WILTSHIRE BOTANICAL SOCIETY NEWSLETTER

2023 No. 55

Website: http://www.wiltsbotsoc.co.uk

In this newsletter ...

we have the usual reports of botanical outings. Our days out have been particularly varied and enjoyable this year. If you have not joined any, I strongly encourage you to do so next year. Thanks go to leaders of the outings, to the authors who wrote accounts of what we did and what we found, and to the photographers who sent in pictures, but especially to Martin Buckland for organising the whole programme. Martin has done this job for 10 years, starting in 2014.

We have two informative articles, one from Martin on the many facets of the BSBI, the third in his series on botanical societies. The other is from Steve Jackson on the grasslands of Wiltshire. This ranges from ID tips to ways of describing and classifying grasslands, ecological techniques for analysing data and other interesting nuggets.

Botanical accounts of two Nordic trips are particularly welcome, with Sam Braine plant hunting in Sweden and Fran Sinclair fitting in botany with family business in Finland – with the odd exciting scrape.

Richard Aisbitt, Editor

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Field meetings in 2024

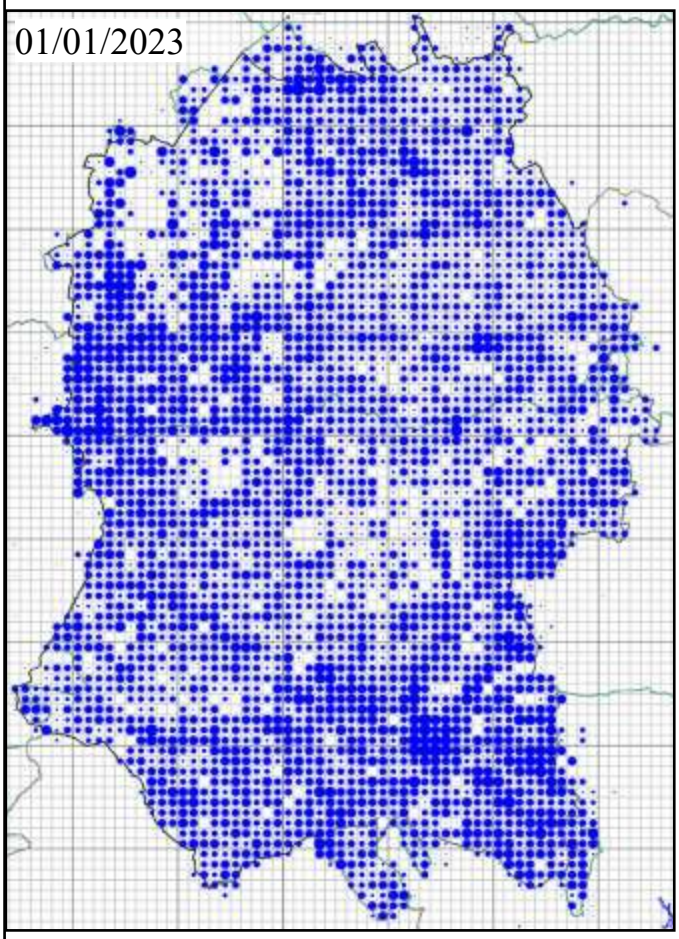
Dear Member, a quick note to advise you that after nine seasons in the post I have resigned from my role as your Field Programme Organiser with immediate effect. I would like to thank all those people who offered their services, suggesting sites to visit, or indeed volunteering their time to lead a trip; the success of the programme is down to you.

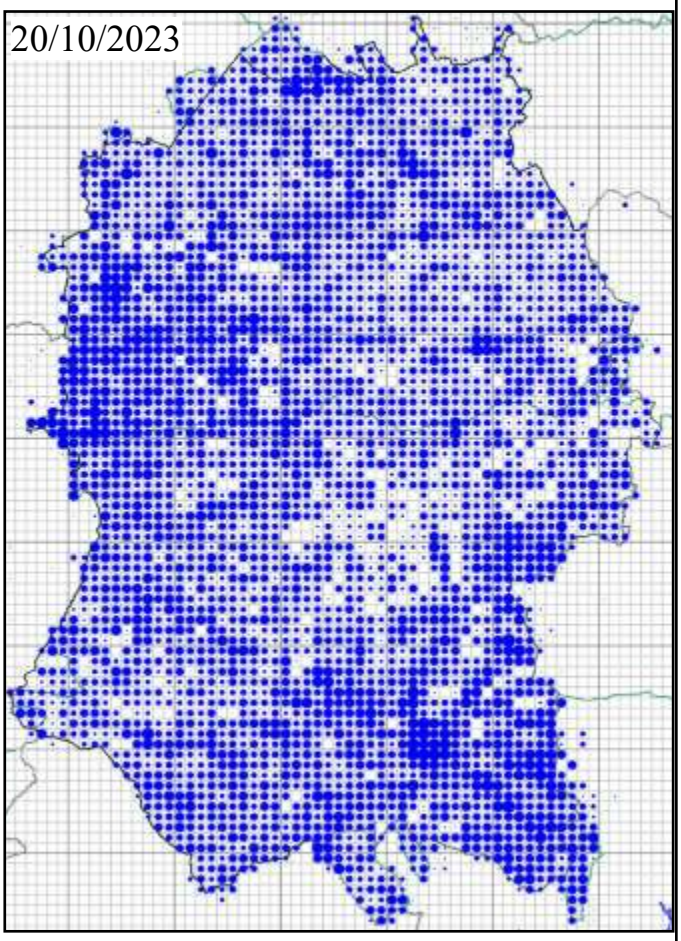
I have not left the Society for I still undertake many roles, not least as your Treasurer and Membership Secretary.

Best wishes,
Martin Buckland

Stop Press! Fran Sinclair has volunteered to take over as Field Programme Organiser - excellent news. Please help her by offering suggestions for field meetings in 2024.

Wiltshire Flora recording





The 1993 Wiltshire Flora was the last published comprehensive flora of Wiltshire. It included species monographs, brief records of all our native plants, and distribution maps for many of them. Thirty years later, we would like to update this and produce a new flora.

Recording for the BSBI's Plant Atlas 2020 gave us a good start, but left gaps in our recording coverage. Since 2020, we have been filling these gaps, particularly in 2023. The left-hand map shows the situation at the start of 2023, with gaps in northwest Wiltshire, west central Wiltshire, and the Salisbury Plain army ranges. The right-hand map shows the situation towards the end of October 2023, with the first two areas largely filled, but Salisbury Plain looking much the same as before. There are known, intractable access issues in the Larkhill and Westdown Ranges, but we hope to get access to the Salisbury Plain Training Area next year and to fill the other occasional gaps.

The year's work brought in 36,000 plant records: quite an achievement. The areas we covered were often severely agricultural, species-poor, or with limited access. Even so, each visit generally produced a good list of common species with the occasional more unusual plant.

We aim to finish recording by the end of 2024. This will give us two comprehensive data sets to compare: the 1993 flora and our recent survey. We should then be able to spot trends – gains or losses for each species. There will be much writing, organising and analysis to do.

Do keep searching out plants. Then make your finds available to others for interest, analysis and research by sending them in as botanical records. These can be in large batches, small batches or singly. I often get asked "is it worth recording this?". Common or rare, the answer is "Yes".

Richard Aisbitt, BSBI County Recorder

Cover pictures: By Dave Green's strange aliens from the Cumberwell landfill site.

- Front cover: Buffalo-bur *Solanum rostratum*
- Back cover: Bladder Ketmia *Hibiscus trionum*
- Inside back: Downy Ground-cherry *Physalis pubescens*

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Meeting Reports, 2023

West Woods

18th March 2023

Leaders: Jane Brown and Paul Darby


Wild Daffodils

On 18th March, 2023, about 20 of us gathered at West Woods near Marlborough, a Forestry England woodland. Paul told us a little about the history of the site and Jane guided us around. Originally it would have consisted of the western part of Savernake Forest, hence the name. It had been clear-felled in 1928, and replanted with mainly Beech *Fagus sylvatica* and some Douglas Fir *Pseudotsuga menziesii*. This would create dense shade in summer, and was probably the reason why the ground flora was comparatively sparse. The main target for the day was the beautiful Wild Daffodils *Narcissus pseudonarcissus*, which we found in numerous small clumps in several parts of the woods. Otherwise, there were few flowers to be seen. I found a single Primrose *Primula vulgaris* in bud, but that was all. Later on there will be drifts of Bluebells *Hyacinthoides non-scripta* and clumps of Wood Spurge *Euphorbia amygdaloides*. A small amount of Moschatel *Adoxa moschatellina* was found on a bank near the field boundary, no flowers yet. We were more fortunate with ferns, as several plants of Broad Buckler-fern *Dryopteris dilatata* were seen. Along one of the rides, some small mounds were apparent, the origin of which was not clear. One of them was covered with very long fronds of a fern which was pronounced to be Golden-scaled Male-fern *Dryopteris affinis*. Some very green plants of shield-fern were identified as Hard Shield-fern *Polystichum aculeatum*. Much Pendulous Sedge *Carex pendula* was visible along the rides, and it was discussed whether the seeds could be spread by vehicles. Wood sedge *Carex sylvatica* was frequent, also many clumps of Tufted Hair-grass *Deschampsia cespitosa*. A few leaves of Wood Anemone *Anemone nemorosa*, Barren Strawberry *Potentilla sterilis,* and Pignut *Conopodium majus* were found, but yet again, no flowers. Along one of the field boundaries was a row of large oak trees, *Quercus robur*, some of which could be up to two or three hundred years old, judging by their girth and amount of dead branches in the crowns. This suggests what the woods may have looked like before being clear-felled.

Surprisingly, the woods conceal a Neolithic long barrow, up to 6,500 years old. It is 40 metres long and up to 3.5 metres high, surrounded by a ditch. A dip in the centre suggests there may have been an attempt to excavate it, possibly many years ago, and not using modern scientific methods. A pit near the field boundary was probably the result of digging out chalk to spread on the land as fertiliser, a common practice years ago. Recent research has suggested that the sarsen stones of Stonehenge probably came from West Woods, according to chemical analysis! Our walk crossed the Wansdyke, a deep ditch which probably dates from the early Anglo-Saxon period, 5th or 6th century AD.

We were very lucky with the weather. I had encountered torrential rain during the drive up from Southampton, but the rain stopped miraculously as I approached Marlborough. Eventually the sun came out, and several brimstone butterflies were spotted, along with a large bumblebee. Nuthatches were calling, and a raven and a buzzard were also heard. All in all a very enjoyable start to the new season and an opportunity to catch up with old friends. Thanks to Paul for his introduction to the wood and to Jane for leading us around in what was a new venue for several of us.

Mary Cockerill

Shield Ferns


Hard Shield-fern


compared with Soft Shield-fern

and Golden-scaled Male-fern - as the year progresses

Gutch Common

14th May 2023

Leader: Steve Jackson

Seventeen people (including two very welcome potential new members) assembled by the church in Semley on a lovely sunny day. All were keen and eager to see the sedges of Gutch Common!

The common is managed by Wiltshire Wildlife Trust and is "just like Wales". It is situated in an area of 'slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils'[1] and Sharon pointed out that it is a mix of woodland and acid grassland flora with a Bracken *Pteridium aquilinum* canopy that has been ungrazed for some time.

Sharon led us off and as soon as we turned the corner…stopped! There to greet us was an excellent display of Common Bistort *Bistorta officinalis* [probably cultivar 'Superba' - SP] shining in the morning sun.

A short distance further and we encountered Balkan Spurge *Euphorbia oblongata*, a garden escape that is apparently increasingly its range. In the same area was Winter-cress *Barbarea vulgaris* and Hemlock Water-dropwort *Oenanthe crocata*, the latter being one of the most poisonous plants in the UK.[2] Later in the day we also came across Corky-fruited Water-dropwort *Oenanthe pimpinelloides*, a plant found particularly in meadows and pastures where horses have grazed.[3] I was told that horses used to be tethered on the roadsides for grazing in this area. Along a roadside was a very unassuming grass – Spreading Meadow-grass *Poa humilis* that has a fringe of hairs at the base of the leaf blade – but you have to look carefully! Other notable finds included Orpine *Hylotelephium telephium*, a declining native species that is often a garden escape (Plant Atlas 2020). Sharon later pointed out a hybrid willow – Grey Willow *Salix cinerea* x Eared Willow *Salix aurita* = *Salix* x *multinervis*. I think I was nervous just thinking about it! Greater Celandine *Chelidonium majus* was also seen (it's actually in the Poppy family, the *Papaveraceae*) and according to Stace is an 'archaeophyte-denizen', i.e., a plant associated with human activity that was in the country before 1500 and behaves more or less like a native species.


