**Central Chilterns Botany Group: Report on field meetings in 2022**

**24 March, 9 June, 18 August**

On each of these days we carried out comprehensive field surveys, recording all plants seen at two particular sites. This was partly to give those members who were inexperienced in such recording to get some practice, but each site was also chosen with a purpose in mind.

(1) The first site was very small, a single section of a churchyard that was designated to become a wildflower meadow, for which we both desired a baseline list to measure progress and a guide to the best maintenance. Although the churchyard as a whole (a Local Wildlife Site) had been surveyed for plants several times by experienced recorders, we still discovered some new species overlooked before, showing the difficulty in ever being absolutely comprehensive. While some of these new species were in a dwarf cryptic form because of mowing, or only became apparent for a short time, and were therefore easily missed, they did include *Prunus laurocerasus* Cherry-laurel, which formed most of the hedges and readily invaded open areas, showing that sometimes it is the obvious plants that may go unrecorded. Although this section of the churchyard had been mowed regularly until 2020, and then left to grow to long grass in 2021, cut only in the autumn, the basis of a decent meadow were already there, with an abundance of *Primula vulgaris* Primrose, *Conopodium majus* Pignut, *Potentilla sterilis* Barren Strawberry, *Cardamine pratensis* Cuckooflower.

We were also pleased to find, in another part of the churchyard, a previously overlooked colony of *Carex caryophyllea* Spring Sedge, for which there was just one old record. The sedge is rare in this area. It was quite extensive but had been kept extremely short by mowing and therefore prevented from flowering. In March the young shoots (which had to be carefully separated from common contiguous hairy shoots of *Luzula campestris*) were seen, having flat narrow recurved leaves from a fibrous base. We requested the churchyard management to leave the patch uncut and by April there was a fine display of flowering spikes from which the species could easily be confirmed.

We added to the March records in June, by which time we found we had recorded six different species of *Carex*, whereas only three species had been recorded there in the past. Only three extra species were found in August, but we were able to check the seeds of the docks and find they were all *Rumex sanguineus*. The results of the surveys were written up and used as a basis for management recommendations.

(2) The second site was a large 8-acre field on the edge of a housing development that had once been common-land with heather and gorse but had been enclosed in the late 17$^{th}$C and used as cattle pasture. In 1998 a survey of the field recorded a typical acid grassland flora, with a little scrub, although with no rarities and lacking both heather and gorse. Some *Campanula rotundifolia* Harebell had been found, along with an abundance of *Conopodium majus* Pignut. By this date the field was no longer been used for farming and had been sold to developers, after which it was completely neglected. Several planning applications had been made but none had been successful. The field had gradually been invaded by woody species (and garden escapes) and it seemed a chance to re-survey in order to record the first phase of its conversion to secondary woodland. By now the site was essentially all wooded except for some grassy paths. Quite apart from many new tree and shrub species, we found that some woodland ground flora, such as *Circaea lutetiana* Enchanter's Nightshade had also colonised. Almost all the characteristic grassland flora had been eliminated, but the Pignut, which is as happy with woodland as grassland conditions, still flourished. The results written up as a study of ecological change and plant succession, which we hope to publish in the BSBI Newsletter.

While checking a buttercup to see whether it might be *Ranunculus bulbosa* by excavating a little soil around the base to check for the characteristic swelling, a much larger tuber, 2cm across, was found attached to top of the root, like the nodules on the roots of pignut, but much larger. This was a gall (really a tumour) caused by the bacterium *Agrobacterium tumefaciens*, called a "crown gall" because it often occurs in this position on a wide variety of plants. The soil bacteria invade the plant where it has been damaged and breed using the resulting defensive growth (which may be on the roots or on the aerial parts of the plants, such as cankers on tree trunks, caused by the same bacterium). The gall was cut open, but showed no internal structure or cavities, the bacteria needing high magnification to be visible. The same gall, which is very common, has been recorded previously on the roots of bramble at Holy Trinity churchyard, and as cankers on a number of trees. The plant in this case turned out to be *Ranunculus repens*.

