Bryophyte Assessment

Proposed Super National Nature Reserve, North Kent

A Report To: White Horse Ecology on behalf of Kent County Council c/o Kent Downs National Landscape Unit
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Non-Technical Summary

Project Background

In June 2024, Kent County Council commissioned Middlemarch to undertake a bryophyte assessment of the candidate sites proposed for inclusion within the candidate Kent Woods and Downs NNR, Kent.

Scope of Survey

To fulfil the above brief, previous bryophyte records from the sites were reviewed, as was published and unpublished literature. Moreover, a rapid walk-over survey of a selection of sites was undertaken during 21–23 July 2024 to judge their likely importance for bryophytes, during which some bryophyte records were collected, though no comprehensive surveying was possible in the time available.

Survey Results

Including historic records and records from the present survey, a total of 177 species have been recorded across the candidate sites. The highest number of species have been recorded from Shorne Woods Country Park, where 121 species have been found, in part because it is the only site that has been thoroughly surveyed for bryophytes, but also because it is the only site with significant areas of wetland habitat, with the wet woodland of the site supporting the highest diversity of bryophytes across the candidate sites included within this study.

An assessment of the bryophyte species so far recorded across the candidate sites against the SSSI selection criteria for bryophytes suggests that no bryophyte features of national conservation importance are present. However, the woodland bryophyte assemblage within Holborough Woodlands could potentially qualify following further survey effort, as it is presently close to qualifying and no comprehensive survey of the site has been undertaken.

No legally protected species are presently known to occur in any of the candidate sites. Three nationally scarce species are known to occur in Holborough Woodlands, including *Campylophyllopsis calcarea*, *Herzogiella seligeri* and *Sematophyllum substrumulosum*. The nationally rare *Ephemerum cohaerens* (NERC s41) occurs in an arable field at Ranscombe Farm.

Recommendations

Further Ecological Surveys	Three areas deserve comprehensive bryophyte surveys: • Holborough Woodlands – a survey is needed to assess whether the woodland bryophyte assemblage is of national importance according to the bryophyte selection criteria for SSSIs. • Arable land at Ranscombe Farm – a survey is required to accurately document the distribution and abundance of *Ephemerum cohaerens* (NERC s41) and assess the overall importance of the arable bryophyte assemblage. • Cultivated land in the Silverhand Estate – a survey is needed to assess the potential presence of *Ephemerum cohaerens* (NERC s41) and assess the overall importance of the bryophyte assemblage of cultivated land.

Contents

1. Introduction

1.1 Project Background

In June 2024, White Horse Ecology on behalf of Kent County Council c/o Kent Downs National Landscape Unit commissioned Middlemarch to undertake a bryophyte assessment of the candidate sites proposed for inclusion within the candidate Kent Woods and Downs NNR, Kent (Figure 1). All work reported here has been undertaken by Dr Des Callaghan, a professional bryologist and an expert on the bryophyte flora of Britain, on behalf of Middlemarch. The purpose of the work is to undertake:

- A desktop assessment of known species in the area to identify priority species (or problem species) for the candidate NNR;
- Identify hotspots for priority species within the NNR, supplemented by walkover surveys and/or habitat assessment site visits as deemed necessary;
- Make recommendations for landscape scale enhancements that will benefit priority species;
- Make recommendations for specific site enhancements and priority locations for survey work;
- Compile a short report including maps and tables that summarises the above; and
- Provide any records gathered in the field to NNR partners and KMBRC.

2. Methods

Taxonomy

Taxonomy follows Blockeel et al. (2021), unless otherwise noted.

Legislation

Appendix 1 provides an overview of legislation that is specifically relevant to the conservation of bryophytes in England.

2.1 Desk study

Historic records

Previous bryophyte records from the sites were reviewed, including records from the national recording database of the British Bryological Society (BBS), managed by the Biological Records Centre (Wallingford, UK). Records were only considered if they could be localised to within any one of the site boundaries.

Literature review

Published literature relevant to the bryophytes of the study area was reviewed (Rose 1949, 1950, 1951), as was unpublished literature (Callaghan 2024).

2.2 Field survey

Fieldwork was undertaken during 21–23 July 2024. The purpose of the fieldwork was to undertake a rapid walk-over survey of selected locations to judge their likely importance for bryophytes. Some bryophyte records were also collected during this process, but no comprehensive surveying was possible in the time available. Small samples of critical species were collected for determination by microscopy.

3. Results by Site

3.1 Shorne Woods Country Park

A comprehensive bryophyte survey and assessment of this site was undertaken recently, in April 2024 (Callaghan 2024), and so the area was not visited during the current walk-over survey. A total of 109 species was recorded by Callaghan (2024), with by far the highest diversity occurring in areas of wet woodland. No species of significant conservation interest were found, or have previously been recorded from the site.

3.2 Cobham Wood

No comprehensive bryophyte survey of the site has been undertaken. Historic records are limited to those derived from amateur casual recording by J.I. Hendey and J. Pitt in 2002 and 2005, which provided an inventory of 48 common species. A short list of 20 common species was recorded during the present walk-over survey. It is unlikely that the site is of significant interest for bryophytes.

3.3 Leisure Plots

No comprehensive bryophyte survey of the site has been undertaken and no historic records can be localised to this site. A short list of 13 common species was recorded during the present walk-over survey. It is unlikely that the site is of significant interest for bryophytes.