Common Bistort

The very invasive Few-flowered Garlic *Allium paradoxum* was found growing on a strip of grassland by the roadside. It is on Schedule 9 of the Countryside and Wildlife Act, which means that it is illegal to plant or help spread this species in the wild. With only 73 records in the county since 2000, an interesting find was Greater Chickweed *Stellaria neglecta,* which has 10 stamens, whereas Common Chickweed *Stellaria media* has 3-8. The strongholds of the Greater Chickweed are the Welsh borders and the West Country. Possibly one of the most attractive and unusual grasses was Wood Melick *Melica uniflora* sitting in a large, compact tuft by the road side; unusual due to a large bristle at the top of the sheath opposite the ligule.

The common itself produced several species that are rare for Wiltshire as they grow in more acidic and/or wet conditions which are scarce in the county. These included Purple Moor-grass *Molinia caerulea,* more common on the fringes of the New Forest in the south east; Velvet Bent *Agrostis canina,* with its long, canine-like ligule; Bog Stitchwort *Stellaria alsine*; Marsh Pennywort *Hydrocotyle vulgaris*; Hairy Wood-rush *Luzula pilosa* and Heath Wood-rush *Luzula multiflora*; Sheep's Sorrel *Rumex acetosella*; and three species of *Sphagnum*, *S. palustre, S. fallax, and S. auriculatum*.

[1] https://www.ukso.org/

[2] https://emj.bmj.com/content/19/5/472

[3] https://plantatlas2020.org/atlas/2cd4p9h.can

Several species of sedge *Carex* were found, but posed challenges in identification as it was early in the season. Nevertheless, the more experienced members of the group were able to identify the following:

- Green-ribbed Sedge *C. binervis*
- Brown Sedge *C. disticha*
- Grey Sedge *C. divulsa* ssp. *divulsa*
- Star Sedge *C. echinata*
- Smooth-stalked Sedge *C. laevigata*
- Oval Sedge *C. leporina*
- Pill Sedge *C. pilulifera*
- Remote Sedge *C. remota*


Bog Stitchwort


Wood Melick

A great day was had by all! Many thanks to Sharon Pilkington for leading us in such a pleasant area and giving us the benefit of her considerable knowledge.

Above: Bracken, Bluebells *Hyacinthoides non-scripta* , and Creeping Soft-grass *Holcus mollis* – our lunch spot among the ticks!

Steve Jackson


Purple Moor-grass

Martin Down

20th May 2023

Leaders: Sue Fitzpatrick and Anne Appleyard


Field Fleawort

Our trip to Martin Down National Nature Reserve in late May was led by Sue and Anne. It was a beautiful day on a spectacular wildlife site. There was a chilly breeze but we eventually managed to take our coats off in the sunshine. The Cowslips *Primula veris* were still flowering, along with carpets of yellow Horseshoe Vetch *Hippocrepis comosa* and Kidney Vetch *Anthyllis vulneraria*, and the bright blue Chalk Milkwort *Polygala calcarea*.

We soon got our eyes in for Hairy Rock-cress *Arabis hirsuta*, which is always a pleasure to see, being a little less common and favouring minor disturbance. Similarly, we found drifts of Field Mouse-ear *Cerastium arvense* in a well-grazed compartment. Fran found Changing Forget-me-not *Myosotis discolor* subsp. *discolor.* We marvelled at the unusual flowers of Hound's-tongue *Cynoglossum officinale.*

A bunch of us were keen to revise grasses, some already flowering, some not. Jenny found Spreading Meadow-grass *Poa humilis* and we compared that with Smooth Meadow-grass *Poa pratensis*, the former having small hairs at the base of the leaf where meeting the sheath. We also discussed the uncomfortable taxonomy and naming of Tor-grass *Brachypodium rupestre* which occurs on


Lunchtime

Chalky scrape

calcareous soils and Heath False-brome *Brachypodium pinnatum* which occurs more on clay soils, and are covered by the BSBI Plant Atlas 2020 under Heath False-bromes *Brachypodium pinnatum* s.l. (in the broad sense). Afterwards, Richard used nail varnish to do some epithelial peels, to look for tiny prickle-hairs on the leaf underside.

At lunchtime, we sat by the Bokerley Dyke, being careful to avoid sitting on the scattered Field Fleawort *Tephroseris integrifolia* subsp. *integrifolia* and Burnt Orchid *Neotinea ustulata*, both rare species and indicators of high quality chalk grassland. Dwarf Sedge *Carex humilis*, another rarity and a speciality of Dorset, Wiltshire and Hampshire, is widespread on Martin Down and one soon recognises the fine, slightly yellowish-green leaves amongst the grasses.

Surprisingly, following a local botanist's lead, we found Heath Spotted-orchid *Dactylorhiza maculata,* which compared with Common Spotted-orchid *D. fuchsii*, is paler, with a contrasting lower lip or labellum, and is more typical of acid soils.

Right at the end of the day, a patch of 30+ Green-winged Orchids *Anacamptis morio* were found close to the Rifle Stop Butt.

Sarah Grinsted

All photos by Sarah

May blossom and Cowslips

Crosswort

Cherhill and Calstone Downs, WBS visits

Visit dates: 27th May, 12th August, and 2nd September 2023

Leader: Richard Aisbitt

Cherhill and Calstone Downs form a spectacular downland site with long views over Wiltshire. It is home to several scarce downland plants, notably Field Fleawort *Tephroseris integrifolia*, Round-headed Rampion *Phyteuma orbiculare*, Bastard-toadflax *Thesium humifusum*, and Burnt Orchid *Neotinea ustulata*. There is also Wart-biter Bush-cricket *Decticus verrucivorus* and a number of butterflies, for instance Marsh Fritillary *Euphydryas aurinia*. The site is owned and managed by the National Trust (NT). The SSSI had its last condition assessment ('favourable') in 2010.

Steve Beal of NT asked if the WBS could do a survey of the notable species, namely *Tephroseris*, *Neotinea*, Meadow Saxifrage *Saxifraga granulata*, *Thesium*, *Phyteuma*, and also Tuberous Thistle *Cirsium tuberosum* and *C.* x *medium*, its hybrid with Dwarf Thistle *C. acaule*. These don't all flower at the same time, so we arranged two visits, one in May and one in August.

Field Fleawort and Burnt Orchid were 'in season' and our primary target for the first visit, but we were greeted by a spectacular display of the pretty white flowers of Meadow Saxifrage on the steep north-facing slope of Cherhill Down. This species was known on the site, but never in such numbers.

Meadow Saxifrage - Fran

With many eyes and searching line-abreast, we should have spotted any Field Fleawort and Burnt Orchid in flower, but we reached a disappointing total: only one group of Burnt Orchids and a small number of Field Fleaworts in the middle of their known range. It is either a bad year or these species have diminished significantly. We also looked for butterfly-orchids. Lesser Butterfly-orchid *Platanthera bifolia* was thinly spread over both Cherhill and Calstone Downs and we found just one confirmed Greater Butterfly-orchid *P. chlorantha*; there may have been more as some were coming into flower and not clearly identifiable. There were remains of Early-purple Orchid *Orchis mascula* scattered about and we saw a few plants of Bastard-toadflax. *Thesium* should be bigger and more visible on our second visit.

The weather forecast for our second visit was changing hour by hour, but looked favourable. However, when we arrived, it became wet and windy. We decided to quit as it would have been unpleasant and unsafe working on the slippery slopes. Frustrating.


Wall butterfly - Fran


Burnet Campanion - Fran

We arranged a repeat visit for early September and this time had a scorching hot sunny day. *Phyteuma* and *Thesium* were two of our targets this time. I had done an extensive survey on the SSSI for NE in 2009 and 2010 and *Phyteuma* was included in this, forming continuous bands that followed the contours on steep banks over most of the site. We did not have the time to check over the whole site, but we did follow one of these bands westwards from the monument and found just as much *Phyteuma* as in the previous survey. We can assume that *Phyteuma* is doing well. Like *Phyteuma*, *Thesium* follows the contours on steep banks, growing in short, herb-rich turf, typically on southeast-facing slopes. We found a continuous band on such a slope when mapping *Phyteuma*, so *Thesium* also appears to be doing well on the SSSI.


Round-headed Rampion - Pat Woodruff

Tuberous Thistle and *C.* x *medium* were our other target plants. We searched a known area, finding many of both. *C. tuberosum*, taller with a very rounded capitulum and bent-back florets, was prevalent among dense Tor-grass *Brachypodium rupestre*. *C.* x *medium* was more common in shorter turf areas with less Tor-grass but more *C. acaule*. Tor-grass is a problem on many downland sites, but perhaps here it benefits Tuberous Thistle by suppressing Dwarf Thistle and making hybridisation less likely.

Devil's-bit Scabious *Succisa pratensis* was abundant and flowering wherever we went – good for Marsh Fritillary butterflies. Also widespread but less abundant: Clustered Bellflower *Campanula glomerata* and Autumn Gentian *Gentianella amarella*.

Thanks go to heat-resistant and sharp-eyed WBS plant spotters and to NT staff Steve Beal, Loretta Waters and Peter Oliver for arranging access and parking, so saving us part of the long climb.

Richard Aisbitt


Bastard-toadflax - Richard


Field Fleawort - Richard

Cherhill and Calstone Downs, a view from NT

Cherhill Down from the north

Conservation organisations rely heavily on natural history societies like the Wiltshire Botanical Society. Regular recording by knowledgeable members provides valuable understanding of rare and threatened species, and how they change over time. Arguably, many sites would not have been acquired without the insight and support from local societies.

The National Trust in Wiltshire is no exception. In 2006 the WBS carried out an assessment of scrub at Pepperbox Hill near Salisbury, in the process helping to map the location of important rose species. This led to a scrub management plan which still steers site management today.

Tuberous Thistle *Cirsium tuberosum* was first recorded by Cleverly in the 1920s on "North Down, Cherhill" (Grose, 1957) as virtually disappearing after ploughing. Since then, it has had more ups and downs. Dave Green and Sue Everett carried out extensive searches for Tuberous Thistle in 1986. This was written up in the species monograph in the Wiltshire Flora (Gillam, 1993) and stands as a useful baseline for populations we have today. They found the hybrid thistle *Cirsium* x *medium* on "Oldbury Castle/Calstone Downs" and, although they found no pure-bred *C. tuberosum* there, they thought it worth searching further. They quoted Horton (1985, unfortunately without source details), who wrote "Before the 1970s hybrid thistles were known here. In the early 1970s the site changed hands and no grazing occurred for a season. As a result, the plant flowered over a wide area and also appeared to be largely pure. The flowering was so prolific that a dark patch on the side of the down could be seen from Morgan's Hill some two miles away. The new owner introduced heavy sheep-grazing, with aerial fertilizer applications and by the next year only a handful of short-stemmed flowers were present."

As one of National Trust's flagship nature reserves in the county, Calstone and Cherhill Downs has received much attention from WBS members over the years. In 2009 the National Trust requested help from WBS to map the populations of the site's notable and rare plants to inform a new Higher Level Stewardship agreement for the tenant farmer. Fast forward 13 years and, as the HLS was coming to an end, we came back to the WBS for help updating this survey. Anecdotally, we knew the site has suffered from Tor-grass expansion in the last decade, despite maintaining much of its nature conservation interest. The opportunity to enter a new Countryside Stewardship provides a chance to revisit grazing plans and reverse the Tor-grass issue. Having support from the WBS means we can proceed with these changes, confident that the site's important plant species will be protected and thrive into the future.

We greatly appreciate the time, effort, and advice we receive from WBS members and hope to develop this further, both through mini projects like at Cherhill and Pepperbox and recording meetings.

We are also currently recruiting knowledgeable volunteers to carry out habitat condition assessments across our properties. Methodology training and expenses can be provided. If you're interested, please contact me on the email address below.

Stephen Beal
Nature Conservation Adviser, National Trust
Stephen.beal@nationaltrust.org.uk

References

Gillam, Beatrice (ed.) (1993) **The Wiltshire Flora**, pp 83-90 (see p 86), Pisces Publications, Newbury
Grose, Donald (1957) **The Flora of Wiltshire**, p 351, Wiltshire Archaeological and Natural History Society, Devizes

Urban Botany in Swindon

3rd September 2023

Leader: Richard Aisbitt


There's Small Toadflax down there

Can you find interesting plants in a town? We certainly hoped so.

Ten of us set off from a quiet side-street near the Outlet Village, the one shopping area in Swindon that is thriving. Our first catch was Common (uncommon?) Calamint *Clinopodium ascendens*, with only 30 or so recent Wilts records, growing in the pavement beneath a garden wall. The fragrant leaves justify its 'mint' label.

Next, a potential native Black Poplar *Populus nigra* subsp. *betulifolia*, spotted by Dave Green on our New Year Plant Hunt. Yes, it had a few spiral petiole galls, so was a true native. It was a big, mature tree with rugged bark and trunk bosses, but almost certainly a previous amenity planting. A nearby tree with similar stature had a different leaf shape and no spiral galls, so was probably not of native stock.

