APPENDIX 7.3
FIR TREE GROVE BOTANICAL REPORT

Technical Briefing Note

Project: Downlands, Uckfield

Technical Briefing Note 05: Fir Tree Grove - Botanical survey of woodland & proposed boardwalk alignment

Date: May 2022

1. Introduction and Background

1.1. Sylvan is commissioned to assess the ecological and arboricultural feasibility of the installation of a boardwalk access through Fir Tree Grove. The woodland is listed as ancient within the ancient woodland inventory maintained by Natural England.

Figure 1 – site location. The vertical hatch represents ancient woodland



1.2. This note sets out the findings from botanical survey carried out during fieldwork in 2021 and 2022, with an emphasis on recording of woodland ground flora species, including Ancient Woodland Indicator plants.

The Sylvan brand is a specialist collaboration between Aspect Ecology Ltd (registered number 5648214 – England and Wales) and Forbes Laird Arboricultural Consultancy Ltd (registered number 05253618 – England and Wales)

2. Methodology

2.1. The woodland was initially surveyed on 13 October 2021 under a Level 2 standard woodland survey methodology[1], with further botanical survey undertaken on 30 April 2022 with a particular focus on vascular plant species present within the ground flora. The abundance of each species was recorded according to the DAFOR scale (Appendix 1). The survey included a general assessment of the woodland as well as specific point recording along the route of the proposed boardwalk. Scientific names of plant species are provided in Appendix 1.

2.2. Particular attention was paid to the presence of Ancient Woodland Vascular Plants (AWVPs), alongside other woody ancient woodland indicators (AWIs), as defined within Rose's list for the south-east of England[2]. The distribution of AWIs was mapped by walking a transect comprising a series of parallel straight lines spaced 10 m apart throughout the woodland, using a GPS smartphone app providing 10-figure OS grid references, and a magnetic compass, aided by a topographical survey. The transect was followed as closely as possible but some deviations were necessary around vegetation thickets or steep topography. All noteworthy patches of ground flora AWIs within sight of the transect line were recorded and mapped, in addition to AWIs in the canopy and understorey when encountered. The approach to mapping depended on the frequency of the species, i.e. for the more abundant species (such as Bluebell and Wood Meadow-grass), reasonably sized patches were mapped rather than every individual plant, but individual plants were mapped for rarer species within the woodland.

2.3. The survey information was recorded with the aim of assessing the quality and condition of the woodland and any variation therein, and to evaluate the potential impact of the proposed boardwalk route options. The survey data was interpreted using WISDOM (Woodland Indicator Strength, Distribution & Occurrence Matrix), which is a tool developed by Sylvan to assess the significance of AWIs based on their fidelity to ancient woodland and occurrence within a site (see Appendix 1).

2.4. The AWI mapping survey aimed to inform an evaluation as to the representative distribution of AWIs within the woodland, rather than an exhaustive survey of every AWI specimen. Although every effort was made to accurately map AWI distribution, GPS signal is intermittent in closed-canopy woodland which leads to some margin for error.

3. Results

General woodland description

3.1. The woodland forms part of the garden associated with Chicory Cottage, with the garden influence extending into the parts of the woodland closest to the house and along Rocks Road. Large sandstone rock outcrops are present in part along the boundary with Rocks Road and around the house while a large pond is present along part of the northern boundary, which extends offsite.

3.2. Fir Tree Grove comprises a mature canopy with a variable structure, dominated by Ash (experiencing Ash dieback) with frequent Scots Pine, especially in the west. A number of mature Pedunculate Oaks are present in the vicinity of the house as is Sycamore alongside a veteran Beech and a substantial Monterey Pine.

[1] Woodland Survey Handbook. Kirby & Hall. 2019

[2] Rose F (1999) Indicators of ancient woodland. British Wildlife. Reproduced in Rose F (2006) *The Wildflower Key*.

3.3. The understorey of Fir Tree Grove is sparse to very sparse across the majority of the woodland, although the density of the understorey increases locally, especially at the margins. The most prominent species comprise Hawthorn, Hazel, and Spindle, while small, localised Holly thickets are present. In addition, Sycamore is frequent within the understorey, forming a dense sub-canopy in places. The south-western boundary of the woodland, adjacent to Rocks Road, is heavily dominated by Cherry Laurel and Rhododendron.