3.4 Ranscombe Farm

No comprehensive bryophyte survey of the site has been undertaken. Historic records are limited to those derived from amateur casual recording by various people during 2004–2020, which provided an inventory of 57 species. One of these is of conservation interest:

- *Ephemerum cohaerens* (Nationally Rare) – recorded in an arable field by S. Lemon in April 2019 and March 2020 in an area known locally as ‘Little Bottoms’ (TQ70496732).

A short list of 37 common species was recorded during the present walk-over survey. The areas of woodland and grassland are unlikely to be of significant interest for bryophytes. The areas of arable may be of more interest, especially given the recent presence of *Ephemerum cohaerens*, and deserve a comprehensive survey at a suitable time of year (i.e. winter or early spring).

3.5 Ashenbank Wood

No comprehensive bryophyte survey of the site has been undertaken. Historic records are limited to those derived from amateur casual recording by J.I. Hendey and S.M. Priestley in 2002, which provided an inventory of 47 common species. A short list of 28 common species was recorded during the present walk-over survey. It is unlikely that the site is of significant interest for bryophytes.

3.6 West Park

No comprehensive bryophyte survey of the site has been undertaken and no historic records can be localised to this site. The site was passed during the present survey but was not visited as it is clearly of no significant interest for bryophytes, comprising grassland and a few scattered trees.

3.7 Camer Park

No comprehensive bryophyte survey of the site has been undertaken. Historic records are limited to those derived from amateur casual recording, comprising a list of 15 common species recorded by J.I. Hendey in 2008. A short list of 20 common species was recorded during the present walk-over survey. It is unlikely that the site is of significant interest for bryophytes.

3.8 Silverhand Estate

No comprehensive bryophyte survey of the site has been undertaken. Historic records are limited to those derived from amateur casual recording by J.I. Hendey and J. Pitt in 2004 and 2008, which provided an inventory of 36 common species. Only small parts of this large estate were visited during the walk-over survey. The areas of woodland and grassland are unlikely to be of significant interest for bryophytes. The areas of cultivated land may be of more interest and deserve a comprehensive survey at a suitable time of year (i.e. winter or early spring), especially given the nearby occurrence of *Ephemerum cohaerens* at Ranscombe Farm in arable habitat.

3.9 Crabbles Bottom

No comprehensive bryophyte survey of the site has been undertaken and no historic records can be localised to this site. A short list of 12 common species was recorded during the present walk-over survey. It is unlikely that the site is of significant interest for bryophytes.

3.10 Shorne Common Rough

No comprehensive bryophyte survey of the site has been undertaken and no historic records can be localised to this site. The site was passed during the present survey but was not visited as it is clearly of no significant interest for bryophytes, comprising dry, secondary woodland.

3.11 Holborough Woodlands

No comprehensive bryophyte survey of the site has been undertaken. Historic records are limited to those derived from amateur casual recording by various people in 1969, 1992 and 2004, which provided an inventory of 69 species. Four of these are of conservation interest, though only one is considered to be a reliable record:

- *Campylophyllopsis calcarea* (Nationally Scarce) – recorded by E.R. Hurr and M.C. Watling in April 1992 from Crookhorn Wood.

Those considered to be doubtful are:

- *Abietinella abietina* (Nationally Scarce) – recorded by E.R. Hurr and M.C. Watling in April 1992 from ‘Crookhorn Wood’. This record is considered doubtful because the species is

confined to open, unimproved short-grazed chalk grassland and insolated chalky spoil in old quarries and earthworks, and does not occur in woodland.

- *Weissia condensa* (Nationally Scarce) – recorded by F. Rose in March 1969 from 'Halling Warren'. The record is considered doubtful because: (i) the location name does not appear on any OS maps (a possible location is The Warren in North Halling); (ii) whilst F. Rose was a good bryologist in the late 1940s/1950s, he later concentrated on lichens and his bryophyte records became frequently erroneous; (iii) the record was transcribed by H. Brocklebank from a notebook of F. Rose following his death (i.e. F. Rose never submitted the record); and (iv) *W. condensa* is a critical species that is easily misidentified.
- *Weissia sterilis* (Nationally Scarce) – recorded by F. Rose in March 1969 from 'Halling Warren'. The record is considered doubtful for the reasons outlined above under *W. condensa*.

A list of 50 species was recorded during the present walk-over survey. Two of these are of conservation interest:

- *Herzogiella seligeri* (Nationally Scarce) – a single colony was found on a decorticated rotten log beside a track in Greatpark Wood (Figure 2; plate 7.1).
- *Sematophyllum substrumulosum* (Nationally Scarce) – a single colony was found on a decorticated beech trunk in Crookhorn Wood (Figure 2; plate 7.2).

3.12 Jeskyns Community Woodland

No comprehensive bryophyte survey of the site has been undertaken and no historic records can be localised to this site. A short list of 13 common species was recorded during the present walk-over survey. The site is not of significant interest for bryophytes.

3.13 Great Crabbles Wood

No comprehensive bryophyte survey of the site has been undertaken. Historic records are limited to those derived from amateur casual recording by J.I. Hendey, J.M. Langton and J. Pitt in 2008 and 2011, which provided an inventory of 55 common species. The southern border of the site was visited during the present walk-over survey and it seemed clear that the woodland is not of significant interest for bryophytes. In an old chalk pit at TQ7028070002, *Didymodon tophaceus* subsp*. sicculus* was found, which is only the third record of this subspecies in Britain. However, it has only been taxonomically recognised recently and further recording will likely show that it is not a taxon of significant conservation concern. The species itself, *Didymodon tophaceus*, is common.