What other delights? Along a wide cycle track (the old Swindon Canal, filled in?) we found Spearmint *Mentha spicata*, Sticky Groundsel *Senecio viscosus*, Broad-leaved Everlasting-pea *Lathyrus latifolius*, Vervain *Verbena officinalis* and a hawk's-beard *Hieracium* sp., yet to be identified. We also got three alien fleabanes: Canadian *Erigeron* (previously *Conyza*) *canadensis*, Bilbao's *E. floribundus* and Guernsey *E. sumatrensis*, but not the fourth, Argentine *E. bonariensis*, yet to be seen in North Wiltshire.

An abandoned car park by the even more abandoned Oasis Leisure Centre yielded Blue Fleabane *Erigeron acris* and yellow-flowered Spanish Broom *Spartium junceum.* Grey-green leaved Sea-buckthorn *Hippophae rhamnoides* had some bushes covered in orange, sour-tasting berries.

One lone, healthy Hemp plant *Cannabis sativa* grew at the opening of the long subway under the railway. Will it go unnoticed? Further in, a straggly Male-fern *Dryopteris filix-mas* had wrapped its fronds around a wall light in the same long, dark underpass.


Hemp

The Station car park, full of Rue-leaved Saxifrage *Saxifraga tridactylites* and Eastern Rocket *Sisymbrium orientale* earlier in the year, produced Small Toadflax *Chaenorhinum minus* and Pale Toadflax *Linaria repens*.

By now, the heat was getting to us and some members wilted and returned to their cars. The remainder had a brief venture to the stone-built Railway Village cottages, which added the attractive grass Water Bent *Polypogon viridis*, now found in almost any urban area, and two little ferns: Wall Rue *Asplenium ruta-muraria* and Maidenhair Spleenwort *A. trichomanes*, plus a few other surprises.

Richard Aisbitt

Webb's Wood and Echo Lodge Meadows

25th June 2023

Leaders: Richard Aisbitt and Martin Buckland

The botany started as it often does in the car park. A stand of young Wild Service-tree *Sorbus torminalis* trees gave rise to the question whether the 18 small trees were a result of self-seeding (adult tree nearby) or as a result of a previous mature tree dying and/or being felled and the rootstock suckering. [I went with seeding as the stand was very close.]

The day promised to be very warm so we ventured toward the meadows first hoping that we would get some shade in the wood later. The largest of Echo Lodge's fields was originally part of Webb's Wood. Aptly named Wood Field, its trees were felled in the early 1950s. The puzzle to us was why this was so complete i.e. there is no sign of old stumps or remnant growth; it was as if the area was landscaped after felling to purposely create the field. Furthermore, why wasn't the area replanted especially at a time when forestry was being actively progressed?

This area didn't hold our interest as the field was dominated with grasses such as Tufted Hair Grass *Deschampsia cespitosa* although it was useful to compare freshly opened, and dainty flowered Common Bent *Agrostis capillaris* with the heavier headed Creeping Bent *Agrostis stolonifera*. A few sedges were spotted; a not unexpected Oval Sedge *Carex leporina*, False Fox-sedge *Carex otrubae* but also Brown Sedge *Carex disticha* which generally likes its roots in slightly acidic soils.

The next two fields, Skinner's Ground and Ditch Field, provided a very different picture and I don't think I would be wrong in saying that it drew admiring comments from all of us. There were large patches of blue and purple provided by dense patches of Betony *Betonica officinalis*, Saw-wort *Serratula tinctoria* and Devil's-bit Scabious *Succisa pratensis*. The recent hot weather had put paid to the majority of orchids but the occasional surviving Common Spotted-orchid *Dactylorhiza fuchsii*, Heath Spotted-orchid *Dactylorhiza maculata* and Pyramidal Orchid *Anacamptis pyramidalis* were found and there was a single Early-purple Orchid *Orchis mascula* in a wooded spot between the fields.

A wet area between the fields provided a surprise with Gypsywort *Lycopus europaeus* (not uppermost in your mind when looking at meadows) and also a couple of sweet-grasses; Floating S-g *Glyceria fluitans* and Plicate S-g *G. notata.*

The woodland is known for its stands of Small-leaved Lime *Tilia cordata* and we were delighted to find a low growing, bushy individual right next to the path in full flower. Several St. John's-worts were discovered and allowed us to compare and photograph them, in particular Slender St. John's-wort *Hypericum pulchrum,* Trailing St. John's-wort *Hypericum humifusum* as well as Perforate St. John's-wort *Hypericum perforatum.*

An unexpected find was a metre wide patch of in flower Zigzag Clover *Trifolium medium* allowing many present to record and compare to Red Clover *Trifolium pratense*.


Upstanding flowers of Small-leaved Lime - Pat

Wetter areas of the rides contained much willow scrub such as Goat Willow *Salix caprea* and Grey Willow *Salix cinerea* but a brilliant spot by Sharon gave us the opportunity to view up close the hybrid between Eared Willow *Salix aurita* (not seen) and Grey Willow *Salix cinerea* = *Salix* x *multinervis.* A wet spot also contained a very healthy specimen of Pale Sedge *Carex pallescens* allowing us to see its relatively large green and shiny, ovoid fruits.

Open areas in a wood are always worth looking at particularly if they have been disturbed in the past and one in particular allowed us to compare some grasses. Sharon showed us Brown Bent *Agrostis vinealis*

Lady's Bedstraw with Betony behind - Pat

growing very near the similar Velvet Bent *Agrostis canina* but why is it that I see and appreciate it at the time but then don't see it when I'm out alone!

The day was very hot now and everyone was flagging so we made our way back to the cars quite quickly but we were fortunate to see many White Admiral butterflies on the return along with the odd Silver-washed Fritillary.

Richard and myself would like to thank all those that attended for making this an enjoyable day out.

Martin Buckland

Zigzag Clover - Fran

Pale Sedge - Richard

Clattinger Farm SSSI: 1. the visit

1st July 2023

Leaders: Sharon Pilkington, Kat Newbert and Martin Buckland


Great Burnet

My role today, as former warden of the site, was to guide members to some of the less well-known parts of this Wiltshire Wildlife Trust reserve. We started with a field that is generally ignored because it's 'rough' however there is still much to explore. We started with some scrapes or flattened pond areas that flood in the winter time. Much of it was covered with Floating Sweet-grass *Glyceria fluitans* but in amongst it we found both Sharp-flowered Rush *Juncus acutiflorus* and Jointed Rush *J. articulatus.* A tussocky sedge caused us to stop and think but on close inspection we found that it was Common Sedge *Carex nigra.* Generally this is a creeping sedge but in stagnant spots will form clumps instead. In amongst one of the clumps, and trying to fool us, were a few plants of Brown Sedge *Carex disticha.*

I really wanted to see how the Tubular Water-dropwort *Oenanthe fistulosa* was faring. This species is classified as Vulnerable in England and is also a subject listed on the Government's UK Biodiversity Action Plan. In 1996 there were just 7 plants; in 2013 it had increased to 29 but today we counted 125 specimens; a significant improvement.


Marsh Woundwort

Another target I was searching for was Sneezewort *Achillea ptarmica.* Of all the species on my personal total Clattinger listing I had managed to record all of them again for the BSBI Atlas project but I failed to find this species in its usual place, in the 'rough' field above however as the group moved onto the next field meadow, sharp-eyed Sue gives a shout and there were five flowering plants close together so at least they'll make it onto the Wiltshire Flora list. We were in a field now that is the furthest from the Minety road and so not often visited perhaps. I don't know that we actually botanised here so much as admire the sheer spectacle of thousands of Great Burnet *Sanguisorba officinalis* along with its under carpet of Saw-wort *Serratula tinctoria,* Devil's-bit Scabious *Succisa pratensis* and Rough Hawkbit *Leontodon hispidus.* As this field runs alongside the Swill Brook I casually mentioned that I wondered what water plants were there and before I knew it, Sherpa Aisbitt was over the fence to have a look. We had lunch in the corner of the field enjoying the view whilst sitting amongst swathes of Meadow Barley *Hordeum secalinum.* We then followed the field edge so that we could peer into the ditch for

finds; however unfortunately this was fenced but Sherpa cum Commando Richard simply rolled under the barbed wire fence to find some specimens.

One thing that is noticed by many at Clattinger is that every field is slightly different in soil depth and plant composition and just one field over was no exception. As members left one field into the next I asked them to take a last look behind them before accessing the next. The view was much different; gone were the majority of burnets, Saw-wort and yellow composite flowers replaced perhaps by a greater amount of grass species. It was here that a few Pyramidal Orchids *Anacamptis pyramidalis* were found. These have been gradually spreading across the reserve since former all-year-round grazing was stopped in two of the fields in favour of hay meadow management. Pyramidals started to show there in the year immediately afterward and now occur in at least five of Clattinger's twelve fields.


Sedge tussocks

I then took the group to a field that had been part ploughed during the second world war as part of the project to grow more food. The land was targeted for growing Kale but the crop failed, probably as the soil was impoverished. A government's grass seed mix was applied to return the field to wholly meadow but apparently this did not take either so the owner of the farm, Mr Ody, applied his own green hay and the results we can see today. Normally, one can still see the break line between the two 'halves' of the field but it was difficult to see but more obvious when you walked across it. Here grows an assemblage of plants that's quite unusual I think. Large amounts of Common Sorrel *Rumex acetosa,* so much Adder's-tongue *Ophioglossum vulgatum* that you couldn't help but stand on it, clumps of Ragged-robin *Silene flos-cuculi* and Common Spotted-orchid *Dactylorhiza fuchsii.* I wonder what the NVC classification bods would make of it? [Response from Sharon: MG5]

At the gateway before the next field a diminutive plant got us on our hands and knees. It wasn't in the wrong place for the gateway was probably soaking wet at one time. We had found a tiny plant of Pink Water-speedwell *Veronica catenata* struggling in the now cracked mud.

We walked a lap of our last field and again enjoyed the visual delight of this reserve. A quick look at the hedge to show what is probably a quite common but under recorded plant and this was the hybrid between Goat Willow *Salix caprea* and Grey Willow *Salix cinerea* = *Salix* x *reichardtii* equally showing us the identification features of both parents.

Lastly whilst looking at some spiky sedges it was clear that some were not as big and bulky as some of the others. At first I believed them all to be False Fox-sedge *Carex otrubae*, but sharp-eyed Pat persisted and looking closer found that we were in fact looking at a mixed pair of species and that there was also Spiked Sedge *Carex spicata* amongst them; a species last recorded at Clattinger in 1982.

My thanks to my group for making this a very enjoyable trip.

Martin Buckland

Clattinger Farm SSSI: 2. grass, sedge and rush identification training

1st July 2023

Tutors: Sharon Pilkington and Kat Newbert

The meadow- Fran Sinclair

While Martin led his group off for some botanical indulgence, another group stayed with Sharon and Kat for a spot of tuition in grasses, sedges and rushes. As a nationally important unimproved grassland site, Clattinger is without doubt one of the best places in Wiltshire to learn about these oft-difficult taxa.

In 2017, Sharon led a similar workshop at Clattinger for the Freshwater Habitats Trust and had written a handout for participants, which she adapted for this event. It included sections on structural terminology and growth forms, which are important to understand when tackling the identification of grasses and sedges.

We strode off determinedly to the east, our target being the cluster of small, very species-rich meadows between Swillbrook Bridge and Mallard Lake. And there we immediately found lots of lovely grasses to talk about. The features of various bents *Agrostis* were introduced, as well as such typical meadow species as Sweet Vernal-grass *Anthoxanthum odoratum* and Tufted Hair-grass *Deschampsia cespitosa*.

A few of these meadows are unusual in supporting populations of species that are more commonly associated with chalk and other calcareous grassland. So we went through the eyelash-like leaf hairs of Upright Brome *Bromopsis erecta* and the hooded leaves of Downy Oat-grass *Avenula pubescens*. The densely hairy ligule of Purple Moor-grass *Molinia caerulea* (more typically a grass of moor and mire) was carefully scrutinised with hand-lenses. We also sought out a speciality of the Clattinger meadows which is also widespread generally in the Cotswolds but much overlooked. Heath False-brome *Brachypodium pinnatum* has an appearance and rhizomatous growth-form like Tor-grass *B. rupestre*, its notoriously thuggish close relative. However there are clear but subtle differences and it prefers heavy clay soils to calcareous rendzinas. At Clattinger, management through regular summer cutting and aftermath grazing is essential to keeping it in check.

Kat tried to track down Downy-fruited Sedge *Carex filiformis*, a nationally rare species that grows in these meadows. However, it is a relatively early-flowering species and she couldn't find it. But there were many other species to enjoy and there is only so much information the brain can take in during a training event.

Between the meadows, the poorly-drained rutted gateways had their own communities of graminoides and we were able to go through characters of such typical species as the geniculating Marsh Foxtail *Alopecurus geniculatus*, Creeping Bent *Agrostis stolonifera* and Toad Rush *Juncus bufonius*.

