

The Flora and Vegetation of Hothfield Heath

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Introduction

Hothfield Heath is one of Kent's most popular wildlife sites. It is a small area of heathland on sandy soil, with a number of springs that seep nutrient-poor, acid water into a series of mires that are dominated by bog-mosses: a highly unusual habitat in the county. It has been studied intensively by naturalists for nearly two hundred years, and the reams of information that has been collected can be confusing and sometimes contradictory. The purpose of this report is to gather together all the botanical records and bring them up to date, and thus provide a comprehensive guide to the plants and vegetation of this site and how they have changed over the years. The report is aimed at naturalists, ecologists, conservationists and land managers.

The current report is the result of one summer's survey and analysis, so it is entirely provisional. I hope to add to it in future years. Please note the date given at the top. Readers may want to check whether there is a more recent version available.

The subject of this project is Hothfield Heath, as shown on the Ordnance Survey map, which corresponds closely to the former area of Common Land, the Wildlife Trust/Ashford Borough Council Local Nature Reserve, and the SSSI boundary. The correct name to use for this site is a matter of debate. It is listed as Hothfield Common on the Ordnance Survey map, but that is not ideal: it is no longer common land and it is not in any way a functioning 'common' so that title is only of historical relevance. The earliest botanists used the name Hothfield Heath (as well as Hothfield Common, or simply 'Hothfield') for their records, and this name therefore has some advantage of continuity. Other possible names, such as Hothfield Bogs or Hothfield Nature Reserve seem to offer no advantage, and it would seem strange to apply a description like 'bogs' to the areas of dry grassland, or 'nature reserve' when referring to records that pre-date the existence of such spaces. Overall, therefore, I suggest that Hothfield Heath best describes the area intended, and is the most likely to have both historical and future application.

There are several compartments to the site. The main area with the four bogs lies to the west of School Road. Between School Road and the A20 is a wooded area that is roughly triangular in shape, and which is referred to here (and elsewhere) as the triangle area. It is mostly a dry, wooded compartment but with hints of a wetland flora in places. On the east side of the A20 Maidstone Road is the New Fen, a bog that was once equal to those in the main area, but which is now rather overgrown and degraded (although it still retains some important species). North of this, across Watery Lane, is a small compartment which seems to consist of dry Sweet Chestnut woodland.

I am grateful to everyone who has recorded plants or written about the flora and ecology of this site and made their findings public. I am also grateful to everyone who has helped with this report by supplying information, commenting on the text, or offering their opinion. Hopefully, this report will be a useful contribution to the ongoing study of this site.



History of recording

The first mention of Hothfield in the botanical literature seems to be a record of *Geum rivale*, Water Avens, 'in a wood near Barber's Mill on Hothfield' in Edward Jacob's *Plantae Favershamienses*, 1777. Barber's Mill no longer exists, and we have not managed to trace its location, but it may have been on the River Stour and, as there were no woods on Hothfield Common at that time, it seems very unlikely that the record relates to our site. *Geum rivale* does, however, appear on later lists of plants of Hothfield, and all such records clearly derive from this source. This species has never otherwise been recorded in Kent, and unless further evidence appears, it can be safely disregarded as a plant of the heath.

In 1829 Rev G.E. Smith produced his *Catalogue of the Plants of South Kent*, which mentions three species on Hothfield Heath. He subsequently added four more in Cowell's *Floral Guide to East Kent*, published in 1839. The later records probably date from 1830-1832 (G. Kitcheners *pers. comm.*) and the earlier ones are presumably from shortly before 1829. The species he listed are an eclectic selection of some of the rarest plants in the county, and represent bog, heath and grassland habitats.

Species recorded by G.E. Smith, ca. 1828-1832

Centunculus minimus	Chaffweed
Cuscuta epithymum	Dodder
Lycopodiella inundata	Marsh Clubmoss
Nardus stricta	Mat-grass
Narthecium ossifragum	Bog Asphodel
Trifolium glomeratum	Clustered Clover
Ulex minor	Dwarf Gorse

John Stuart Mill (1806-1873) collected three specimens at Hothfield, according to Hanbury & Marshall's *Flora of Kent* (1899). These are probably at K, so eventually we might get their correct dates. We know he collected in Kent between 1843 and 1870, so we can fairly confidently date the list to before 1870. The plants he found were *Carex pilulifera*, *Drosera rotundifolia* and *Trifolium subterraneum*.

The next record that we have with a precise date is a specimen of *Carex echinata*, Star Sedge, collected by 'FMW' in 1875, in the herbarium of F.J. Hanbury (now at BM). FMW is presumably Frederick Morgan Webb (1841-1880), who contributed many records to the *Flora of Kent* (Hanbury & Marshall, 1899). We don't have dates for any of his other records, but it seems reasonable to conclude that they are from about that time.

In the list below I have changed Webb's *Ranunculus hederaceus* to *tripartitus* (see the species account for the justification for this) and, given that switch, his list is amazingly thorough and pretty much described the main features of Hothfield as they appear today. It is also surprising how few of Webb's species have subsequently been lost, given how the site was largely invaded by scrub in the meantime.

Species recorded by F.M. Webb, ca. 1875

Aira caryophylla	Silver Hair-grass	Marrubium vulgare	White Horehound
Bidens cernua	Nodding Bur-marigold	Montia fontana	Blinks
Carex echinata	Star Sedge	Oenanthe fistulosa	Tubular Water-dropwort
Carex leporina	Oval Sedge	Ornithopus perpusillus	Bird's-foot
Carex paniculata	Greater Tussock-sedge	Polygala serpyllifolia	Heath Milkwort
Danthonia decumbens	Heath-grass	Ranunculus tripartitus	Three-lobed Crowfoot
Eleocharis multicaulis	Many-stalked Spike-rush	Sagina apetala	Annual Pearlwort
Epilobium palustre	Marsh Willowherb	Scleranthus annuus	Annual Knawel
Erica tetralix	Cross-leaved Heath	Scutellaria minor	Lesser Skullcap
Eriophorum angustifolium	Common Cottongrass	Spergularia rubra	Sand Spurrey
Galium saxatile	Heath Bedstraw	Stellaria alsine	Bog Stitchwort
Isolepis setacea	Bristle Club-rush	Trifolium glomeratum	Clustered Clover
Juncus bulbosus	Bulbous Rush	Trifolium subterraneum	Subterranean Clover
Luzula multiflora	Heath Wood-rush	Viola canina	Heath Dog-violet

In the Flora of Kent, William Rickman Jeffrey and his son, John Frederick Jeffrey (1866-1943), are described as having contributed their records after E.S. Marshall became editor in 1892, but it is likely that they were actually made some time before this. A specimen of *Lycopodiella inundata* at BM and K, collected by JF, is dated 1884, and this seems a reasonable date to use for WRs records as well.

Additional species recorded by W.R. Jeffrey, ca. 1884

Achillea ptarmica	Sneezewort	Lycopodium clavatum	Stag's-horn Clubmoss
Anagallis tenella	Bog Pimpernel	Lythrum portula	Water Purslane
Carex demissa	Common Yellow Sedge	Menyanthes trifoliata	Bogbean
Carex pilulifera	Pill Sedge	Molinia caerulea	Purple Moor-grass
Carex rostrata	Bottle Sedge	Pedicularis sylvatica	Lousewort
Filago minima	Small Cudweed	Petasites hybridus	Butterbur
Genista anglica	Petty Whin	Verbascum blattaria	Moth Mullein
Helosciadium inundatum	Lesser Marshwort	Veronica scutellata	Marsh Speedwell
Hypericum elodes	Marsh St John's-wort	Viola palustris	Marsh Violet
Juncus squarrosus	Heath Rush		

George Dowker (1828-1899) was a local man from Stourmouth who made just one record at Hothfield, but a very interesting one: he collected *Potamogeton coloratus*, Fen Pondweed. We do not know the date of the record, but from other specimens of his we know he was active between about 1867 and 1893. Although he seems rather sidelined by the authors of the Flora of Kent, he was evidently highly knowledgeable and very competent. He was responsible for two of only three known records of this species at that time, and he also discovered *Potamogeton acutifolius* at Wickhambreaux, many decades before anyone else noticed it. Given that he collected a specimen, there can be little doubt that this record was correct, even though nobody has yet found it again. Dowker's herbarium appears to be at Cambridge (CGE).

Rev John Mitchinson (1833-1918) was headmaster of the King's School, Canterbury, from 1859 to 1873, after which he moved to Barbados and subsequently to Oxford. It seems likely that his records for Kent therefore date from some time before 1873. His only contribution to the flora of Hothfield is a record of *Potentilla palustris* (*Comarum palustre*), 'near Ashford.' Hanbury & Marshall (1899) suggest that 'Hothfield Heath is a likely location' but this does not seem sufficient evidence to include it.

The other records in the Flora of Kent include mostly refinds by Frederick Janson Hanbury (1851-1938) and some new species found by Edward Shearburn Marshall (1858-1919) in the 1890s.

Additional species recorded by E.S. Marshall, ca. 1890s

Carex laevigata	Smooth-stalked Sedge	Polygonum aviculare	Knotgrass
Epilobium obscurum x palustre	a hybrid willowherb	Potamogeton polygonifolius	Bog Pondweed
Frangula alnus	Alder Buckthorn	Sagina procumbens	Procumbent Pearlwort
Galium uliginosum	Fen Bedstraw	Salix aurita	Eared Willow
Helosciadium nodiflorum	Fool's Water-cress	Spergula arvensis	Corn Spurrey
Misopates orontium	Weasel's-snout		

In the years up to 1902 Rev Henry W. Russell prepared a *History of the Village* of Hothfield in manuscript form, presumably with the intention of publishing a book. The manuscript is at Maidstone Central Library and has been transcribed by members of the Hothfield History Society. It includes a list of 'Some Plants on and about Hothfield Common,' which mentions about 180 species. It is obvious that the list is a compilation, because it includes E.S. Marshall's record of *Epilobium obscurum x palustre*, which could not possibly have been recorded independently by anyone else. It seems likely that Russell's list was supplied by the Jeffreys, or perhaps by Hanbury & Marshall.

One problem is that these are plants 'on and about' the common. Presumably this means it covers a wider area than the common itself and therefore includes plants that do not concern us here. Some 153 of Russell's species are otherwise recorded at Hothfield, and we can assume that these were indeed on the common. However, 21 have not been recorded there by anyone else and each presumably could fall into one of three categories:

1. Species which were indeed on the heath and only Russell (or his informants) recorded them
2. Species that were in some other place
3. Species that were misidentified and were neither on the common nor nearby.

It seems likely that all three categories are represented in the list of discrepancies below.

Species listed by Russell (1902) which are not otherwise known at Hothfield Heath

Briza media	Galium verum	Lysimachia nummularia	Spiranthes spiralis
Carduus nutans	Hippuris vulgaris	Onopordum acanthium	Thymus pulegioides
Carlina vulgaris	Hordeum secalinum	Persicaria amphibia	Viola tricolor
Chamaemelum nobile	Hottonia palustris	Ranunculus aquatilis	
Cirsium acaule	Hyoscyamus niger	Sedum telephium	
Erica cinerea	Knautia arvensis	Solanum nigrum	

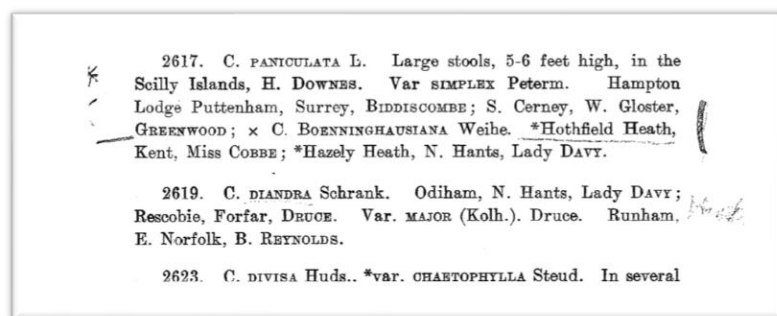
Taking just those species which are known to occur on the common, many (66) of the ones Russell lists had already been published by 1902. However, 87 of them (mostly common ones, admittedly) were new.

Russell's additions to the Hothfield List

Achillea millefolium	Convolvulus arvensis	Medicago lupulina	Rumex obtusifolius
Aegopodium podagraria	Crataegus monogyna	Mentha aquatica	Sambucus nigra
Agrimonia eupatoria	Dactylorhiza maculata	Mercurialis perennis	Scorzoneroide autumnalis
Agrostis capillaris	Erophila verna	Moenchia erecta	Scrophularia auriculata
Alisma plantago-aquatica	Euphrasia officinalis	Myosotis scorpioides	Senecio jacobaea
Anagallis arvensis	Ficaria verna	Odontites vernus	Senecio vulgaris
Arctium minus	Filipendula ulmaria	Pilosella officinarum	Silene dioica
Artemisia vulgaris	Galium aparine	Plantago lanceolata	Silene flos-cuculi
Arum maculatum	Geranium pusillum	Plantago major	Stellaria graminea
Bellis perennis	Geranium robertianum	Potentilla anserina	Stellaria holostea
Calluna vulgaris	Gnaphalium uliginosum	Potentilla erecta	Stellaria media
Caltha palustris	Hydrocotyle vulgaris	Potentilla reptans	Succisa pratensis
Calystegia sepium	Hypochaeris radicata	Potentilla sterilis	Taraxacum officinale agg.
Campanula rotundifolia	Iris pseudacorus	Prunella vulgaris	Teucrium scorodonia
Capsella bursa-pastoris	Juncus effusus	Pteridium aquilinum	Tripleurospermum
Cardamine pratensis	Lamium album	Pulicaria dysenterica	inodorum
Carex pulicaris	Lapsana communis	Radiola linoides	Tussilago farfara
Centaurea nigra	Leontodon saxatilis	Ranunculus bulbosus	Ulex europaeus
Centaureum erythraea	Lolium perenne	Ranunculus flammula	Verbena officinalis
Cerastium arvense	Lonicera periclymenum	Ranunculus repens	Veronica chamaedrys
Chelidonium majus	Lotus corniculatus	Rumex acetosella	Viola odorata
Cirsium palustre	Lythrum salicaria	Rumex conglomeratus	

Between 1900 and 1903 Henry Lamb (1858-1905) collected a few new plants at Hothfield, notably *Eleocharis palustris* (Common Spike-rush) and *Juncus acutiflorus* (Sharp-flowered Rush).

In 1923 a Miss Cobbe (probably Mabel (d. 1936) but possibly Amy (1866-1952)) collected the hybrid sedge *Carex*^x*boenninghausiana* (*paniculata* x *remota*), according to the Botanical Exchange Club Report for that year.



Extract from the Botanical Exchange Club report for 1923 (vol. 7 pt. 1, p. 219). This is a scan of Francis Rose's own copy, with the Kent record highlighted.

John Patrick Micklethwait Brenan (1917-1985) collected some mosses at Hothfield in January and February 1936, which are now at Cardiff (BBSUK). The bog-mosses are listed below.

J.P.M. Brenan's Sphagnum collection from 1936

Sphagnum compactum	Compact Bog-moss
Sphagnum cuspidatum	Feathery Bog-moss
Sphagnum denticulatum	Cow-horn Bog-moss
Sphagnum fallax	Flat-topped Bog-moss
Sphagnum papillosum	Papillose Bog-moss

Francis's Rose's *Bryophyte Flora of Kent*, published in three parts in the journal of the British Bryological Society (1949-1951) includes a description of the main bog (which is generally known as bog 2, but Rose used a different numbering system) from a bryological perspective. One would have to have some knowledge of bryology (including old nomenclature) to fully appreciate it, but for those who are interested it is worth including in full. This account includes some corrections by Rose from his copy of the published Flora:-

On Hothfield Heath grow nearly eighty species of bryophytes, of which number, five are today known nowhere else in Kent (these are marked * thus below). On the dry peaty heather moor, *Hypnum Schreberi*, *H. cupressiforme* var. *ericetorum*, and *Dicranum scoparium* are all abundant; *Dicranum spurium* appears to be absent here, though typical of such places in Surrey and Sussex. On slightly damper 'wet heath', *Ptilidium ciliare*, *Gymnocolea inflata*, *Campylopus brevipilus**, *Leucobryum glaucum*, *Dicranum Bonjeani* and *Hylocomium splendens* are locally abundant, with *Hypnum imponens** in one small area. Where conditions are permanently wet, the peat surface bears a close sward of various Sphagna, mostly *Sphagnum molluscum* and *S. papillosum*, over which grow epiphytically *Odontochisma Sphagni*, *Lepidozia setacea*, and *Cephalozia media*, while *Leptoscyphus anomalus* is frequent on the sides of peaty hummocks where drainage is better (pH 4.6). In the actual valley bog, *Sphagnum*, mostly *S. fallax*¹, bears various *Cephalozias*- (*C. bicuspidata*, *C. Lammersiana*, *C. media*, *C. connivens*, *C. macrostachya**, *C. fluitans**) and *Cephaloziella myriantha*, with *Calypogeia Trichomanis* and *C. sphagnicola** on its surface among *Narthecium*; *Aulacomnium palustre* is plentiful and fruits well, while *Hypnum stramineum** is frequent, creeping on the *Sphagnum*. The margins of boggy pools have a zone of *Aneura multifida* and *Calypogeia fissa* (elongated pool form), and below this a zone of *Aneura pinguis*. In the pools *Hypnum fluitans* grows among *Hypericum elodes* and *Potamogeton polygonifolius*, with a *Bryum* (apparently *B. bimum*). In the central rill of moving water, *Hypnum stellatum* is dominant, and this spreads into the bog. *Hypnum cordifolium*, *H. cuspidatum* and *Chiloscyphus polyanthus* occur as frequent species in less acid conditions (pH 5.3) with *Anagallis tenella* lower down the bog with taller associates such as *Galium palustre*, *Myosotis secunda*, and scattered tussocks of *Polytrichum commune*. *Drosera rotundifolia* is most plentiful in the *Odontochisma-Lepidozia setacea* zone.

¹ *Sphagnum pulchrum* in the original version, later corrected to *fallax*.

In 1974 the Kent Field Club held a symposium on Hothfield Heath in which various papers were presented about the geology, soils, wildlife and management of the reserve. Eric Philp (1930-2013), who was curator at Maidstone Museum and the BSBI Recorder, produced a list of all the species he could find that had ever been recorded at Hothfield. We do not know precisely where the plants were, who recorded them, or when they were found. The list is very long and contains casuals, garden plants, forestry trees and even varieties (or microspecies) of brambles. Although some of this material seems to be of little relevance to the current project, it is included here in the species accounts for the sake of completeness (except the brambles, where taxonomic changes may have rendered the names obsolete).

There are many additions to the site list in Philp's compilation (published in 1975), and more still in his Atlases of 1982 and 2010. For the latter, we have to make an assumption from the tetrad (2 km x 2km square) dots in the distribution maps, as detailed locations are rarely given. Most of these additions are of common plants, as the rarities had mostly been found by then.

New species are still turning up at Hothfield with each survey. In 2010 Geoffrey Kitchener added six new taxa to the list, including surprisingly overlooked species like *Lycopus europaeus* (Gipsywort) and *Epilobium montanum* (Broad-leaved Willowherb). In 2019 we (Stephen Lemon and Alex Lockton) found what we think is a large stand of *Scirpus sylvaticus* (Wood Club-rush) in Bog 4, which again must have been there for some time. Other recent additions are sometimes casuals or the consequence of taxonomic revisions, with a few being apparently deliberate introductions. This has been happening for centuries, apparently, with people attempting to plant rare species such as butterwort, marsh clubmoss, and, most recently – and successfully – Bog Myrtle. Non-native species have also been appearing, the result of either deliberate introductions (e.g. pitcherplant) or possibly natural spread (e.g. New Zealand Pigmyweed).