**31 March**

We continued last year's investigation of different relative lengths of styles and anthers in *Primula vulgaris* Primrose. On this day we checked Coach Hedgerow, Widnell Wood and Hampdenleaf Wood. In intermittent sleet and sunshine, we searched the first wood, where, among flowering *Anemone nemorosa* Wood Anemone, *Glechoma hederacea* Ground Ivy, *Stellaria holostea* Greater Stitchwort, *Euphorbia amygdaloides* Wood Spurge, *Mercurialis perennis* Dog's Mercury (male flowers mostly, females ones only just emerging) and *Adoxa moschatellina* Moschatel (the latter a first record for the wood, perhaps missed in earlier survey because of its early flowering period), there were plenty of Primroses, but no long-homostyles. In the second wood, again among many Primroses, we only found one long-homostyle flower. Unfortunately it was on the same plant as several normal flowers (all thrums), which poses a problem, as the long-homostyle form is supposed to be genetically distinct. This may not, therefore, have been a genuine long-homostyle primrose, but one where, for whatever reason, this single flower was a sport with the style unduly long. The situation with these primroses is far more complicated than appears at first sight. We also saw a number of flowers with four petals and four lobes to the calyx ("4-merous") but these were also on plants with the usual 5-merous (pentamerous) flowers, so could not have been genetically distinct. In the third wood we again searched hundreds of plants but discovered no more long-homostyles. There were frequent short-homostyles and 4-merous flowers, however, plus one example of the rare pink form, which occurs very occasionally in native populations. (Pink specimens near housing more likely represent garden escapes and are much more frequent.) Apart from this field trip Karen van Oostrum searched other Chiltern woods with equal lack of success. Thus the site we found last year, Rook Wood, appears to be the only extant population of long-homostyles in the region. In other woods where they had been reported, some decades ago, the primrose populations had either considerably declined or, in one case, were no longer accessible after a change of ownership.

**14 April**

This was a general exploration of Millfield Wood, a Wildlife Trust reserve. Compared to most beechwoods in this area, this one has a diverse herb layer of plants, contrasting with the bare floor of bramble/holly that is more usual. All local woods would originally have had such a diverse ground flora, but repeated clear-felling over centuries, particularly for the furniture industry, and replanting with beech monocultures, has destroyed most of what was once there. Millfield Wood is an exception because it was part of the Hughenden Estate and protected from the worst excesses of commercial exploitation. The commonest ground-level plant is *Mercurialis perennis* Dog's Mercury, but we also saw large numbers of *Cardamine bulbifera* Coralroot, which was just starting to flower, *Anemone nemorosa* Wood Anemone, *Carex sylvatica* Wood Sedge, *Euphorbia amygdaloides* Wood Spurge, and native *Lamiastrum galeobdolon montanum* Yellow Archangel (not invaded by the silver-streaked garden variety that infests so many of our woods). There were also last year's dead stems of *Hordelymus europaeus* Wood Barley, emerging *Galium odoratum* Woodruff, rosettes of *Sanicula europaea* Sanicle and occasional groups of *Oxalis acetosella* Wood-sorrel. Unfortunately we did not come across the colonies of *Paris quadrifolia* Herb-Paris or the rare *Convallaria majalis* Lily-of-the-valley, although neither would yet be flowering and their leaves may have been difficult to spot beneath the fronds of rampant Dog's-mercury. There were also a fair number of *Primula vulgaris* Primroses (but no long-homostyles), which spread into the chalk grassland section of the reserve below the wood. Here, although only a few *Primula veris* Cowslips were yet in flower, we found many of the primrose-cowslip hybrids *Primula polyantha* False Oxlip, easy to tell from the rare umbelled form of primrose by their smaller and darker yellow flowers, and leaves intermediate in shape between primrose and cowslip. In the woodland the main violets were the dark-spurred *Viola reichenbachiana*, whereas in the grassland they were mostly the white-spurred *V. riviniana*, plus a few clumps only just coming into flower of *V. hirta*, with its long-haired leaf-stalks.

There was one plant of wood anemone with pink or pink-streaked flowers, a not uncommon variety.

There are in Britain two galls found on dog's-mercury and we were lucky enough to see both, caused by the fungi *Melampsora populnea* and *Synchytrium mercurialis*.

After leaving the wood we took a nearby footpath along a hedgerow that is our only local site for the rare native *Berberis vulgaris* Barberry, where we hoped to see some early flowers (it normally flowers in May), but we encountered only bare thorny branches with the leaves only just beginning to sprout. It was still easy to identify from the triple thorns.

