ranunculus acris	Meadow Buttercup
Ranunculus flammula	Lesser Spearwort
Ranunculus repens	Creeping Buttercup
Rhinanthus minor	Yellow-rattle
Rumex acetosa	Common Sorrel
Rumex sp.	Dock species
Salix spp.	Willow species
Sanguisorba officinalis	Great Burnet
Silaum silaus	Pepper-saxifrage
Taraxacum officinale agg.	Dandelion
Trifolium campestre	Hop Trefoil
Trifolium dubium	Lesser Trefoil
Trifolium pratense	Red Clover
Trifolium repens	White Clover
Vicia sativa	Common Vetch

Appendix 1. TWINSPAN Results. Site abbreviations: BM = Balmore Wood, DP = Decoypond Wood, FM = Finemere Wood, GD= Grendon & Doddershall Woods, GS = Greatsea Wood, HE = Hewin's Wood, HH = Ham Home-cum-Hamgreen Wood, HO = Home Wood, RO = Romer Wood, RU = Runt's Wood, SB = Shrubs Wood, SP = Sheephouse Wood



Appendix 2. Quadrat Data

Table A1. **W8a *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Primula vulgaris-Glechoma hederacea* sub-community quadrat data. Site abbreviations: BM = Balmore Wood, FM = Finemere Wood, GD= Grendon & Doddershall Woods, GS = Greatsea Wood, HH = Ham Home-cum-Hamgreen Wood, HO = Home Wood, RU = Runt's Wood, SB = Shrubs Wood, SP = Sheephouse Wood**

Quadrat (site_number)	**BM_Q2**	**FM_Q1**	**FM_Q3**	**GD_Q5**	**GD_Q6**	**GS_Q1**	**HH_Q2**	**HH_Q3**	**HO_Q4**	**RU_Q4**	**SB_Q1**	**SP_Q4**	**SP_Q5**		
Grid reference	SP7194 723322	SP7206 621615	SP7170 322197	SP6993 820629	SP6978 420440	SP7128 222487	SP6946 818923	SP6973 819281	SP7174 924298	SP7264 022880	SP6981 824363	SP7052 123678	SP7028 523721		
Quadrat size: canopy & understorey (m)	50x50	50 x 50	50x50	50x50	50x50	50x50	50x50	50x50	50x50	50x50	50 x 50	50x50	50x50		
Quadrat size: field & ground layers (m)	4x4	4x4	4x4	4x4	4x4	4x4	4x4	4x4	4x4	4x4	4x4	4x4	4x4		
NVC sub-community	W8a	W8a	W8a	W8a	W8a	W8a	W8a	W8a	W8a (in W8a/W 8c mosaic)	W8a	W8a	W8a (in W8a/W 8c mosaic)	W8a (in W8a/W 8c mosaic)		
Bare ground %	2	0	<1	<1	1	0	<1	0	2	3	0	2	7		
Leaf litter %	60	30	5	60	75	30	5	50	80	45	15	23	30		
Canopy and understorey species % cover (c = canopy, s = shrub layer/ understorey)														Cover range (Domin)	Constancy
Quercus sp. c	90	30	37	58	45	30	10	30	80	0	20	60	50	4-9	5
Corylus avellana s	20	40	5	60	65	0	60	20	0	5	30	8	10	4-8	4
Crataegus spp. s	0	30	15	5	20	0	15	30	0	47	5	5	25	4-7	4
Fraxinus excelsior s	0	0	0	15	1	10	2	1	1	2	0	1	0	1-5	4
Fraxinus excelsior c	0	0	10	0	5	50	10	10	0	50	30	0	30	4-7	3
Acer campestre s	5	20	1	0	0	0	0	0	5	0	0	1	1	1-5	2
Prunus spinosa s	0	5	0	2	2	5	0	0	<1	0	0	6	0	1-4	2
Crataegus hybrid s	20	0	0	0	0	10	0	0	5	0	0	0	0	4-5	1
Quercus robur c	0	0	0	0	0	0	0	0	0	10	0	0	0	4	1
Crataegus monogyna s	0	0	0	0	0	0	0	0	0	0	0	6	0	4	1
Acer campestre c	0	0	0	0	0	5	0	0	0	0	0	0	0	4	1

Quadrat (site_number)	BM_Q2	FM_Q1	FM_Q3	GD_Q5	GD_Q6	GS_Q1	HH_Q2	HH_Q3	HO_Q4	RU_Q4	SB_Q1	SP_Q4	SP_Q5		
Betula pendula s	0	5	0	0	0	0	0	0	0	0	0	0	0	4	1
Betula pendula c	0	2	0	2	0	0	0	0	0	0	0	0	0	2	1
Betula pubescens s	0	0	3	0	0	0	0	0	0	0	0	0	0	2	1
Ulmus glabra s	0	0	0	0	0	0	2	0	0	0	0	0	0	2	1
Prunus spp. (Cherry) s	0	0	0	0	0	0	0	0	5	0	0	1	0	1-4	1
Ilex aquifolium s	0	2	0	<1	0	0	0	0	0	0	0	1	0	1-2	1
Salix spp. s	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1
Crataegus laevigata s	0	0	<1	0	0	0	0	0	0	0	0	1	0	1	1
Euonymus europaeus	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Malus cf. sylvestris	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Malus/Pyrus s	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
Pinus sylvestris c	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
Rosa sp. s	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Sambucus nigra s	0	0	<1	0	0	0	1	0	0	0	0	0	0	1	1
Ligustrum vulgare s	0	0	0	<1	0	0	0	0	0	0	0	0	0	1	1
Field and ground layer species % cover (g = ground layer/seedling)														Cover range (Domin)	Constancy
Kindbergia praelonga	1	2	<1	2	2	1	2	2	2	2	5	1	<1	1-4	5
Hyacinthoides non-scripta	70	15	70	<1	20	40	60	0	0	15	50	80	3	1-9	4
Brachypodium sylvaticum	15	15	0	10	5	30	1	40	0	1	0	<1	0	1-7	4
Rubus fruticosus agg. g	2	2	0	0	<1	5	5	5	1	0	0	<1	<1	1-4	4
Galium aparine	1	1	10	<1	0	5	1	0	<1	1	5	<1	10	1-4	4
Crataegus spp. g	1	5	<1	1	1	0	<1	1	2	1	0	<1	<1	1-4	4
Brachythecium rutabulum	2	5	1	2	2	0	5	0	2	4	2	0	0	1-4	4