In the end, the glorious botanical spectacle that is Clattinger in summer won out over strict training, but what better place to learn and enjoy at the same time?

Sharon Pilkington

Downy-fruited Sedge - not seen on this visit

Bromham Market Gardens

29th July 2023

Leader: Dave Green


A puzzling Couch - see next page - photo by Fran

Firstly, Dave gave us an introduction to the area in which we were to walk. The local soil here is greensand and is slightly acidic which makes it ideal for growing fruit and vegetables.

The old joke that it takes a botanist half an hour to leave a car park remains true for we stopped immediately at a kerb edge to admire, although now gone over, several plants of Mediterranean Hair-grass *Rostraria cristata,* just how do these aliens get here? Also here were many plants of Shaggy Soldier *Galinsoga quadriradiata:* would we find its companion Gallant Soldier *G. parviflora?*

We briefly stopped to look at Bilbao's Fleabane *Erigeron floribundus* and realised we had viewed species from two different continents already. Also along the edge of the car park and local footpaths were almost cloud-like masses of Round-leaved Crane's-bill *Geranium rotundifolium.*

As we entered the market gardens we came across another South American plant, and in some numbers too, Green Nightshade *Solanum nitidibaccatum.* Surprisingly, it was only towards the end of our walk that we encountered the more common Black Nightshade *Solanum nigrum*. There was also a good amount of Pale Persicaria *Persicaria lapathifolia*, and we were warned against using flower colour or absence of leaf blotches to separate it from Redshank *Persicaria maculosa* – yellow glands on the peduncles of the former are the diagnostic feature. Small Nettle *Urtica urens* was scattered along the field edges, the differences from its common cousin very noticeable in the field, especially if you take up the DG challenge (don't touch it as it stings twice as much as Common Nettle).

It was pleasing to see that, whilst herbicides were in use on the gardens, they were not employed so strictly that the fields were devoid of agricultural plants (not weeds) and we found the edges and corners well occupied. One held Henbit Dead-nettle *Lamium amplexicaule,* Bugloss *Lycopsis arvensis* and Field Pennycress *Thlaspi arvense* whilst a short walk away another corner held Corn Spurrey *Spergula arvensis.* Walking on toward an allotment site, a few of us paused to look at a strip of large 'Barren Brome' growing along the edge of a fodder maize crop. The seed heads were quite large, perhaps up to 20mm and were very flattened (almost 2D in shape). Could this be another foreigner? Yes, this was Californian Brome *Ceratochloa carinata.*


Green Nightshade - Fran

At the allotments, the sight of 20 botanists peering here and there caused a few gardeners to give us 'a look' before we explained what we


Annual Mercury (and a *Galinsoga*) - Fran

were at. One allotmenteer offered us his plot to weed because 20 people could get it done quicker than him alone. We turned him down and instead looked at an abandoned plot where we found three geraniums growing together: always a good option for comparisons. Here we had, Small-flowered Crane's-bill *Geranium pusillum,* Hedgerow Crane's-bill *G. pyrenaicum* and Dove's-foot Crane's-bill *G. molle.*

On one corner there were several statuesque plants of Common Amaranth *Amaranthus retroflexus* and, further on, with quite a similar look, was Cockspur *Echinochloa crus-galli*. Down another field edge we stopped to look at the many 'soldier' plants and fortunately we were able to find and compare the two species. Gallant Soldier plants are sparsely hairy, with receptacle scales that are three lobed whereas Shaggy Soldiers are densely pubescent and have receptacle scales that are only minutely lobed. Also along this edge, we spied a bluish leaved couch grass; it wasn't the common version at all but turned out to be Sea Couch *Elymus atherica,* how did that get here? [A specimen was sent to Helena Crouch, who said that there were not enough features present for a definite ID, but it was likely to be a hybrid, Sea Couch x Common Couch]. The situation has now changed again: see 'Late news' below - Ed.

The market gardens and the Spye area are known as sites to look for Common Ramping-fumitory *Fumaria muralis* and we were not to be disappointed finding both this species and Common Fumitory *F. officinalis* growing together for comparison at yet another field corner. Here also was a large patch of Wild Radish *Raphanus raphanistrum* subsp. *raphanistrum* in its white flowered form, and some Annual Mercury *Mercurialis annua*, with a female plant clearly showing its hairy fruit.

Finally, as we walked back towards the cars we explored the sad remains of what was the local social club. Having been burnt to the ground the imprint was now just crushed rubble however it gave opportunist plants a place to shine and here we found hundreds of Thyme-leaved Sandwort *Arenaria serpyllifolia* and small carpets of Small Toadflax *Chaenorhinum minus*.

Our thanks to Dave for leading such a pleasurable walk.

Fran Sinclair and Martin Buckland


Field Pennycress - Fran

Late news:

Mike Wilcox has determined a sample of the *Elymus* not as Sea Couch or even a hybrid, but as a form of Common Couch, the variable *Elymus repens* forma *repens*.

Mike encourages recorders to collect grasses and is always willing to look at specimens, especially for difficult groups. He is assisting the official BSBI referee for grasses and should be listed in the forthcoming Yearbook.

Bradford-on-Avon

24th September 2023

Leaders: Kat Newbert and Dave Green


Greater Dodder twining round a nettle stem - Karen Andrews

Twelve of us met at the town's railway station car park. This location was chosen because of its closeness to the river Avon and the nearby Kennet and Avon Canal, which we planned to explore. Along with the usual suspects, there were new people, some coming for the first time and some returning. Hopefully these will become regulars in the future.

An inauspicious start in the car park was quickly improved by a very nice specimen of Black Spleenwort *Asplenium adiantum-nigrum* on an old wall. Moving on, we had hardly arrived at the Avon when we came upon a population of Greater Dodder *Cuscuta europaea*, a nationally scarce species, and the first of quite a number of separate populations that we would see during our walk. This plant is almost purely associated with Common Nettle *Urtica dioica*, and parasitizes it by adhering to the plant from which it gets its nourishment. Adjacent to this were a number of plants of Sherard's Downy-rose *Rosa sherardii*, one of the glandular roses. It is easily separated from the plethora of other similar *Rosa* species, and as here, is often planted by local authorities.

We moved downstream to the mediaeval Barton Bridge, and grapnels were quickly brought out and effectively used. Sharon was able to show the group examples of the Loddon Pondweed, *Potamogeton nodosus*, a nationally rare species.

Moving towards the adjacent Kennet and Avon canal, we looked at a majestic, fully grown elm, which has recently been determined as the Siberian Elm *Ulmus pumila.* The canal was a difficult area to botanise, as it is heavily frequented by dog walkers and cyclists that continually use the towpath. The area is now peppered with residential barges, but amongst all this a number of interesting species still exist. These included Orange Balsam, *Impatiens capensis*, the species which has slowly increased its range along the canal over the last 30+ years, but is nowhere near as invasive as its Himalayan cousin.


Loddon Pondweed - Fran

Both pond-sedges, Greater *Carex riparia* and Lesser *C. acutiformis* were seen and also Hairy Sedge *C. hirta*. We discussed their finer points and the differences between these species. Only found in the county last year, and obviously increasing in its range was Beggarticks, *Bidens frondosa*. This species may well have been overlooked in recent years due to its close

resemblance to the commoner Trifid Bur-marigold *Bidens tripartita*. On reaching the temporary bridge across the canal, a couple of plants of Skullcap, *Scutellaria galericulata* were seen.

After this, we left the canal via a steep flight of steps and, passing through some secondary woodland, we arrived on the valley floor in the country park, again by the River Avon. This area had been set aside some years ago to create a *Salix* labyrinth, wildflower meadow and an artificially created pond. Investigating the pond we found Ivy-leaved Duckweed *Lemna trisulca* and Rigid Hornwort *Ceratophyllum demersum*.

At this point, we were all looking for somewhere for lunch, and while walking back up river, we noted a most magnificent stand of Caucasian Wingnut trees, *Pterocarya fraxinifolia*, which has stood here for well over 100 years on the opposite bank of the River Avon.

After a quick lunch we moved to continue our return journey. The riverbank did not have many opportunities to hunt for aquatic or emergent species, and one period of excitement was when Kat's grapnel became securely lodged in the riverbed, and after much heaving the good office of a passing canoeist was used, and the grapnel was eventually brought back to the bank safely.

When returning to the mediaeval bridge, we passed into what is locally known as North Meadow. This is an area that has some dry lime-rich grassland that has been augmented with a grassland mix, Chicory *Cichorium intybus* being an obvious constituent. There is also an area of low-lying sections next to the river dominated by tall sedges and *Glyceria* forming in places swamp conditions. A number of our members were lost in this high vegetation for a while before we eventually returned to our cars.

Dave Green

Sharon demonstrates - Richard

Some Finnish Flora


Woad

Seeing Helsinki in glorious summer weather instead of with leaden skies and ice and slush underfoot was enjoyable enough - much as I love the city in winter, blue skies reflected in the harbour definitely look better than corrugated ice. Then I found carpets of Greater Sea-spurrey *Spergularia media*, mats of Creeping Cinquefoil *Potentilla reptans*, and concrete cracks filled with Blue Fleabane *Erigeron acris* (one of my favourites). My non-botanical brother was very patient with my exclamations of delight. I was surprised to also find a statuesque Woad *Isatis tinctoria* by the harbour wall.

This was no ordinary holiday, though; we were there for my son's wedding to his Finnish fiancée, which was taking place in Kinnula - a five hour drive north of Helsinki. Squashed in the back seat next to the wedding dress and a huge box of flowers, I mostly spent the journey trying to identify the verge flora as we whizzed by. My eyes revelled in the colours of the swathes of alien lupins while my brain condemned their ubiquity. I could also see that we were passing a lot of geraniums and thistles but no matter how fast I flicked my head I, unsurprisingly, couldn't identify them.

Around the house in Kinnula, where we held the wedding, reception, and several days subsequent R&R, I discovered three plants I'd neither seen nor been aware of before. The first of these, and the most numerous, was May Lily *Maianthemum bifolium*. An unassuming little plant, easily overlooked beneath equisetums, ferns and rubus of some kind but definitely repaid a closer look. They were going over so their tepals were mostly curled back giving the flowers a Turk's-cap appearance. Then I saw Chickweed-wintergreen *Lysimachia europaea* - what a starry little beauty! The third plant almost escaped my notice; this was Small Cow-wheat *Melampyrum sylvaticum*. My excitement was 'yes, dear-ed' in a bemused way by the others so I had to share my finds with the WBS WhatsApp group for some proper fellow-feeling and ID help/confirmation.

There were other nice but less exciting finds – just seeing plenty of Harebell *Campanula rotundifolia* was quite a treat – but botanising time was limited, naturally enough given the occasion. On our journey back south we paused for coffee at Jyväskylä and stretched our legs beside a huge lock – needless to say there were a few interesting plants here and there. I wondered if Rock Cinquefoil *Potentilla rupestris* had perhaps been planted. Studying the photo now, I'm more interested in an alchemilla I hadn't noticed at the time. It looks like Starry Lady's-mantle *A. acutiloba*...I wonder. A very pretty Hawkweedy thing took my eye and I wondered about a possible Thale Cress *Arabidopsis thaliana*, but it was all at the rush as I tried to keep up with the others.


Common Wintergreen


Chickweed-wintergreen

Twenty minutes south of Jyväskylä the car suddenly lost power as we were overtaking a truck on a long incline – fortunately Taina (Alex's new mother-in-law, and the driver) managed to


Greater Sea-spurrey

steer us close to the verge and, powered by sheer adrenalin, we were able to come to rest off the road at the beginning of a rocky track through scrub and mixed forest. The smell and steam encouraged us to make a quick exit, grabbing only our phones, but once pulses had returned to normal we shared our ignorance of car innards and Taina rang her partner to begin organising help. They all sat down to wait, so I moved out of the blazing sun (it was 30°C just about all the time we were in Finland) and into the shade a little further up the track. And there were the geraniums and thistles I'd been trying to identify on the journey north! As expected the former were Wood Crane's-billl *G. sylvaticum*, though in a very tasteful array of shades, and the latter... hmmm. Welted Thistle *Carduus crispus* was one of them, I think, and Meadow Thistle *Cirsium dissectum* another. However, my concentration and photography both suffered from having to be surreptitious, as it seemed tactless to take botanical advantage of our predicament. I couldn't resist a quick look over on the sunnier verge of the track though, where I was puzzled by pretty pinky-mauve stars floating above the thin vegetation. It wasn't until I was at home that I was able to ID them as Spreading Bellflower *Campanula patula*. And then, before being called back to the car because an unbelievably kind motorist had stopped and offered us and all our luggage a lift to the bus station in Heinola, I saw it. Even though I didn't know what it was I recognised having seen pictures of it; Common Wintergreen *Pyrola mino*r. So different from any other flower I knew – what a finale!