Conservation Value

Hothfield Common SSSI was designated in 1951 (and renotified in 1985 under the Countryside & Wildlife Act 1981) as the best example of a valley bog in Kent, with associated heathland. The SSSI statement mentions that the diversity of invertebrates and birds is important, as well as twelve (un-named) species of *Sphagnum* and a number of vascular plants. The following are specifically listed:-

Species mentioned in the SSSI statement

Calluna vulgaris	Erophila verna	Narthecium ossifragum
Carex paniculata	Genista anglica	Ornithopus perpusillus
Carex pulicaris	Hypericum elodes	Trifolium glomeratum
Drosera rotundifolia	Juncus squarrosus	Ulex minor
Erica tetralix	Menyanthes trifoliata	
Eriophorum angustifolium	Molinia caerulea	

These species are essentially axiophytes: plants that strongly indicate a habitat of conservation importance. A modern list of axiophytes, drawn up by the Kent Botanical Recording Group, gives as many as 125 species that have been recorded at Hothfield over the years (if we include the bog-mosses). Of these, 38 species could loosely be classified as bog plants, as shown below. (NB a dagger (†) indicates that the species is possibly not still present).

Bog axiophytes recorded at Hothfield (38)

†Achillea ptarmica	Carex rostrata	Hydrocotyle vulgaris	†Salix aurita
Anagallis tenella	Dactylorhiza maculata	Hypericum elodes	Sphagnum capillifolium
Athyrium filix-femina	Drosera rotundifolia	Juncus bulbosus	†Sphagnum cuspidatum
†Bidens cernua	Dryopteris carthusiana	†Lycopodiella inundata	Sphagnum denticulatum
Carex demissa	Eleocharis multicaulis	Molinia caerulea	Sphagnum fallax
Carex echinata	Erica tetralix	Myosotis secunda	†Sphagnum flexuosum
Carex panicea	Eriophorum angustifolium	Narthecium ossifragum	Sphagnum inundatum
Carex pulicaris	Frangula alnus	Potamogeton polygonifolius	†Sphagnum magellanicum

Sphagnum papillosum	†Sphagnum tenellum	Succisa pratensis
Sphagnum subnitens	Stellaria alsine	Viola palustris

Slightly fewer species (28) could be described as fen plants, as listed below. There are fewer rarities in this group, which also illustrates the lower value placed on this habitat in the site.

Fen axiophytes recorded at Hothfield (28)

Caltha palustris	Equisetum fluviatile	Lythrum portula	Scirpus sylvaticus
Carex laevigata	Equisetum palustre	Menyanthes trifoliata	Scutellaria minor
Carex paniculata	Galium uliginosum	†Montia fontana	Silene flos-cuculi
Carex pseudocyperus	Glyceria notata	†Oenanthe fistulosa	Sphagnum palustre
Dactylorhiza praetermissa	†Helosciadium inundatum	Pedicularis sylvatica	Sphagnum squarrosum
Eleocharis palustris	Isolepis setacea	†Potamogeton coloratus	Triglochin palustris
Epilobium palustre	Juncus acutiflorus	Ranunculus flammula	Veronica scutellata

Some 32 species can be classified as grassland plants, or plants of grass-heath. Most of these are also typical of sandy grassland and by-and-large they are found on acid soils.

Grassland axiophytes recorded at Hothfield (32)

Agrostis vinealis	†Euphrasia nemorosa	†Myosotis ramosissima	†Thlaspi arvense
Aira caryophyllaea	†Euphrasia officinalis	†Origanum vulgare	Trifolium arvense
Aira praecox	†Filago minima	Ornithopus perpusillus	Trifolium glomeratum
Campanula rotundifolia	†Hypochaeris glabra	†Pimpinella saxifraga	Trifolium ornithopodioides
†Centunculus minimus	†Lepidium campestre	Plantago coronopus	Trifolium striatum
†Cerastium arvense	†Misopates orontium	†Scleranthus annuus	Trifolium subterraneum
Danthonia decumbens	†Moenchia erecta	Spergula arvensis	Trifolium suffocatum
Deschampsia flexuosa	Myosotis discolor	Spergularia rubra	Viola canina

Heathland plants are also well represented, with 17 species. The habitat varies from dry to wet heath, and the boundaries between this habitat and both bogs and grassland are particularly vague, but the following seem the ones best assigned to this category.

Heathland axiophytes recorded at Hothfield (18)

Calluna vulgaris	†Cuscuta epithymum	Luzula multiflora	Sphagnum compactum
†Carex binervis	Galium saxatile	†Lycopodium clavatum	Ulex minor
Carex nigra	†Genista anglica	Nardus stricta	Veronica officinalis
Carex pilulifera	Hypericum humifusum	Polygala serpyllifolia	
Ceratocarpus claviculata	Hypericum pulchrum	Potentilla erecta	

Finally, woodland plants are rather poorly represented, with just seven species. Even these are not all that clearly woodland plants – for example, the only localised record of *Myosotis laxa* at Hothfield is from a bog (although that is not its normal habitat).

Woodland axiophytes recorded at Hothfield (7)

Anemone nemorosa	Hyacinthoides non-scripta	Neottia ovata	Sphagnum fimbriatum
Dryopteris affinis	†Myosotis laxa	Populus tremula	

This division of axiophytes into broad habitats reinforces the view of Hothfield as a site of importance primarily for its bogs; but it also, surprisingly perhaps, shows that acid grassland is (or was) almost equally significant here. This can be explained by the geology, as it is the presence of the aquifer within the Greensand Folkestone Beds that creates the acid springs which allow the bogs to exist. The sandy soil that this rock produces supports some unusual plant communities. Several of the species found at Hothfield, for example, would normally be expected on beaches or coastal dune systems.

The lists of axiophytes at Hothfield can be used to monitor the overall conservation value of the site. It is unrealistic to expect any site to always have all the plants that ever occurred there, but it is not impossible for the number of axiophytes at any one time to remain more-or-less constant. Although the total number of species lost from Hothfield is large, it turns out that the number of axiophytes has remained fairly constant.

Numbers of axiophytes recorded in each date class

<1970	83
<1990	86
<2010	83
>2010	84
Total ever:	122

It is difficult to tell whether this constancy of axiophytes numbers is a product of recording (i.e. we record more species now than formerly) or whether it really reflects the state of the site (i.e. turnover in species complement). Unfortunately, it is likely to be partly the former, as good habitat has been lost. However, we know that our recording now, and for the last few decades, is pretty thorough, so ongoing changes of the site should be accurately reflected in the data. In the meantime, we can conclude that there has no serious change, either positive or negative, since the 1970s.

Rare plants

While axiophytes or their equivalents are perhaps the most commonly-used and informative way of assessing the conservation importance of a site, rarity is another criterion that is often taken into account. But 'rare' can mean many different things. At one end of the scale are plants that have a small global population, of which a significant proportion is within a particular site, to plants which could be globally very common but scarce in this particular region, or county. There are no species at Hothfield in the former category.

One of the plants most often cited as rare at Hothfield is the liverwort *Pallavicinia lyellii* (Hook.) Carruther., which was found in bog 2 by Sylvia Priestley in 2002. It is a plant of moist sandstone rocks and shaded bogs, with only a dozen or so known sites in Britain (mainly in the south and west). However, although it is apparently a rare (or overlooked) plant in Britain, it is widely distributed throughout the world, including in Asia, America and Oceania. Therefore, although it is of interest to bryologists, one could argue that it does not merit any special attention here.

Ranunculus tripartitus is rather more interesting. Although it occurs in slightly more sites in Britain (about 33 hectads, which makes it Nationally Scarce), it has a much more restricted global distribution, in Europe and North Africa. It is a plant of pools and wet hollows in heathland and it is not normally considered a bog plant. At Hothfield it occurs in a pool below bog 2 and in several wet hollows in bog 3; it is reasonably abundant. Bluebell, *Hyacinthoides non-scripta*, is similarly limited in its world distribution, being largely confined to NW Europe, but it is of course a very common and widespread species in Britain.

Many of the bog plants at Hothfield are distinctly rare in the local context, and several of them are found in no other site in Kent (or in East Kent, even more so). However, all of these plants are reasonably widespread in Britain and for a peat bog enthusiast, Hothfield is of no great significance except for its position at the very SE extremity of the range of this habitat. This highlights one of the biggest issues for the site: the difficulty of maintaining such a habitat in an unfavourable climatic zone, and it is likely to become increasingly problematical if the climate continues to warm.

There are some species at Hothfield that are of more importance nationally than locally. These are the dry grassland plants such as *Trifolium glomeratum*, *T. ornithopodioides*, *T. subterraneum* and *T. suffocatum*. They are each much rarer than, say, *Carex panicea* or *Sphagnum fallax* in Britain, but common enough locally that they do not seem all that remarkable. The grassland habitat at Hothfield has not been the focus of as much attention as the bogs or heaths, but if one were drawing up a list of significant sites nationally, it is arguably for this habitat that would be selected.

There are (or were) some 46 species at Hothfield that are listed on Geoffrey Kitchener's Kent Rare Plant Register (2019 version), and detailed accounts of each of these species in Kent are available from the Kent Botanical Recording Group.

Plants recorded at Hothfield that are on the Kent Rare Plant Register

<i>Agrostis vinealis</i>	<i>Galium uliginosum</i>	<i>Ranunculus flammula</i>
<i>Arum italicum</i> subsp. <i>neglectum</i>	<i>Genista anglica</i>	<i>Ranunculus tripartitus</i>
<i>Calluna vulgaris</i>	<i>Helosciadium inundatum</i>	<i>Scleranthus annuus</i>
<i>Campanula rotundifolia</i>	<i>Hypericum elodes</i>	<i>Silene flos-cuculi</i>
<i>Carex echinata</i>	<i>Hypochaeris glabra</i>	<i>Spergula arvensis</i>
<i>Carex nigra</i>	<i>Juncus squarrosus</i>	<i>Succisa pratensis</i>
<i>Carex panicea</i>	<i>Lepidium campestre</i>	<i>Trifolium glomeratum</i>
<i>Carex pulicaris</i>	<i>Linum radiola</i>	<i>Trifolium suffocatum</i>
<i>Carex rostrata</i>	<i>Lysimachia tenella</i>	<i>Triglochin palustris</i>
<i>Cuscuta epithymum</i>	<i>Moenchia erecta</i>	<i>Ulex gallii</i>
<i>Dactylorhiza maculata</i>	<i>Myosotis secunda</i>	<i>Veronica officinalis</i>
<i>Drosera rotundifolia</i>	<i>Myrica gale</i>	<i>Veronica scutellata</i>
<i>Eleocharis multicaulis</i>	<i>Nardus stricta</i>	<i>Viola canina</i>
<i>Epilobium palustre</i>	<i>Narthecium ossifragum</i>	<i>Vulpia ciliata</i> subsp. <i>ambigua</i>
<i>Erica tetralix</i>	<i>Pedicularis sylvatica</i>	
<i>Eriophorum angustifolium</i>	<i>Polygala serpyllifolia</i>	

Species List

Species square brackets are those which I believe have been recorded within the site, but which I have not yet seen or been able to confirm. Anything which has not been seen for a long time is given a dagger (†) to indicate that they are probably no longer present.

Bryophytes

A complete list of bryophytes is beyond the scope of this work, but certain species are worth mentioning because they are of particular importance, or because they can be observed by the general botanist and therefore used for monitoring purposes.

The bog-mosses (*Sphagnum* spp.) are the most important component of any mire, making up a large part of its bulk and modifying the environment, so here they are included in full detail. Unfortunately, they can be very difficult to identify reliably, so information about them is sketchy.

Pallavicinia lyellii (Hook.) Carruth., Veilwort is a scarce liverwort which grows in the bogs, amongst *Sphagnum*, or in tussocks of *Molinia caerulea*. It has been recorded in bog 2 by J.G. Duckett in 2002 and J.I. Hendey in 2006. This is a thallose liverwort rather similar to *Pellia* or *Aneura* in appearance which was thought to be rare in Britain and confined mainly to the south-east, but it has been recorded more widely in recent years, according to the NBN Atlas.

Aneura pinguis (L.) Dumort., Greasewort: occasional in the bogs. This characteristic bog plant would make a useful indicator of the state and extent of the bogs if it could be reliably separated from similar thallose liverworts. Although it is quite common nationally, it is very rare in East Kent. It was first recorded at Hothfield by L.J. Cocks in 1906 and there are recent records of it in bogs 2 and 4.



Aneura mirabilis (Malmb.) Wickett and Goffinet, Ghostwort: a liverwort which occurs underground, usually under a layer of *Sphagnum*, and which naturally has no chlorophyll. It is highly characteristic of peat bogs and is considered to be very rare. It was found at Hothfield in the 1980s by J.G. Duckett.

Sphagnum papillosum Lindb., Papillose Bog-moss: one of the more significant bog species, often (with *S. capillifolium*) making up the hummocks that are raised above the water level. It is reasonably common in the middle of bog 2 (the main bog). It is a strong axiophyte of raised and valley mires, and Hothfield is its only site in Kent.



Sphagnum palustre L., Blunt-leaved Bog-moss: frequent around the edges of bog 4, TQ968462. This species is tolerant of more mineral-rich water than many of the others and often grows in flushes and wet heaths rather than on the ombrotrophic parts of a bog. It is one of the more common and widespread species of bog-moss.



[*Sphagnum magellanicum* Brid., Magellanic Bog-moss: one of the most specialised of all the bog-mosses, it was recorded here in 1950 (T. Laflin), 1968 (F. Rose) and 2002 (J.G. Duckett). This is possibly its only site in Kent.]

Sphagnum squarrosum Crome, Spiky Bog-moss: in patches on the edges of bog 4. This species is typical of mineral-rich flushes and pools on the edges of mires, rather than ombrotrophic bogs.



[*Sphagnum fimbriatum* Wilson, Fringed Bog-moss: listed in Francis Rose's *Bryophyte Flora* in 1951 and subsequently recorded by J.I. Hendey in recent years. It is a plant of boggy woodland and would not normally be expected on the mire unless it had been scrubbed-over for some time. In some places it can persist on an open mire, in which case its presence can be a useful indicator of the progress of the restoration.]

Sphagnum capillifolium (Ehrh.) Hedw., Red Bog-moss: occasional in bogs 2 & 3, where it is the main constituent of hummocks raised above the water level. The plants are often a distinct red colour. It has been known here since at least 1948 (F. Rose). Both ssp. *capillifolium* and ssp. *rubellum* occur in bog 2 – the former makes very dense hummocks with closely-packed heads, whereas the latter is more spreading.



Sphagnum subnitens Russow & Warnst., Lustrous Bog-moss: frequent in bogs 2 & 4, where it is the first species to form hummocks rising out of the *S. fallax*

lawn. In the more acid parts of bog 2 it is replaced by *papillosum* and *capillifolium*.



†*Sphagnum compactum* Lam. & DC., Compact Bog-moss: this is a plant of bare peat, usually found in wet heathland rather than deep, spongy bogs. Prof. Brenan, however, described it as being in a 'peaty bog' in 1936 and it does seem that the bogs at Hothfield have a lot of bare peat, which is more typical of heath than of a valley mire. This species is considered to regenerate well after fires. It was also collected at Hothfield in 1947 by Francis Rose (conf. A. Thompson, **BBSUK**) and he last saw it there in 1994. There were only two sites for it in Kent and if it is no longer at Hothfield then it is possibly extinct in the county.

Sphagnum auriculatum Schimp., Cow-horn Bog-moss: thriving in the middle part of bog 3. This is an important part of the hummock and lawn structure of the mire and is dependent on the more acidic water.

The species has now been split into two:

S. inundatum Russow (Lesser Cow-horn Bog-moss) and *S. denticulatum* (Cow-horn Bog-moss).

S. inundatum is the rarer of the two and requires more base-rich conditions in fens and the margins of bogs. *S. denticulatum*, however, is more widespread in Kent and is not uncommon on the more acid soils. The only confirmed record we have is of *denticulatum*, collected in 1936 by J.P.M. Brenan (NMW), although in 2009 J.I. Hendey recorded *inundatum*.



†*Sphagnum tenellum* (Brid.) Bory, Soft Bog-moss: reported by Francis Rose in 1948, but not seen since. It is strongly associated with very acid habitats, growing on hummocks. Hothfield was its only recorded site in Kent.

[*Sphagnum cuspidatum* Ehrh. ex Hoffm., Feathery Bog-moss: recorded by J.P.M. Brennan in 1936 (BBSUK) and more recently by J.G. Duckett *et al.* in 2002. This species is typically found submerged in bog pools and is a good indicator of the more acid, ombrotrophic conditions.]

Sphagnum fallax (H. Klinggr.) H. Klinggr., Flat-topped Bog-moss: abundant in bogs 2, 3 and 4, mostly forming lawns in wet parts of the bog. It is perhaps the most important plant for the formation of the mire, because it acidifies the water and creates the substrate on which the more specialised bog plants can grow. It is known in only a few sites in East Kent. *S. flexuosum* Dozy & Molk., Flexuous Bog-moss, is very similar to *S. fallax* and they have often been regarded as the same species (*S. recurvum* P. Beauv.). It was collected by Francis Rose in 1947 (NMW).



Polytrichum commune Hedw., Silkwood: occasional to frequent in all the bogs. This species is an important component of bogs and is usually replaced by *P. formosum* in wet woodland, so the distribution of the two could be useful in monitoring the state of the bogs. *Polytrichum commune* has a four-sided capsule with a narrow neck.

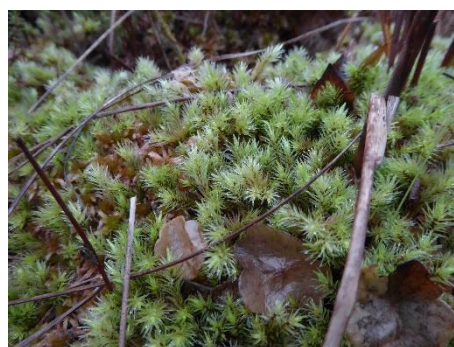


Polytrichum juniperinum Hedw., Juniper Haircap: a characteristic species of the U1 Rumex acetosella grassland; abundant on the slope up Froghole Toll, below the football field. It is considered to be a good coloniser of bare ground and could be a useful indicator for monitoring the extent of good quality grassland, as it disappears quickly under bracken or scrub.



†*Rhodobryum roseum* (Hedw.) Limpr., Rose-moss, was recorded by W.R. Jeffrey in 1904. It is a plant of sandy grassland, often on anthills. It has not been recorded in Kent for many years, but its former presence at Hothfield shows that there was good quality grassland.

Aulacomnium palustre (Hedw.) Schwaegr., Bog Groove-moss: described by Hendey in 2012 as being present in all the bogs; it is certainly frequent in bogs 2, 3 & 4. This species is often associated with *Sphagnum* and is a good peat bog indicator, not being too rare or specialised in its habitat.



Vascular Plants

†*Lycopodiella inundata* (L.) Holub, Marsh Clubmoss: a scarce clubmoss which was found by G.E. Smith in about 1832 and subsequently collected by J.F. Jeffrey in 1884 (**BM, K**). In 1947 Francis Rose reintroduced it but his plants had died out by 1954. This is an axiophyte of wet heaths which is long gone from Kent, but it is still widespread in the New Forest and other southern heathlands. Its habitat is seasonally inundated, poached peaty soils.

†*Lycopodium clavatum* L., Stag's-horn Clubmoss: recorded by W.R. Jeffrey in the 19th century and subsequently re-found by Francis Rose and Peter Wilberforce in 1960, but it does not seem to have been seen since then. An axiophyte of heathland.

Equisetum fluviatile L., Water Horsetail: an axiophyte of clean water, abundant in bog 4 and in the *Crassula* pool on the other side of the path.

Equisetum arvense L., Field Horsetail: around bog 4.

Equisetum palustre L., Marsh Horsetail: listed by Philp (1975) and others subsequently; an axiophyte of mesotrophic wetland.