Quadrat (site_number)	BM_Q2	FM_Q1	FM_Q3	GD_Q5	GD_Q6	GS_Q1	HH_Q2	HH_Q3	HO_Q4	RU_Q4	SB_Q1	SP_Q4	SP_Q5		
Poa trivialis	1	0	<1	0	<1	0	0	0	1	4	50	3	30	1-7	3
Mercurialis perennis	4	1	2	0	0	1	0	0	40	10	2	0	45	1-7	3
Deschampsia cespitosa	1	10	0	15	0	0	2	0	10	3	0	<1	0	1-5	3
Hypnum cupressiforme	0	2	<1	<1	1	0	0	5	0	0	1	<1	<1	1-4	3
Viola sp.	2	1	1	0	<1	1	2	1	0	0	0	0	0	1-2	3
Geum urbanum	1	0	0	1	2	0	2	2	1	0	1	0	1	1-2	3
Acer campestre g	1	0	1	0	<1	1	0	<1	<1	0	0	0	>1	1	3
Ranunculus ficaria	1	1	0	0	0	0	2	0	40	1	8	0	0	1-7	2
Carex sylvatica	2	0	0	15	10	0	2	0	0	<1	0	0	0	1-5	2
Veronica chamaedrys	1	0	<1	0	0	10	5	0	0	0	0	0	0	1-4	2
Rosa sp. g	0	1	0	5	0	0	0	<1	0	0	0	<1	0	1-4	2
Lamiastrum galeobdolon	5	0	0	0	0	1	0	0	0	4	1	0	0	1-4	2
Glechoma hederacea	0	10	3	0	1	2	0	2	0	0	0	0	<1	1-4	2
Fraxinus excelsior g	0	0	0	0	0	1	5	8	1	0	0	<1	0	1-4	2
Eurhynchium striatum	2	0	0	0	5	1	0	0	0	0	0	0	1	1-4	2
Thuidium tamariscinum	0	0	0	0	2	0	1	2	0	0	0	<1	0	1-2	2
Prunus spinosa g	0	0	0	<1	<1	0	0	1	0	0	0	3	0	1-2	2
Lonicera periclymenum	1	1	0	2	0	0	0	1	0	0	0	0	0	1-2	2
Arum maculatum	0	1	0	0	0	2	0	0	0	2	2	0	<1	1-2	2
Anemone nemorosa	0	2	<1	0	0	0	0	<1	0	1	0	1	0	1-2	2
Fissidens taxifolius	1	0	0	<1	<1	1	0	0	1	0	0	0	0	1	2
Umbellifer *(cf. Chaerophyllum temulum)*	0	0	0	0	0	0	0	0	0	0	20	0	0	5	1
Polytrichum formosum	0	0	0	0	5	0	0	0	0	0	0	0	0	4	1
Poa sp.	0	0	0	0	0	0	0	0	0	0	0	6	0	4	1

Quadrat (site_number)	BM_Q2	FM_Q1	FM_Q3	GD_Q5	GD_Q6	GS_Q1	HH_Q2	HH_Q3	HO_Q4	RU_Q4	SB_Q1	SP_Q4	SP_Q5		
Moehringia trinervia	0	0	3	0	0	0	0	0	0	0	0	0	0	3	1
Conocephalum	3	0	0	0	0	0	0	0	0	0	0	0	0	3	1
Stachys sylvatica	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1
Alliaria petiolata	0	0	2	0	0	0	0	0	0	0	0	0	0	2	1
Ajuga reptans	0	2	0	0	0	0	0	0	0	0	0	0	0	2	1
Primula vulgaris	2	0	0	0	0	0	15	0	0	0	0	<1	0	1-5	1
Circaea lutetiana	1	0	0	0	0	0	15	1	0	0	0	0	0	1-5	1
Stellaria holostea	0	0	0	0	0	0	0	0	10	0	0	4	1	1-4	1
Potentilla sterilis	0	10	0	0	0	0	2	0	0	0	0	0	0	1-4	1
Mnium hornum	6	0	0	0	0	0	0	0	0	0	0	<1	0	1-4	1
Milium effusum	0	0	0	0	0	0	0	0	2	0	0	4	<1	1-4	1
Dactylis glomerata	0	5	0	<1	<1	0	0	0	0	0	0	0	0	1-4	1
Urtica dioica	0	1	0	0	0	0	0	0	2	0	2	0	0	1-2	1
Thamnobryum alopecurum	2	0	0	0	0	1	2	0	0	0	0	0	0	1-2	1
Prunus spp. g	1	0	0	0	0	0	0	0	3	0	0	0	0	1-2	1
Polytrichum sp.	0	0	0	0	0	0	0	<1	0	2	0	0	0	1-2	1
Geranium robertianum	2	0	0	0	0	1	0	0	0	0	0	0	0	1-2	1
Vicia sepium	0	1	0	0	0	0	0	0	1	0	1	0	0	1	1
Ulmus glabra g	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
Stellaria media	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Silene sp. (seedling)	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Rumex sanguineus	0	0	0	0	0	1	0	0	0	0	0	0	<1	1	1
Rumex acetosa	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Ranunculus auricomus	0	0	0	1	1	0	0	0	1	0	0	0	0	1	1

Quadrat (site_number)	BM_Q2	FM_Q1	FM_Q3	GD_Q5	GD_Q6	GS_Q1	HH_Q2	HH_Q3	HO_Q4	RU_Q4	SB_Q1	SP_Q4	SP_Q5		
Populus tremula g	0	0	0	0	0	0	0	<1	0	0	0	0	0	1	1
Plagiomnium undulatum	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Plagiochila sp.	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Lapsana communis	0	0	0	0	0	0	0	0	0	0	0	0	<1	1	1
Juncus conglomeratus	0	1	0	<1	0	0	0	0	0	0	0	0	0	1	1
Isothecium myosuroides	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Ilex aquifolium g	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Hypericum hirsutum	0	1	0	0	0	0	<1	0	0	0	0	0	0	1	1
Hordelymus europaeus	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Holcus lanatus	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Hedera helix	0	0	0	0	0	0	0	0	0	0	0	<1	0	1	1
Filipendula ulmaria	0	0	0	0	<1	0	0	0	1	0	0	0	0	1	1
Dicranum scoparium	0	0	0	0	0	0	0	0	0	0	0	<1	0	1	1
Bromopsis ramosa	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1
Atrichum undulatum	0	0	0	<1	0	0	0	0	0	0	0	<1	0	1	1
Angelica sylvestris	1	0	<1	0	0	0	0	0	0	0	0	0	0	1	1
Amblystegium serpens	0	0	0	0	<1	0	0	0	0	0	0	0	0	1	1

Table A2. W8b *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Anemone nemorosa* sub-community quadrat data. Site abbreviations: GD = Grendon & Doddershall Woods

Quadrat (site_number)	**GD_Q4**	
Grid reference	SP6980721225	
Quadrat size: canopy & understorey (m)	50x50	
Quadrat size: field & ground layers (m)	4x4	
NVC sub-community	W8b (in W8a/W8b mosaic)	
Bare ground %	<1	
Leaf litter %	70	
Canopy and understorey species % cover (c = canopy, s = shrub layer/understorey)		Constancy (estimated from % cover)
Quercus spp. c	90	5
Corylus avellana s	50	5
Crataegus spp. s	10	4
Prunus spinosa s	5	3
Field and ground layer species % cover (g = ground layer/seedling)		Constancy (estimated from % cover)
Anemone nemorosa	30	5
Mercurialis perennis	10	4
Hypnum cupressiforme	5	3
Hyacinthoides non-scripta	2	2
Kindbergia praelonga	2	2
Prunus spinosa g	2	2
Brachythecium rutabulum	1	1
Carex sylvatica	1	1
Primula vulgaris	1	1
Ranunculus ficaria	1	1

Quadrat (site_number)	**GD_Q4**	
Crataegus spp. g	<1	1

Table A3. W8c *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Deschampsia cespitosa* sub-community quadrat data.