3.4. Much of the ground flora is dominated by a dense carpet of Bluebell, frequently accompanied by Wood Speedwell, Wood Anemone, and Three-nerved Sandwort, particularly towards the east. Wood Meadow-grass is dominant towards the north-west, interspersed with patches of bare ground. Elsewhere, the ground flora is locally suppressed by needle drop from Pines, especially along the western margin, while localised dense stands of Bramble, Holly, Rhododendron and Cherry Laurel similarly suppress the ground flora. Bracken is colonising locally in the vicinity of the house, while a patch of the invasive species Himalayan Balsam was recorded in the eastern extreme of the ancient woodland, extending offsite to the north, with isolated specimens also recorded elsewhere along the south-eastern margin of the ancient woodland.

3.5. There is limited standing or fallen deadwood present save for a small number of notable exceptions, such as that present in the veteran Beech which is largely hollow.

Ancient woodland indicators

3.6. A total of 20 Sussex AWI species were recorded within the woodland. According to the WISDOM metric (see Appendix 1), one of these is a 'strong' indicator (Early Purple Orchid, of which only one specimen was recorded), 14 are 'moderate', and five are 'weak' indicators of ancient woodland. Of the 20 AWI species, four were tree or tall shrub species, with the remaining 16 comprising herbaceous species, small shrubs or climbers. The distribution of AWIs within the site is shown at Plan 5719/AWI1, while a list of AWI and other plant species recorded within the woodland is set out at Appendix 1.

3.7. Bluebell was the most abundant AWI species recorded, and forms dense continuous carpets particularly in the eastern part of the woodland. Wood Meadow-grass formed localised carpets where Bluebell dominance was reduced, particularly in the west-centre of the woodland. Holly was locally abundant, forming localised thickets particularly in the south and east of the woodland. Other frequent species included Wood Sedge, which occurred sporadically throughout the woodland, and Three-nerved Sandwort and Wood Speedwell, both of which were particularly prevalent within the Bluebell carpet in the east of the woodland. The AWI interest of the woodland is greatest in this area, where other AWIs such as Wood Anemone, Holly, and Wild Cherry add to the interest, while Field Rose and Wood Melick were only recorded in this part of the woodland.

3.8. In addition, parts of the northern margin of the woodland support a good diversity of AWIs, particularly the area around the pond at the northern boundary, which supported a number of AWI species including Primrose, Wood Speedwell, Three-nerved Sandwort, Barren Strawberry, Wood Sedge, Hairy Woodrush. A single specimen of Early Purple Orchid was recorded a few metres to the west of this area.

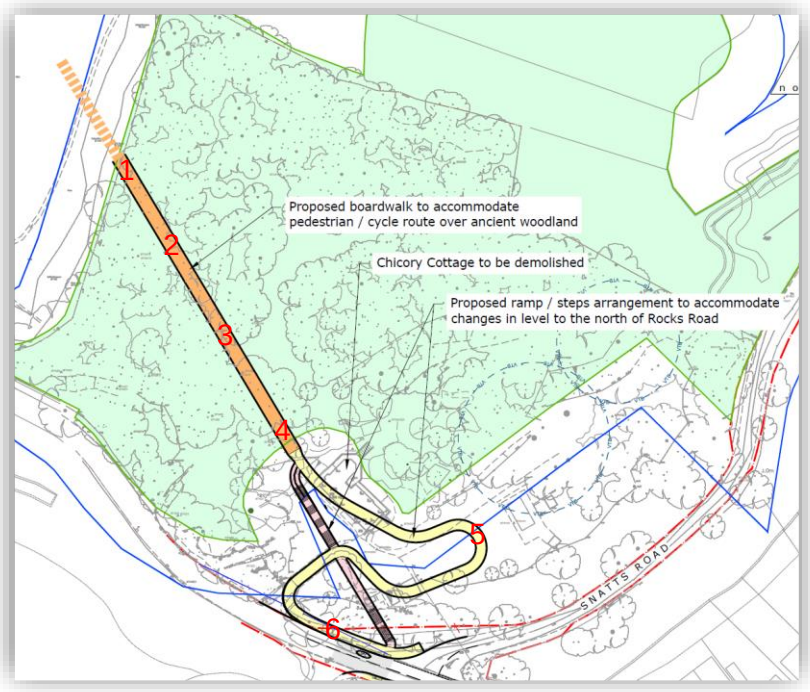
3.9. Areas of relatively reduced interest were noted along the western margin, where the dense canopy including abundant Scots Pine and its associated needle drop suppresses the ground

flora for the most part, and also along parts of the southern margin where Cherry Laurel and Rhododendron form dense thickets to the detriment of the woodland ground flora.

