New Forest botanical survey: Wootton

Higher Level Stewardship Agreement
The Verderers of the New Forest AG00300016

Sophie Lake and Jim White
Summary

A botanical survey was carried out at Wootton, where work is proposed under the New Forest Higher Level Stewardship Agreement to restore the canalised Avon Water to much of its former meandering course. A vegetation survey was carried out and communities mapped according to their nearest National Vegetation Classification type. All species encountered were recorded, and grid references obtained for any notable species. In addition, previous records for the site were obtained and mapped.

The restoration area includes riverine woodland, Purple Moor-grass and rush pasture (including streamside lawns), wet heath, valley mire and small amounts of other mire and swamp vegetation. Several NVC communities were identified, but were in many cases transitional in character. These are described fully within the report.

Four notable species were recorded during the survey – Pillwort, Petty Whin, Marsh Cinquefoil and the rare liverwort Veilwort, which is known from only two other sites in the New Forest. In addition, thirty-two other notable species have been recorded from the vicinity since 1990.

The location of a number of species will mean that potential impacts of the restoration will need to be assessed. These include Veilwort, found in the ground layer in the western part of the site, Pillwort, located within a runnel which forms part of the proposed restoration, Yellow Centuary, previously recorded from a track leading from one of the access areas, and Bastard Balm, which has been recorded in the past from a 100m grid square through which one of the proposed access tracks is likely to be routed.

Data are provided in spreadsheets and GIS layers accompanying this report.
Acknowledgements

This report was commissioned by Nick Wardlaw, Forestry Commission. Thanks to Bryan Edwards for confirmation of byrophyte identification.
1. **Introduction**

1.1 In the 1860s an artificial, embanked channel was constructed to replace the meandering Avon Water (Wright 2013). The channel has subsequently become deepened by erosion over the years, and is now relatively fast-flowing. The meanders persist in many places, and as part of New Forest HLS wetland restoration programme, it is proposed that the course of the old stream should be reinstated. Forestry Commission and partners therefore require botanical information to underlie an assessment of how the proposed work might impact on existing plant species and vegetation communities.

2. **Methods**

2.1 The vegetation in the Wootton Riverine Woodland restoration area (see Map 1) was surveyed over two days in late September 2015. All species encountered were recorded. Stands of homogenous vegetation were identified, and sampled using differently sized quadrats according to habitat type. For grassland and heathland communities, 2x2m quadrats were used, while in the woodland, quadrats were either 25x25m or 50x50m depending on the size and shape of the stands; the woodland ground layer was sampled using 2x2m quadrats (Rodwell 2006). Stands were then classified according to National Vegetation Classification type (see Rodwell 1991a; Rodwell 1991b; Rodwell 1992) and mapped within a GIS. In many cases, transitions between community types meant that boundaries were fuzzy; boundaries were therefore mapped pragmatically according to features on the ground and should be interpreted accordingly.

2.2 The survey date meant that any earlier flowering species present such as annuals and vernal woodland species may not have been noted. Previous survey records (from 1990 to 2014) were therefore obtained to ensure that any plants of nature conservation interest known from the site and its immediate surroundings have been included. Referred to as ‘notable species’, these are:

- Plants recorded in Schedule 8 of the Wildlife & Countryside Act 1981 (as amended) (W&CA);
- BAP Priority/NERC Section 41 (NERC s41) species as listed in Biodiversity Reporting and Information Group (2007) and on the Natural England website for all groups studied;
- All Red Data Book species with a threat status of Near Threatened or higher as listed in Cheffings & Farrell (2005) for vascular plants, in Hodgetts (2011) for bryophytes and Woods & Coppins (2011) for lichens (RDB);
- All nationally Notable species; these are defined as all Nationally Rare (NR) or Nationally Scarce (NS) species not included in the above categories. Nationally Rare and Scarce are as defined by the distributions of vascular plants in (Preston, Pearman & Dines (2002) the bryophytes listed in Preston (2006) and lichens listed in Woods & Coppins (2011).
- County rare/scarce (Hampshire) species as listed in the Hampshire Rare Plant Register (Rand & Mundell 2011) for South Hampshire.
- Localised species of ecological significance within the respective Natural Area e.g. the New Forest.

2.3 In general, vernacular names are used for higher plants, and scientific names for lower plants. Vernacular names are also used for NVC communities and follow Rodwell (Undated). Nomenclature follows Stace (2010) for vascular plants, Hill et al. (2008) for bryophytes and Smith et al. (2009) for lichens.
Map 1: Wootton restoration site boundary

Contains map data ©OpenStreetMap contributors. For terms see www.openstreetmap/copyright.
3. Survey results

3.1 The vegetation is described here according to habitat type and its distribution shown in Map 2. Map 3 includes target notes. The access areas, for which vegetation was not mapped, are described individually after the general habitats descriptions. Notable species and their locations are summarised in Table 1.

3.2 Avon Water itself has too few species to enable allocation to an NVC type. There are patches of Water-starwort, and occasional clumps of Fool's-water-cress. In places the watercourse has been blocked by fallen trees and branches, slowing the flow. There are also occasional broad, gravelly areas where the water is quite shallow.