(See separate file Appendix 2 - Table A3)

Table A4. W10a *Quercus robur–Pteridium aquilinum-Rubus fruticosus* woodland, Typical sub-community quadrat data. Site abbreviations: BM = Balmore Wood, HO = Home Wood, RU = Runt's Wood

Quadrat (site_number)	**BM_Q4**	**HO_Q2**	**HO_Q7**	**RU_Q1**		
Grid reference	SP72112230 66	SP71260243 84	SP71150239 14	SP72636232 74		
Quadrat size: canopy & understorey (m)	50x50	50x50	50x50	50x50		
Quadrat size: field & ground layers (m)	4x4	4x4	4x4	10x10		
NVC sub-community	W10a	W10a	W10a	W10a		
Bare ground %	0	0	0	2		
Leaf litter %	15	90	70	50		
Canopy and understory species % cover (c = canopy, s = shrub layer/ understory)					Cover range (Domin)	Constancy
Quercus spp. c	60	90	90	0	8-9	4
Corylus avellana s	20	0	55	45	5-8	4
Ilex aquifolium s	0	1	1	3	1-3	4
Crataegus hybrid s	10	0	2	0	2-4	3
Fraxinus excelsior c	0	1	0	2	1-2	3
Quercus robur c	0	0	0	75	8	1
Crataegus spp. s	0	0	0	32	6	1
Crataegus laevigata s	0	10	0	0	4	1
Quercus petraea c	0	0	0	10	4	1
Betula spp. s	10	0	0	0	4	1
Fraxinus excelsior s	0	2	0	0	2	1
Acer campestre s	0	0	0	1	1	1
Crataegus hybrid c	0	1	0	0	1	1
Crataegus laevigata c	0	1	0	0	1	1
Populus sp. c	0	0	0	1	1	1
Prunus spinosa s	0	1	0	0	1	1
Sambucus nigra s	0	0	1	0	1	1
Field and ground layer species % cover (g = ground layer/seedling)					Cover range (Domin)	Constancy
Rubus fruticosus agg. g	60	80	5	70	4-9	5
Hyacinthoides non-scripta	95	1	80	7	1-10	5
Galium aparine	5	10	0	1	1-4	4
Lonicera periclymenum	0	10	1	1	1-4	4
Crataegus spp. g	1	5	0	1	1-4	4
Deschampsia cespitosa	0	5	1	0	1-4	3

Quadrat (site_number)	**BM_Q 4**	**HO_Q 2**	**HO_Q 7**	**RU_Q 1**		
Kindbergia praelonga	0	1	0	3	1-3	3
Anemone nemorosa	1	0	2	0	1-2	3
Milium effusum	0	1	1	0	1	3
Pteridium aquilinum	10	0	0	0	4	1
Arum maculatum	0	0	1	0	1	1
Brachythecium rutabulum	0	0	0	1	1	1
Calamagrostis epigejos	1	0	0	0	1	1
Circaea lutetiana	0	0	1	0	1	1
Dactylis glomerata	0	1	0	0	1	1
Hypnum cupressiforme	1	0	0	0	1	1
Ilex aquifolium g	0	1	0	0	1	1
Lamiastrum galeobdolon	0	0	0	1	1	1
Mycelis muralis	0	0	1	0	1	1
Oxalis acetosella	0	0	0	1	1	1
Polytrichum formosum	0	0	0	1	1	1
Ranunculus ficaria	0	1	0	0	1	1
Stellaria holostea	0	1	0	0	1	1
Stellaria media	0	1	0	0	1	1
Vicia hirsuta	0	0	0	1	1	1
Fraxinus excelsior g	0	0	0	<1	1	1
Moehringia trinervia	0	0	0	<1	1	1

Table A5. W10b *Quercus robur–Pteridium aquilinum-Rubus fruticosus* woodland, *Anemone nemorosa* sub-community quadrat data. Site abbreviations: DP = Decoypond Wood, SP = Sheephouse Wood

Quadrat (site_number)	**DP_Q2**	**SP_Q6**		
Grid reference	SP6940424098	SP6986623377		
Quadrat size: canopy & understorey (m)	50x50	50x50		
Quadrat size: field & ground layers (m)	4x4	4x4		
NVC sub-community	W10b	W10b (in W10a/W10b mosaic)		
Bare ground %	0	0		
Leaf litter %	80	25		
Canopy and understory species % cover (c = canopy, s = shrub layer/ understorey)			Cover range (Domin)	Constancy
Quercus spp. c	50	75	7-8	5
Crataegus spp. s	30	15	5-6	5
Corylus avellana s	20	10	4-5	5
Crataegus monogyna s	0	25	5	3
Pinus spp. c	0	5	4	3
Acer campestre s	1	0	1	3
Fraxinus excelsior c	1	0	1	3
Field and ground layer species % cover (g = ground layer/seedling)			Cover range (Domin)	Constancy
Rubus fruticosus agg. g	50	50	7	5
Anemone nemorosa	30	65	6-8	5
Galium aparine	2	15	2-5	5
Lonicera periclymenum	1	2	1-2	5
Brachythecium rutabulum	2	<1	1-2	5
Kindbergia praelonga	1	1	1	5
Lamiastrum galeobdolon	2	0	2	3
Hyacinthoides non-scripta	0	1	1	3
Hypnum cupressiforme	1	0	1	3
Circaea lutetiana	0	<1	1	3
Crataegus spp. g	0	<1	1	3
Eurhynchium striatum	0	<1	1	3
Milium effusum	0	<1	1	3

Table A6. W10d *Quercus robur–Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community quadrat data. Site abbreviations: BM = Balmore Wood, RU = Runt's Wood

Quadrat (site_number)	**BM_Q3**	**RU_Q2**	**RU_Q3**		
Grid reference	SP7213 023323	SP7238 722988	SP7249 922777		
Quadrat size: canopy & understory (m)	50x50	50x50	50x50		
Quadrat size: field & ground layers (m)	4x4	4x4	4x4		
NVC sub-community	W10d with Pine	W10d	W10d		
Bare ground %	5	0	0		
Leaf litter %	5	30	45		
Canopy and understory species % cover (c = canopy, s = shrub layer/ understory)				Cover range (Domin)	Constancy
Quercus robur c	0	80	72	8-9	3
Pinus spp. c	60	0	0	8	2
Chamaecyparis lawsoniana	0	2	0	2	2
Corylus avellana s	2	0	0	2	2
Crataegus hybrid s	2	0	0	2	2
Fagus sylvatica	0	0	2	2	2
Fraxinus excelsior s	2	0	0	2	2
Pinus sylvestris c	0	0	2	2	2
Fraxinus excelsior c	0	0	1	1	2
Tsuga heterophylla c/s	0	1	0	1	2
Field and ground layer species % cover (g = ground layer/seedling)				Cover range (Domin)	Constancy
Hyacinthoides non-scripta	80	20	30	5-9	5
Rubus fruticosus agg. g	20	20	15	5	5
Holcus lanatus	10	30	55	4-8	5
Galium aparine	5	1	1	1-4	5
Pteridium aquilinum	20	0	40	5-7	3
Kindbergia praelonga	1	0	1	1	3
Deschampsia cespitosa	0	15	0	5	2
Eurhynchium striatum	10	0	0	4	2
Lonicera periclymenum	0	5	0	4	2
Lapsana communis	2	0	0	2	2
Lophocolea bidentata	2	0	0	2	2
Poa trivialis	2	0	0	2	2
Rumex sanguineus	2	0	0	2	2
Stellaria holostea	0	2	0	2	2

Quadrat (site_number)	**BM_Q3**	**RU_Q2**	**RU_Q3**		
Brachythecium rutabulum	1	0	0	1	2
Crataegus spp. g	0	1	0	1	2
Dryopteris cf. carthusiana	1	0	0	1	2

Table A7. Wet woodland quadrat data, closest to W5 *Alnus glutinosa-Carex paniculata* woodland. Site abbreviations: DP = Decoypond Wood