**5 May**

Several of us having purchased the new BSBI guide to Dandelions *Taraxacum* microspecies, we decided to try it out at Prestwood Local Nature Reserve, as we hoped to find natives of chalk grassland and not get bogged down with the large number of more general species of disturbed spaces. In this we were frustrated, as the main chalk slope contained no dandelions at all! The only Dandelions present were beside the shady path on the south side of the reserve and around the car-park. With our collective inexperience we soon got bogged down in the keys with many dead ends. The problem was heightened by the fact that many leaves had been chewed off, probably by muntjacs. A specimen beside the car-park was collected and examined at more leisure. After many false trails, we eventually lighted on a species that fitted all characters, *Taraxacum laticordatum*, a rather common species of disturbed places like gardens and road verges. We decided that we needed some practical instruction to be able to identify these plants with confidence and decided to invite an expert to help us in 2023.

**19 May**

*Rumex acetosella* Sheep's Sorrel is rare in this area and many previously recorded sites now lack it, so that this trip was aimed at seeing whether it could be rediscovered. The most recent record was from 2014 from Priestfield Arboretum in Little Kingshill. It proved still to be present, found in large patches covering in total about 20 square metres, mainly concentrated in bare areas around pines, but also growing into the grassland, which in lusher parts also contained *Conopodium majus* Pignut and *Ajuga reptans* Bugle. There was speculation that the sheep's sorrel may have originally been introduced with the planting of the pines, whose roots may have been in a sandier soil than the clays which form the basis of this site. The pines may also play a part in keeping nutrients low in their immediate vicinity and in acidifying the soil. Some leaves of the sheep's sorrel had the large blotch mines of the fly *Pegomya solennis*, common on all *Rumex* species. The area of sheep's sorrel was more extensive than had been found in 2014, so that it is thriving here.

We next followed up a record from 1994, along Windsor Lane, near the Arboretum, but this was now long grass and scrub, the habitat no longer suitable. We recorded other plants in the verge, including *Sison amomum* Stone Parsley, which caused some trouble because it lacked the ascribed nauseous smell when crushed, of "nutmeg and petrol" - all agreeing that it smelled most like celery. It is actually supposed to taste of

celery (which these leaves did). Other colonies of this species without the distinctive petrol smell have been found locally. Its identification was confirmed later with samples under magnification which showed the unique structure of the leaf teeth which are blunt with a narrow transparent border and a short mucro (hooked spine at the tip). The mystery of the "missing smell" remains.

Lastly we visited a site recorded as having Sheep's Sorrel in 2010, the cemetery at Cryer's Hill. The turf here is regularly cut short, but Common Sorrel *Rumex acetosa* was extremely common as dwarf plants. Despite an intensive search we could find no evidence of sheep's sorrel. In the 2010 survey both sorrels had been recorded. With the general nutrification of our countryside we can expect plants like sheep's sorrel, that need low nutrient levels to avoid competition from more vigorous plants, to be increasingly under threat.

Two of the group members also examined two other recorded sites from 2004 and 1986, again with no success. The population at the Arboretum appears to be the sole remaining site, and this may have originally been an accidental introduction. It makes one suspect that other records (all only made on single occasions) were also accidental introductions, which have a high probability of not surviving, as all the sites showed evidence of much disturbance.

**23 June**

The morning was devoted to checking all known sites for *Alchemilla xanthochlora* Pale Lady's-mantle, the only known native *Alchemilla* in this area. The first site (Hobbshill Lane) was one that spread over fifty metres of roadside and was thriving on the last visit a couple of years ago. Unfortunately we found that the whole verge had been completely strimmed and no vestige of the plants remained. The fate of this colony was the opposite of another, much smaller, roadside group (Hangings Lane) that had been found to have disappeared a couple of years ago because the verge had been allowed to be overgrown by shrubs and more vigorous plants. The second site visited was Hampdenleaf Wood where several plants had been seen up until 2015 beside the main path. The area where they had grown was now quite bare and dry, having formerly been green with grass and other low plants. In this case it seems that the lady's-mantle has been extinguished by a general drying out of our woodlands, presumably from climate change. The third site, Clappins Lane beside Dillwyn Plantation, was a much longer shot. The plant had not been seen here since 1987. Unsurprisingly, we again drew a blank, although in this case the verge habitat still seemed suitable in places, although the woodland floor itself was very bare. Sadly, it seems we have to remove *Alchemilla xanthochlora* from the list of extant plants in our area. It joins a long suite of native plants that have been lost over time, averaging one a year over the last 100 years, rising to 2-3 per year in the last few decades.