Woodland

3.3 The majority of the site supports riverine woodland characterised by Oak and Ash with varying amounts of Alder, usually multi-stemmed through past coppicing. Other species present include Silver Birch, Yew, Field Maple and occasional Sycamore. South of the stream, the woodland is generally grazed with a patchy understorey of Holly, Hawthorn and Bramble. The damp ground layer is generally quite short and grassy, with Common Bent, Velvet Bent, Wood False-brome, Common Yellow-sedge, Water Mint, Gipsywort, Self-heal, speedwells, Creeping Buttercup, Square-stemmed St. John’s-wort and Creeping-Jenny. Wood-sorrel and Dog’s Mercury are occasional. Typical bryophytes include *Eurynchium striatum*, *Thuidium tamariscinum*, *Polytrichum juniperum* and *Mnium hornum*, while lichens such as *Cladonia coniacea* and *C. fimbriata* were present on fallen wood. Ferns are frequent, particularly along the stream bank, and include Lady Fern, Male Fern and occasional Hard Fern, and also Royal Fern. Old meanders in places contained water at the time of the survey, and support Floating Sweet-grass and Water Mint. Other damp depressions are characterised by Water-pepper. Drier banks support species such as Wood-sage and Broad Buckler-fern. There was little evidence of vernal species at the time of surveying, but HBIC hold records for Ramsons, also Wood Anemone and Lesser Celandine.

3.4 A shallow depression in the western wood (beyond a ditch west of the ford) supports a substantial population of the rare liverwort Veilwort *Pallavicinia lyellii*. The short, poached sward supports Daisy, Creeping Buttercup, Self-heal, Lesser Spearwort, Yorkshire Fog, Creeping Bent, Bulbous Rush, Chickweed, Marsh Ragwort, Marsh Bedstraw and Bristle Club-rush. Other bryophytes present include the mosses *Atrichum undulatum*, *Calliergonella cuspidata*, *Brachythecium rutabulum*, *Rhytidiadelphus squarrosum*.

3.5 This woodland is mostly dampest alongside the stream and drier towards the southern boundary, although wet poached patches are still frequent. Most of this woodland is best described by the W8 Ash-Maple-Mercury woodland. The sub-community is hard to define, given the season of the survey, but the previous records of Ramsons suggest it could be this sub-community (W8f). However, in places the high cover of Alder and local
absence of Oak together with the presence of wetter ground layer species such as Water Mint suggest a move towards Alder-Ash flush woodland (W7).

3.6 In the north-east corner of the site, the canopy has been removed along a wayleave. This cleared area supports dense Bracken and occasional European Gorse, with patches of grassland where the bracken canopy thins a little. This is probably best described as a version of U20 Bracken-bedstraw stands.

3.7 North of Avon Water, the woodland is generally much wetter and conforms to the Yellow Loosetrife sub-community of Alder-sedge swamp woodland (W5b), although Tussock Sedge is limited. Here the uneven canopy is dominated by Alder and Grey Willow, with only occasional Oak, Holly and Sycamore. The tall, ungrazed and in place swampy ground flora is characterised by bulky species such as Yellow Loosetrife and Branched Bur-reed among abundant Remote Sedge. Other species include Water Mint, Sharp-flowered Rush, and occasional Cuckooflower, Marsh Cinquefoil, Royal Fern and Skullcap. Bryophytes include Kindbergia praelonga and Rhizomnium punctatum and the bog-mosses Sphagnum fallax, Sphagnum palustre and Sphagnum denticulatum.

Veilwort was recorded here.

3.8 East of Station Road, the wood remains wet on the northern side of stream. Towards the middle of the eastern section, the ground flora is replaced by a thick carpet of bog-mosses (Sphagnum fallax and S. palustre) with Remote Sedge and occasional Tussock Sedge. There is a little Bog Myrtle in the understorey, and a patchy shrub layer of Alder Buckthorn and Holly. Throughout the wet woodland, there are drier knolls and banks, often supporting Oak and pine. The northern fringe of the wet woodland merges into valley mire, and is in some places characterised by a fringe of Common Reed.

3.9 There are previous records of the notable Hay-scented Buckler-fern from within the woodland (see Map 5b). There are records for Bog-sedge, Slender Sedge, Lesser Bladderwort and Bog Orchid within two 100m grid squares that fall mainly within the woodland, but the accompanying notes state they are in Wilverley Bog. Similarly there are records for Bastard Balm in a 100m grid cell straddling the boundary that are described as being within Wootton Inclosure.
Photo 2: Q1 within the drier W8 riverine woodland (SU 2389600265)

Photo 3: Looking east along the westernmost lawn (SU2357300329)

Photo 4: Tightly grazed M24c lawn in eastern half (SY SZ25679947)

Photo 5: Heath/lawn transition east of Photo 4 (SZ26199898)

Photo 6: Q3 within the wet alder/sallow dominated W5b riverine woodland (SU2413600048)

Photo 7: Valley mire/wet heath transition (SZ2607999335)
Grassland

3.10 There are a number of grassy glades within the woodland plus a more substantial area of floodplain meadow at the western end of the site. The classification of the New Forest Velvet Bent – Carnation Sedge wet acid fen meadows is difficult to fit within the NVC (e.g. New Forest SAC Management Plan, 2001) and difference can be slight, therefore transitions have been given.