Quadrat (site_number)	**DP_Q3**	
Grid reference	SP6945224002	
Quadrat size: canopy & understory (m)	Whole stand	
Quadrat size: field & ground layers (m)	4x4	
NVC sub-community	Closest to W5	
Bare ground %	0	
Leaf litter %	50	
Canopy and understory species % cover (c = canopy, s = shrub layer/ understory)		Constancy (estimated from % cover)
Betula spp. c	60	5
Crataegus spp. s	30	5
Populus sp. c	10	4
Salix cinerea s	10	4
Alnus glutinosa c	5	3
Prunus spinosa s	5	3
Field and ground layer species % cover (g = ground layer/seedling)		Constancy (estimated from % cover)
Carex cf. elata	80	5
Brachythecium rutabulum	20	5
Kindbergia praelonga	10	4
Calliergonella cuspidata	2	2
Rumex sp.	2	2
Galium aparine	1	1

Table A8. Woodland quadrat data not considered a good fit to the NVC. Site abbreviations: DP = Decoypond Wood, FM = Finemere Wood, GD= Grendon & Doddershall Woods, HE = Hewin's Wood, HO = Home Wood, RO = Romer Wood, SP = Sheephouse Wood

Quadrat (site_number)	**DP_Q1**	**FM_Q6**	**GD_Q1**	**GD_Q2**	**GD_Q3**	**HE_Q1**	**HO_Q5**	**HO_Q6**	**RO_Q3**	**SP_Q1**
Grid reference	SP6964 424043	SP7202 121933	SP7017 521458	SP7003 121441	SP6987 021395	SP7034 221569	SP7162 024236	SP7122 624044	SP7104 723259	SP7047 623075
Quadrat size: canopy & understory (m)	50x50	50x50	50x50	50x50	50x50	Whole stand	50x50	50x50	50x50	50x50
Quadrat size: field & ground layers (m)	4x4	4x4	10x10	4x4	4x4	10x10	4x4	4x4	4x4	4x4
Closest NVC (sub-)community or habitat type	W8/W10 mosaic	W8/W10	Pine + *Calam-agrostis*	Oak + *Calamagrostis*	W8b/W8c	W8/W10 + *Calamagrostis*	W8 + *Calamagrostis*	W10 + *Calamagrostis*	W8c/ W10a transition	W8/W10 mosaic
Bare ground %	0	0	2	0	1	1	0	0	0	1
Leaf litter %	50	10	60	45	20	70	20	80	90	25
Canopy and understory species % cover (c = canopy, s = shrub layer/ understory)										
Acer campestre c	0	0	0	0	0	0	0	0	0	1
Acer campestre s	0	0	0	0	0	0	1	0	0	0
Betula pendula c	0	0	0	0	0	0	0	1	10	0
Betula pendula s	0	0	30	1	1	0	1	20	0	0
Betula pubescens s	0	0	0	0	0	<1	0	0	0	0
Carpinus betulus s	0	0	0	0	0	0	4	2	0	0
Corylus avellana s	0	20	0	30	40	0	0	0	0	40
Crataegus hybrid s	0	0	0	0	0	<1	1	0	0	0
Crataegus laevigata s	0	0	0	0	0	2	1	0	0	5
Crataegus monogyna s	0	0	0	0	0	0	0	0	0	34

Quadrat (site_number)	DP_Q1	FM_Q6	GD_Q1	GD_Q2	GD_Q3	HE_Q1	HO_Q5	HO_Q6	RO_Q3	SP_Q1
Crataegus spp. s	40	15	5	10	5	0	0	0	5	0
Cupressus sp. s	0	0	0	0	0	<1	0	0	0	0
Fraxinus excelsior c	50	0	0	0	0	0	0	0	0	3
Fraxinus excelsior s	0	1	2	0	0	0	2	0	2	0
Malus cf. sylvestris	0	1	0	0	0	0	0	0	0	0
Pinus sylvestris c	0	0	15	0	0	10	0	0	0	0
Populus sp. c	0	0	0	0	0	0	2	0	0	0
Populus tremula c	0	0	0	0	0	0	0	0	0	2
Prunus spinosa s	0	0	2	1	0	0	10	0	0	1
Quercus robur c	0	0	0	0	0	50	0	0	0	0
Quercus sp. c	20	80	5	65	40	0	0	2	80	59
Quercus sp. s	0	0	0	0	0	0	15	80	0	0
Rosa sp. s	0	0	0	0	0	0	1	0	0	0
Salix cinerea s	0	0	20	1	0	<1	1	0	0	0
Field and ground layer species % cover (g = ground layer/seedling)										
Acer campestre g	0	0	0	0	0	0	0	1	0	0
Agrostis canina	0	0	0	0	0	0	0	80	0	0
Agrostis stolonifera	0	0	0	2	0	0	0	0	0	0
Ajuga reptans	0	0	<1	2	0	0	0	0	0	0
Anemone nemorosa	1	<1	<1	15	20	2	1	0	0	5
Angelica sylvestris	0	0	<1	0	0	<1	0	0	0	0
Arum maculatum	0	0	0	0	0	1	0	0	0	0
Brachypodium sylvaticum	0	0	0	0	0	2	0	0	0	0
Brachythecium rutabulum	5	0	5	1	1	2	0	0	0	<1
Calamagrostis epigejos	0	0	60	40	5	10	95	25	0	0
Campylopus sp.	0	0	0	0	0	<1	0	1	0	0

Quadrat (site_number)	**DP_Q1**	**FM_Q6**	**GD_Q1**	**GD_Q2**	**GD_Q3**	**HE_Q1**	**HO_Q5**	**HO_Q6**	**RO_Q3**	**SP_Q1**
Carex flacca	0	0	0	0	0	0	<1	0	0	0
Carex sp. (yellow sedge)	0	0	0	0	0	1	0	0	0	0
Carex sylvatica	0	0	5	10	10	3	0	0	2	0
Circaea lutetiana	0	0	0	0	0	0	0	0	1	0
Cirriphyllum piliferum	2	0	0	0	0	0	0	0	0	0
Cirsium arvense	0	0	1	0	0	0	0	0	0	0
Cirsium palustre	0	0	0	0	0	1	0	0	0	0
Crataegus spp. g	0	0	2	2	5	2	0	0	0	<1
Dactylis glomerata	0	0	<1	0	2	1	1	0	0	0
Deschampsia cespitosa	0	0	10	20	15	15	5	0	20	0
Eurhynchium striatum	1	0	0	<1	0	0	0	0	1	0
Filipendula ulmaria	0	0	0	0	0	0	1	0	0	0
Fraxinus excelsior g	0	0	0	0	0	0	0	0	1	0
Galium aparine	25	<1	<1	0	0	1	2	1	0	20
Glechoma hederacea	0	0	<1	1	5	0	0	0	1	0
Holcus lanatus	0	0	2	2	30	2	1	0	0	0
Hyacinthoides non-scripta	60	95	<1	0	2	1	1	0	1	75
Hypericum hirsutum	0	0	<1	0	1	1	0	0	0	0
Hypnum cupressiforme	0	0	0	<1	2	1	0	0	0	1
Juncus conglomeratus	0	0	<1	0	0	0	0	0	0	0
Juncus effusus	0	0	0	1	0	0	0	1	0	0
Kindbergia praelonga	5	<1	5	1	2	2	10	2	0	<1
Lamiastrum galeobdolon	2	3	0	0	0	0	0	0	0	0
Lapsana communis	0	0	0	0	0	<1	0	0	0	0
Ligustrum vulgare g	0	0	0	0	0	1	0	0	0	0
Lonicera periclymenum	0	0	0	0	0	5	0	10	5	0
Lophocolea bidentata	0	0	<1	0	0	<1	0	0	0	0