Fran Sinclair

All photos by Fran


Small Cow-wheat and May Lily


Rock Cinquefoil

Swedish woodlands and the elusive *Linnaea*

A typical pine and spruce woodland with heathland ground flora

This summer I visited an enchanting, wild country 1500 km from home – Sweden. Sweden may be known for flatpack furniture and winning Eurovision, but it also has a rich botanical history, and I was on a mission to find a British rarity.

My first stop was Uppsala, the former residence of Carl Linnaeus. Naturally, I was drawn to The Linnean Garden (Linnéträdgården), a 350-year-old botanical garden curated by Linnaeus himself. Entry to the garden is granted by a yellow sticker depicting his eponymous species, Twinflower *Linnaea borealis*. How wonderful. The garden was a perfect celebration of plants and taxonomy.

May Lily

A few days and several cinnamon buns later, I left the city behind and headed 200 km west to verdant Örebro and Västmanland Counties. Scots Pine *Pinus sylvestris* and Norway Spruce *Picea abies* woodland is frequent in the counties. These coniferous woodlands are not the desolate plantations we suffer, but are ancient, vibrant treescapes analogous to our Caledonian pinewoods. Epiphytic lichens crustosely adorn every tree. Bryophytes burgeon and

brim. I could not wait to explore! I had to find Twinflower.

In between lakeside relaxation, kayaking and excessive bun consumption, I would venture out into the Swedish wilderness. The woodlands were calling.


Oak Fern

Beneath the open pine and spruce, I wandered. Sparse Juniper *Juniperus communis* underscrub and glacial erratics loomed ancient and watchful, like the sarsen-strewn plains of home. Dwarf-shrub and lichen heath mosaics of Bilberry *Vaccinium myrtillus*, Cowberry *V. vitis-idaea*, Crowberry *Empetrum nigrum*, Heather *Calluna vulgaris* and lichens *Cladonia* spp. were typical on the shallow, acidic soils. Siskins *Spinus spinus* and Linnets *Linnaria cannabina* called, Long-tailed Tits *Aegithalos caudatus* played in the branches and Nuthatches *Sitta europaea* scratched at the pines.


Twinflower

In poorly drained areas, blanket bog presided with heavy air and eerie silence. Hare's-tail Cottongrass *Eriophorum vaginatum* was in a tussocky abundance. Labrador-tea *Rhododendron tomentosum*, Bog Bilberry *V. uliginosum* and Bog-rosemary *Andromeda polifolia* defiantly pierced the sedgey sward. Mystical, if you can call a bog that…

Under closed canopies and in richer soils, the woodland had a different story to tell. Babbling woodland streams were lined by inviting fronds of Beech Fern *Phegopteris connectilis* and delicate dusters of Wood Horsetail *Equisetum sylvaticum* that tickled all who approached. Patches of May Lily *Maianthemum bifolium*, Chickweed-wintergreen *Lysimachia europaea* and, my favourite species, Oak Fern *Gymnocarpium dryopteris* festooned the woodland floor.

One plant had continued to elude me, however – Twinflower. Linneaus' plant. Was Uppsala taunting or foreshadowing? That question wasn't answered until the day before my flight home.

Towards the end of a final woodland walk I reluctantly plodded back to the car. As the path wiggled and meandered, I approached a clearing flushed with herbaceous growth. Encouraged by the greenery I redoubled my efforts. After a few minutes of searching, there it was, Twinflower, rather anonymously creeping along the mossy floor. The plants had finished flowering, but seeing it felt no less special and completed an excellent holiday.

…Oh, but not before one last cinnamon bun!

Sam Braine


Some excellent Swedish buns

Conservation organisations 3: BSBI

This is the third in a series of articles about conservation organisations that support, inform, manage or petition on behalf of the flora of Great Britain and beyond. It is now time to introduce to you the Botanical Society of Britain & Ireland (BSBI).

The BSBI is for everyone who is interested in the flora of Britain and Ireland. It can trace its origins back to 1836, when the society was founded as the Botanical Society of London. It is now one of the world's largest contributors of biological records with its data informing scientific research and underpinning evidence-based conservation.
From its earliest days they have welcomed both professional and amateur members. The BSBI remains the biggest and most active organisation devoted to the study of botany in Britain, Ireland, the Channel Isles, and the Isle of Man. Its training, outreach and research programmes continue to support botanists at all skill levels.

An education and training grants programme supported by the BSBI aims to bring high quality botanical training within the reach of all; scientific research on British botany is supported by its staff and officers, and through the research grants scheme, while the outreach activities helps them to reach new audiences and attract the next generation of botanists.

The BSBI produces national Atlases and county Floras of the distribution of plants. It also publishes British and Irish Botany and holds conferences, workshops, indoor and field meetings. Members are kept informed by a newsletter three times a year and are invited to make use of a system of County Recorders and national referees who can help with the identification of plants.

BSBI Mission statement:

- To advance the study, understanding and enjoyment of wild plants and support their conservation in Britain and Ireland. This will be achieved through:
- Providing a forum for botanists to communicate and exchange ideas through meetings, conferences, publications, and electronic media.
- Training the next generation of botanists through courses, field meetings, grants, and educational materials.
- Supporting the research and study of plants in Britain and Ireland through its network of county recorders, the work of their staff, access to data, and through grants.
- Working with people in other organisations and other countries to encourage communication and collaboration in pursuit of shared objectives.

Activities, Projects, and Resources

Getting you started

The BSBI and its partners will assist and encourage new botanists to get out into the wild by advising them on plant ID books, support through social media, information on other websites and online keys for plant identification plus how to select and use a hand-lens. BSBI also provides an annual field meeting programme and list of indoor and online events. Just some of the activities, projects and resources are shown below.

Plant identification

The BSBI's online pages at http://bsbi.org provides plenty of resources for the beginner with links to a Helpful Hints page, reviews of plant ID books, tips on ID resources plus links to some other groups resources on social media that offer ID help. The BSBI also has a dedicated plant ID: getting started page for helpful ID sheets and web pages. In addition, the BSBI has also published a range of handbooks for difficult plants that are available to purchase by hard copy or obtainable digitally.

National Plant Monitoring Scheme (NPMS)
This is a scientific scheme for volunteers to collect and record data annually in five plots within an allocated 1km square to provide a much needed indication of changes in plant abundance, diversity, and their habitats. This is a joint operation with the Botanical Society of Britain & Ireland, the Centre for Ecology & Hydrology and The Joint Nature Conservation Committee.

Field Meetings
Every year the BSBI provide a programme of events across the country; divided into areas of interest and skill level – *General*: for all botanists of all abilities exploring the general interest of an area. *Beginners*: these meetings are aimed at anyone who is just getting started with botany. *Training*: to sharpen up your skills and aimed at different levels i.e. beginners or specialists. *Recording*: generally catering for a wide range of skills and often consisting of gathering data for a local flora project. *Specialist*: meetings that concentrate on one particular family or a single species and aimed at the more experienced botanist.

Plant Alert
This is a project aimed at discovering which garden plants have the potential to become invasive and problematic in future. Gardeners across Britain and Ireland are being asked to report potentially invasive garden plants using the new Plant Alert web page: https://plantalert.org/

Why is Plant Alert so important?
The majority of invasive plants in the UK - such as Japanese knotweed and Himalayan balsam - were initially introduced as ornamental plants and then spread from gardens into the wider environment. To prevent further plant invasions, gardeners can help by reporting plants that are spreading in their gardens right now and are proving difficult to control. The aim is to help monitor potentially invasive garden plants over time and hopefully detect species that have up to now not shown clear signs of invasiveness but could do so in a changing climate.

LOst Rarities in England (LORE)
This BSBI England Project revolves around "LOst Rarities in England", hence project LORE. The aim, primarily, is to look for plants not seen in a hectad for over 20 years. However project LORE is an enabling framework that will allow botanists from beginner members to experienced vice-county recorders to choose an element that interests them.

Options for participation include targeting a local site, habitat, parish or hectad and looking for common, declining, or rare plants that have apparently been lost. There should be something for everyone. The project may not produce many scientific results, but if it helps people to get involved in recording, or writing material for the England Botanical Newsletter it will be a success.

Referees
One of the many resources available to members is access to plant referees. These are individuals who specialise in the intricacies of identification of a species or family group so that when that 'strange' plant you found has baffled even your local BSBI Recorder then there is the ability to forward material on for a definitive answer.

Atlas 2020 (now completed)
Plant Atlas 2020 is the most in-depth survey of the British and Irish flora ever undertaken. It builds on two previous plant distribution atlases published by the BSBI in the twentieth century. Plant Atlas 2020 will serve as an essential resource for the study and conservation of our wild plants and their vitally important habitats for decades to come.

Thousands of botanists spent 20 years recording wild and naturalised plants across Britain and Ireland. They collected more than 30 million records which fed into the Plant Atlas 2020 website, book, and summary reports.

How can you help?
Whilst the BSBI Atlas has finished, the Wiltshire Botanical Society's own mission to complete a survey of the flora of Wiltshire 2000-2024 is an extension of the BSBI's project. You can help towards this by sending any records, numerous or few to either of the BSBI Wiltshire County Recorders, Richard Aisbitt or Kat Newbert.

Distribution maps
The BSBI has an online *Distribution map* resource that allows the user to enter a plant name and discover its distribution anywhere in the country. The majority of records start with the Atlas publication that was produced in 1962 but it also includes records from 1930 onwards. Since then the map has been added to greatly, firstly in 2002 with the publication of an updated *New Atlas of the British and Irish Flora* and from 2020 with the production of *Plants Atlas 2020.*

The BSBI operates a *Distribution Database (DDb)* as a central store for all its records of plants. At present it contains over 50 million biological records and grows by several million records each year. The database stores full details of occurrence records and is used by the county recorders and taxon referees who are responsible for curating and correcting any mistakes. Licensing and confidentiality constraints and the need to protect sensitive records prohibits public access and because this is research-level, live data it is not appropriate for the general public or ecology consultancies to have it available. Researchers or documenters collaborating on a BSBI project or writing a local flora or rare plant register can apply for access.

Membership
All the above detail and much, much more can be found on the BSBI's website. You will also receive a member's magazine three times a year and member's only access to more information online. The costs for annual membership are:

- Individual: £39.
- Student: £17. (under the age of 25 or a registered student in possession of a student card).
- Family/Joint Membership: £45 for up to four members at a single address (no separate mailings).

Subscriptions are due on the 1st of January each year. *If begun after 1st October, the membership lasts until 31st December of the following year.*

If you love wild flowers and believe in the type of work that BSBI carries out then do please consider joining their membership.

Acknowledgement
Much of this material comes directly from the BSBI website, with permission from Louise Marsh, BSBI Communications Officer.

Martin Buckland

PS: When I started botanising 11 years ago I was very much a beginner however I joined the BSBI. True, I found their newsletter a little sciencey at first but the availability of their online resources and handbooks to purchase plus the occasional BSBI meeting (and lots of WBS meetings) has taught me a lot. I suggest you give them a try too.

Identiplant

Would you like to improve your botanical skills? The one-year Identiplant course helps you to use floras and keys to identify plants confidently and accurately. It ran as a web-based course for a number of years, but has now been taken on by the BSBI and works through email.

It consists of fifteen units, the first few concentrating on plant structure, the features used in identification, and keys. The rest focus on a number of plant families, giving their features and a run-down of plants that you are likely to come across. You will need to find and identify some of these plants and complete a question sheet for each unit.

You will have the support of a local tutor who will give you feedback on your answers and advice on finding plants.

If you are interested, take a look at the BSBI website at https://identiplant.bsbi.org/, which gives more information, sample units and a sample question sheet. Next year's enrolment opens on 1st December 2023 and the course runs from February 2024 to September 2024. Several WBS members completed the course in previous years.

The course needs new tutors too …

Richard Aisbitt

Grasses and grassland in Wiltshire

Steve Jackson

I want to start with a confession. In the past, my recording of plant species has not been as thorough as one would wish. I neglected the grasses. Has this ever been you? I am trying to make amends! This article is as much to help me increase my knowledge of grasses and grasslands as anything else.

But grasses **are** incredibly important. They make up some of the world's major biomes. The north American prairies, the African savannas, the pampas of southern America, the steppes of Asia. At a more provincial scale, they occur as calcareous grasslands, they cover large areas of the uplands, and are common in river floodplains; and large areas of grassland are managed as pasture or for amenity purposes. We are told that we have lost many areas of grassland such as hay meadows and water meadows.

In addition, grasses supply much of the world's food – wheat, barley, rye, oats, maize, rice, millet, sorghum. Most of these can be used to produce alcoholic drinks. I have yet to finish my bottle of Barbados sugar cane brandy! Bamboo is noted for other uses such as in construction and for fabrics. And we all know the meaning of pampas grass in the garden! [Yes, I do have one; and No, I never have!] Grasses are also food for a wide range of animal species.