4. Proposed Boardwalk Alignment – Route C

4.1. The proposed boardwalk alignment through the woodland (Route C), has been identified to avoid the loss of mature trees with only small numbers of sub-mature trees required to be removed to facilitate its installation. Six survey points were recorded along the proposed alignment route (see Figure 2).

Figure 2: survey points (in red) along alignment of proposed boardwalk, Route C (adapted from Motion drawing 2001061-SK14).



4.2. The woodland composition along the route of Option C is described at each survey point:

4.3. Point 1: The entry point to the woodland of the boardwalk. Here, the woodland edge comprises a canopy dominated by Ash and Pedunculate Oak, with Scots Pine becoming prevalent further into the woodland along the proposed route. The woodland edge supports a moderate understorey density, primarily comprising Hawthorn. The ground flora is partly suppressed by the heavy shade from the canopy and understorey, particularly under the Pines, but Bramble is present in lighter areas, with occasional Bracken, sporadic Bluebell, and some regenerating Ash seedlings.

Figure 3: Survey point 1 (Route C)



4.4. Point 2: The canopy supports sub-mature and mature Ash. The understorey is sparse, comprising Hawthorn and Hazel. The ground flora is dominated by Wood Meadow-grass, interspersed with frequent patches of bare ground, in addition to occasional Three-nerved Sandwort and very sparse Bluebell and Common Dog-violet.

Figure 4: Survey point 2 (Route C)



4.5. Point 3: A dense mixed canopy is present, including Ash, Pedunculate Oak, and Silver Birch, over a tall, moderate to sparse understorey of Hazel, Hawthorn, and Yew. The ground flora is sparse,

owing to the canopy and understorey shade, but with small patches of Wood Meadow-grass with sporadic Wood Sedge, Bramble, and Bluebell.

Figure 5: Survey point 3 (Route C)



4.6. Point 4: This point is located at a transition between a Bluebell carpet under a mixed canopy of Ash, Pedunculate Oak, and Scots Pine, with Hazel and Sycamore forming a moderately dense and tall understorey layer, into a dense Holly thicket which is almost devoid of ground flora.

Figure 6: Survey point 4 (Route C), looking north-west into the Bluebell carpet



4.7. Point 5: comprises a formal lawn.

Figure 7: Survey point 5 (Route C)



4.8. Point 6: comprises a very steep bank forming the boundary between the property and the adjacent public road. The bank forms a wooded strip (not part of the identified ancient woodland) with a mixed canopy, including Yew, Ash, Sycamore, Beech, and Horse Chestnut, over a somewhat dense understorey of Rhododendron, Cherry Laurel, Holly, and Elder. The ground flora is suppressed by the dense tree and shrub cover, mostly comprising bare leaf litter, although the road verge itself is more open in places, forming a band of herbaceous vegetation up to 2 m wide. Species here include Wood Melick (an AWI), in addition to other common verge species of low botanical interest such as Hogweed, Cow Parsley, Bramble, Cleavers, Common Nettle, Cock's-foot, False Oat-grass, and Perennial Rye-grass.

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Figure 8: Survey point 6 (Route C)



4.9.

5. Management: Current Status and Recommendations

5.1. Few signs of active management of the woodland were recorded, aside of the occasional stump and log piles. In addition, several young planted native broadleaved trees were noted towards the centre of the woodland.

5.2. Although much of the woodland is in good condition, with a reasonably high diversity of AWIs in places, two key threats pose a risk to its future condition. Firstly, non-native species present an ongoing threat, particularly Cherry Laurel, Rhododendron, and Himalayan Balsam. The former two species are particularly prevalent along parts of the southern margin, to the near exclusion of the woodland ground flora. There is a risk that continued spread of these species would further suppress the woodland ground flora. The extent of Himalayan Balsam is currently limited, and largely confined to the eastern extreme of the woodland, however, sporadic specimens were recorded elsewhere along the south-eastern woodland margin. This is a highly invasive species which poses a further threat to the native woodland ground flora. In addition, dense Sycamore cover is present in some places which appears to restrict the ground flora. Although this is a long-established species, localised thinning would help to reinvigorate the ground flora.