Wootton Meadow

3.11 To the north-west of the site is an area of grazed lawn with frequent depressions, presumably old river meanders, in the floodplain. The vegetation does not fit neatly within the NVC, but is probably best described by the Sharp-flowered Rush – Cross-leaved Heath sub-community of Meadow Thistle Fen Meadow (M24c), with transitions to the Sharp-flowered Rush sub-community of Sharp-flowered Rush Pasture (M23a) in areas with more rush cover.

3.12 The underlying base-rich marls of the Headon Beds (Wright 2013) have allowed the development of a relatively diverse flora. Grasses dominate the short sward, particularly Velvet Bent with some Purple Moor-grass, and several sedges including Carnation Sedge and Yellow Sedge. Herbs such as Devil’s-bit Scabious, Lesser Spearwort, Self-heal, Bog Pimpernel, Gipsywort and Marsh Lousewort are frequent. There are also extensive patches dominated by Bog Myrtle which afford some protection from grazing to tall-herb fen species such as Angelica and contrast with the much shorter, grazed sward around them. Better drained patches on banks support a similar flora over all, but with species typical of drier conditions such as Common Bent and Mat Grass. The meanders are mostly damp, but in places held water at the time of the survey, and where this is deepest support a community close to Cinquefoil fen (S27) with Marsh Cinquefoil, Bog Bean, Iris, Bog Pondweed, Common Sedge and Floating Sweet-grass. The lawn is scattered with scrub including Hawthorn, Grey Willow and young Ash, but this appears to be contained by grazing and recent management work.

3.13 Marsh Cinquefoil was the only notable species recorded during the survey in this area. Slender Marsh-bedstraw has been recorded from the site (Wright, 2013), but it is not
clear whether this record was from within the restoration boundary. There are a number of other notable species previously recorded within 1km grid square within which this area falls (see Map 5a), some of which, although not recorded during this survey, may be present within this area (e.g. Tubular Water-dropwort, Lesser Water-plantain).

Other Lawns

3.14 There are also two grassy woodland glades in the eastern half of the site in the woodland south of the stream, and a longer area which forms more of a mosaic with humid heath where it merges into heathland in the far south east of the site. The first lawn, which includes a large bonfire patch, is separated from the stream by a strip of woodland. Together with Soft Rush, Jointed Rush, Creeping Buttercup and Lesser Spearwort, it supports wetter areas with the bog-mosses *Sphagnum denticulatum* and *S. palustre* and Bristle Club-rush. The second is adjacent to the stream and includes some well-defined runnels. This lawn is similar to the grassland described above, but a little drier and less species-rich. Other species include Crested Dog’s-tail and Autumn Hawkbit, and a little Yarrow and Mouse-ear Hawkweed on anthills. Meadow Thistle is present at one end of the second lawn. Overall, this grassland is transitional between M24c and the typical sub-community of Purple Moor-grass Sward (M25b).

3.15 The runnels are also generally shallower and drier than those of the western lawn, although still supporting Floating Sweet-grass and also Water-pepper. **One runnel has a substantial population of Pillwort, which occupies a 15m stretch either side of a patch of scrub. This runnel is part of the planned meander restoration.**

Photo 10: A broad wet runnel within the streamside lawn, supporting Pillwort (the bright green, grass-like fern) (SZ2569899461).

3.16 Further east, beyond another area of woodland, the grassland becomes heathier as it rises away from the stream and includes patches of grazed Heather with Devil’s-bit Scabious and clumps of European Gorse suggesting a transition to M16b, the Devil’s-bit...
Scabious – Carnation Sedge sub-community of Lowland Wet Heath. Wetter runnels here (not part of the restoration channel) support Marsh St. John’s-wort, Marsh Arrowgrass, Water Plantain, Silverweed, Marsh Marigold and occasional Floating Club-rush. These are related to Pondweed Bog Soak (M29) or Seasonal Pools (M30). **There are two further populations of Pillwort; neither are within meanders earmarked for restoration.**

3.17 The lawn and transitional area is species-rich. **There are several previous records of notable species. These include Tubular Water-dropwort, Lesser Water-plantain, Intermediate Water-starwort, Lesser Marshwort, Pillwort, Alternate Water-milfoil, Yellow Centuary, and Chamomile. Previous records of Needle Spike-rush, Pale Dog-violet and Heath Dog-violet may also have been within the site boundary (the resolution of the records is not adequate to be sure – see Map 5c). These species were not recorded here during this survey.**

3.18 The scrub in this area is more diverse, with Guelder Rose, Spindle, Alder Buckthorn and Burnet Rose in addition to Blackthorn, Hawthorn, Dog Rose and Bramble. **The notable Sherard’s Downy-rose has previous been recorded here** but was not recorded during this survey.

**Valley Mire**

3.19 At the northern boundary of the site, the woodland is replaced by valley mire (Wilverley Bog). This generally falls outside of the site boundary, but there is an area in the eastern section that falls within the site. The valley mire is mainly represented by the White Beak-sedge – *Sphagnum denticulatum* sub-community of Asphodel Valley Bog (M21a), with White Beak-sedge, Many-stalked Spike-rush and Bog Myrtle over a carpet of *Sphagnum papillosum*. Common Cottongrass, Bog Asphodel, Round-leaved Sundew and Cross-leaved Heath are also present, and wetter pools and runnels support Bog Pondweed and bladderwort sp. Along the woodland boundary Common Reed is frequent, and this vegetation could be considered to approach the Bog Bean sub-community of Reedbed (S4c).