3.14 South Ashenbank Wood

No comprehensive bryophyte survey of the site has been undertaken and no historic records can be localised to this site. The site was viewed from the eastern and northern boundary during the present walk-over survey and it seemed clear that the woodland is not of significant interest for bryophytes, with the habitat comprising dry woodland.

3.15 Cobham Hall School

No comprehensive bryophyte survey of the site has been undertaken and no historic records can be localised to this site. The site was not visited during the walk-over survey. It seems unlikely to be of significant interest for bryophytes, with the habitats comprising grassland, dry woodland and ponds.

4. Assessment of Interest

4.1 Species Diversity

An inventory of the bryophyte recorded from the candidate sites included in the present assessment is provided in Appendix 2. A total of 177 species have been recorded. The highest number is from Shorne Woods Country Park, where 121 species have been found. In part, this is because it is the only site that has been thoroughly surveyed for bryophytes (Callaghan 2024), but also because it is the only site with significant areas of wetland habitat, with the wet woodland of the site supporting the highest diversity of bryophytes across the candidate sites included within this study, which are otherwise composed almost entirely of dry habitats, lacking even small streams, springs or flushes.

4.2 SSSI Criteria Assessment

An assessment of the bryophyte species within the survey area against the SSSI selection criteria for bryophytes (Bosanquet et al. 2018; Table 1) suggests that no bryophyte features of national conservation importance are present. However, the woodland bryophyte assemblage within Holborough Woodlands could potentially qualify following further survey effort because: (i) it is presently close to qualifying, with a score of 9 points; (ii) no comprehensive bryophyte survey of the site has ever been undertaken; and (iii) other scoring species may be present (e.g. *Dicranum flagellare* or *Tortula vahliana*).

Species	Year of first record	Year of last record	3.1.1 Annex II	3.1.2 Endemic	3.1.3 Atl woodland	3.1.3 Mont heath	3.2 Acid mont cliff	3.2 Arable	3.2 Basic mont cliff	3.2 Bog	3.2 Calc grassland	3.2 Coastal habitats	3.2 Dune/saltmarsh	3.2 Epiphytes	3.2 Fen/swamp	3.2 Flushes	3.2 Lake/reservoir	3.2 Low acid rock	3.2 Low calc rock	3.2 Low heath	3.2 Mine/quarry	3.2 Riparian	3.2 Scree	3.2 Snowbed	3.2 Up heath	3.2 Woodland	3.3 Red list species
Campylophyllopsis calcarea[1]	1992	1992																	3							3	
Ephemerum cohaerens[2]	2019	2020						6									6										
Herzogiella seligeri	2024	2024																								3	
Sematophyllum substrumulosum	2024	2024																								3	
Site score:					**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	
SSSI threshold:					**12**	**12**	**18**	**12**	**36**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**15**	**12**	**12**	**15**	**12**	**12**	**12**	**12**	

Table 4.1. Site assessment against the SSSI selection criteria for bryophytes (Bosanquet et al. 2018)

[1]Not listed as part of the 'Woodland' assemblage by Bosanquet et al. (2018) but included as such here because woodland is one of its typical habitats.

[2]Not listed as part of the 'Arable' assemblage by Bosanquet et al. (2018) but included as such here because it is part of the arable bryophyte assemblage at Ranscombe Farm.

4.3 Protected / Notable Bryophyte Species

No legally protected species are known to occur. Table 4.2 provides a summary of notable bryophyte species records within the study sites. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

Species	Comments	Species of Principal Importance?	Conservation Status
Chalk Feather-moss *Campylophyllopsis calcarea*	This moss is commonest in beech woods on chalk, but occurs in a wide range of other habitats, including pits and quarries that are reverting to woodland, limestone ravines, wooded undercliffs and shady lane banks. There is only a single record from the study area, made by E.R. Hurr and M.C. Watling in April 1992 from Crookhorn Wood, though the precise location was not recorded. Given the general woodland habitat of Crookhorn Wood appears to be largely unchanged from 1992, the species is likely to still occur, though the lack of a precise and up-to-date record leaves an element of doubt. Rose (1951) describes it as 'rare' in Kent, and since 2000 there are records from only three sites.	-	Nationally Scarce
Clustered Earth-moss *Ephemerum cohaerens*	In England, the principal habitat of this rare moss is on mud exposed by lowland pools and reservoirs, so its presence in arable at Ranscombe Farm is particularly notable. It was seen in the same field in 2019 and 2020, but there are no other records. The habitat remains unchanged and a comprehensive survey at a suitable time of year (early spring) would likely refind the species. Ranscombe Farm is the only known site for the species in Kent.	✓	Nationally Rare
Silesian Feather-moss *Herzogiella seligeri*	A species typically found on rotting logs and tree stumps in shaded places in broadleaved woodland in SE England. There is only a single record from the study area, comprising a single colony found during the present survey in Holborough Woodlands (Greatpark Wood). It is likely to be occur elsewhere in low density in these woodlands. Rose (1951) describes it as 'very rare' in Kent, and since 2000 there are records from only two other sites.	-	Nationally Scarce

Table 4.2: Summary of Protected/Notable Species Records (continues)

Bark Signal-moss *Sematophyllum substrumulosum*	A species typically found on decorticated conifer logs in coniferous and mixed woodland in southern England and Wales. There is only a single record from the study area, comprising a single colony found during the present survey, in Holborough Woodlands (Crookhorn Wood). It is likely to occur elsewhere in low density in these woodlands. It was first found in Kent in 2016 and the present record is only the second site for the county.	-	Nationally Scarce

Table 4.2: Summary of Protected/Notable Species Records (continued)

5. Recommendations

All recommendations provided in this section are based on Middlemarch's current understanding of the NNR proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

R1 **Landscape scale enhancements:** No landscape scale enhancements appear to be required specifically for bryophytes, beyond standard best practice.