Pteridium aquilinum (L.) Kuhn, Bracken: occasional to abundant on dry ground throughout. This was the subject of much discussion in the 1975 symposium, where it was agreed that mowing would be the best way to control it. There seems to have been less emphasis at that time on managing the scrub.

Athyrium filix-femina (L.) Roth, Lady Fern: there are a few plants in the triangle area, and many in the New Fen, on the other side of the A20. In the main part of the site it only occurs along the western edge, in the pond at Butler's Toll (TQ969464) and along the boundary stream. It grows in places where there is lateral movement of ground water, and it is considered an axiophyte of damp woodland.



Dryopteris filix-mas (L.) Schott, Common Male Fern: frequent in the woodland areas, especially in the triangle and around the New Fen. A curious form, with forward-pointing pinnules, occurs in the New Fen area (TQ976456). Such forms were once collected for their ornamental value.



Dryopteris affinis (Lowe) Fraser-Jenk., Golden-scaled Male-fern: this species has been recorded a couple of times in the past, by Eric Philp and by the Kent Botanical Recording Group. I have only seen it in the New Fen area (TQ977465), where there is one plant in rather atypical habitat on the edge of the flush. This is normally an indicator of ancient woodland.



Dryopteris carthusiana (Vill.) H.P. Fuchs, Narrow Buckler-fern: an axiophyte of peaty soils. It is occasional throughout and frequent in the bogs. The hybrid *Dryopteris* × *deweveri* (J.T. Jansen) Wacht. (*carthusiana* × *dilatata*) is quite frequent in bog 4, with both parents (TR966460, Lockton, 2018).



Dryopteris carthusiana



*Dryopteris *deweveri*

Dryopteris dilatata (Hoffm.) A. Gray, Broad Buckler-fern: occasional on the drier ground and in woodland; it also occurs on tussocks and tree stumps in bog 4.

Pseudotsuga menziesii (Mirbel) Franco, Douglas Fir: one fine specimen in the car park and another on Butler's Toll (TQ970462).

Pinus sylvestris L., Scots Pine: a clump of about twelve trees at Foxenhill Toll (TQ970456) and some more on Butler's Toll (TQ970463) which have evidently been there for many years, although there is no sign of them spreading. Scots Pine often occurs on bogs, even in England where it is generally considered to be a reintroduced species, and it has little detrimental effect; possibly even facilitating the formation of *Sphagnum* hummocks. There is therefore no reason to remove them.

Pinus nigra Arnold, Austrian Pine: two large trees, in woodland west of the car park, TQ970458, and on Butler's Toll (TQ970463).

Sequoiadendron giganteum (Lindley) Buchholz, Wellingtonia: two enormous trees in the triangle area and two more on Foxenhill Toll.



†*Papaver somniferum* L., Opium Poppy: listed by Philp (1975). This is a casual of waste ground.

†*Papaver rhoeas* L., Common Poppy: listed by Philp (1975). This is a casual of waste ground.

†*Papaver dubium* L., Long-headed Poppy: listed by Philp (1975). This is a casual of waste ground.

[*Chelidonium majus* L., Greater Celandine: listed by Philp (1975) and others since.]

Ceratocarpus claviculata (L.) Liden, Climbing Corydalis: in heathland near Bog 4; an axiophyte of dry heathland, open woodland or acid grassland. Philp (1975) described it as being 'quite common in the north-western portion of the reserve,' which is the area around Bog 4.

†*Fumaria muralis* Sonder ex Koch, Common Ramping-fumitory: listed by Philp (1975).

†*Fumaria officinalis* L., Common Fumitory: listed by Philp (1975).

Mahonia aquifolium (Pursh) Nutt., Oregon Grape: well established in the woodland edge by Watery Lane (TQ975456).

Caltha palustris L., Marsh Marigold: a few plants by the stream on the western edge of the reserve (C. Osborne, 2013). This is an axiophyte of wet woodland and alder carr which occurs in other woodlands nearby and is not particularly characteristic of the site.

Anemone nemorosa L., Wood Anemone: in the woodland (S. Buckingham, 2018). An axiophyte of ancient woodland.

Clematis vitalba L., Traveller's Joy: in roadside hedges in various places.

Ranunculus acris L., Meadow Buttercup: occasional in damp grassland; in bog 4.

Ranunculus repens L., Creeping Buttercup: occasional throughout.

Ranunculus bulbosus L., Bulbous Buttercup: in the sward on the old football pitch.

Ranunculus sceleratus L., Celery-leaved Buttercup: rare, in bog 4, TQ966461.

Ranunculus flammula L., Lesser Spearwort: frequent in all the bogs and fens. This is a wetland axiophyte, typical of neutral to acid woodland and swamp.

Ranunculus tripartitus DC., Three-lobed Crowfoot: a Nationally Rare plant of pools and muddy hollows in heathlands in southern and western Britain. It was discovered at Hothfield in 1994, but *Ranunculus hederaceus*, Ivy-leaved Crowfoot, was well known here in the 19th century (W.R. Jeffery, Hanbury & Marshall). As these two species are notoriously difficult to distinguish, it seems more sensible to conclude that it was *R. tripartitus* all along, rather than one very rare species disappearing and another even rarer one arriving. It is typical of hollows in rutted tracks, but at present it occurs in the bogs at Hothfield, where it is likely that grazing and scrub clearance work create the disturbance that it requires.



Ficaria verna Huds., Lesser Celandine: recorded by Philp (1975) and several times subsequently.

Ribes rubrum L., Red Currant: occasional in the dry woodland.

Ribes uva-crispa L., Gooseberry: several patches in the woodland.

Crassula helmsii (Kirk) Cockayne, New Zealand Pigmyweed: abundant in the top part of bog 4, where it has been recorded since about 2006 (E.G. Philp). There is a patch of black plastic laid over part of this bog, to suppress it, but it has not been successful.

[*Sedum rupestre* L., Reflexed Stonecrop: listed by Philp (1975, 1999) and the KBRG (2017).]

[*Sedum acre* L., Biting Stonecrop: listed by Philp (1975 & 1999) and Kitchener (2010).]

Lotus corniculatus L., Common Bird's-foot-trefoil: in grassland throughout.

Lotus pedunculatus Cav., Large Bird's-foot-trefoil: in all four bogs.

Ornithopus perpusillus L., Bird's-foot: frequent in the short acid grassland in the area of the football pitch. This is an axiophyte of U1 *Rumex acetosella* grassland.

[*Ervilia hirsuta* (L.) Opiz, Hairy Tare: listed by Philp (1975 & 1999) and Kitchener (2010).]

Vicia sativa L., Common Vetch: occasional throughout. Two subspecies have been recorded: *V. sativa* ssp. *nigra* (L.) Ehrh., Narrow-leaved Vetch, is the native plant of acid grassland which occurs in the football pitch and adjacent areas; *V. sativa* L. ssp. *segetalis* (Thuill.) Gaudin, Common Vetch, which was in the past often used agriculturally, is more widespread and is found along paths and in the margins of the bogs.

Lathyrus pratensis L., Meadow Vetchling: a common grassland plant, found in tall grass and in bog 4.

Lathyrus latifolius L., Broad-leaved Everlasting-pea: listed by Philp (1975) and Kitchener (2010). A garden escape which often persists in the wild.

[*Lathyrus nissolia* L., Grass Vetchling: listed by Philp (1975) and KBRG (2017).]

[*Medicago lupulina* L., Black Medick: listed by Philp (1975 & 1999) and by others subsequently.]

Medicago arabica (L.) Huds., Spotted Medick: in short grassland, mainly along paths and disturbed areas.

Trifolium ornithopodioides L., Bird's-foot Clover: this is an axiophyte of short, sandy grassland, usually near the sea. It has been recorded at Hothfield since Philp's first Atlas (1970s) and is still present. We found it in the trampled sward of the main path near the woodland edge (TQ970457), but not in the football pitch.

Trifolium repens L., White Clover: occasional throughout.

Trifolium glomeratum L., Clustered Clover: an axiophyte of short, sandy grassland. It has been known at Hothfield since about 1832 (G.E. Smith) and is still present on the football pitch in 2019

(TQ970460), where it was recently refound by Lucy Carden after twenty years with no records. There appears to be only one small patch.



Trifolium suffocatum L., Suffocated Clover: found by Sue Buckingham in September 2011 on the western edge of the football pitch, TQ97024610. The only other record was by E.G. Philp in 2002, possibly in the same place. It is an axiophyte of short, summer-parched grassland on the coast, with only a very few inland stations. Although it is generally considered a spring ephemeral, it is interesting to note the date of Buckingham's record.

Trifolium dubium Sibth., Lesser Trefoil: occasional throughout, especially on the old football field.

Trifolium micranthum Viv., Slender Trefoil: frequent in the short grassland on the football field and elsewhere. Although this is not considered an axiophyte, it is typical of the more species-rich parts of the dry grassland and would be a useful indicator of good condition.

Trifolium pratense L., Red Clover: listed by Philp (1975 & 1999) and Kitchener (2010 & 2014).

Trifolium striatum L., Knotted Clover: rare, in acid grassland (S. Buckingham, 2019). Also included in Philp's list (1975).

[*Trifolium arvense* L., Hare's-foot Clover: listed by Philp (1975) and by various people since then, but some of the more recent records are from arable fields nearby so it may not now be in the reserve.]

Trifolium subterraneum L., Subterranean Clover: in short grassland on the old football pitch. This is another axiophyte of short, sandy grassland; known here since the 19th century.

†*Genista anglica* L., Petty Whin: a very rare heathland axiophyte, with just a couple of sites in Kent. It was recorded at Hothfield in the late 19th century by W.R. Jeffrey and found again by the Kent Field Club in

1958 or 1959. Kent Wildlife Trust considered it to be still present in 2000.

Ulex europaeus L., Gorse: widespread throughout.

[*Ulex gallii* Planchon, Western Gorse, was reported at Hothfield Heath by F.M. Webb in the 19th century, but Hanbury & Marshall (1899) considered that he was in error. Subsequently, Eric Philp listed it in his symposium report in 1975, but this could have been a repeat of Webb's record. Later, he reported its discovery at Hothfield Heath (in an unspecified location) in 2005, and he included this assertion in his Flora of 2010. The differences between *U. minor* and *U. gallii* can be subtle, and these species are usually distinguished by averaging measurements of a range of floral characters (calyx, standard, keel and wing), although chromosome counts are considered the only truly reliable method, so it is not apparent whether this species has ever really been present or not.]

Ulex minor Roth, Dwarf Gorse: considered an axiophyte of heathland, this species is very rare in Kent. At Hothfield Heath it is deliberately conserved from scrub clearance and there are some good-sized patches. It is, however, much less abundant than common gorse. *Ulex minor* has been recorded here since 1829 (G.E. Smith).



Polygala serpyllifolia Hose, Heath Milkwort: occasional in damper areas of heathland around the bogs. Considered an axiophyte of heaths.

Prunus spinosa L., Blackthorn: occasional in woodland and scrub.

Prunus avium (L.) L., Wild Cherry: several trees in woodland in the triangle area, TQ973457.

[*Prunus cerasus* L., Dwarf Cherry: listed by Philp in 1975 (possibly in error for the following?).]

Prunus serotina Ehrh., Rum Cherry: one large shrubby a path at Froghole Toll (TQ970460), and a few saplings in woodland at the top of bog 3. This plant

has distinctive orange-brown hairs along the proximal half of the main vein on the lower side of the leaves.



Prunus laurocerasus L., Cherry Laurel: rare, self-sown saplings in woodland near the road (TQ971459). It was also on the site list by Philp in 1975. There is also a row of them planted along the roadside at TQ972455 but these are not within the reserve.

Malus pumila Mill., Apple: a few plants on the woodland edge near the car park.

Sorbus aucuparia L., Rowan: in dry woodland near bog 4 and on Butler's Toll. It is rather curious that this species, which seems to be a natural for this site, was not recorded here until 2005 (E.G. Philp), but it is a species that has spread in recent decades as planting on roadsides and in gardens has led to its wider dispersal by birds. This is possibly how it arrived at Hothfield, and we might expect it to thrive.

Crataegus monogyna Jacq., Hawthorn: occasional in the woodland and scrub throughout. One shrub in the woodland at Froghole Toll (TQ970460) appears to be the hybrid *Crataegus* \times *media* (*monogyna* \times *laevigata*), to judge by the leaf shape, although all the fruits seem to have only one style.

[*Filipendula ulmaria* (L.) Maxim., Meadowsweet: listed by Russell in 1902 and present in the general area, but possibly not within the reserve.]

Rubus idaeus L., Raspberry: a few straggling plants by the path through woodland at Froghole Toll (TQ970460); recorded here since 1829 (G.E. Smith).

Rubus fruticosus agg., Bramble: occasional throughout. Several varieties (or microspecies) have been recorded in the past, but changes in the accepted taxonomy means the names may be unreliable. Ecologically, they all have a similar habitat and function.

Potentilla anserina L., Silverweed: in wet grassland in bog 4 and elsewhere.

Potentilla erecta (L.) Raeusch., Tormantil: frequent throughout in wet and dry heath and dry grassland. This is considered an axiophyte in Kent and is one of the most characteristic species of the site.



Potentilla reptans L., Creeping Cinquefoil: occasional in grassland and by paths.

†*Potentilla sterilis* (L.) Garcke, Barren Strawberry: listed by Russell (1902) and Philp (1975). There are no recent records, although it was mapped in the vicinity by Philp in the 1990s.

Fragaria vesca L., Wild Strawberry: along woodland paths in the triangle area (TQ973457).

Geum urbanum L., Wood Avens: occasional in woodland throughout, and even in bog 4.

†*Agrimonia eupatoria* L., Agrimony: listed by Russell (1902) and Philp (1975).

Aphanes australis Rydb., Slender Parsley-piert: abundant in the acid grassland on the football pitch and in short grassland along paths. It is a spring ephemeral typical of this habitat.



Rosa arvensis Hudson, Field Rose: in woodland around bog 4 and in the triangle area.

Rosa canina L., Dog Rose: occasional in scrub and woodland throughout.

Frangula alnus Miller, Alder Buckthorn: recorded by E.S. Marshall in the 19th century and in 1995 (and 2007) by Joyce Pitt at TQ96934585, which is at the top of bog 3. Philp also found it somewhere in the vicinity in 2005. This is considered an axiophyte of acid, peaty woodland.

Ulmus procera Salisb., English Elm: on the roadside and dry woodland in the triangle area by the A20 and along Watery Lane.

Ulmus minor Mill., Small-leaved Elm: a couple of shrubs by the boundary stream, TQ96564557.

[*Humulus lupulus* L., Hop: listed by Philp (1975) and by others since, in the vicinity.]

Urtica dioica L., Stinging Nettle: occasional throughout.

Fagus sylvatica L., Beech: a few trees in the woodland.

Castanea sativa Miller, Sweet Chestnut: occasional in the woodland. Most of the trees are mature standards, and therefore have less of a negative impact on the ground flora than the dense chestnut coppice that can be seen in many places throughout Kent.



Quercus cerris L., Turkey Oak: occasional in the woodland and scrub. Records of *Q. petraea* at Hothfield are probably errors for this species, but the fruits are very distinctive. Turkey Oak is a non-native species and is the vector for the Oak Knopper Gall, which reduces the fertility of the native oaks – an attribute which could be advantageous here.

Quercus robur L., Pedunculate Oak: the dominant canopy tree in the woods, which are W10 *Q. robur* woodland, and scattered saplings in the scrub.

Myrica gale L., Bog Myrtle: one patch in bog 2, where it is protected from grazing by a wooden fence. It was first found here in 2010 and is apparently the only population in the county. It is believed to have been planted here, along with pitcher plants *Sarracenia purpurea*, at about that time. The pitcher plants were quickly removed. Bog Myrtle can be a troublesome plant on some bogs but at Hothfield that does not seem to be the case.

Betula pendula Roth, Silver Birch: occasional in the scrub.

Betula pubescens Ehrh., Downy Birch: occasional in the bogs and the scrub. This species might be expected to be more frequent in the bogs, and *B. pendula* more in the grassland, but they seem fairly evenly mixed in fact.

Alnus glutinosa (L.) Gaertn., Alder: in wet areas along the western edge of the reserve, in bog 4 and along the stream below; less common in the other bogs.

Alnus cordata (Lois.) Duby, Italian Alder: there are two tall hedges of Italian Alder along field margins in the extension to the reserve, to the west. These trees have given rise to many saplings on the edge of the reserve and along the stream.

Corylus avellana L., Hazel: rare, around bog 4 and in the woodland around the northern part of the reserve, where there are scattered coppices.

Bryonia dioica Jacq., White Bryony: occasional in the woodland near the road.

Mercurialis perennis L., Dog's Mercury: in woodland in the triangle area.

Populus tremula L., Aspen: locally abundant in areas of scrub, where it suckers freely and regenerates strongly after cutting. It is considered a woodland axiophyte in Kent.

Salix ^xfragilis L., Crack-willow: one large tree at the end of the New Fen, TQ977456.

Salix caprea L., Goat Willow: a rather curious distribution, around the western margin of the heath, from the road at the south to the northernmost tip. Some of the trees are quite sizeable, notably at TQ966454. There is also one tree on the margin of the New Fen, TQ977465. In the triangle area it occurs in the woodland, as one would expect. The hybrid with grey willow, *Salix ^xreichardtii* A. Kern., occurs in bog 4.

Salix atrocinerea Brot., Grey Willow: frequent in all the bogs, where it would change the vegetation to wet woodland if not regularly controlled.

Salix aurita L., Eared Willow: recorded by E.S. Marshall in the 19th century, and possibly still present in bogs 3 & 4. There are only a few small plants, which I think are better described as *S.*multinervis* (*atrocinerea* x *aurita*). It is likely that pure *S. aurita* was once present but has been replaced by hybrids over time.

Viola odorata L., Sweet Violet: on the grassy verge of the track to some houses, TQ970459. This has recorded since Russell in 1902, but it seems more of a garden escape than a characteristic plant of the heathland.

Viola riviniana Reichb., Common Dog-violet: in grassland on the old football pitch and woodland in the triangle area.

†*Viola canina* L., Heath Dog-violet: recorded by F.M. Webb in about 1880, but there are no records of it since then. It would probably have occurred in species-rich U1 *Rumex acetosella* grassland, but it would not have been able to tolerate the shade when the site scrubbed over in the 20th century.

Viola palustris L., Marsh Violet: occasional in bogs 2 & 3. This is a rare axiophyte of bogs which has been known here since the 19th century (W.R. Jeffrey).

†*Radiola linoides* Roth., Allseed: collected by H. Lamb in 1902 (MNE) and listed by Russell (1902); an axiophyte of sandy, acid grassland.

Hypericum androsaemum L., Tutsan: one plant in the swamp in bog 4, TQ967461, and one by the boardwalk over bog 2 (TQ968456). This is normally a woodland plant; quite why it grows in the bogs is a bit of a mystery.

Hypericum perforatum L., Perforate St John's-wort: locally abundant in long grass around the football field and in wet parts of the New Fen.

Hypericum tetrapterum Fries, Square-stalked St John's-wort: occasional in acid grassland and bogs.

[*Hypericum humifusum* L., Trailing St John's-wort: listed by F. Rose (undated) and by various people since then (but not by Philp, 1975). This is a heathland axiophyte.]

[*Hypericum pulchrum* L., Slender St John's-wort: listed by F. Rose (undated) and J. Pitt (1995); an axiophyte of heathy woodland.]

Hypericum elodes L., Marsh St John's-wort: thriving in bogs 2, 3 & 4. It is an axiophyte of acid flushes and the margins of peat bogs.

*Geranium *oxonianum* Yeo, Druce's Crane's-bill: a spectacular display around the car park, where it presumably originated as a garden throw-out.



Geranium rotundifolium L., Round-leaved Crane's-bill: scattered plants around the car park.