5.3. The second threat is presented by Ash dieback, which has been noted within the woodland. The loss of Ash from the canopy would likely stimulate dense undergrowth such as Bramble or, under a worse scenario, would present favourable conditions for the spread of non-native species such as Cherry Laurel and Rhododendron, which would likely heavily suppress the woodland ground flora.

5.4. To manage these threats, and to improve the current condition of the woodland, it is recommended that any woodland management plan includes the following principles:

- Removal and ongoing control of Cherry Laurel and Rhododendron, with replacement native tree planting;
- Removal, appropriate disposal, and ongoing monitoring for Himalayan Balsam;
- Phased removal of non-native conifers (except for mature specimens), such as Scots Pine, with replacement native tree planting;
- Thinning of Sycamore, focussing on younger specimens;
- Replacement planting of broadleaved trees should comprise native species already present within the woodland or the immediate locality, but excluding Ash while the threat of Ash dieback persists. Suitable species include Pedunculate Oak, Field Maple, Hornbeam, Wild Cherry, English Elm, and Silver Birch;
- Any AWVPs translocated from the boardwalk route could be received in areas currently lacking in AWVPs elsewhere, which will be enhanced by the above management actions, such as areas dominated by Cherry Laurel and Rhododendron (after their removal), particularly along the southern margin of the woodland.

6. Evaluation

6.1. The well spaced mature trees in the woodland allow a boardwalk to be inserted avoiding the loss of any such trees. Similarly, the sparse and tall nature of the understorey along much of the proposed route of the boardwalk, alongside the crossing of a clearing means that minimal loss of understorey would be required to install the boardwalk. A small number of AWVPs are present which would be affected by shade cast from the proposed route of the boardwalk, with Bluebell being the most prominent of these. However, the proposed route avoids the areas of greatest AWVP interest which lie in the eastern half of the woodland and along the northern margin. Furthermore, these localised effects could be offset by translocation of Bluebell bulbs to other areas of the woodland which do not support this species because of the dense shade cast by non-native shrubs.

6.2. A management plan could be introduced to improve the condition of the woodland and mitigate against future threats, particularly the spread of non-native species and Ash dieback.

7. Summary and Conclusion

7.1. A Level 2 walkover and AWI mapping survey of Fir Tree Grove has been carried out. The canopy is dominated by Ash which is considerably affected by Ash dieback disease, while the understorey is sparse in nature for the most part. The ground flora supports localised carpets of Bluebell and Wood Meadow-grass, in addition to 18 other AWI species, with the greatest interest focussed in the eastern half of the woodland and along the northern margin. In places, the native ground flora is suppressed by non-native shrub species. The proposed boardwalk route avoids the areas of greatest botanical interest, while the introduction of ecological management would be highly beneficial and would improve the condition of the woodland and reduce the risks posed by invasive species and Ash dieback.

Plan 5719/BOT1:

Downlands – Fir Tree Grove. Woodland Botanical Survey



Key:

- Site Boundary
- Bluebells
- Holly
- Wood Meadow Grass
- Scattered Wood Meadow Grass
- Wood Sedge
- Scattered Wood Sedge
- Scattered Wood Anemone and Wood Speedwell
- Scattered Wood Anemone, Wood Speedwell and Three-nerved Sandwort
- Hornbeam
- Field Rose
- Early Purple Orchid
- Primrose
- Barren Strawberry
- Three nerved Snadwort
- Field Marple
- Wild Cherry
- Wood Anemone
- Wood Speedwell
- Blackcurrant
- Wood Melick
- Black Bryony
- Hairy Wood-rush
- Wood Spurge

aspect ecology

Aspect Ecology Limited - West Court - Hardwick Business Park
Noral Way - Banbury - Oxfordshire - OX16 2AF
01295 279721 - info@aspect-ecology.com - www.aspect-ecology.com

Downlands Farm	PROJECT
Downland. Fir Tree Grove - Woodland Botanical Survey Results	TITLE
5719/BOT1	DRAWING NO.
A/AM	REV
May 2022	DATE

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Appendix 5719/1:

FIR TREE GROVE: WISDOM REPORT (Woodland Indicator Strength, Distribution & Occurrence Matrix)

Sylvan Strategy and planning for ancient woodland veteran trees historic landscapes www.sylvan-consulting.com

FIR TREE GROVE: WISDOM REPORT (Woodland Indicator Strength, Distribution & Occurrence Matrix)

Process

1. Select the correct county AWI list for the survey area => **Sussex**
2. Applicable species automatically selected below
3. Listed species differentiated into strong, moderate and weak indicators
4. Undertake botanical survey
5. Format *Distribution* columns to reflect compartment mapping & record occurrences accordingly, including totals in col. P
6. Assess indicator occurrences and report significance based on the following factors:

a) Survey month: more indicators expected during M-J-J

b) Size of woodland/ reporting area: more indicators expected in larger areas

c) Topographic heterogeneity and presence of microclimates: more indicators expected with greater environmental variation

Indicator strength has been assigned based on species' known fidelity to ancient woodland and their frequency of occurrence (following a review of updated ancient woodland inventories).