Quadrat (site_number)	**DP_Q1**	**FM_Q6**	**GD_Q1**	**GD_Q2**	**GD_Q3**	**HE_Q1**	**HO_Q5**	**HO_Q6**	**RO_Q3**	**SP_Q1**
Plagiomnium undulatum	1	0	0	0	0	0	0	0	0	0
Poa trivialis	2	0	0	0	2	0	0	2	1	0
Potentilla sterilis	0	0	0	0	1	0	1	0	0	0
Primula vulgaris	0	0	1	1	1	0	0	0	0	0
Prunus spinosa g	0	0	1	<1	0	0	0	0	0	<1
Pseudoscleropodium purum	0	0	1	0	0	0	0	0	0	0
Ranunculus ficaria	0	0	<1	1	0	0	20	0	0	0
Rosa sp. g	0	0	2	5	0	10	0	0	0	0
Rubus fruticosus agg. g	0	0	2	2	2	25	1	20	90	1
Rumex acetosa	0	0	0	0	0	1	<1	0	0	0
Stachys sylvatica	0	0	0	0	<1	0	0	0	0	2
Stellaria holostea	30	0	0	0	0	0	1	5	0	0
Thuidium tamariscinum	0	0	10	1	0	1	0	0	0	0
Urtica dioica	0	0	0	0	0	0	1	0	0	1
Veronica hederifolia	1	0	0	0	0	0	0	0	0	0
Veronica officinalis	0	0	0	0	1	0	0	0	0	0
Vicia cracca	0	0	0	0	0	1	0	0	0	0
Vicia sepium	0	0	<1	0	0	1	1	0	0	0
Viola sp.	0	0	0	0	2	1	0	0	0	1

Table A9. Quadrat data from Finemere Wood grassland area

	Q1	Q2	Q3	Q4	Q5		
Grid reference	SP7198721499	SP71996214 91	SP72018214 93	SP72036214 97	SP720422 1472		
Quadrat size	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m		
Vegetation type	MG1e	MG1e	MG1e	MG1e	MG1 e		
Sward height cm	30cm but tussocky	30	30	40	50		
Bare ground %	5	2	<1	<1	0		
Leaf litter %	30	30	40	80	80		
Scientific name % cover (g = ground layer/seedling)	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	Cover range (Domin)	Constancy
Festuca rubra	20	20	40	20	30	5-7	5
Elytrigia repens	10	5	5	20	50	4-7	5
Dactylis glomerata	20	15	10	5	5	4-5	5
Galium verum	25	25	5	10	5	4-5	5
Vicia cracca	5	15	5	15	10	4-5	5
Festuca arundinacea	30	25	30	20	1	1-6	5
Heracleum sphondylium	2	10	2	10	10	1-4	5
Brachythecium rutabulum	0	15	20	5	5	4-5	4
Ranunculus acris	5	2	2	0	1	1-4	4
Taraxacum officinale agg.	1	2	5	0	5	1-4	4
Rhinanthus minor	2	1	2	0	<1	1-2	4
Cirsium arvense	2	2	2	1	0	1-2	4
Cerastium fontanum	1	0	1	<1	<1	1-2	4
Arrhenatherum elatius	0	0	5	30	5	4-6	3
Lathyrus pratensis	5	1	5	0	0	1-4	3
Centaurea nigra	1	2	10	0	0	1-4	3
Rumex acetosa	1	0	0	<1	2	1-2	3
Anthoxanthum odoratum	5	0	0	5	0	4	2
Bromus hordeaceus	2	5	0	0	0	2-4	2

	Q1	Q2	Q3	Q4	Q5		
Potentilla reptans	2	5	0	0	0	2-4	2
Lotus corniculatus	1	0	5	0	0	1-4	2
Angelica sylvestris	0	2	1	0	0	1-2	2
Hypericum hirsutum	1	0	1	0	0	1	2
Ranunculus repens	1	0	0	1	0	1	2
Tragopogon pratensis	0	1	1	0	0	1	2
Primula veris	0	0	10	0	0	4	1
Achillea millefolium	0	2	0	0	0	2	1
Viola hirta	0	0	2	0	0	2	1
Kindbergia praelonga	0	0	2	0	0	2	1
Agrostis stolonifera	0	0	0	0	2	2	1
Vicia hirsuta	1	0	0	0	0	1	1
Carex flacca	0	1	0	0	0	1	1
Dipsacus fullonum	0	1	0	0	0	1	1
Medicago lupulina	0	1	0	0	0	1	1
Acer campestre (g)	0	<1	0	0	0	1	1
Geranium molle	0	0	<1	0	0	1	1
Crataegus spp. (g)	0	0	1	0	0	1	1
Undet Acrocarpous bryophyte	0	0	<1	0	0	1	1

Table A10. Quadrat data from Home Wood grass rides

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
Grid reference	SP7170324430	SP7169524401	SP71693243 73	SP71683243 48	SP71681243 21	SP71210240 77	SP71232241 23	SP71257241 68	SP71268241 88	SP71287242 18		
Quadrat size	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m		
Vegetation type	MG6d	MG6d	MG6d	MG6d	MG6d	MG6d	MG6d	MG6d	MG6d	MG6d		
Sward height cm	30	25	30	40	20	30	40	50	30	40		
Bare ground %	<1	1	<1	0	1	0	0	0	0	0		
Leaf litter %	40 (tree leaves plus grass thatch)	20 with some tree leaves 10%	30	20	10	10	30	40	30	30		
Scientific name % cover (g = ground layer/seedling)	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	Cover range (Domin)	Constancy
Festuca rubra	30	50	50	20	30	20	10	5	40	5	4-7	5
Agrostis stolonifera	15	10	15	10	5	10	20	5	10	30	4-6	5
Holcus lanatus	30	5	5	10	10	5	10	15	5	10	4-6	5
Brachythecium rutabulum	30	10	10	2	10	5	5	5	5	5	2-6	5
Filipendula ulmaria	5	5	2	5	5	0	10	20	15	5	1-5	5
Lathyrus pratensis	<1	20	5	10	10	20	5	15	10	10	1-5	5
Trifolium repens	0	1	2	0	0	1	2	2	2	5	1-4	4