Geranium dissectum L., Cut-leaved Crane's-bill: occasional on disturbed ground and path sides.

Geranium pyrenaicum Burm. f., Hedgerow Crane's-bill: several plants by the roadside near the car park.

Geranium pusillum L., Small-flowered Crane's-bill: occasional in short grassland on the football pitch.

Geranium molle L., Dove's-foot Crane's-bill: frequent in short dry grassland throughout.

Geranium robertianum L., Herb-robert: in woodland and woodland margins.

Erodium maritimum (L.) L'Her., Sea Stork's-bill: appeared in 2017 on a sandy bank constructed from spoil (H. Silk). This species, which is generally a coastal plant, does sometimes occur in U1 *Rumex acetosella* grassland at inland sites and has been known in some places for hundreds of years. However, it seems likely that it is an introduction at Hothfield and it does not seem to have persisted.

Erodium cicutarium (L.) L'Her., Common Stork's-bill: occasional in short grassland on the football pitch and in the vicinity.



[*Lythrum salicaria* L., Purple-loosestrife: listed by Russell (1902) and, in the vicinity, several times since then.]

Lythrum portula (L.) D. Webb, Water Purslane: in bog 4 and in some ephemeral pools along the track leading from there towards bog 2. Nick Stewart (1998) also found it in bogs 1 & 2. It is an axiophyte of acid wet grassland and pool margins.



Epilobium hirsutum L., Great Willowherb: occasional in wet areas.

Epilobium parviflorum Schreb., Hoary Willowherb: occasional in wet areas such as bog 4.

Epilobium montanum L., Broad-leaved Willowherb: frequent in the woodland and also present in bog 4.

Epilobium obscurum Schreb., Short-fruited Willowherb: abundant in bog 4; occasional in the other bogs. The hybrid *E. obscurum* x *palustre* was also found by E.S. Marshall in the 19th century.



Epilobium ciliatum Raf., American Willowherb: occasional on disturbed ground.

Epilobium palustre L., Marsh Willowherb: occasional in the bogs, particularly 2 & 4. This is an axiophyte of nutrient-poor wetlands.

Chamerion angustifolium (L.) Holub, Rosebay Willowherb: occasional in the scrub and in the *Salix atrocinerea* woodland in the middle of bog 4.

Circaea lutetiana L., Enchanter's-nightshade: frequent in the dry woodland and on the wooded margins of bog 4.

Aesculus hippocastanum L., Horse-chestnut: several large trees in the triangle area.

Acer pseudoplatanus L., Sycamore: occasional in the woodland, with saplings throughout.

Malva sylvestris L., Common Mallow: on the roadside near the car park.

†*Erysimum cheiranthoides* L., Treacle-mustard: listed by Philp in 1975. This is an arable weed and a casual of waste ground, especially on sandy soils.

Capsella bursa-pastoris (L.) Medikus, Shepherd's-purse: scattered in disturbed areas.

Cardamine pratensis L., Cuckoo-flower: occasional in wet areas.

[*Cardamine flexuosa* With., Wavy Bitter-cress: listed by Philp (1975) and others since then.]

Cardamine hirsuta L., Hairy Bitter-cress: occasional on bare ground.

†*Lepidium campestre* (L.) R.Br., Field Pepperwort: collected by J.E. Lousley in 1952 (SLBI). This is considered an axiophyte of arable fields and bare, sandy soils.

[*Lepidium draba* L., Hoary Cress: listed by Philp (1975) and a few times since then.]

Erophila verna (L.) DC., Common Whitlowgrass: occasional in short grassland.

Sisymbrium officinale (L.) Scop., Hedge Mustard: on the roadside and around the car park.

Alliaria petiolata (M. Bieb.) Cavara & Grande, Garlic Mustard: occasional on the roadside and in the woodland edges.

[*Thlaspi arvense* L., Field Penny-cress: listed by Philp (1975 & 1999).]

Persicaria maculosa Gray, Redshank: some patches on the drier ground around bog 4.

[*Persicaria lapathifolia* (L.) Gray, Pale Persicaria: listed by Philp (1975) and several times subsequently.]

Persicaria hydropiper (L.) Spach, Water-pepper: in wet grassland at bogs 2 and 4, and on the edges of the New Fen.



Polygonum arenastrum Boreau, Equal-leaved Knotgrass: occasional along paths.

Polygonum aviculare L., Knotgrass: on paths and disturbed ground. Recorded here since the 19th century (as *P. aviculare* var. *microspermum*) by E.S. Marshall (SLBI).

†*Fallopia japonica* (Houtt.) Ronse Decraene, Japanese Knotweed: listed by Philp in the 1970s and 1990s, but it seems to have been eradicated since then.

Rumex acetosella L., Sheep's Sorrel: abundant throughout. This is the most characteristic species of U1 *R. acetosella* grassland which occurs on the dry, sandy soil and makes up perhaps the largest area of habitat.



Rumex acetosa L., Common Sorrel: occasional in grassland and scrub.

Rumex crispus L., Curled Dock: occasional on disturbed ground. The hybrid *R. ^xpratensis* (*crispus* x *obtusifolius*) has also been recorded, on the fields that the Wildlife Trust brought to the west of the heath (Kitchener, 2010). Both are common weeds of disturbed ground.

Rumex conglomeratus Murray, Clustered Dock: in bog 4 and other wetland. The hybrid with Broad-leaved Dock, *Rumex ^xabortivus*, has been noted (G. Kitchener, 2014).

Rumex sanguineus L., Wood Dock: in the woodland and wetland areas such as bog 4 and the New Fen, where its presence presumably reflects the previous existence of scrub.

Rumex obtusifolius L., Broad-leaved Dock: occasional.

Drosera rotundifolia L., Round-leaved Sundew: thriving in bogs 2 & 3, but seemingly absent from 1 & 4. An axiophyte of acid mires and wet heath.



Arenaria serpyllifolia L., Thyme-leaved Sandwort: occasional in dry grassland such as the football field.

Moehringia trinervia (L.) Clairv., Three-nerved Sandwort: occasional in the woodland.

Stellaria media (L.) Villars, Chickweed: occasional.

Stellaria pallida (Dumort.) Pire, Lesser Chickweed: occasional in the acid grassland.

Stellaria holostea L., Greater Stitchwort: frequent in woodland along the stream at the western boundary of the reserve.

Stellaria graminea L., Lesser Stitchwort: occasional in grassland and margins of bogs.

Stellaria alsine Grimm, Bog Stitchwort: in bogs 2 (C. Osborne, 2013) and 4, and the New Fen; an axiophyte of acid wetland.

†*Cerastium tomentosum* L., Snow-in-summer: apparently recorded by someone in 1968 (Philp,

1975). This is a garden escape that sometimes persists for many years.

†*Cerastium arvense* L., Field Mouse-ear: recorded by Russell (1902), Rose (1943) and Philp (1975) – the latter being possibly a compilation of the earlier records. This is an axiophyte of sandy grassland.

Cerastium fontanum Baumg., Common Mouse-ear: occasional in dry grassland.

Cerastium glomeratum Thuill., Sticky Mouse-ear: occasional on bare ground throughout.

Cerastium semidecandrum L., Little Mouse-ear: occasional in sandy grassland.

†*Moenchia erecta* (L.) P. Gaertn., B. Mey. & Scherb., Upright Chickweed: listed by Philp (1975) for the reserve, and there are dots for this area (TQ94T) in both his Atlases (1982 & 2010) and (TQ94) in Perring & Walters (1962) but it seems that it might not have been seen since the 1990s. It is an axiophyte of acid grassland.

Sagina procumbens L., Procumbent Pearlwort: occasional in grassland and bogs.



Sagina apetala Ard., Annual Pearlwort: recorded by F.M. Webb in the 19th century and by G.H. Morgan in 1957; also mapped for this area by Philp in the 1970s and recorded by J. Pitt in 2007, on the football field. More recently, *Sagina filicaulis* Jord., Slender Pearlwort, has been recorded by Geoffrey Kitchener in 2010. Until recently this was considered a subspecies of *S. apetala* (ssp. *erecta* F. Herm.). It is not apparent which species the earlier records refer to. *Sagina filicaulis* is considered to be a plant of man-made habitats, whereas *S. apetala* is from heaths and sandy grassland.

†*Scleranthus annuus* L., Annual Knawel: recorded by F.M. Webb in the 19th century and listed by Philp his first Atlas (1970s) but without a precise location. This is an axiophyte of acid grassland.

†*Spergula arvensis* L., Corn Spurrey: recorded by E.S. Marshall in the 19th century and recorded many times in the vicinity since then, but there are no more definite records for the heath. This is an axiophyte of arable fields and disturbed ground.

Spergularia rubra (L.) J.S. & C. Presl, Sand Spurrey: occasional in short grassland in and near the football pitch; first recorded here by F.M. Webb in the 19th century. This is an axiophyte of sandy, acid soils.

[*Silene latifolia* Poir., White Campion: listed by Philp (1975 & 1999). Generally a weed of arable field margins and roadsides.]

Silene dioica (L.) Clairv., Red Campion: occasional in woodland and scrub.

Silene flos-cuculi (L.) Clairv., Ragged Robin: abundant in the bogs; an axiophyte of wetland habitats.

Chenopodium hybridum L., Maple-leaved Goosefoot: rare, by the path from the car park where it crosses the road into the reserve, TQ971458. This appears to be new in 2019.



Chenopodium album L., Fat-hen: frequent on the road verges.

Atriplex prostrata Boucher ex DC., Spear-leaved Orache: frequent along the roadsides.

Atriplex patula L., Common Orache: occasional along the roadsides.

Claytonia sibirica L., Pink Purslane: one patch on the western side of the reserve (TQ966460), seen by Sue Buckingham in 2012. It has been here since the 1990s (Philp, 2010).

[*Montia fontana* L., Blinks: recorded in the 19th century by F.M. Webb and, in the vicinity, by Philp in the 1990s; an axiophyte of mesotrophic wetlands.]

[*Impatiens glandulifera* Royle, Indian Balsam: listed by Philp (1975) and possibly by Sue Buckingham in 2012.]

Anagallis tenella (L.) L., Bog Pimpernel: some good populations in several bogs, notably 2 and 4. This is an axiophyte of oligotrophic mires.



Anagallis arvensis L., Scarlet Pimpernel: a small patch on sandy ground by the gate into bog 1 (TQ969454) and an extensive area above bog 2, (TQ969457).

†*Centunculus minimus* L., Chaffweed: recorded by G.E. Smith in 1829.

†*Sarracenia purpurea* L., Pitcherplant: appeared on bog 2 in the 1990s and subsequently removed by the wardens. This species comes from bogs on the other side of the Atlantic and does rather well in the British Isles but, as an alien, it is disliked by conservationists.

Calluna vulgaris (L.) Hull, Heather: frequent in bogs and damper areas of grassland; this is an axiophyte of mires and heaths.

Erica tetralix L., Cross-leaved Heath: mainly in the bogs, but also scattered in some of the drier heathland. An axiophyte, recorded here since the 19th century by F.M. Webb and Hanbury & Marshall.



[*Sherardia arvensis* L., Field Madder: listed by Philp (1975, 1999).]

†*Galium uliginosum* L., Fen Bedstraw: recorded here by E.S. Marshall in the 19th century. An axiophyte of base-rich fens with just a few sites in Kent.

Galium palustre L., Common Marsh-bedstraw: abundant in the bogs.

Galium album Mill., Hedge Bedstraw: occasional in tall grassland, for example by the football field.

Galium saxatile L., Heath Bedstraw: frequent throughout; known here since the 19th century (F.M. Webb). This is a heathland axiophyte.

Galium aparine L., Cleavers: occasional in grassland, woodland and wetland.

Centaureum erythraea Rafn., Common Centaury: in dry grassland around bog 4 and on a sandy bank above bog 1.

Vinca major L., Greater Periwinkle: a small patch in woodland near the car park; presumably a garden throw-out.

Anchusa arvensis (L.) M. Bieb., Bugloss: many plants on a sandy bank above bog 2, TQ969457.

Pentaglottis sempervirens (L.) Tausch ex L. Bailey, Green Alkanet: a patch by the gateway near the road at TQ971457, probably originating as garden throw-outs, although it has been recorded here since 1975,

†*Myosotis scorpioides* L., Water Forget-me-not: listed by Russell (1902) and Philp (1975), possibly in error for *M. secunda*.

Myosotis secunda Al. Murray, Creeping Forget-me-not: abundant in bogs 2 & 4. This is considered an axiophyte of acid soils. It was first noticed here by Francis Rose in 1949 although it must always have been present; earlier recorders probably thought it was the much commoner *M. scorpioides*.

[*Myosotis laxa* Lehm, Tufted Forget-me-not: recorded by N.F. Stewart in bog 2 in 1998. This is typically a plant of wet woodland.]

[*Myosotis sylvatica* Hoffm., Wood Forget-me-not: listed by Philp (1975) and by several others since then.]

Myosotis arvensis (L.) Hill, Field Forget-me-not: around the edge of the football pitch, in long grass, and in dry grassland and open woodland throughout.

[*Myosotis ramosissima* Rochel, Early Forget-me-not: listed only by Philp (1975).]

Myosotis discolor Pers., Changing Forget-me-not: in short grassland on the football pitch and nearby areas, in U1 *Rumex acetosella* grassland. Curiously, it also occurs on ant hills raised above the water level in bog 4.

[*Convolvulus arvensis* L., Field Bindweed: listed by Russell (1902), Philp (1975 & 1999) and Kitchener (2010).]

Calystegia sepium (L.) R. Br., Hedge Bindweed: in the scrub in the middle of bog 4; recorded here since at least 1902 (Russell).

Calystegia silvatica (Kit.) Griseb., Large Bindweed: in the roadside hedge by the car park.

†*Cuscuta epithymum* (L.) L., Dodder: recorded by G.E. Smith in 1832; an axiophyte of heathland which is parasitic on heather, gorse, etc.

Solanum nigrum L., Black Nightshade: many plants on bare ground in the woodland opposite the car park, TQ971458. The plants are ssp. *nigrum*, a weed of disturbed ground.

Solanum dulcamara L., Bittersweet: in bog 4 and the New Fen.

Fraxinus excelsior L., Ash: occasional throughout. There are some large trees in the woodland areas and many seedlings and saplings on the woodland floor.

Syringa vulgaris L., Lilac: one planted shrub by the path at TQ96544559.

Digitalis purpurea L., Foxglove: occasional in dry grassland.

Veronica officinalis L., Heath Speedwell: in acid grassland around the football pitch and elsewhere; an axiophyte of heaths.

Veronica montana L., Wood Speedwell: occasional in woodland in the triangle area.

Veronica scutellata L., Marsh Speedwell: occasional in bog 4, in *Juncus *surrejanus* rush-pasture and *Hypericum elodes* flushes; it has previously been recorded in the main bog (bog 2) by N.F. Stewart in 1998 and C. Osborne in 2012/13. An axiophyte of mesotrophic wetlands, it has been known here since the 19th century (W.R. Jeffrey and Hanbury & Marshall).



[*Veronica beccabunga* L., Brooklime: recorded by various people over the years, but some of the records are for the fields west of the reserve, and others are not specific about the location.]

Veronica serpyllifolia L., Thyme-leaved Speedwell: occasional in grassland and along tracks.

Veronica hederifolia L., Ivy-leaved Speedwell: occasional in the woodland.

Veronica polita Fries, Grey Field-speedwell: rare in open grassland at TQ967460 (C. Turner, 2019); a weed of disturbed ground.

Veronica chamaedrys L., Germander Speedwell: occasional in longer grassland such as the margins of the football field.

Veronica arvensis L., Wall Speedwell: occasional in dry grassland.

†*Misopates orontium* (L.) Raf., Weasel's-snout: recorded by E.S. Marshall in the 19th century, and still recorded in the vicinity by Philp in the 1990s, but outside the site. This is a plant of arable fields.

†*Linaria vulgaris* Miller, Common Toadflax: listed by Philp (1975).

Plantago coronopus L., Buck's-horn Plantain: occasional along paths in the vicinity of the football field.

Plantago major L., Greater Plantain: occasional.

Plantago lanceolata L., Ribwort Plantain: occasional.

Callitriche stagnalis Scop., Common Water-starwort: in pools at the lower end of bog 4 and previously recorded by N.F. Stewart (1998) in bogs 1 & 2. It also occurs in the pond at Butler's Toll (TQ969464).

[*Callitriche brutia* Petagna, Intermediate Water-starwort: recorded by N.F. Stewart in bog 2 in 1998.]

†*Verbascum blattaria* L., Moth Mullein: recorded on 'Hothfield Common' by W.R. Jeffrey in the 19th century.

Scrophularia nodosa L., Common Figwort: occasional in woodland, grassland and scrub.

Scrophularia auriculata L., Water Figwort: at the top of bog 2, in bog 4, along the stream and in the New Fen.

Buddleja davidii Franchet, Butterfly-bush: several bushes by the path past the football field, TQ970460.

Stachys sylvatica L., Hedge Woundwort: occasional.

[*Ballota nigra* L., Black Horehound: listed by Philp (1975) and several times since.]

Lamium album L., White Dead-nettle: frequent along the roadside and in the woodland edge.

†*Lamium maculatum* (L.) L., Spotted Dead-nettle: listed only by Philp (1975).

[*Lamium purpureum* L., Red Dead-nettle: listed by Philp (1975) and several times since.]

[*Galeopsis tetrahit* L., Common Hemp-nettle: listed only by Philp (1975).]

†*Marrubium vulgare* L., White Horehound: recorded by F.M. Webb in the 19th century; a Nationally Scarce plant of sandy grassland.

Scutellaria minor Hudson, Lesser Skullcap: in bogs 2, 3 & 4, and possibly elsewhere; known here since the 19th century (F.M. Webb and Hanbury & Marshall). This is an axiophyte of marshes and wet woodland.



Teucrium scorodonia L., Wood Sage: occasional in dry grassland and heath.

Glechoma hederacea L., Ground-ivy: occasional throughout; sometimes abundant.

Prunella vulgaris L., Selfheal: occasional.

†*Origanum vulgare* L., Wild Marjoram: listed only by Philp (1975).

[*Thymus pulegioides* L., Large Thyme: recorded by F.M. Webb and Hanbury & Marshall in the 19th century, and also listed by Russell (1902), possibly repeating the previous records.]

Lycopus europaeus L., Gipsywort: occasional in bog 4 and abundant in the New Fen.

Mentha aquatica L., Water Mint: frequent in the bogs and wet areas.

[*Mentha spicata* x *suaveolens* = *M. ^{*}villosa* Huds., Apple-mint: recorded by R.A. Graham in 1948 and subsequently listed by Philp in 1975 and 1999, but if it is on the site, we don't know where.]

†*Euphrasia officinalis* L., Eyebright: in 1975 Philp listed two species of eyebright: *E. anglica* and *E. nemorosa*. Neither has been recorded recently; they are both axiophytes of species-rich grassland and heath.

†*Odontites vernus* (Bellardi) Dumort., Red Bartsia: listed only by Philp (1975).

Pedicularis sylvatica L., Lousewort: widespread in the dry grassland and bogs; an axiophyte.

†*Pinguicula vulgaris* L., Common Butterwort: recorded in 1943 by Francis Rose, who was told that it had been planted. Hanbury & Marshall (1899, pp. 269-270) describe several attempts to introduce it in the county, dating back to the 17th century, but these have never been successful.

Verbena officinalis L., Vervain: in grassland near bog 4 and along woodland paths in the triangle area.



Ilex aquifolium L., Holly: occasional in the woodland.

Campanula rotundifolia L., Harebell: rare, on a bank in compartment 2 (TQ96844569, I. Rickards, 2013). It has been recorded here since at least 1902 (H.W).

Russell). This species is an axiophyte of acid grassland.