Scientific Name	Common Name	Indicator strength			Flowering Months										Cpt occurrences	Cpt.Ref.	Distribution																
		Strong	Moderate	Weak	January	February	March	April	May	June	July	August	September	October			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
* Caution required if specimen found within woodland edge: risk of garden escape or seed transport from outside woodland		Woodland specialist + slow colonizer	Woodland specialist but known to colonize secondary woodland	Generalist and/ or swift colonizer												S.M.W tally	1.14.5	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0
	Count	40	53	7																														
Acer campestre*	Field Maple			x					√	√					1		O																	
Adoxa moschatellina	Moschatel	x						√	√																									
Allium ursinum	Ramsons	x						√	√	√																								
Anagallis minima	Chaffweed	x								√	√																							
Anemone nemorosa	Wood Anemone		x				√	√							1		O																	
Aquilegia vulgaris*	Columbine	x							√	√																								
Blechnum spicant	Hard Fern		x							√	√	√																						
Bromopsis ramosa	Hairy-brome		x								√	√																						
Calamagrostis epigejos	Wood Small-reed		x								√	√																						
Campanula trachelium	Nettle-leaved Bellflower	x									√	√	√																					
Cardamine amara	Large Bitter-cress	x						√	√	√																								
Cardamine bulbifera	Coralroot Bittercress	x																																
Carex laevigata	Smooth-stalked Sedge	x									√	√																						
Carex pallescens	Pale Sedge	x								√	√																							
Carex pendula*	Pendulous Sedge		x							√	√				1		R																	
Carex remota	Remote Sedge		x							√	√	√																						
Carex strigosa	Thin Spiked Wood Sedge	x								√	√	√	√																					
Carex sylvatica	Wood-sedge			x					√	√	√	√			1		LF																	
Carpinus betulus*	Hornbeam		x					√	√						1		O																	
Chrysosplenium oppositifolium	Opposite-leaved Golden-saxifrage	x						√	√																									
Conopodium majus	Pignut		x						√	√																								
Convallaria majalis*	Lily-of-the-Valley	x							√	√																								
Crataegus laevigata	Midland Hawthorn		x					√	√																									
Daphne laureola	Spurge-laurel	x				√	√	√																										
Dipsacus pilosus	Small Teasel	x									√	√																						
Dryopteris aemula	Hay-Scented Buckler-fern	x									√	√	√																					
Dryopteris affinis	Scaly Male-fern		x								√	√																						
Dryopteris carthusiana	Narrow Buckler-fern	x									√	√	√																					
Elymus caninus	Bearded Couch		x							√	√	√																						
Epipactis helleborine	Broad-leaved Helleborine	x									√	√																						
Epipactis purpurata	Violet Helleborine	x										√																						
Equisetum sylvaticum	Wood Horsetail			x					√	√	√	√	√	√																				
Euphorbia amygdaloides	Wood Spurge		x					√	√						1		R																	
Festuca gigantea	Great Fescue		x							√	√	√																						
Frangula alnus	Alder Buckthorn	x							√	√																								
Galium odoratum	Sweet Woodruff	x							√	√																								
Helleborus viridis	Green Hellebore		x				√	√																										
Holcus mollis	Creeping Soft-grass		x							√	√	√	√																					
Hyacinthoides non-scripta	Bluebell			x				√	√						1		LD																	
Hypericum androsaemum	Tutsan		x							√	√	√																						
Hypericum pulchrum	Slender St John's-wort		x							√	√	√																						
Ilex aquilfolium	Holly			x					√	√	√	√			1		LA																	
Iris foetidissima	Stinking Iris		x						√	√																								
Lamiastrum galeobdolon	Yellow Archangel		x						√	√																								
Lathraea squamaria	Toothwort	x						√	√																									