R2 **Specific site enhancements:** No specific management measures appear to be required to maintain the bryophyte interest of the sites, other than standard best practice, including the control of invasive non-native species, especially *Rhododendron*, promotion of deadwood in woodlands, and the maintenance of water flow and water quality in streams and ponds. Regarding *Rhododendron*, this should be surveyed to determine locations of invasion, especially in Holborough Woodlands, and eradicated where found (some stands were noted in Greatpark Wood at TQ6710863594).

R3 **Priority locations for survey work:** Three areas deserve comprehensive bryophyte surveys:

- Holborough Woodlands – no comprehensive bryophyte survey of these woodlands have been undertaken, but such may show the woodland bryophyte assemblage is of national importance according to the bryophyte selection criteria for SSSIs.
- Arable land at Ranscombe Farm – no comprehensive bryophyte survey of arable land at Ranscombe Farm has been undertaken, but such is required to accurately document the distribution and abundance of *Ephemerum cohaerens* (NERC s41) and assess the overall importance of the arable bryophyte assemblage.
- Cultivated land in the Silverhand Estate – no comprehensive bryophyte survey of cultivated land in the Silverhand Estate has been undertaken, which is warranted given the nearby occurrence of *Ephemerum cohaerens* (NERC s41) on arable land at Ranscombe Farm.

6. Figures

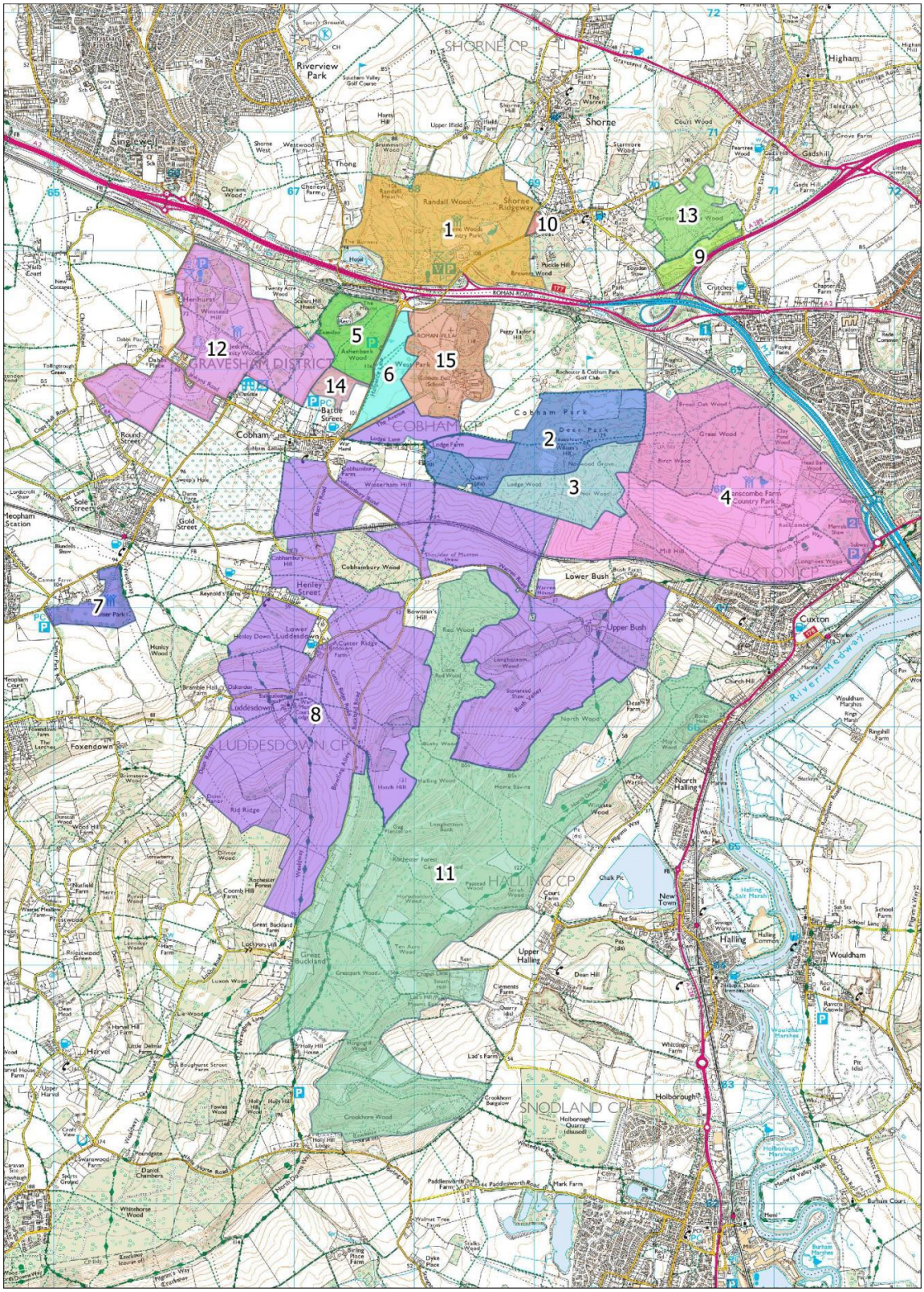

Figure 1. Location of sites included within the present study. 1 Shorne Woods Country Park; 2 Cobham Wood; 3 Leisure Plots; 4 Ranscombe Farm; 5 Ashenbank Wood; 6 West Park; 7 Camer Park; 8 Silverhand Estate; 9 Crabbles Bottom; 10 Shorne Common Rough; 11 Holborough Woodlands; 12 Jeskyns Community Woodland; 13 Great Crabbles Wood; 14 South Ashenbank Wood; 15 Cobham Hall School.