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
Anthoxanthum odoratum	10	5	2	5	2	5	1	0	0	5	1-4	4
Rumex acetosa	2	2	1	1	1	2	1	2	0	0	1-2	4
Cerastium fontanum	<1	<1	1	0	1	1	0	1	2	1	1-2	4
Festuca pratensis	5	2	0	0	10	30	2	0	0	5	2-6	3
Arrhenatherum elatius	2	0	0	15	0	5	20	0	5	0	2-5	3
Agrostis capillaris	10	5	15	15	5	2	0	0	0	0	2-5	3
Alopecurus pratensis	0	15	2	2	5	10	0	0	2	0	2-5	3
Vicia tetrasperma	0	0	5	0	20	5	1	20	5	0	1-5	3
Lysimachia nummularia	2	0	1	0	0	0	0	5	1	5	1-4	3
Stellaria graminea	<1	5	1	2	1	0	0	0	0	0	1-4	3
Phleum pratense	0	0	0	2	2	0	15	0	0	15	2-5	2
Potentilla reptans	0	0	0	0	0	0	2	5	15	15	2-5	2
Calamagrostis epijegos	0	0	5	2	0	0	0	0	15	0	2-5	2
Dactylis glomerata	0	0	0	0	0	0	0	2	15	2	2-5	2
Vicia hirsuta	0	0	2	10	10	0	2	0	0	0	2-4	2
Bromus racemosus	0	0	0	0	0	1	2	0	5	0	1-4	2
Cynosurus cristatus	0	0	0	0	0	1	2	0	5	10	1-4	2
Vicia cracca	10	0	1	10	0	0	2	0	0	0	1-4	2
Lotus pedunculatus	0	1	0	0	10	0	0	10	5	0	1-4	2
Vicia sepium	0	0	0	1	0	2	1	0	0	0	1-2	2
Trifolium pratense	0	0	0	0	0	2	0	1	0	1	1-2	2
Rubus fruticosus agg (g)	0	1	0	0	0	0	1	1	0	0	1	2
Ranunculus repens	0	0	1	0	0	1	0	0	0	1	1	2
Festuca arundinacea	0	0	0	0	0	0	0	40	10	0	4-7	1
Carex hirta	0	0	0	0	0	0	0	20	0	10	4-5	1
Hordeum secalinum	0	0	0	0	0	0	10	0	0	0	4	1
Deschampsia cespitosa	0	0	0	0	0	0	0	5	0	5	4	1

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
Veronica chamaedrys	0	0	0	0	0	5	2	0	0	0	2-4	1
Prunus spinosa (g)	0	0	0	0	0	0	2	0	0	0	2	1
Calliergonella cuspidata	0	0	0	0	0	0	0	0	2	0	2	1
Lolium perenne	0	0	0	0	0	0	1	0	0	5	1-4	1
Conopodium majus	1	2	0	0	0	0	0	0	0	0	1-2	1
Prunella vulgaris	0	0	0	0	0	0	0	0	1	2	1-2	1
Heracleum sphondylium	0	0	0	0	0	0	1	0	0	0	1	1
Geranium dissectum	0	0	0	0	0	0	<1	0	0	0	1	1
Carex sylvatica	0	0	0	0	0	0	1	0	0	0	1	1
Taraxacum officinale agg.	0	0	0	0	0	1	0	0	0	0	1	1
Potentilla anserina	1	0	0	0	0	0	0	0	0	0	1	1
Ajuga reptans	0	0	0	0	0	0	0	0	1	0	1	1
Crataegus sp. (g)	0	0	0	0	0	<1	0	0	0	0	1	1

Table A11. Quadrat data from Romer and Greatsea Woods rides

	Q1	Q2	Q3	Q4	Q5		
Grid reference	SP713 6723133	SP713 6423124	SP713 5523097	SP713 5623081	SP713 6823111		
Quadrat size	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m		
Vegetation type	MG6d	MG6d	MG6d	MG6d	MG6d		
Sward height cm	30	20	25	10	15		
Bare ground %	0	2	1	1	1		
Leaf litter %	10	10	20	5	10		
Scientific name % cover (g = ground layer/seedling)	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	Cover range Domin	Constancy
Agrostis stolonifera	25	30	20	20	10	4-6	5
Festuca arundinacea	15	10	10	8	15	4-5	5
Plantago lanceolata	10	5	20	15	15	4-5	5
Potentilla reptans	20	15	10	15	20	4-5	5
Holcus lanatus	5	5	10	5	5	4	5
Cynosurus cristatus	5	5	10	10	10	4	5
Lolium perenne	15	2	5	2	5	2-5	5
Trifolium pratense	10	5	10	10	2	2-4	5
Trifolium repens	2	2	5	10	10	2-4	5
Brachythecium rutabulum	5	5	5	5	2	2-4	5
Carex flacca	1	15	10	20	20	1-5	5
Filipendula ulmaria	8	5	2	5	1	1-4	5
Prunella vulgaris	2	1	5	2	1	1-4	5
Lysimachia nummularia	<1	2	2	1	1	1-2	5
Kindbergia praelonga	2	2	2	1	1	1-2	5
Phleum pratense	10	5	5	0	5	4	4
Anthoxanthum odoratum	0	2	5	5	5	4	4
Ranunculus repens	2	2	1	2	0	1-2	4
Medicago lupulina	2	1	0	<1	1	1-2	4
Lathyrus pratensis	2	0	1	1	2	1-2	4
Deschampsia cespitosa	5	5	0	0	5	4	3
Ranunculus acris	0	2	2	0	2	3	3
Lotus corniculatus	0	2	0	15	8	3	3
Juncus inflexus	2	10	0	0	1	1-4	3
Plantago major	1	0	0	1	1	1	3

	Q1	Q2	Q3	Q4	Q5		
Carex otrubae	5	2	0	0	0	2-4	2
Dactylis glomerata	2	2	0	0	0	2	2
Mentha sp.	0	1	0	0	<1	2	2
Lotus pedunculatus	0	<1	1	0	0	2	2
Cerastium fontanum	0	0	1	0	1	2	2
Carex sylvatica	0	0	0	10	10	2	2
Cirsium seedling	0	0	0	<1	<1	2	2
Taraxacum officinale agg.	1	0	5	0	0	1-4	2
Juncus articulatus	1	0	0	1	0	1	2
Salix sapling	1	0	0	0	1	1	2
Equisetum arvense	<1	0	0	0	0	1	1
Trifolium dubium	1	0	0	0	0	1	1
Centaurium erythraea	0	<1	0	0	0	1	1
Sonchus asper	0	<1	0	0	0	1	1
Vicia tetrasperma	0	1	0	0	0	1	1
Picris echioides	0	1	0	0	0	1	1
Mentha arvensis	0	0	<1	0	0	1	1
Vicia sp.	0	0	1	0	0	1	1
Juncus effusus	0	0	<1	0	0	1	1
Hypericum perforatum	0	0	0	<1	0	1	1
Succisa pratensis	0	0	0	1	0	1	1
Calliergonella cuspidata	0	0	0	5	0	1	1
Hypericum hirsutum	0	0	0	0	<1	1	1
Rubus fruticosus agg.	0	0	0	0	1	1	1

Table A12. Quadrat data from grassland at Grendon Meadows

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11		
Grid reference	SP701 802157 1	SP701 452161 4	SP7007 921621	SP700 602168 8	SP699 542165 2	SP698 752168 3	SP699 722171 4	SP699 792176 7	SP698 062163 0	SP696 832158 0	SP695 862154 8		
Quadrat size	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m	2 x 2 m		
Vegetation type	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c	MG4c		
Sward height cm	15	15	10	15	25	15	15	15	25	15	10		
Bare ground %	<1	<1	5	2	0	0	0	0	0	0	<1		
Leaf litter %	5	10	20	2	2	20	2	10	1	5	5		
Scientific name % cover	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Cover range Domin**	**Constancy**
Alopecurus pratensis	10	15	5	5	10	15	30	50	30	15	15	4-7	5
Festuca rubra	20	30	40	30	30	30	10	20	5	20	40	4-7	5
Anthoxanthum odoratum	20	20	10	30	10	10	10	10	0	5	5	4-6	5
Ranunculus acris	2	1	15	30	15	2	15	0	15	5	15	2-6	5
Holcus lanatus	2	5	5	10	10	10	5	5	5	5	5	2-4	5
Agrostis stolonifera	10	1	20	5	5	5	10	5	5	5	5	1-5	5
Rumex acetosa	10	5	10	5	0	1	5	5	2	<1	5	1-4	5
Lolium perenne	5	2	0	0	2	15	2	5	10	20	10	2-5	4
Cerastium fontanum	1	2	1	5	0	5	1	2	0	2	1	2-4	4
Trifolium pratense	10	2	2	2	3	1	0	5	0	0	10	2-4	4
Ranunculus repens	0	10	0	1	1	1	1	<1	5	5	2	1-4	4
Rhinanthus minor	40	30	5	30	15	1	0	0	2	0	0	2-7	3