Grasses help in defining and naming communities in the National Vegetation Classification. For example, species so used for calcareous communities include: *Helictochloa pratensis*, *Avenula pubescens, Brachypodium rupestre, Bromopsis erecta,* and *Festuca ovina*. Included for mesotrophic grasslands are *Arrhenatherum elatius* and *Anthoxanthum odoratum*; while calcifugous grasslands include *Avenella flexuosa* and *Nardus stricta*. Several open habitats in the NVC are named using *Poa annua*, and a number of mires named using *Molinia caerulea*. [Common names of species may be found in the Appendix.]

Many areas of Wiltshire are grassland. Of particular importance is Salisbury Plain - a Special Area of Conservation, a SSSI (19689.9 ha), and along with Cranborne Chase and Pewsey Downs an Important Plant Area. The Plain is "believed to be the largest surviving semi-natural dry grassland within the EU and is therefore the most important site for this habitat in the UK. It supports extensive examples of CG3 *Bromus erectus* grassland, which is the most widespread and abundant calcareous grassland found in the UK. It also contains extensive areas of the rare CG7 *Festuca ovina – Hieracium pilosella – Thymus praecox* grassland, and one of the largest examples of CG6 *Avenula pubescens* grassland."[1] Many other grassland SSSIs have been designated in Wiltshire ranging from the small unimproved neutral grassland of Acres Farm Meadow (4.2 ha), through those of moderate size such as Calstone & Cherhill Downs (128.6 ha) which is an extensive area of herb-rich chalk grassland, to the larger such as Porton Down (1561.8 ha, although not all in Wiltshire) notified for its calcareous grassland communities.

As a consequence of extensive areas of important grassland and past and present human impacts, it is not surprising that various schemes have developed to manage these areas more sympathetically. For example, the 'Save Our Magnificent Meadows' project has worked at six sites in Wiltshire[2], whereas the 'Marlborough Downs Nature Enhancement Partnership' has been working in that specific area recording, mapping, and enhancing the chalk grassland.[3]

For Wiltshire, over 140 grass taxa are listed in the BSBI database (including subspecies, varieties, hybrids, aggregates, those recorded as *sensu lato* or *sensu stricto,* etc.). The most frequently recorded and widespread are shown in Table 1. These 18 taxa account for over 65% of the grass records in Wiltshire since 2000. If we use the number of records as a proxy for abundance and the number of occupied hectads as a proxy for distribution, the relationship in Figure 1 is produced. This pattern is a common one in ecology and several hypotheses have been suggested to explain this finding and have been reviewed by Borregaard & Rahbek (2010).[4] And, of course, each of these grasses has its own place in the multidimensional niche space (Figure 2)! The rare grasses may be found in Buckland (2022).[5]

[1] https://sac.jncc.gov.uk/site/UK0012683 [9.3.23]
[2] https://sac.jncc.gov.uk/site/UK0012683 [9.3.23]
[3] https://www.spacefornature.net/grassland [9.3.23]
[4] Borregaard, MK & Rahbek, C 2010 Causality of the relationship between geographic distribution and species abundance. *Quarterly Review of Biology* 85(1), 3-25
[5] Buckland, M 2022 *The rare plants of Wiltshire 2000-2020*. Available on the WBS website.

Table 1. Most frequently recorded grass taxa in Wiltshire (species with >1000 records, 2000 to 8.3.2023) and number of occupied hectads.

Taxon	No. of records	No. of occupied hectads
Dactylis glomerata	3478	52
Holcus lanatus	2930	51
Arrhenatherum elatius	2731	50
Lolium perenne	2338	50
Brachypodium sylvaticum	2240	51
Poa trivialis	2150	50
Agrostis stolonifera	2063	51
Poa annua	1844	50
Festuca rubra	1720	50
Deschampsia cespitosa	1551	49
Bromopsis erecta	1339	44
Cynosurus cristatus	1312	50
Anisantha sterilis	1302	49
Anthoxanthum odoratum	1288	49
Agrostis capillaris	1271	50
Bromus hordeaceus	1081	48
Phleum pratense s.s.	1078	50
Briza media	1075	46

Figure 1. Abundance-distribution relationship for all Wiltshire grass taxa. Each point represents a taxon and shows the number of records and the number of hectads in which it occurs. 2000 to 8.3.2023.

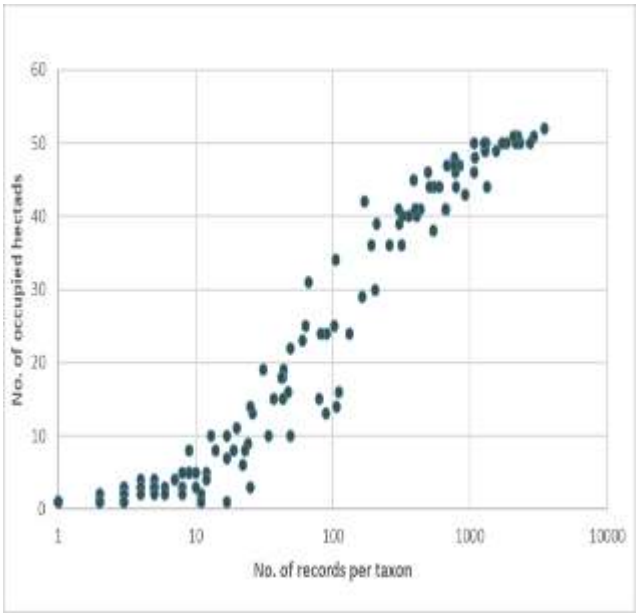
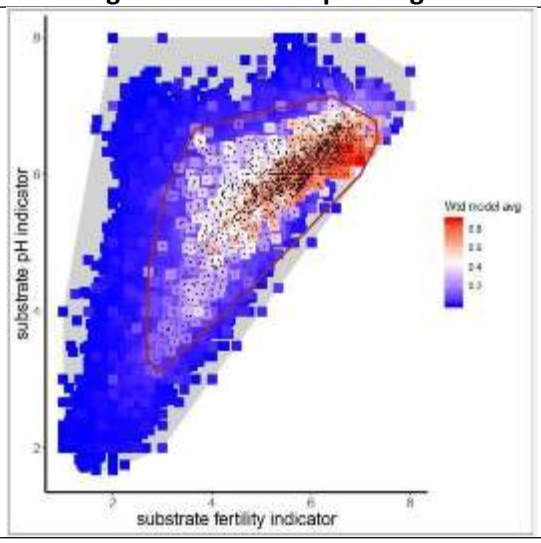
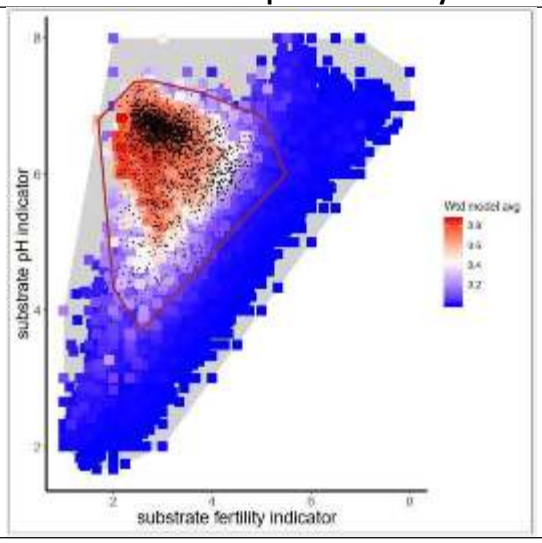


Figure 2. Two examples of grasses in their ecological niche in relation to pH and fertility.



Poa annua



Briza media

Based on the MultiMOVE niche model (https://shiny-apps.ceh.ac.uk/find_your_niche/). The indicators are those of Ellenberg. Grey – ecological space that contains all the training quadrats; squares – shaded to indicate the predicted habitat suitability for the species; black dots – quadrats in which the species was observed.

Identification

Given that grasses are a very important part of the Wiltshire flora, we should make every effort to identify and record them. The standard flora for the British Isles is Stace (2019)[6] but this is not to everyone's taste. Streeter (2016)[7] is a reasonable alternative. If you want a book specifically on grasses then the BSBI Handbook by Cope & Gray (2009)[8] may be to your liking. Often, grasses may be in their vegetative state, in which case Poland & Clement (2020)[9] may

[6] Stace, C 2019 *New flora of the British Isles*. C & M Floristics.
[7] Streeter, D 2016 *Collins wild flower guide*. Collins.
[8] Cope, T & Gray, A 2009 *Grasses of the British Isles*. BSBI.
[9] Poland, J & Clement, E 2020 *The vegetative key to the British flora*. J Poland.

prove useful. For something a little more user-friendly, there is Wallace (2021).[10] Or you could download to your mobile phone a multi-access key produced by the Field Studies Council.[11] Ken Adams has produced a very useful set of grass identification handouts that can be downloaded from his website.[12] It is certainly necessary to get to grips with grass anatomy! Knowing your ligules, awns, and auricles can be useful!

Figure 3. Ligules, Awns and Auricles

Ligules
Vary in size and shape. May be membranous, vascular, or hairs. Functions may include a protective one to keep out water, dust, or spores. They may also excrete chemicals that assist in leaf development.

Chaffey, N 2000 Physiological anatomy and function of the membranous grass ligule. *New Phytologist* 146, 5-21.

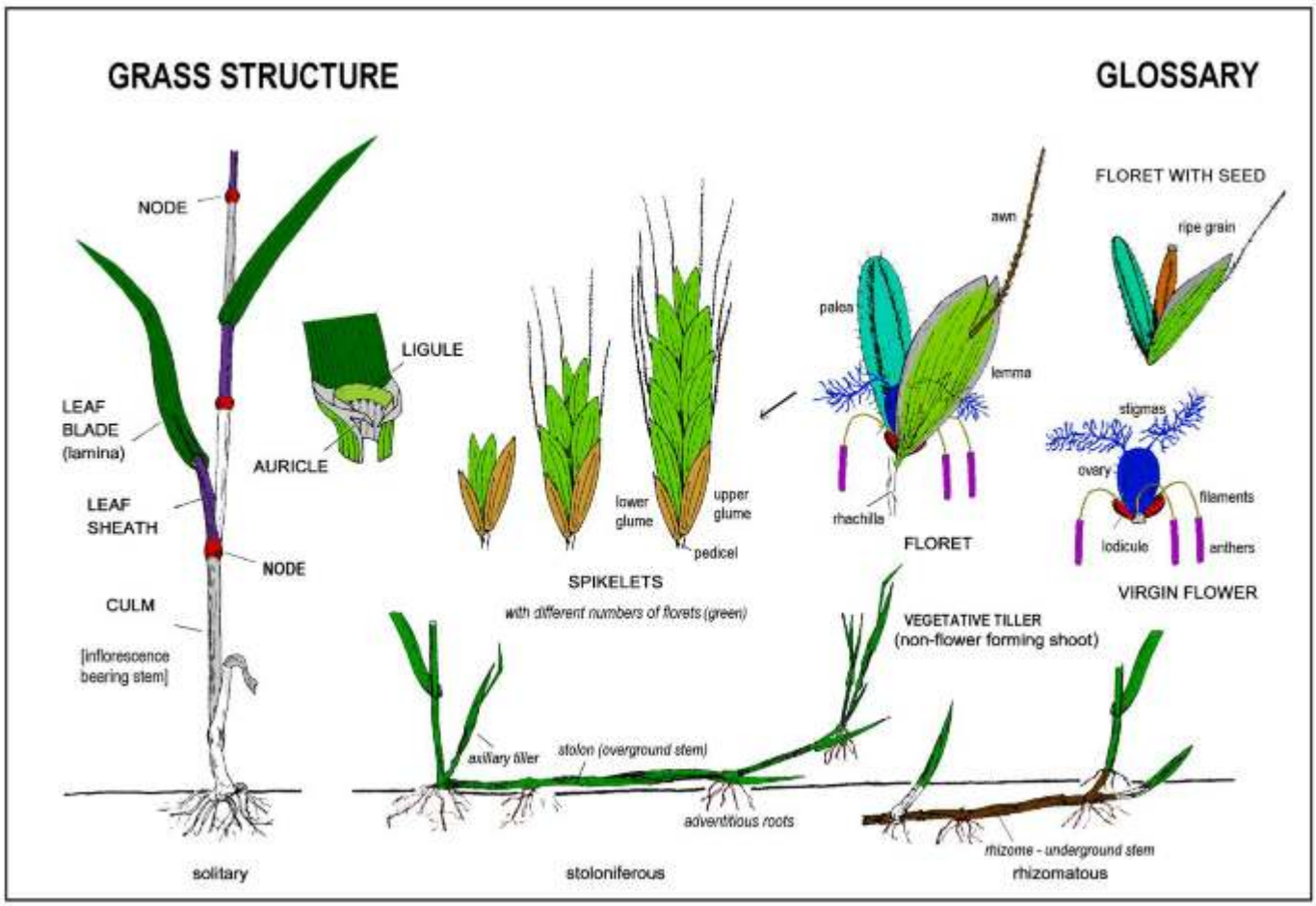
Awns
They have been lost and regained several times. They affect agricultural yield and may have seed dispersal functions including soil burial, epizoochory, and aerial orientation. They may also protect the seed from drought, herbivores, or fire by helping it become buried in the soil. In some species, awns photosynthesise.