The afternoon meeting was more affirming - a visit to two gardens in Perks Lane where native chalk grassland on a steep slope had been allowed to survive without fertilisation. We were grateful to Peter Daltry for allowing us into his garden, where the highlight was a mixed colony of *Dactylorhiza praetermissa* Southern Marsh Orchid and *D. fuchsii* Common Spotted Orchid, along with a range of hybrids *D. x grandis*. The hybrids were generally more vigorous than the parents and therefore aptly named. Other orchids were Pyramidal *Anacamptis pyramidalis*, Bee *Ophrys apifera* and Twayblade *Listera ovata*. We were similarly indebted to fellow botany group member George Lewis for being able to visit his garden, where the grass has been more regularly mown, but the same suite of orchids (without marsh orchid) gave an equally impressive display. In both cases there were other native chalk grassland flowers and we were treated to an unexpected view of a pair of slow-worms.

**30 June**

This was a general visit to Grangelands Reserve (BBOWT), largely to see the orchids, but especially the rare *Herminium monorchis* Musk Orchid. As often happens on such field visits, however, our recording began in the car park, where at one corner stood a vigorous plant of *Atropa belladonna* Deadly Nightshade, alongside which were several plants of *Smyrnium olusatrum* Alexanders. The latter, normally a coastal plant, appeared a few years ago at this spot and has survived. It has now spread further along the hedgerow at the edge of the car-park. In the reserve itself we found the expected orchids - *Dactylorhiza fuchsii* Common Spotted, *Anacamptis pyramidalis* Pyramidal, and *Gymnadenia conopsea* Chalk Fragrant - in great profusion. There were also a few *Listera ovata* Twayblades. At one place in a glade with generally fewer orchids we found ten to a dozen spikes of the slender and diminutive Musk Orchid. Often it can be difficult to find any specimens of this species at all, so we could be well pleased, although they sometimes number over a hundred. On the way into the reserve, passing through steep beech woodland we happened on a number of *Cephalanthera damasonium* White Helleborines beside the track and a small colony of *Neottia nidus-avis* Birdsnest Orchids on the steep bare slope above. A seven-orchid day is always a satisfactory outcome, although we were surprised

not to find any *Ophrys apifera* Bee Orchids. Other flowers were also notable. *Asperula cynanchica* Squinancywort grew almost everywhere, and the bank where we had our lunch had *Helianthemum nummularium* Rock-rose, *Hippocrepis comosa* Horseshoe Vetch (along with a Chalkhill Blue butterfly, of which it is the foodplant), *Cirsium acaule* Dwarf Thistle, *Blackstonia perfoliata* Yellowwort, both *Thymus polytrichus* Wild Thyme and *T. pulegioides* Large Wild Thyme, and *Euphrasia pseudokerneri* Chalk Eyebright. A couple of *Juniperus communis* Junipers looked well but there seemed to be no regenerating seedlings around them. Small rose-bushes included two Sweetbriars *Rosa rubiginosa* and *Rosa micrantha* (along with bedeguar- and rose pea-galls). Conditions being very dry we came across only one of the large colony of Roman Snails here, but there were many Marbled Whites, some recently emerged and others mating

Musk orchid

**14 July**

The morning was devoted to recording along a single old 500m-long hedge. Nanfan Hedge had earlier been assessed by the Hooper method, random-sampling of 30-metre sections, as one of our oldest hedges, over a thousand years. It is marked in many places by banks and a deep central ditch, most of it being essentially a double hedge. Interconnecting hedges on the west are also old and it is thought to be a remnant of the boundary of the first Saxon farm to be located in what is now Prestwood, at the site of what is now called Nanfans, and which stood at the NE extremity of the cultivated fields. This farm was probably a satellite of the Hampden Manor estate to the north. The hedge became the boundary of Brand's Fee, a section of the large Peterley Manor that encompassed Great and Little Kingshill, and until a century ago formed a parish boundary. When we examined the hedge we found the ditch in places was very deep, whereas most medieval boundary ditches have become less well-defined over the centuries, so it seemed likely that this one had been kept from silting up by having a major path running along it. It seemed likely that the current footpath along its western side would have formerly been enclosed within the double hedge (and thus not encroaching on the private land each side). At the junction of "Upper and Lower Dell" and "Dell Field", the fields through which our footpath ran beside the hedge, there is a marked kink in the hedge and footpath and this seems to represent an occasion when the west side of the double hedge had been removed to enlarge Dell Field, so that from here southwards Nanfan Hedge becomes a much narrower single row of shrubs and the current footpath is probably following the track of the original one along the centre of the hedge.