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11		
Brachythecium rutabulum	20	5	10	5	5	2	0	5	0	0	0	2-5	3
Bromus hordeaceus	0	1	0	0	30	0	20	0	30	30	2	1-6	3
Trifolium repens	5	5	1	10	0	2	<1	0	0	0	1	1-4	3
Vicia sativa	0	<1	2	0	2	1	2	5	2	0	0	1-4	3
Kindbergia praelonga	1	2	1	0	0	0	1	1	<1	2	0	1-2	3
Sanguisorba officinalis	0	0	15	5	0	0	5	0	5	0	0	4-5	2
Cardamine pratensis	1	5	0	0	0	1	10	0	0	2	0	2-4	2
Lotus corniculatus	5	1	0	0	1	0	0	2	0	0	0	2-4	2
Calliergonella cuspidata	5	1	5	15	1	0	0	0	0	0	0	1-5	2
Trifolium dubium	0	0	0	1	2	20	5	0	0	0	0	1-5	2
Cynosurus cristatus	0	0	0	0	0	5	1	0	5	0	1	1-4	2
Deschampsia cespitosa	2	2	5	2	0	0	0	0	0	0	0	1-4	2
Potentilla reptans	1	0	1	5	1	0	0	0	1	0	0	1-4	2
Festuca arundinacea	15	0	0	0	0	0	0	0	0	0	0	5	1
Medicago lupulina	0	0	0	0	0	0	0	2	0	5	1	1-4	1
Persicaria sp.	0	0	0	0	0	0	0	0	1	5	0	1-4	1
Taraxacum officinale agg.	0	0	0	5	0	0	0	1	<1	0	0	1-4	1
Carex hirta	0	0	0	0	0	0	0	0	2	0	0	1	1
Centaurea nigra	0	0	0	2	0	0	0	0	0	0	0	1	1
Cirsium arvense	0	0	0	0	0	0	0	1	1	0	1	1	1

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11		
Lathyrus pratensis	0	0	0	0	0	0	0	0	0	2	0	1	1
Phalaris arundinaea	0	0	0	0	0	0	0	0	0	0	1	1	1
Plantago lanceolata	0	0	0	2	0	0	0	0	0	0	0	1	1
Poa trivialis	0	<1	0	0	0	0	0	0	0	0	0	1	1
Rumex sp.	0	0	0	0	0	0	0	0	0	1	0	1	1
Silaum silaus	0	0	0	1	0	0	0	0	0	0	0	1	1

Appendix 3. Combined List of Plant Species Recorded

Table A13. Combined list of plant species recorded

Scientific name	Common name
Acer campestre	Field Maple
Acer pseudoplatanus	Sycamore
Achillea millefolium	Yarrow
Agrimonia eupatoria	Agrimony
Agrostis canina	Velvet Bent
Agrostis capillaris	Common Bent
Agrostis stolonifera	Creeping Bent
Ajuga reptans	Bugle
Alisma plantago-aquatica	Water-plantain
Alliaria petiolata	Garlic Mustard
Alnus glutinosa	Alder
Alnus sp.	Alder species
Alopecurus geniculatus	Marsh Foxtail
Alopecurus pratensis	Meadow Foxtail
Amblystegium serpens	Creeping Feather-moss
Anemone nemorosa	Wood Anemone
Angelica sylvestris	Wild Anglica
Anomodon viticulosus	Rambling Tail-moss
Anthoxanthum odoratum	Sweet Vernal-grass
Anthriscus sylvestris	Cow Parsley
Apium nodiflorum	Fool's-water-cress
Aquilegia vulgaris	Columbine
Arrhenatherum elatius	False Oat-grass
Arum maculatum	Lords-and-Ladies
Atrichum undulatum	Common Smoothcap
Betonica officinalis	Betony
Betula pendula	Silver Birch
Betula pubescens	Downy Birch
Betula spp.	Birch species
Brachypodium sylvaticum	False Brome
Brachythecium rutabulum	Rough-stalked Feather-moss
Bromopsis ramosa	Hairy-brome
Bromus hordeaceus	Soft-brome
Bromus racemosus	Smooth Brome
Buddleja davidii	Butterfly-bush

Scientific name	Common name
Calamagrostis epigejos	Wood Small-reed
Calliergonella cuspidata	Pointed Spear-moss
Callitriche sp.	Water-starwort species
Campylopus sp.	Moss species
Cardamine pratensis	Cuckooflower
Carex cf. *acutiformis*	Sedge species (possible Lesser Pond-sedge)
Carex disticha	Brown Sedge
Carex cf. elata	Sedge species (possible Tufted-sedge)
Carex flacca	Glaucous Sedge
Carex hirta	Hairy Sedge
Carex leporina	Oval Sedge
Carex nigra	Common Sedge
Carex otrubae	False Fox-sedge
Carex pallescens	Pale Sedge
Carex panicea	Carnation sedge
Carex pendula	Pendulous Sedge
Carex remota	Remote Sedge
Carex riparia	Greater Pond-sedge
Carex sp.	Sedge species (unidentified)
Carex sylvatica	Wood-sedge
Carpinus betulus	Hornbeam
Centaurea nigra	Common Knapweed
Centaurium erythraea	Common Centaury
Cerastium fontanum	Common Mouse-ear
Chamaecyparis lawsoniana	Lawson's Cypress
Circaea lutetiana	Enchanter's-nightshade
Cirriphyllum piliferum	Hair Pointed Feather-moss
Cirsium arvense	Creeping Thistle
Cirsium palustre	Marsh Thistle
Cirsium seedling	Thistle seedling
Climacium dendroides	Tree-moss
Conocephalum sp.	Liverwort species
Conopodium majus	Pignut
Cornus sanguinea	Dogwood
Corylus avellana	Hazel
Crataegus x *media*	Hawthorn hybrid
Crataegus laevigata	Midland Hawthorn
Crataegus monogyna	Hawthorn
Crataegus spp.	Hawthorn species
Cupressus sp.	Cypress species
Cynosurus cristatus	Crested Dog's-tail

Scientific name	Common name
Dactylis glomerata	Cock's-foot
Deschampsia cespitosa	Tufted Hair-grass
Dicranum scoparium	Broom Fork-moss
Digitalis purpurea	Foxglove
Dipsacus fullonum	Wild Teasel
Dryopteris cf. *carthusiana*	Buckler-fern (possible Narrow Buckler-fern)
Dryopteris filix-mas	Male-fern
Eleocharis palustris	Common Spike-rush
Elytrigia repens	Common Couch
Epilobium hirsutum	Great Willowherb
Epilobium sp.	Willowherb species
Equisetum arvense	Field Horsetail
Euonymus europaeus	Spindle
Eurhynchium striatum	Common Striated Feather-moss
Fagus sylvatica	Beech
Festuca arundinacea	Tall Fescue
Festuca pratensis	Meadow Fescue
Festuca rubra	Red Fescue
Filipendula ulmaria	Meadowsweet
Fissidens taxifolius	Pocket-moss
Fraxinus excelsior	Ash
Galium album	Hedge Bedstraw
Galium aparine	Cleavers
Galium odoratum	Woodruff
Galium palustre	Marsh-bedstraw
Galium verum	Lady's Bedstraw
Geranium dissectum	Cut-leaved Crane's-bill
Geranium molle	Dove's-foot Crane's-bill
Geranium robertianum	Herb-Robert
Geum urbanum	Wood Avens
Glechoma hederacea	Ground-ivy
Glyceria sp.	Sweet-grass species
Hedera helix	Common Ivy
Heracleum sphondylium	Hogweed
Holcus lanatus	Yorkshire-fog
Holcus mollis	Creeping Soft-grass
Hordelymus europaeus	Wood Barley
Hordeum secalinum	Meadow Barley
Hyacinthoides non-scripta	Bluebell
Hypericum hirsutum	Hairy St John's-wort
Hypericum perforatum	Perforate St John's-wort