Menyanthes trifoliata L., Bogbean: in the flush above bog 4; an axiophyte of oligotrophic wetlands and bog margins.



Arctium minus (Hill) Bernh., Lesser Burdock: occasional on the roadside and in the woodland.

[†*Arctium nemorosum* Lej., Wood Burdock: listed only by Philp (1975, 1999). This is a problematic species, the identification of which is open to some doubt.]

Cirsium vulgare (Savi) Ten., Spear Thistle: occasional in grassland.

Cirsium palustre (L.) Scop., Marsh Thistle: common in the bogs and wet areas.

Cirsium arvense (L.) Scop., Creeping Thistle: occasional.

[*Centaurea nigra* L., Common Knapweed: listed by Philp (1975) and several people since then.]

Lapsana communis L., Nipplewort: occasional.

Hypochaeris radicata L., Cat's-ear: occasional in the grassland.

†*Hypochaeris glabra* L., Smooth Cat's-ear: recorded by Francis Rose 'on a dry bank near Frog-hole Cottage, 1948-60.' It was considered by Philp to have been lost by 1975. This is an axiophyte of heathland which has declined throughout its range in recent decades.

Scorzonoides autumnalis (L.) Moench, Autumnal Hawkbit: listed by Russell in 1902 and most recently by S. Buckingham in 2017; a common plant of grassland and heath.

[*Leontodon saxatilis* Lam., Lesser Hawkbit: listed by Russell (1902) and various others since then, not necessarily within the reserve.]

Sonchus arvensis L., Perennial Sow-thistle: in bog 4 and possibly elsewhere; known here since at least 1975 (Philp).

Sonchus oleraceus L., Smooth Sow-thistle: in bog 4 and on a sandy bank above bog 2; a weed of waste ground and roadsides.

Sonchus asper (L.) Hill, Prickly Sow-thistle: around bog 4 and possibly elsewhere. Known here since at least 1975 (Philp); a weed of waste ground.

Taraxacum officinale Weber, Dandelion: occasional.

Crepis capillaris (L.) Wallr., Smooth Hawk's-beard: listed by Philp (1975) and by others since. A weed of waste ground or bare patches in grassland.

Pilosella officinarum F. Schultz & Schultz-Bip., Mouse-ear-hawkweed: occasional in short grassland.

[*Pilosella aurantiaca* (L.) F. Schultz & Schultz-Bip., Fox-and-cubs: recorded by E.G. Philp in 1964 and 1999 (ssp. *carpathicola*).]

†*Filago vulgaris* Lam., Common Cudweed: listed only by Philp (1975). It still occurs in arable fields nearby.

†*Filago minima* (Smith) Pers., Small Cudweed: recorded in the 19th century by W.R. Jeffrey and Hanbury & Marshall, and last seen by Francis Rose in 1945. An axiophyte of U1 *Rumex acetosella* grassland.

Gnaphalium uliginosum L., Marsh Cudweed: occasional on wet mud, and seasonally inundated hollows.



Pulicaria dysenterica (L.) Bernh., Common Fleabane: occasional throughout.

Erigeron floribundus (Kunth) Sch. Bip., Bilbao's Fleabane: on a spoil heap and disturbed ground near the entrance, TQ970459.

†*Solidago canadensis* L., Canadian Goldenrod: listed only by Philp (1975). A garden plant that sometimes occurs as a throw-out.

Solidago gigantea Aiton, Early Goldenrod: a large patch on the edge of bog 4, where the path crosses (TQ96864623). This was first recorded by J. Shorter in 2000 and differs in having glabrous leaves and stems glabrous below the inflorescence. In 1975 Philp listed *Euthamia graminifolia* (L.) Elliott, Grass-leaved Goldenrod. We don't know who made the record or how the plant was identified, given that they available keys at that time might not have covered all the species, and it seems reasonable to conclude that it might have been an error for *S. gigantea*.



Symphotrichum (Aster) ^{*}*versicolor* (Willd.) G.L. Nelson, Late Michaelmas-daisy: rare, by the path across bog 4 (TQ968462, A.J. Lockton, conf. G.D. Kitchener). Curiously, Philp (1975) listed *Aster novi-belgii* L., Confused Michaelmas-daisy, which is one of the parents of this cultivated cross. It seems likely that this is the same plant as now present, so here I am treating the earlier record as also being ^{*}*versicolor*.

Bellis perennis L., Daisy: occasional.

Artemisia vulgaris L., Mugwort: on the roadside and by paths near the car park. This is a ruderal that is tolerant of light shade.

†*Achillea ptarmica* L., Sneezewort: recorded in the 19th century by W.R. Jeffrey and in 1960 by E. Scott; an axiophyte of mesotrophic wetlands.

Achillea millefolium L., Yarrow: occasional.

[*Leucanthemum vulgare* Lam., Oxeye Daisy]

Matricaria discoidea DC., Pineapple Weed: occasional.

[*Tripleurospermum inodorum* (L.) Schultz-Bip., Scentless Mayweed: listed by Philp (1975) (as *T. maritimum*) and recorded by several people in the vicinity since then. It is very likely to be present, on areas of disturbed ground.]

Senecio jacobaea L., Common Ragwort: occasional throughout, on bare ground, dry grassland, and even occasionally in wet places such as bog 4.

Senecio vulgaris L., Groundsel: listed by Philp (1975) and by various people since; a weed of disturbed soil.

†*Tussilago farfara* L., Colt's-foot: listed only by Philp (1975).

†*Bidens cernua* L., Nodding Bur-marigold: found in the 19th century by F.M. Webb and Hanbury & Marshall; an axiophyte of mesotrophic wetlands.

[*Eupatorium cannabinum* L., Hemp-agrimony: listed by Philp (1975 & 1999).]

Sambucus nigra L., Elder: occasional.

Lonicera periclymenum L., Honeysuckle: occasional in the scrub, reflecting the previous woodland cover over almost the whole of the site. It also occurs in bog 2, by the side of the boardwalk, in habitat where it would not normally be expected.

Succisa pratensis Moench, Devil's-bit Scabious: frequent in the bogs; an axiophyte of acid soils.

Hedera helix L., Ivy: frequent in the woodland.

Hydrocotyle vulgaris L., Marsh Pennywort: frequent in the bogs; an axiophyte of oligotrophic wetland.

Chaerophyllum temulum L., Rough Chervil: in long grassland on the roadside.

Anthriscus sylvestris (L.) Hoffm., Cow Parsley: frequent along roadsides.

†*Pimpinella saxifraga* L., Burnet-saxifrage: listed only by Philp (1975).

Aegopodium podagraria L., Ground-elder: in grassland on the road verge and along the fence line at the SW corner of the reserve.

†*Oenanthe fistulosa* L., Tubular Water-dropwort: found in the 19th century by F.M. Webb and Hanbury & Marshall; an axiophyte of mesotrophic wetlands.

Oenanthe crocata L., Hemlock Water-dropwort: in the stream at TQ965459.

†*Helosciadium inundatum* (L.) W.D.J. Koch, Lesser Marshwort: recorded by W.R. Jeffrey in 1899. An axiophyte of oligotrophic wetland.

Heliosciadium nodiflorum (L.) W.D.J. Koch, Fool's Water-cress: occasional in wetland areas, including bog 4 and the New Fen.

Angelica sylvestris L., Wild Angelica: in bog 4 and the New Fen.

[*Pastinaca sativa* L., Wild Parsnip: listed by Philp (1975, 1999).]

Heracleum sphondylium L., Hogweed: occasional throughout.

†*Heracleum mantegazzianum* Sommier & Levier, Giant Hogweed: listed by Philp (1975) but not reported since; presumably it was eradicated.

Torilis japonica (Houtt.) DC., Upright Hedge-parsley: in tall grassland around the car park and along the roadside.

†*Daucus carota* L., Wild Carrot: listed by Philp (1975).

Arum maculatum L., Lords-and-ladies: occasional.

†*Arum italicum* Mill., Italian Lords-and-ladies: listed by Philp (1975 and 1999). This species, and the hybrid with *A. maculatum*, were recorded by J. Pitt in 1995. If confirmed, this would be the first record of the hybrid in East Kent.

Lemna minor L., Common Duckweed: occasional.

Lemna minuta Kunth, Least Duckweed: in the flush above bog 4.

Alisma plantago-aquatica L., Water-plantain: rare, in bog 4.

†*Elodea canadensis* Michaux, Canadian Waterweed: listed by Philp (1975).

Triglochin palustris L., Marsh Arrowgrass: rare, in bog 4. This is an axiophyte of short, base-rich grassy swards in fens.

Potamogeton polygonifolius Pourr., Bog Pondweed: thriving in all the bogs. An axiophyte of acid mires.



†*Potamogeton coloratus* Hornem., Fen Pondweed: collected by G. Dowker in the 19th century but not recorded since. It is an axiophyte of base-rich fens and might be expected in bog 4 but not in the others.

Narthecium ossifragum (L.) Hudson, Bog Asphodel: abundant in the main bog (bog 2). It is an axiophyte of bogs, often favouring places where there is some lateral water movement, or bogs that are slightly drying out.

Tamus communis L., Black Bryony: on a dry wooded bank where the path crosses bog 4, TQ968462.

Neottia ovata (L.) Bluff & Fingerh., Twayblade: found 'on a clay patch' in 1948 by Francis Rose. This is an axiophyte of calcareous woodland, not at all typical of the site. However, it is still there, in the triangle area at TQ973456 (I. Rickards, 2019).

Dactylorhiza fuchsii (Druce) Soo, Common Spotted-orchid: common in the grassland around bog 2. Some of the plants have been described as *D. x transiens* (*fuchsii* x *maculata*), which might well be correct.

Dactylorhiza maculata (L.) Soo, Heath Spotted-orchid: common in and around bog 2. This species is more restricted to bogs and acid grassland and is considered an axiophyte of these habitats.

Dactylorhiza praetermissa (Druce) Soo, Southern Marsh-orchid: abundant in bog 4 and rare in other bogs; it is typical of marshy grassland and fens.

Dactylorhiza **hallii* (*maculata* x *praetermissa*) has also been recorded several times.

Anacamptis pyramidalis (L.) Rich., Pyramidal Orchid: one plant on the edge of the reserve at TQ967454 (I. Rickards, 2019). It has been here a few years. This is an axiophyte of calcareous grassland.

Ophrys apifera Hudson, Bee Orchid: 'one plant on a clay patch' in 1944 (F. Rose) and still present in 2018 (D. Steere).



Iris pseudacorus L., Yellow Iris: in bog 4 and possibly elsewhere.

Crocasmia x crocosmiiflora (Lemoine ex Burb. & Dean) Nicholson, Montbretia: one patch in woodland west of the car park, TR970458. Probably dumped as garden waste originally, but now well established.

Ornithogalum umbellatum L., Star-of-Bethlehem: recorded in 1948 by H.M. Pratt and since then by several people in the vicinity, but I'm not sure where it is in the site.

Hyacinthoides non-scripta (L.) Chouard ex Rothm., Bluebell: frequent in the woodland and scattered throughout the grassland. This is an axiophyte of ancient woods which spreads into new woodland only slowly, so its prevalence at this site shows the extent to which it must have had tree cover in the past.

[*Hyacinthoides hispanica* (Miller) Rothm., Spanish Bluebell: listed by Philp (1975) and by others since then. The Garden Bluebell, *Hyacinthoides x massartiana* Geerinck, has also been noted in the vicinity.]

Sparganium erectum L., Branched Bur-reed: in bog 4 and the New Fen.

Typha latifolia L., Great Reedmace: occasional in bogs 2 & 4 and the New Fen. The hybrid with *T. angustifolia*, Lesser Reedmace (*Typha x glauca*), is frequent in the lower parts of Bog 4 (TQ960460). It has a short length of stem visible between the male and female sections of the spike and narrower leaves (8 mm wide in the specimen pictured below).



Typha x glauca

[*Juncus articulatus* L., Jointed Rush: on the site list by Philp in 1975 and recorded by several people since then, but I have not seen any satisfactory specimens yet.]

Juncus x surrejanus Druce ex Stace & Lambinon (*articulatus x acutiflorus*): this hybrid seems to be by far the most abundant rush at Hothfield. In the spring it can look a lot like either of the parents but the fruits never ripen and the seed capsules remain empty as the season progresses. There is so much of this hybrid in all of the bogs that it is not clear that there are any good examples of either *J. articulatus* or *J. acutiflorus*, although both have been recorded quite often. Many botanists are reluctant to record a hybrid, which is a sensible approach if one does not have the time to watch the plants mature over the year.



Juncus x surrejanus

[*Juncus acutiflorus* Ehrh. ex Hoffm., Sharp-flowered Rush: first recorded here by H. Lamb in 1900, and it is believed that there is a specimen at MNE (Maidstone Museum). Others have recorded since then, including Rose (1943), Philp (1975) and N.F. Stewart (1998). I suspect, however, that there are no pure plants of *J. acutiflorus* left at this site, and it is difficult to tell whether it was present in the past – although Lamb's specimen could be conclusive.]

Juncus bulbosus L., Bulbous Rush: abundant in bogs 2, 3 & 4. This is an axiophyte of oligotrophic wetlands; here it tends to occur on patches of bare peat.



Juncus squarrosus L., Heath Rush: frequent in the grassland, especially along paths, near the acid bogs (1-3). It is scarcer in drier ground.



Juncus tenuis Willd., Slender Rush: frequent on woodland paths on Butler's Toll and occasional along heathland paths near bogs 2 and 4. This is an introduced species that always seems to grow along paths but doesn't seem to spread into semi-natural habitats.

Juncus bufonius L., Toad Rush: occasional throughout, especially in rutted tracks along paths.

Juncus inflexus L., Hard Rush: occasional throughout.

Juncus effusus L., Soft-rush: occasional throughout, mainly in the bogs but also in winter-wet spots in the grassland and woodland. Most of the plants have rather compact flower heads and many tiny ridges on the stems; these are *J. effusus* var. *subglomeratus*, and should not be confused with the following, which has a dull green stem, fewer, more pronounced ridges, and a flattened bract (the top of the stem, above the inflorescence). *Juncus effusus* is a common wetland plant, typical of bogs and slightly acidic wetland.

Juncus conglomeratus L., Compact Rush: I have seen only one plant of this species on the site, at the far end of the New Fen (TQ978456). Curiously, although this is a very common plant, there is apparently a specimen collected by Francis Rose in 1947 at MNE. This is very unusual, people usually only collect specimens of rare plants. Numerous others have recorded *J. conglomeratus* at Hothfield and, if my observations are correct, it might be that they have been failing to distinguish it from *J. effusus* var. *subglomeratus*.

Luzula campestris (L.) DC., Field Wood-rush: abundant in the dry grassland.



Luzula multiflora (Ehrh.) Lej., Heath Wood-rush: frequent in the bogs and heath. This is an axiophyte of heathland.

Eriophorum angustifolium Honck., Common Cottongrass: locally abundant in the bogs; axiophyte.

Scirpus sylvaticus L., Wood Club-rush: a large patch in bog 4 (TQ967461); apparently not recorded before 201. This is an axiophyte of base-rich fens and wetlands.

Eleocharis palustris (L.) Roem. & Schult., Common Spike-rush: in bog 4.

Eleocharis multicaulis (Sm.) Desv., Many-stalked Spike-rush: a very rare axiophyte of peaty soils; locally abundant in bogs 2, 3 & 4. It has been known here since the 19th century (F.M. Webb and Hanbury & Marshall).



Isolepis setacea (L.) R.Br., Bristle Club-rush: occasional in bog 4. This is an axiophyte of marshy grassland, first recorded here by F.M. Webb in 1880.

Carex paniculata L., Greater Tussock-sedge: many fine plants in bog 4; a few on the edge of bog 2; and one large plant in the New Fen This is an axiophyte of fens and wet woodland. The hybrid *Carex* ^x*boeninghausiana* (*paniculata* x *remota*) was recorded in 1923 by Miss Cobbe. This is quite a common hybrid wherever the parents occur together.

†*Carex otrubae* Podp., False Fox-sedge: on Philp's list of 1975 but not otherwise recorded in this area.

Carex divulsa Stokes, Grey Sedge: on dry ground near bog 4 (TQ966461) and along the roadsides around the triangle area.

Carex remota L., Remote Sedge: rare in bog 4 and frequent along the stream on the western boundary. Curiously not in Philp's list of 1975, but recorded in this area in both of his Atlases. Note that the hybrid with *C. paniculata* was found in 1923.

Carex leporina L., Oval Sedge: frequent in bog 4 and wet grassland; recorded here since the 19th century (F.M. Webb).



Carex echinata Murray, Star Sedge: abundant in the bogs; this is an axiophyte of mires and wet heath.

Carex hirta L., Hairy Sedge: occasional in damp grassland and extending into the fen at bog 4.

†*Carex acutiformis* Ehrh., Lesser Pond-sedge: listed by Philp (1975).

Carex pseudocyperus L., Cyperus Sedge: a small patch in bog 4.

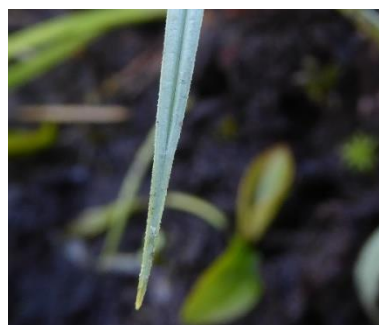


Carex rostrata Stokes, Bottle Sedge: some good-sized patches in bog 4, where it has been known since the 19th century (W.R. Jeffrey). An axiophyte of oligotrophic conditions and ombrotrophic bogs.

Carex pendula Hudson, Pendulous Sedge: abundant along the roadside near the car park. Within the reserve, there is a small amount in bog 4, where it seems to be heavily grazed and therefore not abundant. There was also a small plant in the New Fen in 2019 that appears to be this species. It is normally a plant of wet woodland rides and it can become very abundant if allowed to thrive.

†*Carex flacca* Schreb., Glaucous Sedge: listed by Philp (1975) and recorded by Stephen Lemon in 2016, in a meadow west of the common, TQ964457, but there are no recent records of it within the site.

Carex panicea L., Carnation Sedge: abundant in the bogs and the New Fen; an axiophyte of acidic flushes and wet grassland which is very rare in Kent. The leaves are glaucous on both surfaces and have a trigonous tip, as illustrated below.



Carex laevigata Smith, Smooth-stalked Sedge: occasional throughout bog 4. It was first recorded here by E.S. Marshall in the 19th century. It is an axiophyte, normally of damp woodland on acid soils.

[*Carex binervis* Smith, Green-ribbed Sedge: recorded by Francis Rose from the 1940s until the 1990s, and also listed by Philp (1975 & 1999).]

Carex demissa Hornem., Common Yellow Sedge: frequent in bogs 2, 3 & 4; an axiophyte of oligotrophic wetland. Known here since the 19th century (W.R. Jeffrey; Hanbury & Marshall).



Carex pilulifera L., Pill Sedge: frequent in the heathland and acid grassland; an axiophyte. Known here since the 19th century (W.R. Jeffrey; J.S. Mill).

Carex nigra (L.) Reichard, Common Sedge: in bogs 2 & 3 and in heathland around this area; an axiophyte of acid flushes and mires.



Carex pulicaris L., Flea Sedge: rare, in bogs 2 & 4. This is an axiophyte of mires; Hothfield is the only known site for it in Kent.



Nardus stricta L., Mat-grass: very rare. There is one patch in dry grassland below bog 3 (TQ967459) and in 2013 Sue Buckingham noted it along a path between bogs 2 and 3 (TQ96884583). It is an axiophyte of upland and acid grassland; first recorded by G.E. Smith in 1829.



Schedonorus arundinaceus (Schreb.) Dumort., Tall Fescue: along the road verge between the two main portions of the reserve.

Lolium perenne L., Perennial Rye-grass: occasional throughout.

Festuca rubra L., Red Fescue: occasional in grassland.