Interesting as this historical background is, we were more interested in the hedge for its environmental importance and biodiversity. From this point of view the original sampling of sections was less useful, as the rarer trees could easily have been missed (and indeed were). Our current practice now in hedge surveying is to

list all woody species present, however long the hedge, as a better index of environmental value, and today we were here to make a list for this important hedge. Altogether we listed 20 species in the 500-metre-long hedge, including most of the expected common species (ash, beech, blackthorn, dog-rose, elder, field maple, field rose, hawthorn, hazel, holly, hornbeam, oak, sycamore, white-beam, and wild cherry) but also the less frequent grey willow, rowan, Sherard's downy rose, wild service tree and yew. Previously only one hedge with as many species had been recorded by our surveys, running behind houses in Prestwood, but this hedge contained six alien species that were essentially garden escapes and which may best be omitted from the environmental score. It was noticeable that Nanfan Hedge, not being backed by houses for its entire length, contained no alien species. When alien species are taken out of the equation, the highest score from previous surveys was 17 (two hedges near Great Hampden). This means that Nanfan Hedge has the highest score known at present in our area by some margin. Its management is also ideal for wildlife, with many tall trees, uncut except to prevent it encroaching on the footpath, and with tall vegetation at its base. Some of the largest trees are already in our notable tree database - an ash with a girth of 3.5m, oaks with girths of 3.22 and 2.52 metres, a wild cherry of 2m, and the wild service trees (for their rarity rather than their size). Surprisingly, however, there were few botanical rarities among the ground vegetation, with true native Orpine, *Hylotelephium* (previously *Sedum) telephium*, as the only notable plant.

Back at the car-park where we started, we took a look at an unusual fern growing in a ditch across the road from the car-park entrance. Details of the pinnae indicate it belongs to *Polystichum setiferum* Soft Shield-fern), but it is very hairy, with more divided fronds, and has the leathery feel of *P. aculeatum*). It has been assigned by a fern expert to the 'Tripinnatum group', a form of *setiferum* which is met with among garden cultivars. Right beside a road, it is certainly a garden throw-out, but it appears to be thriving well.

In the afternoon we checked out orchids recorded in a few of the woods nearby. In Lawrence Grove Wood, although there had been large numbers of *Epipactis purpurata* Violet Helleborine in recent years, we could not find a single spike this year. Whether this was a temporary situation because of the drought, or marks a deterioration in the habitat (the wood shows signs of major nutrification), we do not know. In Longfield Wood, George guided us to the exact spot where *Epipactis phyllanthes* Green-flowered Helleborine and *Neottia nidus-avis* Birdsnest Orchid usually grow, but this year we were disappointed, perhaps confirming that this year is just too dry and warm for our orchids of woodland shade. There was one small specimen in bud of *Epipactis helleborine* Broad-leaved Helleborine. Returning south, however, we found a small colony of Violet Helleborine each side of the main path. This is the first record of this species from the wood and is probably a new colonisation (which seems to be happening quite a lot these days with this species). The fact that each plant was a separate spike rather than growing in clumps probably supports this supposition.