Scientific Name	Common Name	Indicator strength			Flowering Months										Cpt occurrences	Cpt.Ref.	Distribution																
		Strong	Moderate	Weak	January	February	March	April	May	June	July	August	September	October			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
* Caution required if specimen found within woodland edge: risk of garden escape or seed transport from outside woodland		Woodland specialist + slow colonizer	Woodland specialist but known to colonize secondary woodland	Generalist and/ or swift colonizer												S.M.W tally	1.14.5	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0
Lathyrus linifolius	Bitter-vetch		x					√	√	√	√																							
Lathyrus sylvestris	Narrow-leaved Everlasting-pea		x							√	√	√																						
Luzula forsteri	Southern Wood-rush	x						√	√	√																								
Luzula pilosa	Hairy Wood-rush		x					√	√	√					1		R																	
Luzula sylvatica	Great Wood-rush	x							√	√																								
Lysimachia nemorum	Yellow Pimpernel		x						√	√	√	√	√																					
Malus sylvestris*	Crab Apple		x					√	√																									
Melampyrum pratense	Common Cow-wheat	x							√	√	√	√	√																					
Melica uniflora	Wood Melick		x						√	√					1		R																	
Milium effusum	Wood Millet		x						√	√	√																							
Moehringia trinervia	Three-nerved Sandwort		x						√	√					1		F																	
Narcissus pseudonarcissus*	Wild Daffodil	x						√	√																									
Neottia nidus-avis	Bird's-nest Orchid	x							√	√	√																							
Orchis mascula	Early Purple Orchid	x						√	√	√					1		R																	
Orchis purpurea	Lady Orchid	x							√	√																								
Oreopteris limbosperma	Lemon-scented Fern		x								√	√																						
Oxalis acetosella	Wood-sorrel		x					√	√																									
Paris quadrifolia	Herb-Paris	x							√	√	√																							
Phyllitis scolopendrium*	Hart's-tongue		x								√	√																						
Pimpinella major	Great Burnet-saxifrage		x							√	√																							
Platanthera chlorantha	Greater Butterfly-orchid	x								√	√																							
Poa nemoralis	Wood Meadow-grass		x							√	√				1		LA																	
Polygonatum multiflorum	Solomon's-seal	x							√	√																								
Polypodium vulgare (sensu lato)	Polypody (all species)	x																																
Polystichum aculearum	Hard Shield-fern	x									√	√																						
Polystichum setiferum	Soft Shield-fern		x								√	√																						
Populus tremula*	Aspen		x			√	√																											
Potentilla sterilis	Barren Strawberry		x								√	√			1		R																	
Primula vulgaris	Primrose*		x				√	√	√	√					1		O																	
Prunus avium	Wild Cherry			x				√	√						1		O																	
Quercus petraea*	Sessile Oak		x					√	√																									
Radiola linoides	Allseed		x								√	√																						
Ranunculus auricomus	Goldilocks Buttercup	x						√	√	√																								
Ribes nigrum*	Black Currant		x					√	√						1		R																	
Ribes rubrum*	Red Currant		x					√	√																									
Rosa arvensis	Field-rose		x							√	√				1		R																	
Ruscus aculeatus	Butcher's Broom	x			√	√	√	√																										
Sanicula europaea	Sanicle		x						√	√	√	√																						
Scirpus sylvaticus	Wood Club-rush	x								√	√																							
Scutellaria minor	Lesser Skullcap		x								√	√	√	√																				
Sedum telephium	Orpine	x								√	√																							
Serratula tinctoria	Saw-wort	x									√	√	√																					
Solidago virgaurea	Golden-rod			x							√	√	√																					
Sorbus torminalis	Wild Service Tree	x							√	√																								
Stachys officinalis	Betony	x								√	√	√	√																					
Tamus communis	Black Bryony		x						√	√	√				1		R																	
Tilia cordata*	Small-leaved Lime		x								√																							
Vaccinium myrtillus	Bilberry		x								√	√																						
Veronica montana	Wood Speedwell		x					√	√	√	√				1		F																	
Viburnum opulus*	Guelder Rose		x							√	√																							
Vicia sepium	Bush Vetch		x					√	√	√	√	√																						
Vicia sylvatica	Wood Vetch		x							√	√	√																						
Viola palustris	Marsh Violet		x					√	√	√	√																							
Viola reichenbachiana	Early Dog-violet		x				√	√	√																									
Wahlenbergia hederacea	Ivy-leaved Bellflower		x								√	√																						