Festuca ovina L., Sheep's Fescue: occasional in dry grassland and on ant hills in bog 4. It is an axiophyte of dry grassland.

Vulpia bromoides (L.) Gray, Squirrel-tail Fescue: abundant in dry grassland and along the boardwalk to bog 2.

Vulpia myuros (L.) C. Gmelin, Rat's-tail Fescue: locally abundant on a dry bank above bog 1, TQ969464.

†*Vulpia ciliata* Dumort., Bearded Fescue: recorded in the reserve by F. Rose before 1981 and listed for this area by Philp in both his atlases. It is a plant of maritime sand and shingle, also known in a few places inland on the Greensand. The plants are described as ssp. *ambigua* (Le Gall) Stace & Auquier, which is the native type.

Poa annua L., Annual Meadow-grass: occasional along track sides.

Poa trivialis L., Rough Meadow-grass: frequent throughout, in dry grassland and bogs.

†*Poa humilis* Ehrh. ex Hoffm., Spreading Meadow-grass: listed by Philp (1975 & 1999) and recorded in the vicinity by Kitchener (2010), but possibly not within the reserve.

Poa pratensis L., Smooth Meadow-grass: in grassland on the old football pitch and elsewhere.

Poa nemoralis L., Wood Meadow-grass: occasional in the woodland.

Dactylis glomerata L., Cock's-foot: occasional in tall grassland.

Arrhenatherum elatius (L.) P. Beauv., False Oat-grass: occasional throughout.

[*Trisetum flavescens* (L.) P. Beauv., Yellow Oat-grass: listed by Philp (1975 & 1999).]

[*Deschampsia cespitosa* (L.) P. Beauv., Tufted Hair-grass: listed by Philp (1975) and recorded by N.F. Stewart in bog 1 in 1998.]

Deschampsia flexuosa (L.) Trin., Wavy Hair-grass: abundant in dry grassland; an axiophyte of acid grassland and heath or woodland.

Holcus lanatus L., Yorkshire-fog: frequent throughout, in grassland, scrub and bogs.

Holcus mollis L., Creeping Soft-grass: Frequent in dry acid grassland and extending into the wetland of bog 4.



Aira caryophyllea L., Silver Hair-grass: very rare. It has only been recorded twice, by F.M. Webb in the 19th century and by L. Rooney in 2013. It is an axiophyte of acid grassland.

Aira praecox L., Early Hair-grass: frequent in the acid grassland; an axiophyte.



Anthoxanthum odoratum L., Sweet Vernal Grass: frequent throughout, in both wet and dry habitats.

Phalaris arundinacea L., Reed Canary-grass: in bog 4.

Agrostis capillaris L., Common Bent: frequent in dry grassland.

Agrostis stolonifera L., Creeping Bent: frequent in wet grassland and the edges of bogs.

Agrostis canina L., Velvet Bent: locally abundant in the bogs.

[*Agrostis vinealis* Schreber, Brown Bent: listed in both of Philp's Atlases for this area. It seems entirely likely; an axiophyte of acid or upland grassland.]

Glyceria fluitans (L.) R.Br., Floating Sweet-grass: in a couple of places in neutral wetland, such as the pool below bog 4.

Glyceria notata Chevall., Plicate Sweet-grass: in bog 4 and the New Fen; also recorded by N.F. Stewart in 1998 in bog 2; an axiophyte of mesotrophic wetland.

†*Bromus lepidus* Holmb., Slender Soft-brome: on a roadside at Hothfield Heath in 1933 (J.P.M. Brenan). This is an agricultural grass that is less common than formerly.

Bromus hordeaceus L., Soft-brome: occasional in dry grassland.

Anisantha sterilis (L.) Nevski, Barren Brome: frequent in hedges and disturbed areas.

Brachypodium sylvaticum (Hudson) P. Beauv.: frequent along road verges in the triangle area and around New Fen.

[*Elytrigia repens* (L.) Desv., Common Couch: listed by Philp (1975 & 1999).]

Danthonia decumbens (L.) DC., Heath-grass: there are at least three patches: one on the south side of bog 2 (TQ968458), along the track from bog 3 to the main path (TQ96924574) and it is quite abundant along the main path (TQ96684584). It was first recorded here by F.M. Webb in about 1880; an axiophyte of acid grassland and heath.



Molinia caerulea (L.) Moench, Purple Moor-grass: abundant in the bogs and heathland; an axiophyte. Recorded here since the 19th century (W.R. Jeffrey; Hanbury & Marshall).

Vegetation Communities

The most distinctive feature of Hothfield is its bogs. There are five of these, although in the 1940s Francis Rose considered there to be seven. Three have merged into bog 4, which is the northernmost one, and it is often described as a fen because it is more calcareous than the other three.

Bog 1, at the southern end of the site, on the other side of a minor road, is very overgrown with scrub and seems to be little more than a damp valley, although there are signs that it could be restored if it were sufficiently grazed. Bog 2 is the main one, just to the south of the main path from the car park, and contains the best examples of the acidic mire communities. Bog 3 is similar to 2, but smaller and perhaps of lower quality. On the other side of the main road is the New Fen, which is a very overgrown mire that still contains some relict bog species, and for which there are historical records showing it was once much richer.

Bog 2 is a typical southern English valley mire, with M21 *Narthecium ossifragum* community (Q1202 & Q1203) in the middle, where the water is most acid and there are hummocks of *Sphagnum*. This is where *Narthecium* and *Anagallis tenella* are abundant. It is defined best by the presence of *Sphagnum papillosum* hummocks. Weaving through the bog are channels of M29 *Hypericum elodes*-*Potamogeton polygonifolius* community (Q1200). This typically contains patches of bare peat and lawns of *Sphagnum fallax*, and it is distinguished from the other communities by the lateral movement of surface water.

Surrounding the core is an expanse of M6 *Carex echinata* mire (Q1201). This community is more tolerant than M21 of inundation and desiccation, and early in the year it is easily recognised by the presence of *C. echinata*, which is often abundant, although at the time of survey many of the fruits had fallen, making it difficult to spot (and therefore possibly under-represented in the sample). The sample presented here happens to contain no *C. echinata*, but there are plenty of other constants.

None of these communities was recorded in Kent in *British Plant Communities* (Rodwell, 1991) but their presence in the county is suggested as likely in the community descriptions. Hothfield is possibly the only site in the county for several of them.

The margins of bog 2 have not yet been investigated. It is quite likely that a wet heath community occurs here. M16 *Erica tetralix* heath would be expected. *Sphagnum compactum* is a likely component of M16, and has been recorded at Hothfield in the past. Bog 3 is likely to be broadly similar to 2 in its communities, and bog 1, I expect, would have degraded examples of these communities, too.

Bog 4 is intriguing and more complex. There appear to be three main components to the vegetation: stands of tussock-sedge in the middle, patches of sphagnum-rich bog, and a broad swathe of low-growing rushy vegetation surrounding these.

The rushy vegetation is M23 *Juncus acutiflorus* rush-pasture (Q1199, Q1205 & Q1207) although, as far as I can make out, the plants are all *Juncus x surrejanus*, which is apparently quite a common occurrence. M23 is a very common community in the west of Britain but again is considered rare in the south-east. The example at Hothfield is very species-rich, with a variety of rare species such as *Carex rostrata*, *Dactylorhiza praetermissa*, *Myosotis secunda* and *Scutellaria minor*. The bog-mosses *Sphagnum palustre* and *S. squarrosum* are frequently encountered.

Running down the centre of the bog is the stream, fringed by huge tussocks of *Carex paniculata*. On the face of it, one might assume that this must be S3 *C. paniculata* swamp and using the keys in the NVC swamps book would lead you directly to this conclusion. However, if you analyse our sample (Q1206) by computer, S3 does not feature as one of the likely options. Instead, it yields a result of W1 *Salix atrocinerea* woodland. The reason for this is clearly the abundance of plants of relatively dry woodland – brambles, roses and trees such as sycamore. Interestingly, it transpires that W1 woodland can have *Carex paniculata* with a Domin score as high as 8, representing 75% cover.

This analysis shows how the *Carex paniculata* tussocks do not actually create a particularly interesting community. There are no rare species associated with the habitat, and indeed very few that are distinctive.

Essentially, the tussocks represent a seral stage towards woodland, and they decrease the diversity and importance of the habitat.

As in the other bogs, the most interesting areas are M29 *Hypericum elodes* soakways (Q1208, Q1209), with patches of *Sphagnum subnitens* forming small hummocks amongst the bare peat with stands of *Hypericum elodes*, *Potamogeton polygonifolius* and *Anagallis tenella*.

The dry grassland and heathland deserve further study. One quadrat (Q1204), recorded on the main path near the woodland fringe (this was the only place where the vegetation was still fresh in July) produces a result of U1f *Rumex acetosella* grassland, *Hypochaeris radicata* subcommunity. In the NVC many subcommunities are of little interest, but in the case of U1 they can make quite a difference. The overall community comprises short grassland with *Festuca ovina* and/or *Agrostis capillaris* and *Rumex acetosella*. There are usually many spring ephemerals and during the winter bryophytes tend to dominate. U1f is a more base-enriched version of this community and it often contains *Centaureum erythraea*. It seems likely that the U1e *Galium saxatile* subcommunity is more common at Hothfield than U1f, but as yet we have no samples.

Finally, the heathland vegetation should be assessed. This has not yet been done.

Quadrats recorded at Hothfield in 2019

Species	Q1199 M23	Q1200 M29	Q1201 M6	Q1202 M21	Q1203 M21	Q1204 U1	Q1205 M23	Q1206 W1	Q1207 M23	Q1208 M29	Q1209 M29
Acer pseudoplatanus	-	-	-	-	-	-	-	4	-	-	-
Agrostis canina	-	-	3	-	-	-	-	-	-	-	-
Agrostis capillaris	-	-	-	-	-	2	-	-	-	-	-
Agrostis stolonifera	-	2	-	-	-	-	3	-	-	-	-
Aira praecox	-	-	-	-	-	5	-	-	-	-	-
Alnus glutinosa	-	-	-	-	-	-	-	-	-	1	-
Anagallis tenella	-	-	-	-	7	-	-	-	-	-	-
Anthoxanthum odoratum	2	-	-	-	-	-	-	-	-	3	-
Aphanes australis	-	-	-	-	-	3	-	-	-	-	-
Aulacomnium palustre	-	3	3	-	-	-	-	-	-	-	-
Betula pubescens	-	4	-	1	1	-	1	-	1	-	-
Calliergonella cuspidata	-	-	-	-	-	-	4	-	4	-	4
Campyllum stellatum	-	-	-	-	5	-	-	-	-	-	-
Carex demissa	-	-	-	-	2	-	-	-	-	4	4
Carex echinata	-	-	-	-	1	-	-	-	-	-	-
Carex laevigata	1	-	-	-	-	-	-	-	-	-	-
Carex panicea	1	3	4	4	5	-	-	-	-	2	3
Carex paniculata	-	-	-	-	-	-	4	9	8	1	1
Carex pulicaris	-	1	-	-	4	-	-	-	-	-	-
Carex rostrata	-	-	-	-	-	-	-	-	-	4	4
Cerastium semidecandrum	-	-	-	-	-	2	-	-	-	-	-
Chamerion angustifolium	-	-	-	-	-	-	-	2	-	-	-
Cirsium palustre	-	1	-	-	1	-	2	2	2	-	2
Dactylorhiza maculata	-	3	-	-	1	-	-	-	-	-	-
Dactylorhiza praetermissa	-	-	-	-	-	-	-	-	-	-	2
Deschampsia flexuosa	-	-	-	3	-	2	-	-	-	-	-
Drosera rotundifolia	-	2	5	-	4	-	-	-	-	-	-
Eleocharis multicaulis	-	-	-	-	4	-	-	-	-	4	3
Epilobium hirsutum	2	-	-	-	-	-	-	4	-	-	-
Epilobium obscurum	-	2	-	-	-	-	3	2	2	1	-
Epilobium palustre	-	-	-	-	-	-	-	-	2	-	-
Epilobium parviflorum	2	-	-	-	-	-	-	-	-	-	-
Equisetum fluviatile	-	-	-	-	-	-	-	1	-	2	-
Erica tetralix	-	1	4	4	4	-	-	-	-	-	-
Eriophorum angustifolium	-	-	-	3	3	-	-	-	-	1	3
Galium aparine	-	-	-	-	-	-	-	3	-	-	-
Galium palustre	3	-	-	-	-	-	3	3	-	1	-
Helosciadium nodiflorum	4	-	-	-	-	-	1	1	1	-	-
Holcus lanatus	3	3	-	1	-	-	6	2	4	4	2
Hydrocotyle vulgaris	-	4	4	-	4	-	-	-	4	4	-
Hypericum androsaemum	-	-	-	-	-	-	-	-	1	-	-
Hypericum elodes	-	4	-	-	-	-	-	-	-	-	8
Hypericum tetrapterum	1	-	-	-	-	-	3	-	1	1	-
Isolepis setacea	-	-	-	-	-	-	-	-	2	-	-
Juncus bufonius	-	-	-	-	-	2	-	-	-	-	-
Juncus bulbosus	-	2	3	2	-	-	-	-	1	3	1
Juncus effusus	4	-	-	-	-	-	2	-	2	-	-
Juncus x surrejanus	10	7	6	5	-	-	9	3	5	2	2
Lotus pedunculatus	5	3	-	3	-	-	4	2	3	-	-
Luzula multiflora	-	-	1	-	2	-	-	-	-	-	-
Mentha aquatica	5	-	-	-	-	-	5	3	2	2	2
Molinia caerulea	-	4	-	-	5	-	-	-	-	1	4
Myosotis discolor	-	-	-	-	-	1	-	-	-	-	-
Myosotis secunda	-	-	-	-	-	-	-	-	2	-	-
Narthecium ossifragum	-	2	4	8	4	-	-	-	-	-	-
Ornithopus perpusillus	-	-	-	-	-	2	-	-	-	-	-
Plantago coronopus	-	-	-	-	-	3	-	-	-	-	-
Poa annua	-	-	-	-	-	3	-	-	-	-	-
Poa trivialis	3	-	-	-	-	-	-	-	1	-	-
Potamogeton polygonifolius	-	3	-	-	5	-	-	-	-	5	4
Potentilla erecta	-	4	4	3	3	-	-	-	-	1	-
Prunella vulgaris	-	1	-	-	-	-	-	-	-	1	-
Pteridium aquilinum	-	-	-	-	-	-	-	4	-	-	-
Ranunculus flammula	2	3	-	-	-	-	-	-	4	-	1
Ranunculus repens	3	-	-	-	-	-	2	1	1	-	-

Rhytidadelphus squarrosus	-	-	-	-	-	4	-	-	-	-	-
Rosa canina	-	-	-	-	-	-	-	4	-	-	-
Rubus fruticosus	-	-	-	-	-	-	-	4	-	-	-
Rumex acetosa	-	-	-	-	-	-	4	-	1	-	-
Rumex acetosella	-	-	-	-	-	5	-	-	-	-	-
Rumex crispus	-	-	-	-	-	-	-	-	1	-	-
Rumex sanguineus	4	-	-	-	-	-	-	-	-	-	-
Sagina procumbens	-	-	-	-	-	2	-	-	3	-	-
Salix atrocinerea	-	-	-	1	-	-	5	1	1	-	-
Salix x multinervis	-	4	-	4	2	-	-	-	-	2	1
Scutellaria minor	-	3	-	-	-	-	-	-	-	2	1
Silene flos-cuculi	-	-	-	-	-	-	2	-	2	3	-
Solanum dulcamara	-	-	-	-	-	-	-	2	-	-	-
Sphagnum denticulatum	-	4	4	8	-	-	-	-	-	-	-
Sphagnum fallax	2	4	7	4	-	-	-	-	-	-	-
Sphagnum papillosum	-	4	-	4	-	-	-	-	-	-	-
Sphagnum squarrosum	-	-	-	-	-	-	-	-	-	-	4
Sphagnum subnitens	-	-	7	-	-	-	-	-	-	-	4
Stachys sylvatica	-	-	-	-	-	-	-	1	-	-	-
Stellaria alsine	1	-	-	-	-	-	2	-	3	-	-
Succisa pratensis	-	-	-	6	4	-	-	-	-	1	-
Trifolium micranthum	-	-	-	-	-	2	-	-	-	-	-
Typha latifolia	2	2	-	-	-	-	-	-	-	-	1
Urtica dioica	-	-	-	-	-	-	-	4	-	-	-
Veronica arvensis	-	-	-	-	-	1	-	-	-	-	-
Veronica scutellata	-	-	-	-	-	-	-	-	-	-	4
Viola palustris	-	-	2	3	-	-	-	-	-	-	-
Vulpia bromoides	-	-	-	-	-	5	-	-	-	-	-

Locations of quadrats

Q1199: TQ96924623
 Q1200: TQ96974568
 Q1201: TQ96974568
 Q1202: TQ96944568
 Q1203: TQ96824565
 Q1203: TQ97014577
 Q1204: TQ96844621
 Q1205: TQ96774618
 Q1206: TQ96734612
 Q1207: TQ96744611
 Q1209: TQ96734610