3.20 Where the site boundary extends further north, Moor-grass mire is present, indicating higher levels of water movement. The mire is less species-rich and is characterised by thick Purple Moor-grass tussocks and Bog Myrtle, with a scattering of Cross-leaved heath, Soft Rush, Sharp-flowered Rush, Common Cottongrass and *Sphagnum denticulatum* in the gaps between tussocks plus Heather and *Hypnum jutlandicum* on drier hummocks. This vegetation conforms to the Sharp-flowered Rush – Cross-leaved Heath sub-community of Purple Moor-grass Sward (M25c).

**Wet heath transition**

3.21 North of the eastern section of woodland is an open grazed area on the sloping land north of the stream. This supports a heathy transition between valley mire and lawn. Wetter areas near the woodland support M21a mire. This is not heavily grazed and is dominated by Purple Moor-grass with some Common Reed along the woodland border, grading into carpets of bog-mosses with White-beaked Sedge and Round-leaved
Sundew. The drier slopes support areas of more heavily grazed lawn dominated by Velvet Bent and Purple Moor-grass. Between the two, and in a mosaic with the grassland, wet heath is present. The wet heath is characterised by a fairly equal cover of Cross-leaved Heath, Heather and Purple Moor-grass with the typical wet heath bogs-mosses *Sphagnum compactum* and *S. tenellum*. This vegetation fits within M16 Lowland Wet Heath typical sub-community (M16a), although the abundance of Carnation Sedge and presence of Devil’s-Bit Scabious hint at the more species-rich M16b. European Gorse is scattered over the shorter vegetation, and there is a little Dwarf Gorse.

3.22 A few plants of the near-threatened Petty Whin are present in at least two location within the grass/heath mosaic.

![Photo 1: Petty Whin in wet heath. Around 15 plants were noted (SZ2590999485).](image)

**Access routes**

3.23 The access routes tend to support vegetation typical of the surrounding habitat. No notable species were recorded. Quadrats were not recorded for these area; full species lists are given in Appendix II.

**Access route 1**

3.24 An old forest ride through coniferous plantation supporting damp, ungrazed neutral grassland with birch scrub and regenerating pine. Plants present include Purple Moor-grass, Velvet Bent, Devil’s-bit Scabious, Jointed Rush, Soft Rush, Water Mint, Bracken, Marsh Thistle, Fleabane and Greater Bird’s-foot-trefoil. The drier sides support a little Bell Heather and Heather with frequent Bracken and Bramble.
Access route 2 (to ford)
3.25 A raised gravel bed bordered by old ditches (largely filled with vegetation). At the southern end, the track broadens into ‘lawn’ splay at the junction with the main track, with typical damp grassland species including Velvet Bent, Carnation Sege, Creeping Bent, Fleabane, Devil’s-bit Scabious and Water Mint. Bulkier vegetation includes Meadowsweet, Tufted Hair-grass and Sharp-flowered Rush. **Previous records show that the notable Bastard Balm has been recorded from the three 100m grid squares within which the access track is routed.** It was not recorded within the access route area during this survey.

Access route 3
3.26 A poorly-defined route towards Avon Water, including a track-side ditch and verge at the take-off point from the main track. A tall ground flora of Angelica, Meadowsweet, Hemp Agrimony, Compact Rush and Purple Moor-grass (GR 24361 99805) persists under a Silver Birch canopy.

Access route 4
3.27 A gravelly trackside community with Creeping Bent, Common Centuary, Greater Bird’s-foot-trefoil, Silverweed and Skullcap grades quickly into an open grass/heath glade before reaching the woodland edge. The glade supports acidic species such as Heather, Wood-sage, Tormentil, Heath Bedstraw and Purple Moor-grass with Hawthorn and Bramble.

Access route 5
3.28 This is a triangle of woodland surrounded tracks on three sides. The tracks are partly resurfaced and generally bare of vegetation. The eastern track is quite churned up. The woodland contains Oak, Silver Birch, Scots Pine and Beech with an understorey of Bracken, Bramble and Holly. Occasional banks support Foxglove, Wood-sorrel, Tormentil and the moss Plagiothecium nemorum, with Isothecium myosuroides on tree trunks.

Access route 6
3.29 An area of damp grassland/heathland transition running along the side of the woodland and characterised by Meadow Thistle, Carnation Sedge, Purple Moor-grass, Bristle Bent, Tormentil, Cross-leaved Heath. Devil’s-bit Scabious, Mat Grass, Betony, Creeping Willow and Bracken.