**28 July**

Just east of the point where Cryers Hill Road at its bottom end meets Hughenden Road at a roundabout, there is a cluster of fields with records of rare arable annuals in the 1970s and 1980s that had not observed since. This field trip was therefore centred on trying to rediscover them. In the event, most of the fields had been harvested and ploughed up, so that hardly any plants at all were visible. The exception was a large field to the east that was split between two crops, beans and wheat. Here were many common arable annuals, like *Aethusa cynapium* Fool's parsley, *Euphorbia helioscopia* Sun spurge, and *Viola arvensis* Field pansy, but nothing notable at all. Our main target, however, was a small neighbouring field where three rare arable annuals had been recorded in 1989. Unfortunately this field, which at one time had been bought as part of a speculative scheme to sell small plots as "investments", a scheme which was unsuccessful, turned out to have been left as wasteland, with much *Solidago canadensis* Canadian goldenrod, and a few more interesting plants such as *Orobanche minor* Common broomrape, *Papaver rhoeas* Common poppy, *Silene latifolia ssp alba* White campion, and *Verbascum nigrum* Dark mullein. Much of the *Trifolium repens* White clover here was of a proliferous form (where the flower heads were replaced by leaves and long-stalked single flowers), which may have had a variety of causes, but the frequency of occurrence probably indicated a bacterial infection.

Although we were disappointed in our search for rare arable annuals, we had better luck on our return. By the roundabout, in the verge of Hughenden Road we found a dense patch of *Falcaria vulgaris* Longleaf, covering a two-metre wide verge for a length of some 17 metres. This rare plant (at its only Bucks site) had formerly grown (for at least 60 years) along the verge of Cryers Hill Road towards the top, but was destroyed by county council verge-cutters a few years ago (although it had previously been protected by an agreement not to cut that section). The plant seemed to have been altogether lost.

Longleaf beside Hughenden Road

Rounding the corner into Cryers Hill Road we looked out for halophytes along the salt-sprayed verge. Near the bottom of the hill were spotted some culms of a rather stiff dark-green grass overhanging the kerb, which did not look familiar. There were no flowering stems but a specimen taken for later examination, using the BSBI grasses book and Poland's vegetative key, turned out to be *Puccinellia distans* Reflexed saltmarsh-grass. This species had been spotted in 2008 on the other side of the road, but feared lost until now. Further up the road we came across a few scattered rosettes of another halophyte, *Plantago coronopus* Buck's-horn plantain, which we had seen in 2015. Again it was reassuring that it survived here.

**4 August**

Rupicolous ferns are rare in the Chilterns - the climate is too dry, the chalk provides limited niches, and walls are regularly cleaned. We therefore keep an eye on the few local sites where they can be found. Today we checked out all the known sites along the line of the Misbourne Valley, where our rarest ferns are concentrated. We started at the Great Missenden parish church of SS Peter & Paul. *Cystopteris fragilis* Brittle Bladder-fern has been known from the church walls since 1973, its only Bucks site. When first recorded it grew on the main walls, but was destroyed there and has recently only survived in small quantity in a shady outside stairwell leading to a cellar, where it is protected by a locked gate. A couple of small fronds were visible, but it was obviously struggling in this drought year, as it needs a very humid atmosphere. *Dryopteris filix-mas* Male Fern that often grows with it was completely absent, but there were a few fronds of *Asplenium scolopendrium* Hart's-tongue Fern, also recorded since 1973. The rest of the church had been recently cleaned and bore no vegetation at all, although *Mycelis muralis* Wall Lettuce grew in pebbly paving close to the base.

We walked into Great Missenden via Church Street, at the west side of which is a very deep dark ditch, where we were able to see *Polystichum aculeatum* Hard Shield-fern, and entered The Square, where three species of fern have been recorded on the garden wall of Abbey Farmhouse. This also had been recently cleaned and only *Asplenium ruta-muraria* Wall-rue survived as minute clumps shrivelling in the sun. Crossing the main village street we reached a tunnel under the railway. This was plastered and has never supported ferns, but it led to the track south to the bridge over Whitefield Lane. Although *Asplenium trichomanes* Maidenhair Spleenwort and *A. adiantum-nigrum* Black Spleenwort had been recorded here up to at least 2007, again only Wall-rue survived.