Petersen, KB & Kellogg, EA 2022 Diverse ecological functions and convergent evolution of grass awns. *American Journal of Botany* 109, 1331-1345.

Auricles
The only paper I can find suggests that they are important in determining the leaf angle to the stem in maize. They may also help in keeping the ligule close to the stem, or as drip points to help in removing water. Please let me know if you have come across any other information.

Kong *et al.* 2017 Regulation of leaf angle by auricle development in maize. *Molecular Plant* 10, 516–519.

Figure 4. Grass structure and terminology (Source: Ken's Keys http://www.kenadams.org.uk/esb/ken's%20Keys.htm)



[10] Wallace, H 2021 *Grasses: a guide to identification using vegetative characters*. FSC.
[11] https://www.fscbiodiversity.uk/punch-card-grasses-key-identikit
[12] http://www.kenadams.org.uk/esb/ken's%20Keys.htm

Main grassland types in Wiltshire

Broadly speaking, grassland types may be divided into acid, neutral, and calcareous, based primarily on the level of soil acidity (pH) and calcium carbonate content, a division recognised and consistently used since the early days of Tansley (1911)[13], to Duffey *et al*. (1974)[14], and more recently in the NVC and Lake *et al*. 2015[15]

Acid grasslands are limited in extent in Wiltshire (probably less than 50 ha – although acid grassland surveys appear to have been limited), mostly fragmentary, and occur mostly in the south east of the county on the edges of the New Forest and the Midvale Ridge. The main grassland communities appear to be U1 *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland; U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland; and possibly fragments of U3 *Agrostis curtisii* grassland.[16] U20a *Pteridium aquilinum-Galium saxatile* community, *Anthoxanthum odoratum* sub-community has been recorded on Gutch Common.

Mesotrophic (neutral) grasslands are widespread and common in Wiltshire and on a broad scale have been well-described by Wells & King (1975)[17] as well as for specific localities such as the Salisbury Plain Training Area (Walker & Pywell 2000).[18] Wells & King identified four main types of neutral grassland plus two others on water meadows, none of which were named. Walker & Pywell found that MG1 *Arrhenatherum elatius* grassland was the most extensive, followed by MG7 *Lolium perenne* leys and related grasslands, MG6 *Lolium perenne - Cynosurus cristatus* pasture, and then MG11 *Festuca rubra - Agrostis stolonifera – Potentilla anserina* inundation grassland. Table 2 compares the findings from these two studies. Floodplains develop communities adapted to moister conditions such as MG8 *Cynosurus cristatus-Caltha palustris* grassland at Wylye where the constant grass species are *Cynosurus cristatus, Festuca rubra, Holcus lanatus, Anthoxanthum odoratum, and Poa trivialis. Lolium perenne* (and all its varieties), of course, is dominant in agricultural leys and pastures and, together with clover, was the main grass of the various seed mixtures suggested by early grassland scientist George Stapledon.[19]

Table 2. Comparison of D Wells & King's data with the NVC communities mapped by Walker & Pywell.

	D Wells & King				Walker & Pywell			
	A	B	C	D	MG1	MG7	MG6	MG11
	% occurrence in 1 m^2 quadrats (1)				Constancy values (2)			
Agrostis capillaris							IV/V	
Agrostis stolonifera								IV/V
Alopecurus pratensis	83	62				V		
Anthoxanthum odoratum	81	85		83			V	
Arrhenatherum elatius					IV/V			
Cynosurus cristatus		69					IV/V	
Dactylis glomerata					IV/V	IV/V	IV/V	
Festuca rubra	98	92	90	89	IV		IV	IV/V
Holcus lanatus	69	85	90	100	IV	IV	IV/V	
Lolium perenne	64					IV/V	V	V
Phleum pratense						IV	V	
***Poa pratensis* sens.lat.**						V		
Poa trivialis			70			V		
Trisetum flavescens							V	
(1) Values given are for 61% and above (NVC 'constants').								
(2) Constancy values for NVC communities and sub-communities. IV - 61-80% constancy; V - 81-100% constancy.								

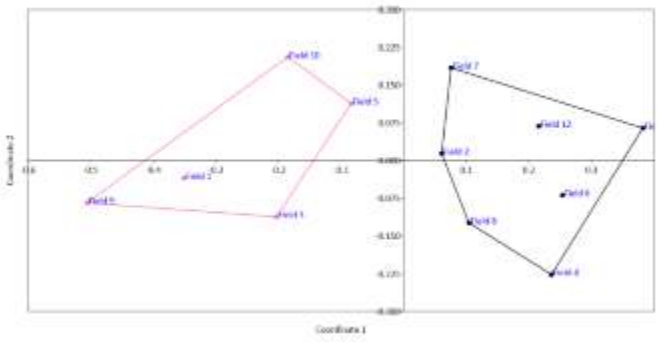
[13] Tansley, AG (ed.) *Types of British vegetation*. CUP.
[14] Duffey *et al*. 1974 *Grassland ecology and wildlife management*. Chapman & Hall.
[15] Lake *et al*. 2015 *Britain's habitats*. Princeton UP.
[16] Sanderson. NA 1998 *A review of the extent, conservation interest and management of lowland acid grassland in England*. English Nature Research Reports No. 259. See also: Norton, J 2022 A field guide to the NVC – Part 6: lowland dry acid grassland. *Flora News* No. 62 February 2022, 40-51.
[17] Wells, DA & King, N 1975 The flora of neutral grasslands in Wiltshire. In: Stern, LF *Supplement to the flora of Wiltshire*. Pp. 127-136.
[18] Walker, K & Pywell, R 2000 Grassland communities on Salisbury Plain Training Area. *Wiltshire Botany* 3, 15-27.
[19] Stapledon, RG & Davies, W 1948 *Ley farming*. Faber & Faber.

Franchises Lodge RSPB Reserve

Land Utilisation Survey of Britain map of the Pimlico area of Franchises Lodge

(Reproduced with the permission of the National Library of Scotland https://maps.nls.uk/view/241043503)

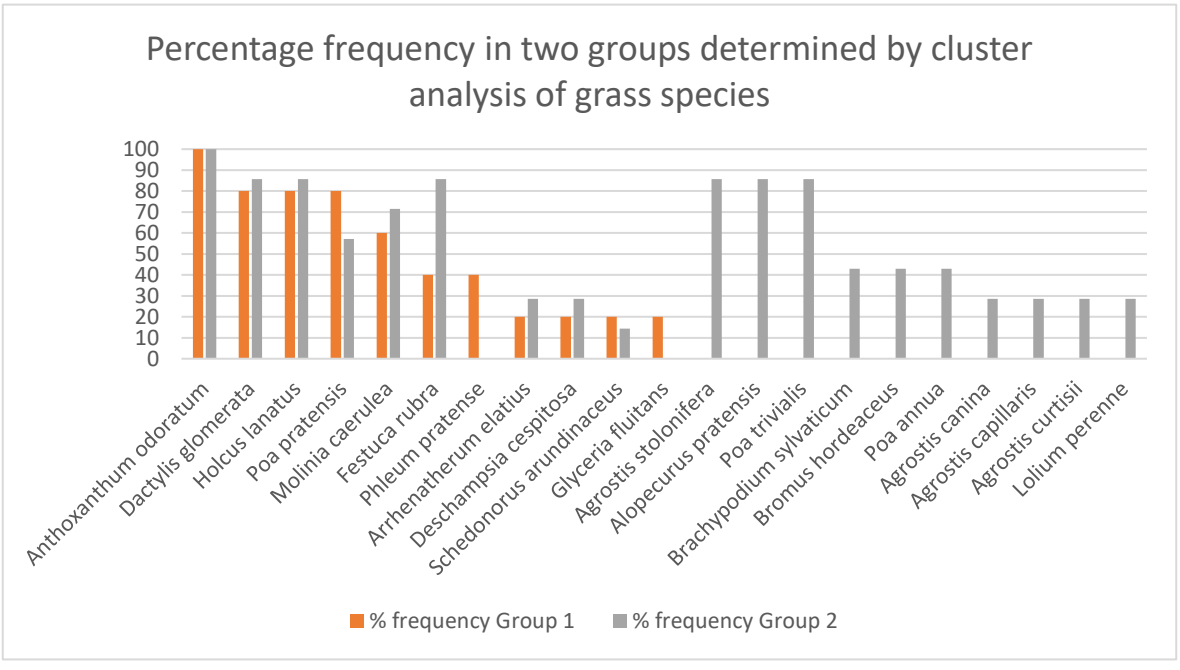
(Green – Forest and woodland; Brown – arable land; Green horizontal stripes – Meadowland and permanent grass; Yellow – Heath and moorland)



Pink – Group 1; Black – Group 2.

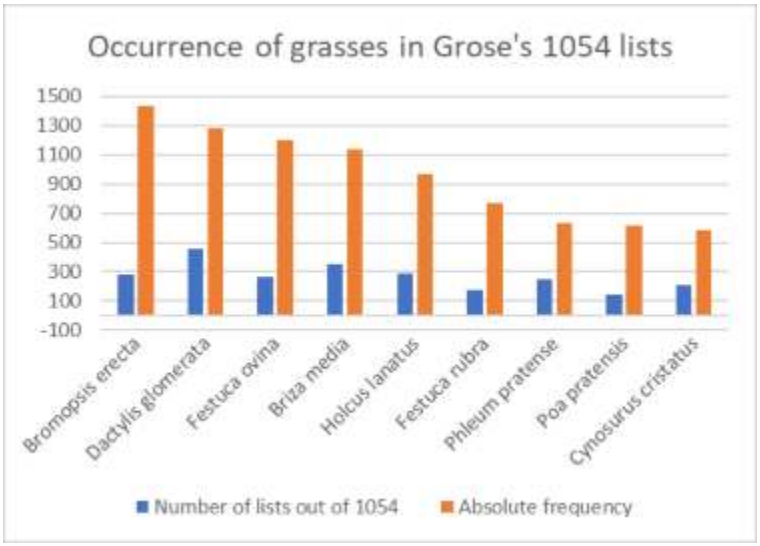
In May 2019 a group of WBS members surveyed 12 fairly ordinary neutral grassland fields in the new RSPB reserve in the south of the county. Two of these areas are SSSIs and had been classified as being in unfavourable condition, one stable the other declining, primarily due to under-grazing and inappropriate scrub control. Although the fields are currently grassland, this has not always been so. In the 1930s there were areas of arable land, heath and moorland, forest and woodland, as well as a small area of meadow or permanent grass.

Taking the 12 fields as plots and using MAVIS to assign them to an NVC community, the results suggest a community of MG8 (*Cynosurus cristatus-Carex panicea-Caltha palustris* grassland), MG8d (*Caltha palustris-Bellis perennis*) as most likely (47% match) or MG8b (Typical subcommunity, 46% match). Cluster analysis of the grasses present suggests that the fields may be divided into two groups (below), which slightly improved the fit with the NVC categories (Group 1 – MG8b, 50%; Group 2 – MG8d, 46%). The estimated Ellenberg indicators for each field are very similar with wetness ranging from 5.5 to 6.6, pH from 5.4 to 5.9, and fertility 4.3 to 5.2, and do not immediately suggest reasons for the differences between the two groups. More detailed analysis using non-metric multidimensional scaling, however, clearly differentiated the two groups (opposite), with the horizontal axis weakly correlating with the estimated Ellenberg fertility indicator, and the vertical axis weakly correlating with the estimated Ellenberg wetness indicator. This is a similar result to that found by Wallace & Prosser in their review of the Calthion



[20] Wallace, H & Prosser, M nd *A review of the National Vegetation Classification for the Calthion group of plant communities in England and Wales*. Ecological Surveys (Bangor) and Floodplain Meadows Partnership.

Calcareous grasslands occupy extensive tracts of the southern, central, and north eastern parts of the county. They have been studied county-wide by Grose (1957)[21], who produced 1054 species lists for calcareous grassland sites, and Wells (1975)[22]; mapped for the SPTA by Walker & Pywell (2000); examined in relation to land use on Porton Down by Wells *et al*. (1976)[23]; studied on Morgan's Hill by Denning (2000)[24]; and found in a variety of other locations such as road cuttings (Pilkington, 2017)[25].