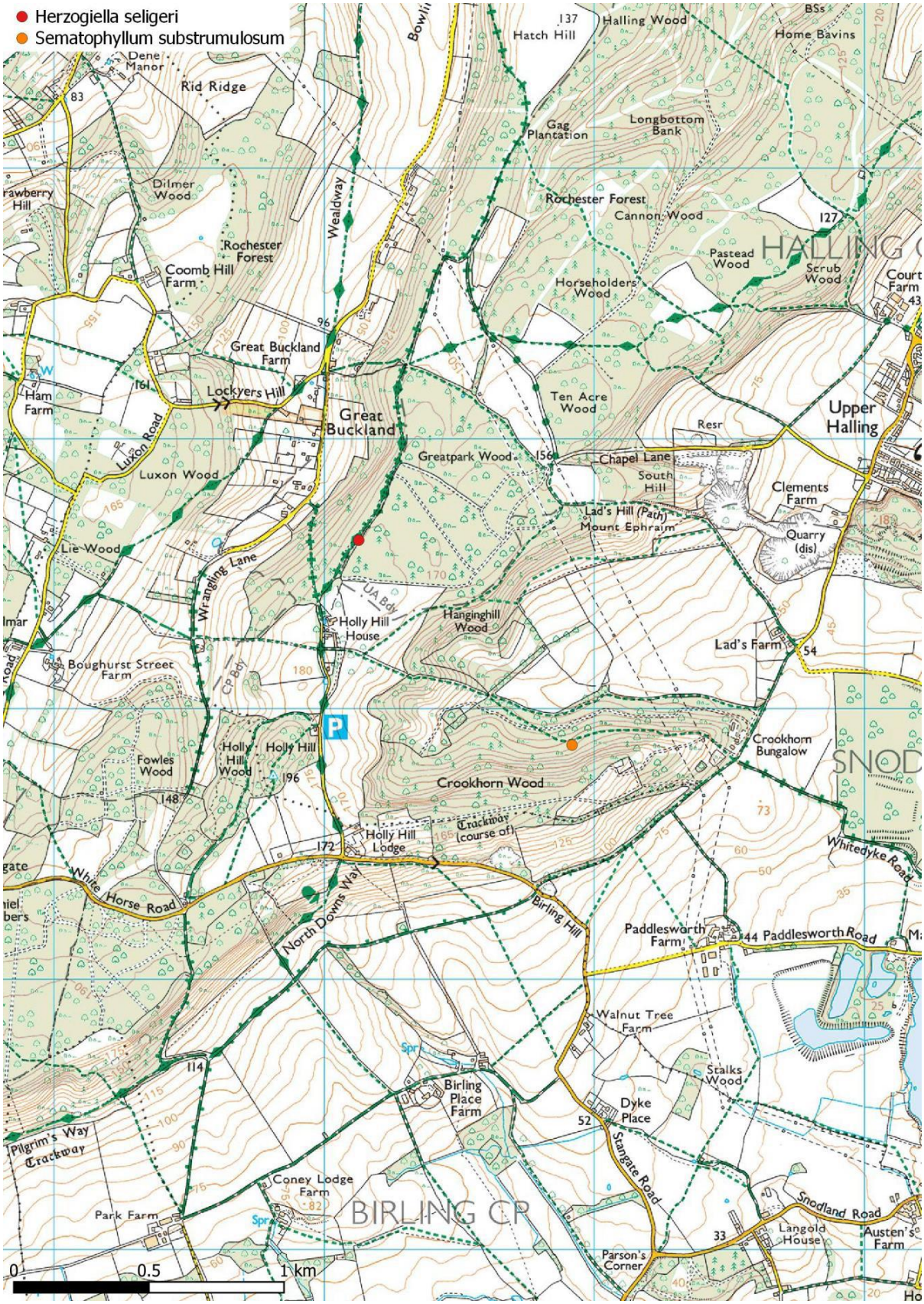

Figure 2. Locations of notable species in Holborough Woodlands found during the present walk-over survey.

7. Photographs

Plate 7.1: Habitat and location of *Herzogiella seligeri* in Greatpark Wood. TQ6712963623.

Plate 7.2: Habitat and location of *Sematophyllum substrumulosum* in Crookhorn Wood. TQ6791862866.

8. Acknowledgements

Many thanks to Jamie Fletcher (Middlemarch) for managing the contract, Mike Phillips (Whitehorse Ecology) for advice, and Ben Sweeney (Plantlife) for help with access at Ranscombe Farm.

9. References

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Appendix 1

Relevant Legislation

The below provides an overview of legislation that is specifically relevant to the conservation of bryophytes in England. It does not include any mention of more general nature conservation policy and legislation.

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora ('the Habitats Directive')

No bryophytes are specially protected under Annex IV ('European Protected Species'). The only inclusion of bryophytes is under Annex II, which includes five species (see below). For these, signatories are required to contribute to a coherent European ecological network of protected sites by designating a selection of their sites as Special Areas of Conservation (SACs).