Continuing south, the next bridge, close to Misbourne School, carried just a footpath and three of the four ferns recorded here had survived - Wall-rue, Maidenhair Spleenwort and Hart's-tongue. The fourth fern, Black Spleenwort has not been seen here since 2014. As both *A. ruta-muraria* and *A. trichomanes* were both present we searched carefully for their very rare hybrid *A. x clermontiae*, which had recently been discovered by Andy McVeigh just a little way further north near Wendover, but we were not so successful (unsurprisingly in such a bad year for these ferns). Further south we took another footpath through a tunnel under the railway

where no ferns had previously been recorded, but we saw both Wall-rue and Male Fern here. This path led to Nags Head Lane at Little Kingshill, so that we could visit the railway bridge there. Although this bridge supports our only local colony of *Hieracium sabaudum* Autumn Hawkweed, still surviving and flowering, no ferns had ever been seen on this bridge. This time, however, we were able spot several plants of Wall-rue. This was the last bridge we could inspect in this direction, as that at Deep Mill spans the A413 main road and is completely inaccessible on foot.

We returned north to Great Missenden and crossed Abbey Park near the completely dried out Warren Water. A side path led into Missenden Abbey grounds, where we inspected the walls of a grotto over the similarly dried-up River Misbourne. Here grew small amounts of immature Black Spleenwort, Hard Shield-fern, Soft Shield-fern *Polystichum setiferum* and Wall Lettuce. We continued to the stone-built ha-ha that crosses the grounds, the traditional site (and the only one in our area) for *Asplenium ceterach* Rustyback Fern. This was now nicely done to a crisp in the hot weather, but it had grown and produced spores, so that it still survives for the moment. With it were small, equally dry, fronds of Maidenhair Spleenwort.

It was then time to return to our cars at the church, as the next five bridges further north could really only be visited using transport. Two of us continued to each of these after lunch. We had already checked the bridge carrying Martinsend Lane in the centre of Missenden, which had a good quantity of Wall-rue, although not the Black Spleenwort last seen in 2014. The next bridge carrying Rignall Road still supported all three ferns previously recorded - Wall-rue, Black Spleenwort and Hart's-tongue. The next bridge spanning the footpath from Mobwell has never had Wall-rue (unusually), but both the ferns that have been recorded, Maidenhair Spleenwort and Hart's-tongue, were still present. The bridge over Gypsy Lane near Cobblershill is reached from a quiet bridleway from the main Aylesbury road, an apparently peaceful idyll until huge HS2 lorries started to plough up and down, forcing us into the brambles at the side and raising thick clouds of dust. The bridge held two ferns, Wall-rue and Hart's-tongue (both new records), but lacked the previously recorded Maidenhair Spleenwort, which has not been seen here since 1973. The final bridge carrying Cobblershill Road had Wall-rue, but no longer supported Hart's-tongue.

The table below summarises the results of this survey. The number base is too small to draw valid statistical conclusions, of course, but Wall-rue is confirmed as the commonest of our wall ferns, and appears to be holding its own or increasing in frequency. It was also noticeably abundant on some of the bridges. Hart's-tongue also seems to be stable in its incidence, although numbers of plants at each site were low and all were affected by drought. (This fern also grows on the walls of my own house and is faring similarly there. Of course it is not restricted to walls and it can be found in much healthier condition along many shady lanes, in ditches and in woodlands.) The other two ferns seem to be in a much more perilous position, with Maidenhair Spleenwort having lost half its sites and Black Spleenwort three-quarters. Their prospect in the face of hotter summers is not good at all. It was noticeable, too, that Wall-rue was often the only fern present on the south-facing sides of the bridges and all the other ferns were usually restricted to the shadier north-facing sides.

| | Wall-rue | Maindenhair spl. | Black spleenwort | Hart's-tongue |
|---|---|---|---|---|
| No longer present | 2 | 3 | 3 | 1 |
| Still present | 5 | 3 | 1 | 3 |
| New record | 3 | 0 | 1 | 2 |

On the way to the Mobwell Bridge we walked by the Mobwell, the large pond representing the main spring feeding the Misbourne. This was of course dry and it was full of plants, most notably one marsh plant - *Myosotis scorpioides* Water Forget-me-not, the dry land *Lapsana communis* Nipplewort and *Lactuca serriola* Prickly Lettuce, plus a mint that one might assume to be *Mentha aquatica* Water Mint, but which had whorls of flowers all down the stem, not just at the top. Among several candidates, this turned out to be *Mentha x verticillata* Whorled Mint, the hybrid between *Mentha aquatica* and *M. arvensis* Corn Mint. Water Mint had been present here in 2008 when the pond was full, but was now not evident at all, while Whorled Mint had been assumed locally extinct, having not been seen for over 40 years. It was interesting, if a little saddening, to see the ecological effects of climate change in action!