Access route 7
3.30 A well-used bare track, the edges supporting mainly Bracken. **A previous record for this area is of the notable species Yellow Centuary,** which is characteristic of damp, open areas where there is a degree of disturbance and trampling, such as tracks. This species was not recorded during this survey. A short-lived summer annual, it may be extremely abundant over small areas during favourable seasons, but absent in other years, although probably still present in the seedbank.
Map 2: NVC map of Wootton restoration area

Contains map data ©OpenStreetMap contributors. For terms see www.openstreetmap/copyright.
Map 3a: NVC map of Wootton restoration plus target notes

- Taller rush-dominated vegetation in damper runnels
- Extensive patches of Bog Myrtle with tall herbs
- Old meanders retaining water support S27
- Old woodland ride with tall damp grassland and heath flora
- Wet woodland with tall herb and sedge understorey
- Drier strip along raised stream bank
- Fallen tree trunks catching detritus in stream
- Impoverished grass sward around car park
- Tall herbs under a birch canopy
- Gravely trackside community in heathy glade

NVC map
- Car park & verge
- Coniferous copse
- Heath/lawn transition
- M21a
- M21a/M16a/M24c
- M24c
- M24c transitions
- M24c/M23a
- M25c
- U20
- W5b
- W8
- Wootton site boundary
Map 3b: NVC map of Wootton restoration plus target notes

Contains map data ©OpenStreetMap contributors. For terms see www.openstreetmap/copyright.
Rare species

3.31 A small number of notable species were recorded. These are listed in Table 1 and their locations shown in Map 4.

Table 1: Location and status of notable species recorded during the survey of Wootton restoration area. (Varying precision is due to accuracy of GPS readings in the field).

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Grid Ref</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marsh Cinquefoil</td>
<td>Candidate notable plant for Hampshire</td>
<td>SU235400032</td>
<td>In wet runnel</td>
</tr>
<tr>
<td>Petty Whin</td>
<td>RDB (Near Threatened)</td>
<td>SZ2590999485</td>
<td>On wet heath – 3 plants</td>
</tr>
<tr>
<td>Petty Whin</td>
<td>RDB (Near Threatened)</td>
<td>SZ2569899476</td>
<td>On wet heath – 10 plants</td>
</tr>
<tr>
<td>Pillwort</td>
<td>NERC s4, RDB (Near Threatened), NS</td>
<td>SZ2569899461</td>
<td>Abundant in 15m stretch of runnel between scrub and stream, in restoration channel</td>
</tr>
<tr>
<td>Pillwort</td>
<td>NERC s4, RDB (Near Threatened), NS</td>
<td>SZ2614399123</td>
<td>Smaller patch in runnel</td>
</tr>
<tr>
<td>Pillwort</td>
<td>NERC s4, RDB (Near Threatened), NS</td>
<td>SZ2633898797</td>
<td>Smaller patch in runnel</td>
</tr>
<tr>
<td>Veilwort</td>
<td>NERC s4, NS</td>
<td>SU24270002</td>
<td>Known from two other sites in the New Forest</td>
</tr>
<tr>
<td>Veilwort</td>
<td>NERC s4, NS</td>
<td>SU2413600048</td>
<td>Known from two other sites in the New Forest</td>
</tr>
</tbody>
</table>
Map 4: Notable species recording during a survey of Wootton restoration, September 2015

Contains map data ©OpenStreetMap contributors. For terms see www.openstreetmap.org/copyright.
4. Conclusions

4.1 The Wootton restoration area supports typical New Forest habitats, including riverine woodland, rush pasture and wet lawn, valley mire and wet heath and transitions between them. Table 2 shows the status of these habitats.

Table 2: Main NVC communities recorded at Wootton and their corresponding Priority Habitat and Annex I Habitats

<table>
<thead>
<tr>
<th>NVC</th>
<th>Priority Habitat</th>
<th>Annex I habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W8 Ash-Maple-Mercury woodland</td>
<td>May overlap with Wet Woodland</td>
<td></td>
</tr>
<tr>
<td>Transitions to W7 Alder-Ash flush woodland</td>
<td>Wet Woodland</td>
<td>Alder woodland on floodplains</td>
</tr>
<tr>
<td>W5b Yellow Loosetrife sub-community of Alder-sedge swamp woodland</td>
<td>Wet Woodland</td>
<td>Alder woodland on floodplains</td>
</tr>
<tr>
<td>Mire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M16a Lowland Wet Heath typical sub-community</td>
<td>Lowland Heathland</td>
<td>Wet heathland with cross-leaved heath</td>
</tr>
<tr>
<td>M16b Devil’s-bit Scabious – Carnation Sedge sub-community of Lowland Wet Heath</td>
<td>Lowland Heathland</td>
<td>Wet heathland with cross-leaved heath</td>
</tr>
<tr>
<td>M21a White Beak-sedge – Sphagnum denticulatum sub-community of Asphodel Valley Bog</td>
<td></td>
<td>Depressions on peat substrates</td>
</tr>
<tr>
<td>M23a Sharp-flowered Rush sub-community of Sharp-flowered Rush Pasture</td>
<td>Purple Moor-grass and rush pasture</td>
<td></td>
</tr>
<tr>
<td>M24c Sharp-flowered Rush – Cross-leaved Heath sub-community of Meadow Thistle Fen Meadow</td>
<td>Purple Moor-grass and rush pasture</td>
<td>Purple Moor-grass meadows</td>
</tr>
<tr>
<td>M25b Typical sub-community of Purple Moor-grass Sward</td>
<td>Fens</td>
<td></td>
</tr>
<tr>
<td>M25c Sharp-flowered Rush – Cross-leaved Heath sub-community of Purple Moor-grass Sward</td>
<td>Purple Moor-grass and rush pasture</td>
<td></td>
</tr>
</tbody>
</table>

4.2 Several notable species were recorded, as detailed above. In addition, previous records provide information about other notable species which may be present in the vicinity of the restoration area. The grid references provided were at varying degrees of precision, therefore species are mapped to the relevant square in Map 5a—c. Thirty-four notable species have been recorded from the vicinity of the Wootton restoration area since 1990. For some of the records (e.g. Map 5c) it is possible to see whether the species are
actually within the restoration area. Records of particular relevance are discussed under the habitat descriptions above.