The Conservation of Habitats and Species Regulations 2017 (as amended)

This piece of legislation transposes into domestic law the European Habitats Directive and European Birds Directive. Besides the requirements mentioned above under the Habitats Directive, there are no additional measures for the conservation of bryophytes.

The Natural Environment and Rural Communities Act 2006 ('the NERC Act')

Section 41 (S41) of the NERC Act requires the Secretary of State to publish a list of species and habitats of principal importance for conserving biodiversity, which includes 79 bryophyte species (see below). The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act, to have regard to the conservation of biodiversity when carrying out their normal functions.

The Wildlife and Countryside Act (WCA) 1981

The Act makes it an offence (subject to exceptions) to intentionally pick, uproot or destroy any wild plant listed in Schedule 8, which includes 37 bryophyte species (see below).

Species	Habitats Directive (Annex II)	Wildlife and Countryside Act 1981 (Schedule 8)	Natural Environment and Rural Communities Act 2006 (Section 41)
Bryum schleicheri		x	
Bryum warneum			x
Buxbaumia viridis	x	x	
Cephaloziella baumgartneri			x
Cephaloziella calyculata			x
Cephaloziella dentata			x
Cephaloziella integerrima			x
Cephaloziella nicholsonii			x

Table 1: Legislative Status (continues)

Species	Habitats Directive (Annex II)	Wildlife and Countryside Act 1981 (Schedule 8)	Natural Environment and Rural Communities Act 2006 (Section 41)
Ceratodon conicus			x
Cyclodictyon laetevirens		x	x
Dendrocryphaea lamyana		x	x
Dicranum spurium			x
Dicranum undulatum			x
Didymodon cordatus		x	
Didymodon glaucus		x	x
Didymodon tomaculosus			x
Ditrichum cornubicum		x	x
Ditrichum plumbicola			x
Ditrichum subulatum			x
Dumortiera hirsuta			x
Entosthodon pulchellus			x
Ephemerum cohaerens			x
Fissidens curvatus			x
Fissidens serrulatus			x
Fossombronia foveolata			x
Geocalyx graveolens		x	
Grimmia crinita			x
Grimmia elongata			x
Grimmia unicolor		x	
Gymnomitrion apiculatum		x	
Habrodon perpusillus			x
Hamatocaulis vernicosus	x	x	
Homomallium incurvatum			x
Hygrohypnum polare		x	
Hypnum vaucheri		x	
Jamesoniella undulifolia		x	x

Table 1: (continued) Legislative status (continues)

Species	Habitats Directive (Annex II)	Wildlife and Countryside Act 1981 (Schedule 8)	Natural Environment and Rural Communities Act 2006 (Section 41)
Leiocolea rutheana		x	x
Leiocolea rutheana var. laxa		x	x
Leiocolea rutheana var. rutheana		x	x
Lejeunea mandonii			x
Leptodontium gemmascens			x
Liochlaena lanceolata			x
Lophozia capitata			x
Marsupella profunda	x	x	x
Micromitrium tenerum		x	x
Mielichhoferia mielichhoferiana		x	
Orthodontium gracile			x
Orthotrichum obtusifolium		x	
Orthotrichum pallens			x
Orthotrichum pumilum			x
Pallavicinia lyellii			x
Petalophyllum ralfsii	x	x	x
Philonotis marchica			x
Physcomitrium eurystomum			x
Plagiothecium piliferum		x	
Pseudocalliergon turgescens		x	
Rhynchostegium rotundifolium		x	x
Rhytidiadelphus subpinnatus			x
Riccia bifurca		x	x
Riccia canaliculata			x
Riccia nigrella			x
Saelania glaucescens		x	
Scopelophila cataractae			x
Seligeria carniolica			x

Table 1: (continued) Legislative Status (continues)

Species	Habitats Directive (Annex II)	Wildlife and Countryside Act 1981 (Schedule 8)	Natural Environment and Rural Communities Act 2006 (Section 41)
Southbya nigrella		x	x
Sphaerocarpos texanus			x
Sphagnum balticum		x	x
Splachnum vasculosum			x
Telaranea europaea			x
Thamnobryum angustifolium		x	x
Thamnobryum cataractarum			x
Tortula cernua		x	x
Tortula cuneifolia			x
Tortula freibergii			x
Tortula vahliana			x
Tortula wilsonii			x
Weissia condensa			x
Weissia levieri			x
Weissia multicapsularis			x
Weissia squarrosa			x
Weissia sterilis			x
Zygodon forsteri		x	x
Zygodon gracilis		x	x

Table 1: (continued) Legislative Status

Appendix 2 – Species Inventory by Site

The below provides an inventory of the species that have been recorded from each site. The year of the most recent record of a species within a site is indicated within the table. Sites are: 1 Shorne Woods Country Park; 2 Cobham Wood; 3 Leisure Plots; 4 Ranscombe Farm; 5 Ashenbank Wood; 6 West Park; 7 Camer Park; 8 Silverhand Estate; 9 Crabbles Bottom; 10 Shorne Common Rough; 11 Holborough Woodlands; 12 Jeskyns Community Woodland; 13 Great Crabbles Wood; 14 South Ashenbank Wood; 15 Cobham Hall School. There are no bryophyte records from sites 6, 10 and 15.