**1 September**

We met at Prestwood P:icnic Site to explore galls. Two principal targets were chosen - Yarrow and Meadow Vetchling, as no galls had been recorded locally on either of these plants, despite each having 11 different possibilities. In the event we could not find either plant, apart from a very small clump of yarrow (which had no galls visible). These would therefore have to wait for another day.

We instead explored plants at the site generally, looking for anything that seemed unfamiliar. We found four galls that had not been previously recorded in our area:

**Wild carrot** *Daucus carota* *Kiefferia pericarpiicola* Gall-midge
The midge larva exists in an enlarged swollen seed, which tends to stand out from the cluster of normal ones. Although there was a great deal of the plant, we had to search hard for any galls and only two lants were found that were galled.

**Goat willow** *Salix caprea* *Eupontania pedunculi* Sawfly
This is a more or less spherical gall on the underside of the leaf. Only one example was found.

**Dog-rose** *Rosa canina* *Dasineura rosae* Gall-midge
In this case the leaf is folded upwards and thickened into a sort of pod. After finding the first, others were quickly found. White midge larvae live inside each pod.

**Traveller's joy** *Clematis vitalba* *Aceria vitalbae* Mite
All the leaflets are distorted and have prolific, slightly thickened, upward bulges. In the basic guide by Redfern and Shirley it is described as "Leaf margins curled upwards ... not noticeably thickened", which made us unsure of the identification, but a sample examined later looked exactly like pictures on the "Parasites of Europe" website, so we could confirm the ID.

Other galls recorded were:

| | | | |
|---|---|---|---|
| **Oak** | *Quercus robur* | *Andricus quercus-calicis* | Knopper gall (gall wasp) |
| | | *Neuroterus quercus-baccarum* | Common spangle gall (gall wasp) |
| **Goat willow** | *Salix caprea* | *Iteomyia capreae* | Gall-midge |
| **Spindle** | *Euonymus europaeus* | *Stenacis euonymi* | Mite |
| **Greater knapweed** | *Centaurea scabiosa* | *Loewiola centaureae* | Gall-midge |
| **Bramble** | *Rubus fruticosus* | *Dasineura plicatrix* | Gall-midge |
| **Field maple** | *Acer campestre* | *Aceria myriadeum* | Mite |
| **Buckthorn** | *Rhamnus cathartica* | *Trichochermes walkeri* | Psyllid |
| **Dogwood** | *Cornus sanguinea* | *Craneiobia corni* | Rivet gall (gall-midge) |

**3 December**

The intention of our last meeting was to try out a number of winter tree twig ID keys. We walked through one wood and back along one margin to find a variety of trees and shrubs. Rather than use the keys it was generally easier to identify the specimens by other clues, such as leaves still hanging on, fruits, bark, and so on. But using the keys enabled us to get a better understanding of the detailed structure of twigs and buds and how these varied, many of which features are generally overlooked. The main difficulty we found with the keys was interpreting what counted as a 'bud-scale' and what did not, a feature that was prominent in several couplets. Through trial and error we did eventually develop a somewhat better understanding of these scales, however. The keys trialled were Makins "British Trees in Winter" (1946), Bersweden "Winter Trees: a key to common trees and shrubs", and a Twig ID single-sheet chart from the Woodland Trust. The last was too simple and lacked the necessary detail, but the other two keys were usable, the Bersweden being the more comprehensive (although lacking the evergreens included in Makins) and probably the more reliable one to use (allowing for certain intra-specific variations). Both, of course, were necessarily incomplete - they do not enable one to separate, say, common and Midland hawthorns, or the various introduced fruit trees, while *Sorbus* was missing from Makins. One puzzle was presented by hybrids between blackthorn *Prunus spinosa* and wild plum *P. domestica*, as the twigs may or may not have thorns, but hairy twigs in what keyed out as blackthorn must certainly have come from introgression by plum genes. Some of us were left feeling that it was best to leave tree/shrub identification to summer months when additional features made it easier and more secure! However, as an activity to indulge one's botanical interests in a bare time of the year, identifying winter twigs can be fun and educational. This day was cold, but we noted the effect of the mild autumn until the end of November, seeing many plants flowering out of season, such as bush vetch, while most woody plants still held many leaves.