Table 3: Notable species previously recorded in the vicinity of the Wootton restoration area since 1990 (data supplied by HBIC).

<table>
<thead>
<tr>
<th>Notable species recorded since 1990</th>
<th>Cont’d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allseed</td>
<td>Lesser Bladderwort</td>
</tr>
<tr>
<td>Alternate Water-milfoil</td>
<td>Lesser Butterfly-orchid</td>
</tr>
<tr>
<td>Bastard Balm</td>
<td>Lesser Marshwort</td>
</tr>
<tr>
<td>Black Bog-rush</td>
<td>Lesser Water-plantain</td>
</tr>
<tr>
<td>Bluebell</td>
<td>Marsh Cinquefoil</td>
</tr>
<tr>
<td>Bog Orchid</td>
<td>Marsh Helleborine</td>
</tr>
<tr>
<td>Bog-sedge</td>
<td>Needle Spike-rush</td>
</tr>
<tr>
<td>Broad-leaved Cottongrass</td>
<td>Pale Dog-violet</td>
</tr>
<tr>
<td>Chamomile</td>
<td>Petty whin</td>
</tr>
<tr>
<td>English Eyebright</td>
<td>Pillwort</td>
</tr>
<tr>
<td>Few-flowered Spike-rush</td>
<td>Sherard’s Downy-rose</td>
</tr>
<tr>
<td>Great Sundew</td>
<td>Slender Sedge</td>
</tr>
<tr>
<td>Hay-scented Buckler-fern</td>
<td>Slender Thistle</td>
</tr>
<tr>
<td>Heath Dog-violet</td>
<td>Soft-leaved Sedge</td>
</tr>
<tr>
<td>Heath Pearlwort</td>
<td>Tubular Water-dropwort</td>
</tr>
<tr>
<td>Intermediate Water-starwort</td>
<td>Wild Gladiolus</td>
</tr>
<tr>
<td>Leafy Rush</td>
<td>Yellow Centaury</td>
</tr>
</tbody>
</table>
Map 5a: Notable species recorded in the vicinity of Wootton restoration area since 1990 (within 1 km grid squares)

Contains map data ©OpenStreetMap contributors. For terms see www.openstreetmap/copyright.
Biological data supplied by HBIC.
Map 5b: Notable species recorded in the vicinity of Wootton restoration area since 1990 (within 100m grid squares)

Contains map data ©OpenStreetMap contributors. For terms see www.openstreetmap/copyright.

Biological data supplied by HBC
Map 5c: Notable species recorded in the vicinity of Wootton restoration area since 1990 (within 1 and 10 m squares)

Contains map data ©OpenStreetMap contributors. For terms see www.openstreetmap.org/copyright. Biological data supplied by HSBC.

Map showing various plant species such as Slender Sedge, Lesser Bladderwort, Bog Orchid, Leafy Rush, Bog-Clayland, Great Sundew, and others in the vicinity of Wootton restoration area.
5. References


Rodwell, J.S. (Undated) Vernacular Names. Unpublished report for CCW.