Scientific name	Common name
Hypericum sp.	St John's-wort species
Hypericum tetrapterum	Square-stalked St John's-wort
Hypnum cupressiforme	Cypress-leaved Plait-moss
Ilex aquifolium	Holly
Isothecium myosuroides	Mouse-tail Moss
Juncus articulatus	Jointed Rush
Juncus conglomeratus	Compact Rush
Juncus effusus	Soft-rush
Juncus inflexus	Hard Rush
Kindbergia praelonga	Common Feather-moss
Lamiastrum galeobdolon	Yellow Archangel
Lapsana communis	Nipplewort
Larix sp.	Larch species
Lathyrus pratensis	Meadow Vetchling
Lemna trisulca	Ivy-leaved Duckweed
Ligustrum vulgare	Wild Privet
Lolium perenne	Perennial Rye-grass
Lonicera periclymenum	Honeysuckle
Lophocolea bidentata	Bifid Crestwort
Lophocolea heterophylla	Variable-leaved Crestwort
Lotus corniculatus	Common Bird's-foot-trefoil
Lotus pedunculatus	Greater Bird's-foot-trefoil
Luzula pilosa	Hairy Wood-rush
Luzula sp.	Wood-rush species (unidentified)
Lysimachia nemorum	Yellow Pimpernel
Lysimachia nummularia	Creeping-Jenny
Malus cf. *sylvestris*	Apple species (possibly Crab Apple)
Malus/Pyrus	Apple/Pear species
Medicago lupulina	Black Medick
Mentha aquatica	Water Mint
Mentha arvensis	Corn Mint
Mentha sp.	Mint species
Mercurialis perennis	Dog's Mercury
Milium effusum	Wood Millet
Mnium hornum	Swan's-neck Thyme-moss
Moehringia trinervia	Three-nerved Sandwort
Mycelis muralis	Wall Lettuce
Myosotis sp.	Forget-me-not species
Myosotis sylvatica	Wood Forget-me-not
Neckera crispa	Crisped Neckera
Oenanthe fistulosa	Tubular Water-dropwort
Orchis mascula	Early-purple Orchid

Scientific name	Common name
Oxalis acetosella	Wood-sorrel
Persicaria sp.	Bistort/Knotweed species
Phalaris arundinaea	Reed Canary-grass
Phleum pratense	Timothy
Picea abies	Norway Spruce
Picea sp.	Spruce species
Picris echioides	Bristly Ox-tongue
Pinus spp.	Pine species
Pinus sylvestris	Scots Pine
Plagiochila sp.	Featherwort species
Plagiomnium undulatum	Hart's-tongue Thyme-moss
Plantago lanceolata	Ribwort Plantain
Plantago major	Greater Plantain
Poa nemoralis	Wood Meadow-grass
Poa sp.	Meadow-grass species
Poa trivialis	Rough Meadow-grass
Polytrichum formosum	Bank Haircap
Polytrichum sp.	Haircap moss species
Populus sp.	Poplar species
Populus tremula	Aspen
Potamogeton natans	Broad-leaved Pondweed
Potentilla anserina	Silverweed
Potentilla erecta	Tormentil
Potentilla reptans	Creeping Cinquefoil
Potentilla sterilis	Barren Strawberry
Primula veris	Cowslip
Primula vulgaris	Primrose
Prunella vulgaris	Selfheal
Prunus avium	Wild Cherry
Prunus spinosa	Blackthorn
Prunus spp.	Cherry species
Pseudoscleropodium purum	Neat Feather-moss
Pseudotsuga menziesii	Douglas Fir
Pteridium aquilinum	Bracken
Quercus petraea	Sessile Oak
Quercus robur	Pedunculate Oak
Quercus cf. rubra	Oak species (possible Red Oak)
Quercus sp.	Oak species
Ranunculus acris	Meadow Buttercup
Ranunculus auricomus	Goldilocks Buttercup
Ranunculus ficaria	Lesser Celandine
Ranunculus flammula	Lesser Spearwort

Scientific name	Common name
Ranunculus repens	Creeping Buttercup
Rhinanthus minor	Yellow-rattle
Ribes rubrum	Red Currant
Rosa sp.	Rose species
Rubus fruticosus agg.	Bramble
Rumex acetosa	Common Sorrel
Rumex obtusifolius	Broad-leaved Dock
Rumex sanguineus	Wood Dock
Rumex sp.	Dock species
Salix caprea	Goat Willow
Salix cinerea	Grey Willow
Salix spp.	Willow species
Sambucus nigra	Elder
Sanguisorba officinalis	Great Burnet
Scrophularia sp.	Figwort species
Silaum silaus	Pepper-saxifrage
Silene flos-cuculi	Ragged-Robin
Silene sp. (seedling)	Campion species
Sonchus asper	Prickly Sow-thistle
Sorbus torminalis	Wild Service-tree
Stachys sylvatica	Hedge Woundwort
Stellaria graminea	Lesser Stitchwort
Stellaria holostea	Greater Stitchwort
Stellaria media	Common Chickweed
Succisa pratensis	Devil's-bit Scabious
Symphoricarpos albus	Snowberry
Taraxacum officinale agg.	Dandelion
Thamnobryum alopecurum	Fox-tail Feather-moss
Thuidium tamariscinum	Common Tamarisk-moss
Tilia platyphyllos	Large-leaved Lime
Tilia sp.	Lime species
Tragopogon pratensis	Goat's-beard
Trifolium campestre	Hop Trefoil
Trifolium dubium	Lesser Trefoil
Trifolium medium	Zigzag clover
Trifolium pratense	Red Clover
Trifolium repens	White Clover
Tsuga heterophylla	Western Hemlock-spruce
Typha latifolia	Bulrush
Ulmus glabra	Wych Elm
Ulmus sp.	Elm species
Umbellifer *(cf. Chaerophullum temulum)*	Umbellifer (possible Rough Chervil)

Scientific name	Common name
Urtica dioica	Common Nettle
Valeriana officinalis	Common Valerian
Veronica beccabunga	Brooklime
Veronica chamaedrys	Germander Speedwell
Veronica hederifolia	Ivy-leaved Speedwell
Veronica montana	Wood Speedwell
Veronica officinalis	Heath Speedwell
Viburnum opulus	Guelder-rose
Vicia cracca	Tufted Vetch
Vicia hirsuta	Hairy Tare
Vicia sativa	Common Vetch
Vicia sepium	Bush Vetch
Vicia sp.	Vetch species
Vicia tetrasperma	Smooth Tare
Viola hirta	Hairy Violet
Viola sp.	Violet species

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