Species	Site											
	1	2	3	4	5	7	8	9	11	12	13	14
Aloina aloides s.str.				2012					2004			
Amblystegium serpens	2024	2002		2024	2024	2008	2008		2024	2024	2011	
Anomodon viticulosus				2018					2024		2008	
Atrichum undulatum s.str.	2024	2024	2024	2024	2024				2024		2008	
Aulacomnium androgynum	2024	2002		2020	2002						2008	
Aulacomnium palustre	2024											
Barbula unguiculata	2024	2024		2024	2002		2008		2024	2024	2011	
Brachytheciastrum velutinum		2005									2008	
Brachythecium albicans	2024	2005										
Brachythecium rivulare					2002							
Brachythecium rutabulum	2024	2024	2024	2024	2024	2024	2008		2024	2024	2011	
Bryoerythrophyllum recurvirostrum									2024			
Bryum argenteum	2024	2024		2024	2002		2008		2024			

Table 2: Species Inventory by Site (continues)

Species	Site											
	1	2	3	4	5	7	8	9	11	12	13	14
Bryum bornholmense	2024											
Bryum capillare	2024	2024		2024	2002	2008		2024	2024			
Bryum dichotomum	2024	2002		2024						2024		
Bryum klinggraeffii				2024			2004					
Bryum moravicum									1992			
Bryum radiculosum							2004					
Bryum rubens	2024	2024		2019	2002							
Bryum ruderale	2024			2019							2011	
Bryum sauteri							2004					
Bryum violaceum							2004					
Calliergon cordifolium	2024											
Calliergonella cuspidata	2024				2024		2008	2024	2024		2011	
Calypogeia arguta	2024											
Calypogeia fissa	2024											
Calypogeia muelleriana	2001											
Campylium chrysophyllum									1992			
Campylophyllopsis calcarea									1992			
Campylopus flexuosus	2011								1992			
Campylopus introflexus	2024	2002		2020	2002	2024			1992			
Campylopus pyriformis	2024											
Cephalozia bicuspidata	2024											

Table 2: (continued) Species Inventory by Site (continues)

Species	Site											
	1	2	3	4	5	7	8	9	11	12	13	14
Cephaloziella divaricata	2024											
Ceratodon purpureus	2024	2002	2024	2024	2024				1992		2008	
Chiloscyphus pallescens	2011											
Chiloscyphus polyanthos	2024											
Cirriphyllum crassinervium				2018		2008	2008		2024		2024	
Cirriphyllum piliferum	2024								2004		2008	
Cratoneuron filicinum	2024											
Cryphaea heteromalla	2024	2005		2024	2024	2024		2024	2024			
Ctenidium molluscum									2024			
Dicranella heteromalla	2024	2002		2024	2024	2024			1992		2008	
Dicranella howei		2002		2024					2024	2024		
Dicranella schreberiana				2024					2024			
Dicranella staphylina	2024				2024							
Dicranoweisia cirrata	2024	2002		2012	2024	2008	2008		2004		2008	
Dicranum scoparium	2024	2002							2004		2011	
Dicranum tauricum	2024			2020	2002							
Didymodon fallax	2024	2002	2024	2004					2024			
Didymodon insulanus	2024						2008				2011	
Didymodon luridus				2019	2002		2008	2024	1992			
Didymodon nicholsonii	2024											
Didymodon sinuosus	2024								2024			

Table 2: (continued) Species Inventory by Site (continues)

Species	Site											
	1	2	3	4	5	7	8	9	11	12	13	14
Didymodon tophaceus subsp. sicculus											2024	
Didymodon vinealis				2024	2002		2008					
Ditrichum heteromallum	2011											
Drepanocladus aduncus	2024											
Encalypta streptocarpa									2004			
Ephemerum cohaerens				2020								
Ephemerum serratum s.str.					2024							
Eurhynchium striatum	2024	2005			2002			2024	2024		2008	
Fissidens bryoides var. bryoides	2024	2002		2019	2002						2008	
Fissidens dubius									2004			
Fissidens gracilifolius									2024		2024	
Fissidens incurvus				2018					2024			
Fissidens taxifolius	2024		2024	2024	2024	2024	2024		2024		2011	
Fissidens viridulus				2019			2008				2008	
Fossombronia pusilla					2024							
Frullania dilatata	2024	2024		2024	2024	2024			2024		2008	
Funaria hygrometrica	2024	2002		2012	2002				2024	2024	2011	
Grimmia pulvinata	2024						2008		2024			
Hennediella macrophylla						2024			2024			
Herzogiella seligeri									2024			
Homalia trichomanoides				2020	2002		2008				2008	

Table 2: (continued) Species Inventory by Site (continues)

Species	Site											
	1	2	3	4	5	7	8	9	11	12	13	14
Homalothecium lutescens				2004					2024		2011	
Homalothecium sericeum	2024	2024		2024			2008	2024	2024		2008	
Hylocomiadelphus triquetrus									2004			
Hypnum andoi	2024			2024	2024				2024		2008	
Hypnum cupressiforme var. cupressiforme	2024	2024		2024	2024	2024		2024	2024	2024	2011	2024
Hypnum cupressiforme var. lacunosum	2024								1992			
Hypnum cupressiforme var. resupinatum	2024	2002		2012	2002						2008	
Hypnum jutlandicum	2024											
Isothecium alopecuroides	2024										2008	
Isothecium myosuroides s.str.	2024			2018	2002				2024		2008	
Kindbergia praelonga	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	2011	
Lepidozia reptans	2001											
Leptodictyum riparium	2024											
Leucobryum glaucum s.str.	2024											
Lewinskya affinis	2024	2024	2024	2024	2024	2024		2024	2024	2024	2008	
Lewinskya striata	2024					2024						
Lophocolea bidentata	2024	2002		2004	2002		2008		2024			
Lophocolea heterophylla	2024	2002		2018	2002	2024			2024		2011	