6. Appendix I – Species list

Vascular plants recorded at Wootton, September 2015

Agrimony Agrimonia eupatoria
Alder Alnus fruticosus
Alder Buckthorn Frangula alnus
Angelica Angelica sylvestris
Ash Fraxinus excelsior
Autumn Hawkbit Leontodon saxatilis
Barren Strawberry Potentilla sterilis
Bedstraw sp. Galium sp.
Bell Heather Erica cinerea
Betony Stachys officinalis
Blackthorn Prunus spinosa
<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bladderwort sp.</td>
<td>Utricularia sp</td>
</tr>
<tr>
<td>Bog Asphodel</td>
<td>Nartheceium ossifragum</td>
</tr>
<tr>
<td>Bog Pimpernel</td>
<td>Anagallis tenella</td>
</tr>
<tr>
<td>Bog Pondweed</td>
<td>Potomogeton polygonifolius</td>
</tr>
<tr>
<td>Bog-myrtle</td>
<td>Myrica gale</td>
</tr>
<tr>
<td>Bracken</td>
<td>Pteridium aquilinum</td>
</tr>
<tr>
<td>Bramble</td>
<td>Rubus fruticosus agg.</td>
</tr>
<tr>
<td>Branched Bur-reed</td>
<td>Sparganium erectum</td>
</tr>
<tr>
<td>Bristle Bent</td>
<td>Agrostis setacea</td>
</tr>
<tr>
<td>Bristle Club-rush</td>
<td>Isolepis setacea</td>
</tr>
<tr>
<td>Broad Buckler-fern</td>
<td>Dryopteris dilatata</td>
</tr>
<tr>
<td>Bulbous Rush</td>
<td>Juncus bufonius</td>
</tr>
<tr>
<td>Burnet Rose</td>
<td>Rosa pimpinellifolia</td>
</tr>
<tr>
<td>Butcher's Broom</td>
<td>Ruscus aculeatus</td>
</tr>
<tr>
<td>Carnation Sedge</td>
<td>Carex panicea</td>
</tr>
<tr>
<td>Cock’s-foot</td>
<td>Dactylis glomerata</td>
</tr>
<tr>
<td>Common Bent</td>
<td>Agrostis capillaris</td>
</tr>
<tr>
<td>Common Cat's-ear</td>
<td>Hypochaeris radicata</td>
</tr>
<tr>
<td>Common Centuary</td>
<td>Centauria erythraea</td>
</tr>
<tr>
<td>Common Cottongrass</td>
<td>Eriophorum angustifolium</td>
</tr>
<tr>
<td>Common Dog-violet</td>
<td>Viola riviniana</td>
</tr>
<tr>
<td>Common Reed</td>
<td>Phragmites australis</td>
</tr>
<tr>
<td>Common Sedge</td>
<td>Carex nigra</td>
</tr>
<tr>
<td>Common Water-plantain</td>
<td>Alisma plantago-aquatica</td>
</tr>
<tr>
<td>Common Yellow-sedge</td>
<td>Carex demissa</td>
</tr>
<tr>
<td>Compact Rush</td>
<td>Juncus conglomeratus</td>
</tr>
<tr>
<td>Creeping Bent</td>
<td>Agrostis stolonifera</td>
</tr>
<tr>
<td>Creeping Buttercup</td>
<td>Ranunculus repens</td>
</tr>
<tr>
<td>Creeping Clover</td>
<td>Trifolium repens</td>
</tr>
<tr>
<td>Creeping Clover</td>
<td>Salix repens</td>
</tr>
<tr>
<td>Creeping-Jenny</td>
<td>Lysimachia nummularia</td>
</tr>
<tr>
<td>Crested Dog's-tail</td>
<td>Cynosurus cristatus</td>
</tr>
<tr>
<td>Cross-leaved Heath</td>
<td>Erica tetralix</td>
</tr>
<tr>
<td>Cuckooflower</td>
<td>Cardamine pratensis</td>
</tr>
<tr>
<td>Daisy</td>
<td>Bellis perennis</td>
</tr>
<tr>
<td>Dandelion</td>
<td>Taraxacum agg</td>
</tr>
<tr>
<td>Devil’s-bit Scabious</td>
<td>Succisa pratensis</td>
</tr>
<tr>
<td>Dog Rose</td>
<td>Rosa canina</td>
</tr>
<tr>
<td>Dog’s Mercury</td>
<td>Mecurialis perennis</td>
</tr>
<tr>
<td>Downy Birch</td>
<td>Betula pubescens</td>
</tr>
<tr>
<td>Dwarf Gorse</td>
<td>Ulex minor</td>
</tr>
<tr>
<td>European Gorse</td>
<td>Ulex europaeus</td>
</tr>
<tr>
<td>Eyebright</td>
<td>Euphrasia sp</td>
</tr>
<tr>
<td>Fleabane</td>
<td>Pulsicaria dysenterica</td>
</tr>
<tr>
<td>Fool’s Watercress</td>
<td>Apium nodiflorum</td>
</tr>
<tr>
<td>Foxtail</td>
<td>Digitalis purpurea</td>
</tr>
</tbody>
</table>
Gipsywort  
Greater Bird's-foot-trefoil  
Green-ribbed Sedge  
Grey Willow  
Guelder Rose  
Hardfern  
Hawthorn  
Heath Bedstraw  
Heath Speedwell  
Heather  
Hedge Woundwort  
Hemp Agrimony  
Holly  
Honeysuckle  
Horsetail sp.  
Ivy  
Jointed Rush  
Lady Fern  
Male-fern  
Many-stalked Spike-rush  
Marsh Bedstraw  
Marsh Cinquefoil  
Marsh Horsetail  
Marsh Lousewort  
Marsh Pennywort  
Marsh Ragwort  
Marsh Thistle  
Marsh Valerian  
Mat Grass  
Meadow Thistle  
Meadowsweet  
Mouse-eared Hawkweed  
Oak  
Petty Whin  
Purple Moor-grass  
Red Clover  
Remote Sedge  
Ribwort Plantain  
Rose sp.  
Round-leaved Sundew  
Royal Fern  
Sanicle  
Scot's Pine  
Self-heal  
Sharp-flowered Rush  
Silver Birch