Species recorded by date class

Species	Common name	Status	<1970	<1982	<2010	2010+
<i>Acer pseudoplatanus</i>	Sycamore		-	+	+	+
<i>Achillea millefolium</i>	Yarrow		+	+	+	+
<i>Achillea ptarmica</i>	Sneezewort	Axiophyte	+	-	-	-
<i>Aegopodium podagraria</i>	Ground-elder		+	+	+	+
<i>Aesculus hippocastanum</i>	Horse-chestnut		-	+	+	+
<i>Agrimonia eupatoria</i>	Agrimony		+	+	-	-
<i>Agrostis canina</i>	Velvet Bent		-	+	+	+
<i>Agrostis capillaris</i>	Common Bent		+	+	+	+
<i>Agrostis stolonifera</i>	Creeping Bent		-	+	+	+
<i>Agrostis vinealis</i>	Brown Bent	Axiophyte	-	+	-	-
<i>Aira caryophyllea</i>	Silver Hair-grass	Axiophyte	+	+	-	+
<i>Aira praecox</i>	Early Hair-grass	Axiophyte	-	+	+	+
<i>Alisma plantago-aquatica</i>	Water-plantain		+	-	+	+
<i>Alliaria petiolata</i>	Garlic Mustard		-	+	+	+
<i>Alnus cordata</i>	Italian Alder		-	-	-	+
<i>Alnus glutinosa</i>	Alder		-	+	+	+
<i>Anacamptis pyramidalis</i>	Pyramidal Orchid	Axiophyte	-	-	-	+
<i>Anagallis arvensis</i>	Scarlet Pimpernel		+	+	+	+
<i>Anagallis tenella</i>	Bog Pimpernel	Axiophyte	+	+	+	+
<i>Anchusa arvensis</i>	Bugloss		-	+	-	+
<i>Anemone nemorosa</i>	Wood Anemone	Axiophyte	-	+	+	+
<i>Aneura mirabilis</i>	Ghostwort	Axiophyte	-	+	-	-
<i>Aneura pinguis</i>	Greasewort	Axiophyte	+	+	+	+
<i>Angelica sylvestris</i>	Wild Angelica		-	+	+	+
<i>Anisantha sterilis</i>	Barren Brome		-	+	+	+
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass		-	+	+	+
<i>Anthriscus sylvestris</i>	Cow Parsley		-	+	+	+
<i>Aphanes australis</i>	Slender Parsley-piert		-	+	+	+
<i>Arctium minus</i>	Lesser Burdock		+	+	+	+
<i>Arctium nemorosum</i>	Wood Burdock		-	+	+	-
<i>Arenaria serpyllifolia</i>	Thyme-leaved Sandwort		-	+	+	+
<i>Arrhenatherum elatius</i>	False Oat-grass		-	+	+	+
<i>Artemisia vulgaris</i>	Mugwort		+	+	+	+
<i>Arum italicum</i>	Italian Lords-and-ladies		-	+	+	-
<i>Arum maculatum</i>	Lords-and-ladies		+	+	+	+
<i>Athyrium filix-femina</i>	Lady Fern	Axiophyte	-	+	+	+
<i>Atriplex patula</i>	Common Orache		-	-	-	+
<i>Atriplex prostrata</i>	Spear-leaved Orache		-	-	+	+
<i>Aulacomnium palustre</i>	Bog Groove-moss		+	-	+	+
<i>Ballota nigra</i>	Black Horehound		-	+	+	+
<i>Bellis perennis</i>	Daisy		+	+	+	+
<i>Betula pendula</i>	Silver Birch		-	+	+	+
<i>Betula pubescens</i>	Downy Birch		-	+	+	+
<i>Bidens cernua</i>	Nodding Bur-marigold	Axiophyte	+	-	-	-
<i>Brachypodium sylvaticum</i>	False-brome		-	+	+	+
<i>Bromus hordeaceus</i>	Soft-brome		-	+	+	+
<i>Bromus lepidus</i>	Slender Soft-brome		+	-	-	-
<i>Bryonia dioica</i>	White Bryony		-	+	+	+
<i>Buddleja davidii</i>	Butterfly-bush		-	-	+	+
<i>Calliergonella cuspidata</i>	Pointed Spear-moss		-	-	-	+
<i>Callitriche brutia</i>	Intermediate Water-starwort		-	-	+	-
<i>Callitriche stagnalis</i>	Common Water-starwort		-	-	+	+
<i>Calluna vulgaris</i>	Heather	Axiophyte	+	+	+	+
<i>Caltha palustris</i>	Marsh Marigold	Axiophyte	+	+	+	+
<i>Calystegia sepium</i>	Hedge Bindweed		+	+	+	+
<i>Calystegia silvatica</i>	Large Bindweed		-	-	-	+
<i>Campanula rotundifolia</i>	Harebell	Axiophyte	+	+	+	+
<i>Campylium stellatum</i>	Yellow Starry Feather-moss		+	-	-	+
<i>Capsella bursa-pastoris</i>	Shepherd's-purse		+	+	+	+
<i>Cardamine flexuosa</i>	Wavy Bitter-cress		-	+	+	+
<i>Cardamine hirsuta</i>	Hairy Bitter-cress		-	+	+	+
<i>Cardamine pratensis</i>	Cuckoo-flower		+	+	+	+
<i>Carex acutiformis</i>	Lesser Pond-sedge		-	+	-	-
<i>Carex binervis</i>	Green-ribbed Sedge	Axiophyte	+	+	+	-
<i>Carex demissa</i>	Common Yellow Sedge	Axiophyte	+	+	+	+
<i>Carex divulsa</i>	Grey Sedge		-	+	+	+
<i>Carex echinata</i>	Star Sedge	Axiophyte	+	+	+	+

Carex flacca	Glaucous Sedge		-	+	-	+
Carex hirta	Hairy Sedge		+	+	+	+
Carex laevigata	Smooth-stalked Sedge	Axiophyte	+	+	-	+
Carex leporina	Oval Sedge		+	+	+	+
Carex nigra	Common Sedge	Axiophyte	+	+	+	+
Carex otrubae	False Fox-sedge		-	+	-	-
Carex panicea	Carnation Sedge	Axiophyte	+	+	+	+
Carex paniculata	Greater Tussock-sedge	Axiophyte	+	+	+	+
Carex pendula	Pendulous Sedge		-	-	+	+
Carex pilulifera	Pill Sedge	Axiophyte	+	+	+	+
Carex pseudocyperus	Cyperus Sedge	Axiophyte	-	-	-	+
Carex pulicaris	Flea Sedge	Axiophyte	+	+	+	+
Carex remota	Remote Sedge		-	+	+	+
Carex rostrata	Bottle Sedge	Axiophyte	+	+	-	+
Carex x boeninghausiana	Remote x Tussock-sedge		+	-	-	-
Castanea sativa	Sweet Chestnut		-	+	+	+
Centaurea nigra	Common Knapweed		+	+	+	+
Centaureum erythraea	Common Centaury		+	+	+	+
Centunculus minimus	Chaffweed	Axiophyte	+	-	-	-
Cerastium arvense	Field Mouse-ear	Axiophyte	+	+	-	-
Cerastium fontanum	Common Mouse-ear		-	+	+	+
Cerastium glomeratum	Sticky Mouse-ear		-	+	+	+
Cerastium semidecandrum	Little Mouse-ear		-	+	+	+
Cerastium tomentosum	Snow-in-summer		+	-	-	-
Ceratocarpus claviculata	Climbing Corydalis	Axiophyte	-	+	-	+
Chaerophyllum temulum	Rough Chervil		-	+	+	+
Chamerion angustifolium	Rosebay Willowherb		-	+	+	+
Chelidonium majus	Greater Celandine		+	+	+	+
Chenopodium album	Fat-hen		-	+	+	+
Chenopodium hybridum	Maple-leaved Goosefoot		-	-	-	+
Circaea lutetiana	Enchanter's-nightshade		-	+	+	+
Cirsium arvense	Creeping Thistle		-	+	+	+
Cirsium palustre	Marsh Thistle		+	+	+	+
Cirsium vulgare	Spear Thistle		-	+	+	+
Claytonia sibirica	Pink Purslane		-	-	+	+
Clematis vitalba	Traveller's Joy		-	+	-	+
Convolvulus arvensis	Field Bindweed		+	+	+	+
Corylus avellana	Hazel		-	+	+	+
Crassula helmsii	New Zealand Pigmyweed		-	-	+	+
Crataegus monogyna	Hawthorn		+	+	+	+
Crataegus x media	Hybrid Hawthorn		-	-	-	+
Crepis capillaris	Smooth Hawk's-beard		-	+	+	+
Crocodylia x crocosmiiflora	Montbretia		-	-	-	+
Cuscuta epithymum	Dodder	Axiophyte	+	-	-	-
Dactylis glomerata	Cock's-foot		-	+	+	+
Dactylorhiza fuchsii	Common Spotted-orchid		-	+	+	+
Dactylorhiza maculata	Heath Spotted-orchid	Axiophyte	+	+	+	+
Dactylorhiza praetermissa	Southern Marsh-orchid	Axiophyte	+	+	+	+
Dactylorhiza x hallii	Southern Heath Spotted-orchid		+	-	+	+
Dactylorhiza x transiens	Hybrid Spotted-orchid		-	-	-	+
Danthonia decumbens	Heath-grass	Axiophyte	+	+	-	+
Daucus carota	Wild Carrot		-	+	-	-
Deschampsia cespitosa	Tufted Hair-grass		-	+	+	-
Deschampsia flexuosa	Wavy Hair-grass	Axiophyte	-	+	+	+
Digitalis purpurea	Foxglove		-	+	+	+
Drosera rotundifolia	Round-leaved Sundew	Axiophyte	+	+	+	+
Dryopteris affinis	Golden-scaled Male-fern	Axiophyte	-	-	+	+
Dryopteris carthusiana	Narrow Buckler-fern	Axiophyte	+	+	+	+
Dryopteris dilatata	Broad Buckler-fern		-	+	+	+
Dryopteris filix-mas	Common Male Fern		-	+	+	+
Dryopteris x deweveri	Narrow x Broad Buckler-fern		-	-	-	+
Eleocharis multicaulis	Many-stalked Spike-rush	Axiophyte	+	+	+	+
Eleocharis palustris	Common Spike-rush	Axiophyte	+	+	+	+
Elodea canadensis	Canadian Waterweed		-	+	-	-
Elytrigia repens	Common Couch		-	+	+	+
Epilobium ciliatum	American Willowherb		-	+	+	+
Epilobium hirsutum	Great Willowherb		-	+	+	+
Epilobium montanum	Broad-leaved Willowherb		-	-	-	+
Epilobium obscurum	Short-fruited Willowherb		+	+	+	+
Epilobium obscurum x palustre	a hybrid willowherb		+	-	-	-
Epilobium palustre	Marsh Willowherb	Axiophyte	+	+	+	+

Epilobium parviflorum	Hoary Willowherb		-	-	+	+
Equisetum arvense	Field Horsetail		-	+	+	+
Equisetum fluviatile	Water Horsetail	Axiophyte	-	+	+	+
Equisetum palustre	Marsh Horsetail	Axiophyte	-	+	+	+
Erica tetralix	Cross-leaved Heath	Axiophyte	+	+	+	+
Erigeron floribundus	Bilbao's Fleabane		-	-	-	+
Eriophorum angustifolium	Common Cottongrass	Axiophyte	+	+	+	+
Erodium cicutarium	Common Stork's-bill		-	+	+	+
Erodium maritimum	Sea Stork's-bill		-	-	-	+
Erophila verna	Common Whitlowgrass		+	+	+	+
Ervilia hirsuta	Hairy Tare		-	+	+	+
Erysimum cheiranthoides	Treacle-mustard		-	+	-	-
Eupatorium cannabinum	Hemp-agrimony		-	+	+	-
Euphrasia nemorosa	Eyebright	Axiophyte	-	+	-	-
Euphrasia officinalis	Eyebright	Axiophyte	+	+	-	-
Fagus sylvatica	Beech		-	+	+	+
Fallopia japonica	Japanese Knotweed		-	+	+	-
Festuca ovina	Sheep's Fescue		-	-	+	+
Festuca rubra	Red Fescue		-	+	+	+
Ficaria verna	Lesser Celandine		+	+	+	+
Filago minima	Small Cudweed	Axiophyte	+	+	-	-
Filago vulgaris	Common Cudweed		-	+	-	-
Filipendula ulmaria	Meadowsweet		+	-	-	-
Fragaria vesca	Wild Strawberry		-	+	+	+
Frangula alnus	Alder Buckthorn	Axiophyte	+	-	+	-
Fraxinus excelsior	Ash		-	+	-	+
Fumaria muralis	Common Ramping-fumitory		-	+	-	-
Fumaria officinalis	Common Fumitory		-	+	-	-
Galeopsis tetrahit	Common Hemp-nettle		-	+	-	-
Galium album	Hedge Bedstraw		-	+	+	+
Galium aparine	Cleavers		+	+	+	+
Galium palustre	Common Marsh-bedstraw		-	+	+	+
Galium saxatile	Heath Bedstraw	Axiophyte	+	+	+	+
Galium uliginosum	Fen Bedstraw	Axiophyte	+	-	-	-
Genista anglica	Petty Whin	Axiophyte	+	+	-	-
Geranium dissectum	Cut-leaved Crane's-bill		-	+	+	+
Geranium molle	Dove's-foot Crane's-bill		-	+	+	+
Geranium pusillum	Small-flowered Crane's-bill		+	+	+	+
Geranium pyrenaicum	Hedgerow Crane's-bill		-	-	-	+
Geranium robertianum	Herb-robert		+	+	+	+
Geranium rotundifolium	Round-leaved Crane's-bill		-	-	-	+
Geranium x oxonianum	Druce's Crane's-bill		-	-	+	+
Geum urbanum	Wood Avens		-	+	+	+
Glechoma hederacea	Ground-ivy		-	+	+	+
Glyceria fluitans	Floating Sweet-grass		-	+	+	+
Glyceria notata	Plicate Sweet-grass	Axiophyte	-	-	+	+
Gnaphalium uliginosum	Marsh Cudweed		+	-	+	+
Hedera helix	Ivy		-	+	+	+
Helosciadium inundatum	Lesser Marshwort	Axiophyte	+	-	-	-
Helosciadium nodiflorum	Fool's Water-cress		+	+	+	+
Heracleum mantegazzianum	Giant Hogweed		-	+	-	-
Heracleum sphondylium	Hogweed		-	+	+	+
Holcus lanatus	Yorkshire-fog		-	+	+	+
Holcus mollis	Creeping Soft-grass		-	+	+	+
Humulus lupulus	Hop		-	+	+	+
Hyacinthoides hispanica	Spanish Bluebell		-	+	+	+
Hyacinthoides non-scripta	Bluebell	Axiophyte	-	+	+	+
Hyacinthoides x massartiana	Garden Bluebell		-	-	+	+
Hydrocotyle vulgaris	Marsh Pennywort	Axiophyte	+	+	+	+
Hypericum androsaemum	Tutsan		-	-	+	+
Hypericum elodes	Marsh St John's-wort	Axiophyte	+	+	+	+
Hypericum humifusum	Trailing St John's-wort	Axiophyte	+	-	+	+
Hypericum perforatum	Perforate St John's-wort		-	+	+	+
Hypericum pulchrum	Slender St John's-wort	Axiophyte	+	-	+	-
Hypericum tetrapterum	Square-stalked St John's-wort		-	-	+	+
Hypochaeris glabra	Smooth Cat's-ear	Axiophyte	+	+	-	-
Hypochaeris radicata	Cat's-ear		+	+	+	+
Ilex aquifolium	Holly		-	+	+	+
Impatiens glandulifera	Indian Balsam		-	+	-	+
Iris pseudacorus	Yellow Iris		+	+	+	+
Isolepis setacea	Bristle Club-rush	Axiophyte	+	+	+	+

Juncus acutiflorus	Sharp-flowered Rush	Axiophyte	+	+	+	+
Juncus articulatus	Jointed Rush		-	+	+	+
Juncus bufonius	Toad Rush		+	+	+	+
Juncus bulbosus	Bulbous Rush	Axiophyte	+	+	+	+
Juncus conglomeratus	Compact Rush		+	+	+	+
Juncus effusus	Soft-rush		+	+	+	+
Juncus inflexus	Hard Rush		-	+	+	+
Juncus squarrosus	Heath Rush		+	+	+	+
Juncus tenuis	Slender Rush		-	-	-	+
Juncus x surrejanus	Sharp-flowered x Jointed Rush		-	-	-	+
Lamium album	White Dead-nettle		+	+	+	+
Lamium maculatum	Spotted Dead-nettle		-	+	-	-
Lamium purpureum	Red Dead-nettle		-	+	+	+
Lapsana communis	Nipplewort		+	+	+	+
Lathyrus latifolius	Broad-leaved Everlasting-pea		-	+	-	+
Lathyrus nissolia	Grass Vetchling		-	+	-	+
Lathyrus pratensis	Meadow Vetchling		-	+	+	+
Lemna minor	Common Duckweed		-	+	+	+
Lemna minuta	Least Duckweed		-	-	+	+
Leontodon saxatilis	Lesser Hawkbit		+	+	+	-
Lepidium campestre	Field Pepperwort	Axiophyte	+	-	-	-
Lepidium draba	Hoary Cress		-	+	+	+
Leucanthemum vulgare	Oxeye Daisy		-	+	+	+
Linaria vulgaris	Common Toadflax		-	+	-	-
Lolium perenne	Perennial Rye-grass		+	+	+	+
Lonicera periclymenum	Honeysuckle		+	+	+	+
Lotus corniculatus	Common Bird's-foot-trefoil		+	+	+	+
Lotus pedunculatus	Large Bird's-foot-trefoil		-	+	+	+
Luzula campestris	Field Wood-rush		+	+	+	+
Luzula multiflora	Heath Wood-rush	Axiophyte	+	+	+	+
Lycopodiella inundata	Marsh Clubmoss	Axiophyte	+	-	-	-
Lycopodium clavatum	Stag's-horn Clubmoss	Axiophyte	+	-	-	-
Lycopus europaeus	Gipsywort		-	-	-	+
Lythrum portula	Water Purslane	Axiophyte	+	+	+	+
Lythrum salicaria	Purple-loosestrife		+	-	+	+
Mahonia aquifolium	Oregon Grape		-	-	-	+
Malus domestica	Apple		-	+	+	+
Malva sylvestris	Common Mallow		-	+	+	+
Marrubium vulgare	White Horehound		+	-	-	-
Matricaria discoidea	Pineapple Weed		-	+	+	+
Medicago arabica	Spotted Medick		-	+	+	+
Medicago lupulina	Black Medick		+	+	+	+
Mentha aquatica	Water Mint		+	+	+	+
Mentha x villosa	Apple-mint		+	+	+	-
Menyanthes trifoliata	Bogbean	Axiophyte	+	+	+	+
Mercurialis perennis	Dog's Mercury		+	+	+	+
Misopates orontium	Weasel's-snout	Axiophyte	+	-	-	-
Mnium hornum	Swan's-neck Thyme-moss		-	-	-	+
Moehringia trinervia	Three-nerved Sandwort		-	+	+	+
Moenchia erecta	Upright Chickweed	Axiophyte	+	+	+	-
Molinia caerulea	Purple Moor-grass	Axiophyte	+	+	+	+
Montia fontana	Blinks	Axiophyte	+	-	+	-
Myosotis arvensis	Field Forget-me-not		-	+	+	+
Myosotis discolor	Changing Forget-me-not	Axiophyte	-	+	+	+
Myosotis laxa	Tufted Forget-me-not	Axiophyte	-	+	+	-
Myosotis ramosissima	Early Forget-me-not	Axiophyte	-	+	-	-
Myosotis scorpioides	Water Forget-me-not		+	+	-	-
Myosotis secunda	Creeping Forget-me-not	Axiophyte	+	+	+	+
Myosotis sylvatica	Wood Forget-me-not		-	+	+	+
Myrica gale	Bog Myrtle		-	-	-	+
Nardus stricta	Mat-grass	Axiophyte	+	+	-	+
Narthecium ossifragum	Bog Asphodel	Axiophyte	+	+	+	+
Neottia ovata	Common Twayblade	Axiophyte	+	+	-	+
Odontites vernus	Red Bartsia		+	+	-	-
Oenanthe crocata	Hemlock Water-dropwort		-	+	+	+
Oenanthe fistulosa	Tubular Water-dropwort	Axiophyte	+	-	-	-
Ophrys apifera	Bee Orchid		+	-	-	+
Origanum vulgare	Wild Marjoram	Axiophyte	-	+	-	-
Ornithogalum umbellatum	Star-of-Bethlehem		+	-	+	+
Ornithopus perpusillus	Bird's-foot	Axiophyte	+	+	+	+
Pallavicinia lyellii	Veilwort		-	-	+	+