Table 2: (continued) Species Inventory by Site (continues)

Species	Site											
	1	2	3	4	5	7	8	9	11	12	13	14
Lophocolea semiteres	2024				2024							
Lophozia excisa	2024											
Lunularia cruciata	2024											
Marchantia polymorpha		2002										
Mesoptychia turbinata									2024			
Metzgeria consanguinea									2004			
Metzgeria furcata	2024	2002		2024	2024	2024			2024		2008	
Metzgeria violacea	2024											
Microbryum curvicollum									1992			
Microbryum davallianum var. conicum				2024			2004					
Microbryum floerkeanum				2024			2004					
Microbryum rectum				2004					2004			
Microeurhynchium pumilum	2024						2008		2024			
Mnium hornum	2024	2024	2024	2024	2024		2008		2024	2024	2011	
Myriocoleopsis minutissima	2024			2024	2024							
Neckera complanata	2024						2008		2024		2011	
Neckera crispa									1992			
Neckera pumila	2024											
Orthodontium lineare	2024	2024		2020	2024				2024		2011	
Orthotrichum anomalum	2001											

Table 2: (continued) Species Inventory by Site (continues)

Species	Site											
	1	2	3	4	5	7	8	9	11	12	13	14
Orthotrichum diaphanum	2024	2002		2024	2002	2024	2008	2024	1992		2008	
Orthotrichum pulchellum	2024				2024	2024						
Orthotrichum stramineum	2024											
Orthotrichum tenellum	2024											
Oxyrrhynchium hians	2024	2002	2024	2019		2024	2024		2024		2011	
Oxyrrhynchium schleicheri				2024			2008				2008	
Pellia endiviifolia	2001								2024			
Pellia epiphylla	2024	2002										
Physcomitrium patens		2002										
Physcomitrium pyriforme					2002							
Plagiomnium affine	2001	2002							1992			
Plagiomnium undulatum	2024	2002			2002		2008		2004		2008	
Plagiothecium curvifolium	2024										2008	
Plagiothecium nemorale		2005		2004	2002	2008					2011	
Plagiothecium succulentum	2024	2005									2008	
Plagiothecium undulatum	2024											
Plenogemma phyllantha	2024											
Pleuridium acuminatum	2024											
Pohlia annotina	2024											

Table 2: (continued) Species Inventory by Site (continues)

Species	Site											
	1	2	3	4	5	7	8	9	11	12	13	14
Pohlia lutescens	2024											
Pohlia melanodon				2024					2024	2024		
Pohlia nutans	2024								1992			
Pohlia wahlenbergii var. wahlenbergii									2004			
Polytrichum formosum	2024			2012	2024							
Polytrichum juniperinum	2024				2002				1992			
Polytrichum piliferum	2001											
Porella platyphylla				2020					2024		2011	
Pseudephemerum nitidum	2024											
Pseudocrossidium hornschuchianum	2024			2024					1992			
Pseudoscleropodium purum	2024		2024	2004					2004			
Pseudotaxiphyllum elegans	2024	2002									2008	
Pulvigera lyellii	2024	2024		2024		2024			2024			
Radula complanata	2024	2024	2024	2024					2024		2008	
Rhizomnium punctatum	2024				2002				2024			
Rhynchostegiella tenella									2024			
Rhynchostegium confertum	2024	2024	2024	2024	2024	2024	2024		2024	2024	2008	
Rhynchostegium murale							2008					
Rhytidiadelphus squarrosus	2024						2008					
Riccardia chamedryfolia	2024											

Table 2: (continued) Species Inventory by Site (continues)

Species	Site											
	1	2	3	4	5	7	8	9	11	12	13	14
Schistidium crassipilum	2024											
Scleropodium cespitans	2001											
Seligeria calycina				2019					2024		2024	
Sematophyllum substrumulosum									2024			
Streblotrichum convolutum var. commutatum	2024											
Streblotrichum convolutum var. convolutum	2024		2024	2018			2008	2024	2024		2011	
Syntrichia montana var. montana	2024				2002		2008		2004			
Tetraphis pellucida	2024			2024					1992		2011	
Thamnobryum alopecurum	2024	2005			2002	2024			2024		2011	
Thuidium tamariscinum	2024											
Tortula acaulon var. acaulon	2024			2024			2004		2004			
Tortula muralis	2024				2002		2008					
Tortula truncata	2001	2002		2004	2024		2004					
Trichodon cylindricus	2024	2002		2012								
Trichostomum crispulum									2024			
Ulota bruchii	2024	2024			2024				2024			
Ulota crispa sensu Smith (2004)	2011	2002			2002						2008	
Ulota crispula	2024											
Ulota intermedia						2024						

Table 2: (continued) Species Inventory by Site (continues)

Species	Site											
	1	2	3	4	5	7	8	9	11	12	13	14
Weissia angustifolia				2024					2004			
Weissia brachycarpa var. obliqua											2011	
Weissia controversa var. controversa					2002							
Zygodon conoideus var. conoideus	2024			2024	2024			2024				
Zygodon viridissimus s.str.	2024				2002				2024			
TOTAL	**121**	**51**	**13**	**70**	**58**	**25**	**38**	**12**	**88**	**12**	**56**	**1**

Table 2: (continued) Species Inventory by Site