Between 1942 and 1954 Grose undertook an extensive survey of the county making species lists and estimating plant frequency for areas of roughly 200-300 square metres. 1054 of these lists were for grassland on calcareous soils. The chart (left) shows how many of these sites contained the top nine grass species (blue) and 'absolute frequency' (orange). Whether a plant is present or not gives no indication of its importance to the habitat. To overcome this, Grose gave values (10, 6, 3, 1) to the frequency classes (abundant, frequent, occasional, rare), and by doing some simple multiplications and additions produced the 'absolute frequency' score, indicating the significance of the species.

Wells identified a number of grassland types (with constant grasses) including:

- ***Festuca ovina/rubra* grasslands**: *Festuca ovina/rubra, Briza media, Dactylis glomerata, Helictochloa pratensis, Koeleria cristata*
- ***Carex humilis* grassland***: Festuca ovina/rubra, Briza media, Helictochloa pratensis, Koeleria macrantha*
- ***Bromopsis erecta* grasslands**: *Festuca ovina/rubra, Bromopsis erecta*
- ***Brachypodium rupestre* grasslands**: *Brachypodium rupestre, Dactylis glomerata, Festuca rubra*.

The most common grassland type on the SPTA is CG3 *Bromus erectus* grassland (>8000 ha, 90% of the Wiltshire total) where *Bromopsis erecta* (current name) covers more than 10% of the sward with CG3d *Festuca rubra-Festuca arundinacea* sub-community covering over 6800 ha.

Morgan's Hill is characterised by a mosaic of grassland types that intergrade with each other.

The soils of many of these grasslands is the rendzina, consisting of a shallow, high pH/calcium carbonate content horizon directly on chalk bedrock.[26]

Impacts, changes, and restoration

The occurrence and status of grasses and grassland is not static: changes may occur in populations and distributions; classification of grasses and grasslands may change; many communities may intergrade with each other; and studies may not be replicable, leading to different conclusions. For example, new plant communities may be described such as '*Agrostis stolonifera-Carex* spp. grassland' from the Somerset Levels[27]; sections of the NVC may be reviewed and new plant associations suggested[28]; or new indicator species suggested for particular habitats[29]. In this context, Stroh

[21] Grose, D 1957 *The flora of Wiltshire*. Wiltshire Archaeological and Natural History Society.
[22] Wells, TCE 1975 The floristic composition of chalk grassland in Wiltshire. In: Stearn, LF *Supplement to the flora of Wiltshire*. Pp. 99-125.
[23] Wells *et al*. 1976 Ecological studies on the Porton Ranges: relationships between vegetation, soils and land-use history. *Journal of Ecology* 64(2), 589-626.
[24] Denning, L 2002 Vegetation community assessment at Morgan's Hill, Wiltshire. *Wiltshire Botany* 5, 17-24.
[25] Pilkington, S 2017 *A303 Stonehenge to Berwick Down enhancements – botanical assessment*. Vegetation Survey & Assessment Ltd.
[26] Curtis, LF *et al*. 1976 *Soils in the British Isles*. Longman.
[27] Cox, WP & Leach, SJ 1995 '*Agrostis stolonifera-Carex* spp. grassland': a new plant community described from the Somerset Levels. *Proceedings of Somerset Archaeology and Natural History Society* 139, 221-226.
[28] Wallace, H & Prosser, M nd *A review of the National Vegetation Classification for the Calthion group of plant communities in England and Wales*. Ecological Surveys (Bangor) and Floodplain Meadows Partnership.
[29] Norton, J 2019 A proposed new vascular plant indicator list for lowland acid grassland. *Flora News* 57, 24-30.

et al. (2019)[30] discuss the following factors that may lead to change in lowland grasslands: too little management – neglect and abandonment; too much management – the continued threat from 'improvement'; atmospheric pollution; fragmentation and isolation; climate change; pollinators; invasive non-natives; and conservation policies.

At the national level, late 20th century changes can be followed in Braithwaite *et al*. 2006[31] and Plant Atlas 2020[32] extends
the period of change both backwards and brings the picture up to date. Many of the above impacts and changes have been studied using data collected solely in Wiltshire or where Wiltshire data contributed to the study.

Hirst *et al*. (2003[33], 2005[34]) studied disturbance on the SPTA and showed that chalk grassland is less resilient than mesotrophic grasslands, and that the resilience to disturbance varies with vehicle type. Changes in grazing regimes may also impact grasslands. Ridding *et al*.,[35] however, in a study of Martin Down, showed that changes in seasonal grazing patterns had little impact. Nevertheless, reductions in livestock or rabbit grazing, coupled with other factors such as the deposition of atmospheric nitrogen, may allow competitive species, such as *Brachypodium rupestre*, to negatively impact the species diversity of calcareous grasslands. Redhead *et al*. 2019[36] conducted a series of herbicide trials on Martin Down to eradicate the species but concluded that herbicide treatments are unlikely to offer a good control measure.

The drivers of change may vary in different time periods. Ridding *et al*. 2020[37] studied the plants at Parsonage Down between 1970 and 2016 showing changes in composition and declines in diversity. In the period 1970-1990, the changes were attributed to increased nitrogen deposition, whereas the changes from 1990-2016 were more likely due to decreases in grazing pressure. Stroh *et al*. 2017[38] using 1960s quadrat data from Wiltshire (and elsewhere) that contained *Tephroseris integrifolia subsp. integrifolia* found similar results.

The responses to the above negative changes fall into two main categories: to allow natural regeneration (which is gaining popularity in relation to woodland), or, to actively intervene to encourage changes in the desired direction. The former may take a considerable time. Redhead *et al*. 2013, using data over a period of 150 years from the SPTA, suggests that 'natural regeneration to a community resembling ancient calcareous grassland in terms of functional traits and plant community composition takes over a century, although changes at the level of individual species may occur much earlier'.[39] More rapid results may be achieved by active intervention as was the case at Lower Moor Farm where a grazed pasture was converted to a managed meadow by the use of green hay from a nearby donor field.[40]

Finally, if you are going to look at one 'grassy' book, let me suggest one by David Bellamy in which he takes leisurely strolls through a variety of grasslands with well-known botanists such as Frank Perring, Francis Rose, and David Streeter, looking at the landscape, plants, and other points of interest.[41] Enjoy your grasslands!

[30] Stroh *et al*. 2019 *Grassland plants of the British and Irish lowlands: ecology, threats and management*. BSBI, Durham.
[31] Braithwaite et al. 2006 *Change in the British flora*. BSBI.
[32] https://plantatlas2020.org
[33] Hirst *et al*. 2003 The resistance of a chalk grassland to disturbance. *Journal of Applied Ecology* 40, 368-379.
[34] Hirst *et al*. 2005 The resilience of calcareous and mesotrophic grasslands following disturbance. *Journal of Applied Ecology* 42, 498-506.
[35] Ridding *et al*. *Responses of calcareous grassland plant communities to changed seasonal grazing management: results of a 31 year study*.
[36] Redhead *et al*. 2019 The effectiveness of herbicides for management of tor-grass (Brachypodium pinnatum s.l.) in calcareous grassland. *Biological Conservation* 237, 208-290.
[37] Ridding *et al.* 2020 Long-term change in calcareous grassland vegetation and drivers over three time periods between 1970 and 2016. *Plant Ecology* 221, 377-394.
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[40] Hosie *et al*. 2019 Restoration of a floodplain meadow in Wiltshire, UK through application of green hay and conversion from pasture to meadow management. *Conservation Evidence* 16,12-16.
[41] Bellamy, D 1983 *Discovering the countryside with David Bellamy – Grassland walks*. Country Life Books.

Can you estimate the age of a grassland?

Wagner et al. (2019) looked at naturally-regenerating and old calcareous grasslands and found that certain grasses were characteristic of certain ages of development: 10-30 years – *Helictochloa pratensis, Trisetum flavescens*; 30-60 years – *Briza media, Bromopsis erecta*; over 100 years – *Avenula pubescens, Brachypodium rupestre, Festuca ovina* agg., *Koeleria macrantha*.

[Wagner *et al*. 2019 Species indicators for naturally-regenerating and old calcareous grassland in southern England. *Ecological Indicators* 101, 804-812.]

A rough estimate of the age of a meadow can be gained by sampling 100 Creeping Buttercups (*Ranunculus repens*). Every flower in this sample with six or more petals adds about seven years to the age of the meadow.

[Warren, J 2009 Extra petals in the buttercup (*Ranunculus repens*) provide a quick method to estimate the age of meadows. *Annals of Botany* 104, 785-788.]

King (1981) using data from Wiltshire found that the age of a chalk grassland field could be estimated by calculating the average volume of the five largest anthills in the area of interest. The anthills appear to grow at a rate of 1 litre per year.

[King, TJ 1981 Ant-hills and grassland history. *Journal of Biogeography* 8, 329-334.]

Chalk grasslands could be very old (11,000 BCE) - a continuous feature of the post-glacial landscape.

[Bush, MB & Flenley, JR 1987 The age of the British chalk grassland. *Nature* 329 (6138), 434-436.]

Chalk downland moths

Some day-flying moths are restricted to chalk grassland: Cistus Forester, Scarce Forester, Five-spot Burnet, Lace Border, Silky Wave, Black-veined Moth, Straw Belle. Others are very characteristic and more likely to be seen – Six-spot Burnet, Yellow Shell, Silver Y, Mother Shipton, Burnet Companion.

[Newland *et al.* 2013 *Britain's day-flying moths*. Princeton UP.]

Mother Shipton moth

30 ft grass found at Orcheston!

This particular grass generated interest for a considerable time, certainly from the mid-1600s to the end of the 19th century. John Aubrey in the later 1600s wrote:

At Orston St. Maries is a meadow…which beares a sort of very long grasse. Of this grasse there was presented to King James the First some that were seventeen foot long: here is only one acre and a half of it. In common years it is 12 or 13 foot long. It is a sort of knott grasse, and the pigges will eat it.

[Britton, J (ed) 1847 *The natural history of Wiltshire by John Aubrey.* Wiltshire Topographical Society.]

The debate about the specific name and nature of this grass went on to make the pages of *The Gentleman's Magazine (1781), the Transactions of the Linnean Society (1800), General view of the agriculture of Wiltshire (1811)* by Davis, a note in Preston, *The flowering plants of Wilts (1888)*, and Grose gives over two pages to these 'long grasses' in *The flora of Wiltshire (1957).*

It is now generally accepted that this grass was probably *Agrostis stolonifera*, also known as Fiorin, below.

(Sowerby, JE & Johnson, C 1861 *The grasses of Great Britain*. London.)

I have not been able to locate the precise site of this 'long grass' but the small area of winter flooding at Orcheston (below) is a good contender. If anyone does know the exact location, please let me know!

Appendix. List of species with scientific and common names

Scientific name	Common name
Grasses	
Agrostis canina	Velvet Bent
Agrostis capillaris	Common Bent
Agrostis curtisii	Bristle Bent
Agrostis stolonifera	Creeping Bent
Alopecurus pratensis	Meadow Foxtail
Anisantha sterilis	Barren Brome
Anthoxanthum odoratum	Sweet Vernal-grass
Arrhenatherum elatius	False Oat-grass
Avenella flexuosa	Wavy Hair-grass
Avenula pratensis	Meadow Oat-grass
Avenula pubescens	Downy Oat-grass
Brachypodium rupestre	Tor-grass
Brachypodium sylvaticum	False-brome
Briza media	Quaking-grass
Bromopsis erecta	Upright Brome
Bromus erectus	Upright Brome
Bromus hordeaceus	Soft-brome
Cynosurus cristatus	Crested Dog's-tail
Dactylis glomerata	Cock's-foot
Deschampsia cespitosa	Tufted Hair-grass
Deschampsia flexuosa	Wavy Hair-grass
Festuca arundinacea	Tall Fescue
Festuca ovina	Sheep's-fescue
Festuca rubra	Red Fescue
Glyceria fluitans	Floating Sweet-grass
Helictochloa pratensis	Meadow Oat-grass
Holcus lanatus	Yorkshire-fog
Koeleria cristata	Crested Hair-grass
Koeleria macrantha	Crested Hair-grass
Lolium perenne	Perennial Rye-grass
Molinia caerulea	Purple Moor-grass
Nardus stricta	Mat-grass
Phleum pratense	Timothy
Poa annua	Annual Meadow-grass
Poa pratensis	Smooth Meadow-grass
Poa trivialis	Rough Meadow-grass
Schedonorus arundinaceus	Tall Fescue
Trisetum flavescens	Yellow Oat-grass
Zerna erecta	Upright Brome
Other species	
Bellis perennis	Daisy
Caltha palustris	Marsh-marigold
Carex species	Sedge
Carex panicea	Carnation Sedge
Galium saxatile	Heath Bedstraw
Hieracium pilosella	Mouse-ear-hawkweed
Potentilla anserina	Silverweed
Pteridium aquilinum	Bracken
Ranunculus repens	Creeping Buttercup
Rumex acetosella	Sheep's Sorrel
Tephroseris integrifolia subsp. integrifolia	Field Fleawort
Thymus praecox	Wild Thyme

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