Lycopus europaeus  
Lotus pedunculatus  
Carex binervis  
Salix cinerea  
Viburnum opulus  
Blechnum spicant  
Crataegus monogyna  
Galium saxatile  
Veronica officinalis  
Calluna vulgaris  
Stachys sylvatica  
Eupatorium cannabinum  
Ilex aquifolium  
Galium periclymenum  
Equisetum sp.  
Hedera helix  
Juncus articulatus  
Athyrium filix-femina  
Dryopteris felix-mas  
Eleocharis multicaulis  
Galium palustris  
Potentilla palustris  
Equisetum palustre  
Pedicularis palustris  
Hydrocotyle vulgaris  
Senecio paludosus  
Cirsium palustre  
Valeriana officinale  
Nardus stricta  
Cirsium dissectum  
Filipendula ulmaria  
Pilosella officinarum  
Quercus robur  
Genista anglica  
Molinia caerulea  
Trifolium pratense  
Carex remota  
Plantago lanceolata  
Rosa sp  
Drosera rotundifolia  
Osmunda regalis  
Sanicula europaea  
Pinus sylvestris  
Prunella vulgaris  
Juncus acutiflorus  
Betula pendula
Silverweed  
Skullcap  
Slender St. John's-wort  
Soft Rush  
Spearwort  
Spindle  
Square-stemmed St John's Wort  
Sycamore  
Tormentil  
Tufted Hair-grass  
Velvet Bent  
Violet sp.  
Water Mint  
Water-pepper  
Water-starwort sp.  
White Beak-sedge  
Wood Sedge  
Wood Speedwell  
Wood Spurge  
Woodsage  
Wood-sorrel  
Yarrow  
Yellow Loosestrife  
Yorkshire Fog  

Potentilla anserina  
Scutellaria galericulata  
Hypericum pulchrum  
Juncus effusus  
Ranunculus flammula  
Euonymus europaeus  
Hypericum tetrapterum  
Acer pseudoplatanus  
Potentilla erecta  
Deschampsia caespitosa  
Agrostis canina  
Viola sp.  
Mentha aquatica  
Persicaria hydropiper  
Callitriche sp.  
Rhyncospora alba  
Carex sylvatica  
Veronica montana  
Euphorbia amygdaloides  
Teucrium scorodonia  
Oxalis acetosella  
Achillea millefolium  
Lysimachia vulgaris  
Holcus lanatus
Lower plants recorded at Wootton, September 2015

Archidium alternifolium
Atrichum undulatum
Aulacomnium palustre
Brachypodium sylvaticum
Brachythecium rutabulum
Bryum capillare
Bryum pseudotriquetrum
Bryum sp.
Calliergonella cuspidata
Calypogeia muelleriana
Campylopus introflexus
Cephalozia bicuspidata
Cladonia coniocrea
Cladonia fimbriata
Dicranella heteromalla
Dicranum scoparium
Eurynchium striatum
Fissidens taxifolius
Fossombronia sp.
Frullania dilatata
Hookeria lucens
Hypnum andoi
Hypnum cupressiforme
Hypnum jutlandicum
Hypnum resupinatum
Kindbergia praelonga
Leucobryum glaucum
Lophocolea bidentata
Metzgeria furcata
Mnium hornum
Orthodontium lineare
Orthotrichum affine
Pallavicinia lyellii
Pellia epiphylla
Plagiochila asplenoides
Plagiomnium affine
Plagiomnium undulatum
Plagiothecium nemorum
Polytrichastrum formosum
Polytrichum juniperinum
Pseudoscleropodium purum
Rhizomnium punctatum
Rhytidiadelphus squarrosus
Rhytidiadelphus triquetrus
New Forest botanical survey: Wootton

Riccardia chamedryfolia
Scapania irrigua
Sphagnum compactum
Sphagnum denticulatum
Sphagnum fallax
Sphagnum fimbriatum
Sphagnum magellanicum
Sphagnum palustre
Sphagnum papillosum
Sphagnum subnitens
Sphagnum tenellum
Thuidium tamariscinum
Ulota crispa

Notable plants recorded at Wootton 1990-2014

Allseed  Radiola linoides
Alternate Water-milfoil  Myriophyllum alterniflorum
Bastard Balm  Melittis melissophyllum
Black Bog-rush  Schoenus nigricans
Bluebell  Hyacinthoides non-scripta
Bog Orchid  Hammarbya paludosa
Bog-sedge  Carex limosa
Broad-leaved Cottongrass  Eriophorum latifolium
Chamomile  Chamaemelum nobile
  Euphrasia officinalis subsp. anglica
English Eyebright
Few-flowered Spike-rush  Eleocharis quinqueflora
Great Sundew  Drosera anglica
Hay-scented Buckler-fern  Dryopteris aemula
Heath Dog-violet  Viola canina subsp. canina
Heath Pearlwort  Sagina subulata
Intermediate Water-starwort  Callitriche brutia subsp. hamulata
Leafy Rush  Juncus foliosus
Lesser Bladderwort  Utricularia minor
Lesser Butterfly-orchid  Platanthera bifolia
Lesser Marshwort  Apium inundatum
Lesser Water-plantain  Baldellia ranunculoides
Marsh Cinquefoil
Marsh Helleborine  Epipactis palustris
Needle Spike-rush  Eleocharis acicularis
Pale Dog-violet  Viola lactea
Petty whin  Genista anglica
Pillwort  Pilularia globulifera
Sherard's Downy-rose  Rosa sherardii
<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slender Sedge</td>
<td>Carex lasiocarpa</td>
</tr>
<tr>
<td>Slender Thistle</td>
<td>Carduus tenuiflorus</td>
</tr>
<tr>
<td>Soft-leaved Sedge</td>
<td>Carex montana</td>
</tr>
<tr>
<td>Tubular Water-dropwort</td>
<td>Oenanthe fistulosa</td>
</tr>
<tr>
<td>Wild Gladiolus</td>
<td>Gladiolus illyricus</td>
</tr>
<tr>
<td>Yellow Centaury</td>
<td>Cicendia filiformis</td>
</tr>
</tbody>
</table>