Papaver dubium	Long-headed Poppy	-	+	-	+
Papaver rhoeas	Common Poppy	-	+	-	-
Papaver somniferum	Opium Poppy	-	+	-	-
Pastinaca sativa	Wild Parsnip	-	+	+	-
Pedicularis sylvatica	Lousewort	Axiophyte	+	+	+
Pentaglottis sempervirens	Green Alkanet	-	+	+	+
Persicaria hydropiper	Water-pepper	-	-	+	+
Persicaria lapathifolia	Pale Persicaria	-	+	+	+
Persicaria maculosa	Redshank	-	+	+	+
Phalaris arundinacea	Reed Canary-grass	-	-	+	+
Pilosella aurantiaca	Fox-and-cubs	+	-	+	-
Pilosella officinarum	Mouse-ear-hawkweed	+	+	+	+
Pimpinella saxifraga	Burnet-saxifrage	Axiophyte	-	+	-
Pinguicula vulgaris	Common Butterwort	+	-	-	-
Pinus nigra	Austrian Pine	-	-	-	+
Pinus sylvestris	Scots Pine	-	+	+	+
Plantago coronopus	Buck's-horn Plantain	Axiophyte	-	+	+
Plantago lanceolata	Ribwort Plantain	+	+	+	+
Plantago major	Greater Plantain	+	+	+	+
Poa annua	Annual Meadow-grass	-	+	+	+
Poa humilis	Spreading Meadow-grass	-	+	+	+
Poa nemoralis	Wood Meadow-grass	Axiophyte	-	+	-
Poa pratensis	Smooth Meadow-grass	-	+	+	+
Poa trivialis	Rough Meadow-grass	-	+	+	+
Polygala serpyllifolia	Heath Milkwort	Axiophyte	+	+	+
Polygonum arenastrum	Equal-leaved Knotgrass	-	+	+	+
Polygonum aviculare	Knotgrass	+	+	+	+
Polytrichastrum formosum	Bank Haircap	-	-	+	-
Polytrichum commune	Silkwood	-	-	+	+
Polytrichum juniperinum	Juniper Haircap	-	-	+	+
Populus tremula	Aspen	Axiophyte	-	+	+
Potamogeton coloratus	Fen Pondweed	Axiophyte	+	-	-
Potamogeton polygonifolius	Bog Pondweed	Axiophyte	+	+	+
Potentilla anserina	Silverweed	+	+	+	+
Potentilla erecta	Tormentil	Axiophyte	+	+	+
Potentilla reptans	Creeping Cinquefoil	+	+	+	+
Potentilla sterilis	Barren Strawberry	+	+	-	-
Prunella vulgaris	Selfheal	+	+	+	+
Prunus avium	Wild Cherry	-	+	+	+
Prunus cerasus	Dwarf Cherry	-	+	-	-
Prunus laurocerasus	Cherry Laurel	-	+	+	+
Prunus serotina	Rum Cherry	-	-	-	+
Prunus spinosa	Blackthorn	-	+	+	+
Pseudotsuga menziesii	Douglas Fir	-	+	-	+
Pteridium aquilinum	Bracken	+	+	+	+
Pulicaria dysenterica	Common Fleabane	+	+	+	+
Quercus cerris	Turkey Oak	-	+	+	+
Quercus robur	Pedunculate Oak	-	+	+	+
Radiola linoides	Allseed	+	-	-	-
Ranunculus acris	Meadow Buttercup	-	+	+	+
Ranunculus bulbosus	Bulbous Buttercup	+	+	+	+
Ranunculus flammula	Lesser Spearwort	Axiophyte	+	+	+
Ranunculus repens	Creeping Buttercup	+	+	+	+
Ranunculus sceleratus	Celery-leaved Buttercup	-	-	-	+
Ranunculus tripartitus	Three-lobed Crowfoot	+	-	+	+
Rhodobryum roseum	Rose-moss	+	-	-	-
Rhytidiadelphus squarrosus	Springy Turf-moss	-	-	-	+
Ribes rubrum	Red Currant	-	+	+	+
Ribes uva-crispa	Gooseberry	-	+	+	+
Rosa arvensis	Field Rose	-	+	+	+
Rosa canina	Dog Rose	-	+	+	+
Rubus fruticosus	Bramble	+	+	+	+
Rubus idaeus	Raspberry	+	+	+	+
Rumex acetosa	Common Sorrel	-	+	+	+
Rumex acetosella	Sheep's Sorrel	+	+	+	+
Rumex conglomeratus	Clustered Dock	+	+	+	+
Rumex crispus	Curled Dock	-	+	+	+
Rumex obtusifolius	Broad-leaved Dock	+	+	+	+
Rumex sanguineus	Wood Dock	-	+	+	+
Rumex x abortivus	Clustered x Broadleaved Dock	-	-	-	+
Rumex x pratensis	Curled x Broadleaved Dock	-	-	-	+

Sagina apetala	Annual Pearlwort		+	+	+	-
Sagina filicaulis	Slender Pearlwort		-	-	-	+
Sagina procumbens	Procumbent Pearlwort		+	+	+	+
Salix atrocinerea	Grey Willow		-	+	+	+
Salix aurita	Eared Willow	Axiophyte	+	-	-	-
Salix caprea	Goat Willow		-	+	+	+
Salix x fragilis	Crack-willow		-	+	-	+
Salix x multinervis	Eared x Grey Willow		-	-	-	+
Salix x reichardtii	Goat x Grey Willow		-	-	-	+
Sambucus nigra	Elder		+	+	+	+
Sarracenia purpurea	Pitcherplant		-	-	+	-
Schedonorus arundinaceus	Tall Fescue		-	+	+	+
Scirpus sylvaticus	Wood Club-rush	Axiophyte	-	-	-	+
Scleranthus annuus	Annual Knawel	Axiophyte	+	+	-	-
Scorzoneroide autumnalis	Autumnal Hawkbit		+	+	+	+
Scrophularia auriculata	Water Figwort		+	+	+	+
Scrophularia nodosa	Common Figwort		-	+	+	+
Scutellaria minor	Lesser Skullcap	Axiophyte	+	+	+	+
Sedum acre	Biting Stonecrop		-	+	+	+
Sedum rupestre	Reflexed Stonecrop		-	+	+	+
Senecio jacobaea	Common Ragwort		+	+	+	+
Senecio vulgaris	Groundsel		+	+	+	+
Sequoiadendron giganteum	Wellingtonia		-	+	-	+
Sherardia arvensis	Field Madder		-	+	+	-
Silene dioica	Red Campion		+	+	+	+
Silene flos-cuculi	Ragged Robin	Axiophyte	+	+	+	+
Silene latifolia	White Campion		-	+	+	-
Sisymbrium officinale	Hedge Mustard		-	+	+	+
Solanum dulcamara	Bittersweet		-	+	+	+
Solanum nigrum	Black Nightshade		-	-	-	+
Solidago canadensis	Canadian Goldenrod		-	+	-	-
Solidago gigantea	Early Goldenrod		-	+	+	+
Sonchus arvensis	Perennial Sow-thistle		-	+	+	+
Sonchus asper	Prickly Sow-thistle		-	+	+	+
Sonchus oleraceus	Smooth Sow-thistle		-	+	+	+
Sorbus aucuparia	Rowan		-	-	+	+
Sparganium erectum	Branched Bur-reed		-	+	+	+
Spergula arvensis	Corn Spurrey	Axiophyte	+	-	-	-
Spergularia rubra	Sand Spurrey	Axiophyte	+	+	+	+
Sphagnum capillifolium	Red Bog-moss	Axiophyte	+	-	-	+
Sphagnum compactum	Compact Bog-moss	Axiophyte	+	-	+	-
Sphagnum cuspidatum	Feathery Bog-moss	Axiophyte	+	-	+	-
Sphagnum denticulatum	Cow-horn Bog-moss	Axiophyte	+	-	+	+
Sphagnum fallax	Flat-topped Bog-moss	Axiophyte	+	-	+	+
Sphagnum fimbriatum	Fringed Bog-moss	Axiophyte	+	-	+	-
Sphagnum flexuosum	Flexuous Bog-moss	Axiophyte	+	-	-	-
Sphagnum inundatum	Lesser Cow-horn Bog-moss	Axiophyte	+	-	+	-
Sphagnum magellanicum	Magellanic Bog-moss	Axiophyte	+	-	+	-
Sphagnum palustre	Blunt-leaved Bog-moss	Axiophyte	+	-	+	+
Sphagnum papillosum	Papillose Bog-moss	Axiophyte	+	-	+	+
Sphagnum squarrosum	Spiky Bog-moss	Axiophyte	+	-	+	+
Sphagnum subnitens	Lustrous Bog-moss	Axiophyte	+	-	-	+
Sphagnum tenellum	Soft Bog-moss	Axiophyte	+	-	-	-
Stachys sylvatica	Hedge Woundwort		-	+	+	+
Stellaria alsine	Bog Stitchwort	Axiophyte	+	+	+	+
Stellaria graminea	Lesser Stitchwort		+	+	+	+
Stellaria holostea	Greater Stitchwort		+	+	+	+
Stellaria media	Chickweed		+	+	+	+
Stellaria pallida	Lesser Chickweed		-	+	+	+
Succisa pratensis	Devil's-bit Scabious	Axiophyte	+	+	+	+
Symphyotrichum x versicolor	Late Michaelmas-daisy		-	+	-	+
Syringa vulgaris	Lilac		-	-	+	+
Tamus communis	Black Bryony		-	+	+	+
Taraxacum officinale agg.	Dandelion		+	+	-	+
Teucrium scorodonia	Wood Sage		+	+	+	+
Thlaspi arvense	Field Penny-cress	Axiophyte	-	+	+	-
Thymus pulegioides	Large Thyme	Axiophyte	+	-	-	-
Torilis japonica	Upright Hedge-parsley		-	+	+	+
Trifolium arvense	Hare's-foot Clover	Axiophyte	-	+	+	+
Trifolium dubium	Lesser Trefoil		-	+	+	+
Trifolium glomeratum	Clustered Clover	Axiophyte	+	+	+	+

Trifolium micranthum	Slender Trefoil		+	+	+	+
Trifolium ornithopodioides	Bird's-foot Clover	Axiophyte	-	+	+	+
Trifolium pratense	Red Clover		-	+	+	+
Trifolium repens	White Clover		-	+	+	+
Trifolium striatum	Knotted Clover	Axiophyte	-	+	+	+
Trifolium subterraneum	Subterranean Clover	Axiophyte	+	+	+	+
Trifolium suffocatum	Suffocated Clover	Axiophyte	-	-	+	+
Triglochin palustris	Marsh Arrowgrass	Axiophyte	-	+	-	+
Tripleurospermum inodorum	Scentless Mayweed		+	+	+	+
Trisetum flavescens	Yellow Oat-grass		-	+	+	-
Tussilago farfara	Colt's-foot		+	+	-	-
Typha latifolia	Great Reedmace		+	+	+	+
Typha x glauca	Hybrid Reedmace		-	-	-	+
Ulex europaeus	Gorse		+	+	+	+
Ulex gallii	Western Gorse		-	+	+	-
Ulex minor	Dwarf Gorse	Axiophyte	+	+	+	+
Ulmus minor	Small-leaved Elm		-	-	-	+
Ulmus procera	English Elm		-	+	+	+
Urtica dioica	Stinging Nettle		-	+	+	+
Verbascum blattaria	Moth Mullein		+	-	-	-
Verbena officinalis	Vervain		+	-	+	+
Veronica arvensis	Wall Speedwell		-	+	+	+
Veronica beccabunga	Brooklime		-	-	+	+
Veronica chamaedrys	Germander Speedwell		+	+	+	+
Veronica hederifolia	Ivy-leaved Speedwell		-	+	+	+
Veronica montana	Wood Speedwell	Axiophyte	-	+	-	+
Veronica officinalis	Heath Speedwell	Axiophyte	-	+	+	+
Veronica polita	Grey Field-speedwell		-	-	-	+
Veronica scutellata	Marsh Speedwell	Axiophyte	+	-	+	+
Veronica serpyllifolia	Thyme-leaved Speedwell		-	+	+	+
Vicia sativa	Common Vetch		-	+	+	+
Vinca major	Greater Periwinkle			+	+	+
Viola canina	Heath Dog-violet	Axiophyte	+	-	-	-
Viola odorata	Sweet Violet		+	-	+	+
Viola palustris	Marsh Violet	Axiophyte	+	+	+	+
Viola riviniana	Common Dog-violet		-	+	+	+
Vulpia bromoides	Squirrel-tail Fescue		-	+	+	+
Vulpia ciliata	Bearded Fescue		+	+	+	-
Vulpia myuros	Rat's-tail Fescue		-	-	+	+
No. of species			202	340	336	369

Queries and rejected records

It is easy to make mistakes in recording plants – there are errors of identification, errors when people write down the wrong name by mistake, and errors when records are transcribed from paper to computer. There are even errors that were not errors originally – for example, when species names change. Normally I would sort all these out to my satisfaction and not bother to publish them, but here I shall temporarily list some of the more notable queries at Hothfield so people can double-check my decisions.

- *Sphagnum pulchrum* – Francis Rose acknowledged this error and retracted it.
- *Erica cinerea* – has been recorded by mistake by many people over the years. As far as I can ascertain, this is just a common error of recognition. Eric Philp also came to this conclusion in 1975.
- *Aphanes arvensis* – a very common plant, but also one which is often recorded as an aggregate, in which case it encompasses *Aphanes australis*. I don't think anyone has meant to record *arvensis* s.s. at Hothfield.
- *Carex flacca* – is this within the site? There are several records on the KWT database, by Francis Rose, Joyce Pitt, Lesley Mason. Are they from the extension? I note those people did not generally record *C. panicea*.
- *Carex flava* – old records of this can safely be changed to *C. demissa*.

New species apparently recorded by J. Shorter, 2000-2011

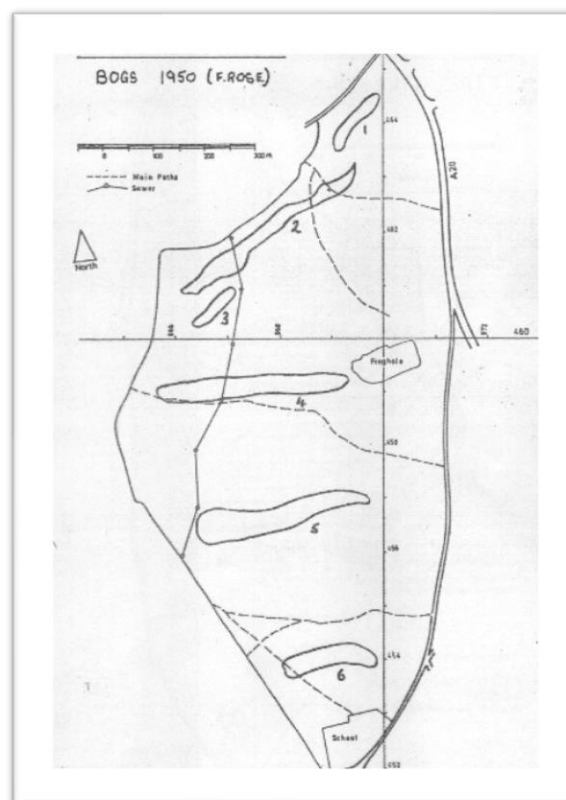
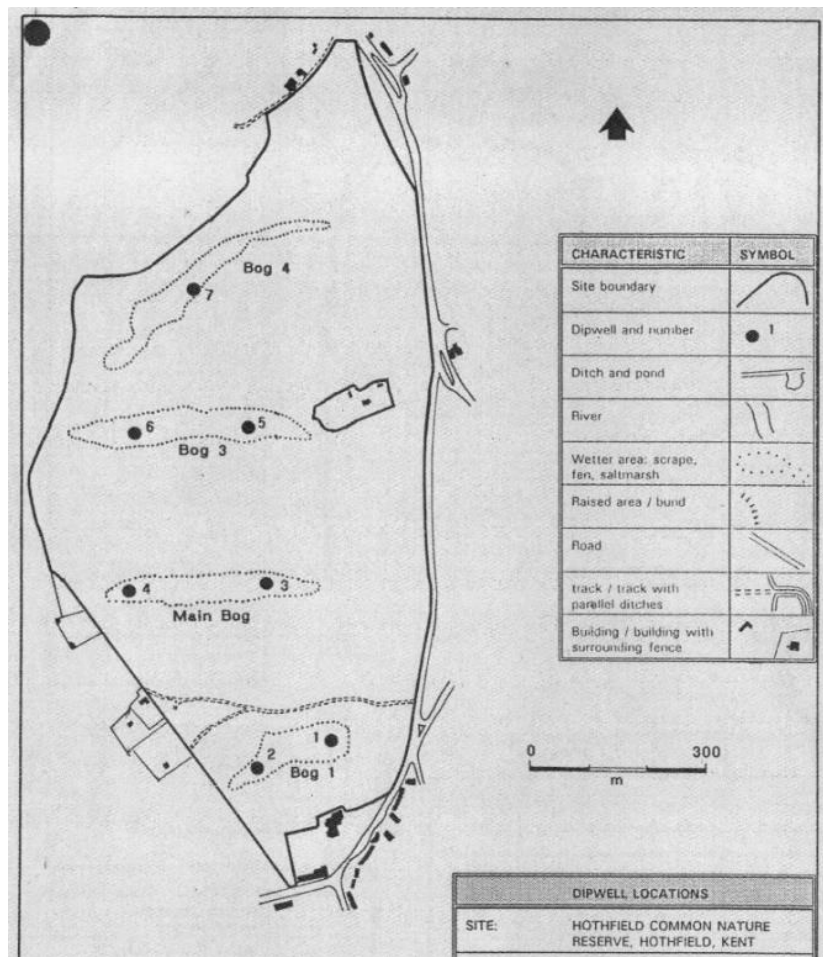
<i>Aethusa cynapium</i>	<i>Medicago sativa</i> subsp. <i>sativa</i>
<i>Bromus commutatus</i>	<i>Polygala vulgaris</i>
<i>Dactylorhiza x aschersoniana</i> (<i>incarnata</i> x <i>majalis</i>)	<i>Potamogeton pusillus</i>
<i>Eriophorum brachyantherum</i>	<i>Rubus laciniatus</i>
<i>Fumaria capreolata</i> subsp. <i>babingtonii</i>	<i>Solanum nigrum</i>
<i>Lathyrus aphaca</i>	<i>Ulex europaeus</i> x <i>gallii</i>
<i>Lotus glaber</i>	<i>Veronica persica</i>

New species apparently recorded by Joyce Pitt, 1995-2010

<i>Acer campestre</i>	<i>Cytisus scoparius</i>	<i>Salix fragilis</i>
<i>Adoxa moschatellina</i>	<i>Erica cinerea</i>	<i>Salix viminalis</i>
<i>Ajuga reptans</i>	<i>Galium verum</i>	<i>Taxus baccata</i>
<i>Aphanes arvensis</i>	<i>Hordeum murinum</i>	<i>Verbascum thapsus</i>
<i>Arum italicum</i> x <i>maculatum</i>	<i>Phragmites australis</i>	<i>Veronica filiformis</i>
<i>Carex sylvatica</i>	<i>Polygala vulgaris</i>	<i>Viburnum opulus</i>
<i>Chrysosplenium oppositifolium</i>	<i>Quercus petraea</i>	

Numbering systems for the bogs

Top: the current numbering scheme (showing dipwell positions); below: Francis Rose's numbering system.



Acknowledgements and sources

I would like to thank Stephen Lemon, Sue Buckingham, Geoffrey Kitchener, Ros Bennett and Ian Rickards for contributing records and commenting on the species accounts. Stephen Lemon supplied most of the information on bryophytes and sent me a copy of his own report on the rare bryophytes of Hothfield. Specimens have been determined by Stephen Lemon, Tim Rich and Geoffrey Kitchener.

Other information used in this report includes:

- Kent Botanical Recording Group records since 2010
- The data from Eric Philp's two Atlases of the Flora of Kent, 1982 and 2010, supplied by the BSBI
- The Flora of Kent by Hanbury & Marshall, 1899
- Cowell's Floral Guide for East Kent, 1838
- JNCC's Threatened Plants Database (a survey of the bogs by N.F. Stewart in 1998)
- My own visits to Hothfield, sometimes with Ros Bennett while conducting Field Skills Tests for the Kent Wildlife Trust, or while leading other courses for KWT and Canterbury Christ Church University
- Data from the Herbaria at Home web site, derived from herbarium specimens in the Natural History Museum (**BM**), Kew (**K**) and the South London Botanical Institute (**SLBI**)
- The unpublished manuscript Flora of Kent by Francis Rose (version 8), edited by Geoffrey Kitchener
- Database of the bryological herbarium of the National Museum of Wales (**BBSUK**)
- 'Hothfield Notable Bryophytes' by Stephen Lemon (unpublished report to KWT)
- A symposium on Hothfield Local Nature Reserve. Transactions of the Kent Field Club, 1975
- Information from Natural England's scientific files, kindly supplied by Phil Williams
- Extract from the Kent Wildlife Trust database, compiled by KWT and the Kent Biological Records Centre
- 'Some plants on and about Hothfield Common' by Rev H.W. Russell (manuscript, ca. 1902, transcribed by members of the Hothfield History Society and kindly supplied by Chris Rogers)
- Information from the Kent Biological Records Centre, kindly supplied by Tony Witts, much of which is originally from Francis Rose.

The following have submitted records to the data sources listed above, as recorders (or sometimes determiners). This includes both current and historical recorders.

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