BSBI NEWS

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Botanical Society of Britain & Ireland

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Contributions for the next issue of *BSBI News* (no. 148) should be sent to the Editor, John Norton (*john.norton@bsbi.org*) by 25 July 2021.

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Botanical Society of Britain & Ireland

FROM THE PRESIDENT

First of all, congratulations to two of our long-standing members, on their New Year's Honours. Dr Judy Webb BEM, is an Oxfordshire botanist, and Dr Steph Tyler OBE, is joint recorder for Monmouthshire and chair of the Committee for Wales. This news was too late for me to include in the January issue.

February was a cold, wet, windy and inhospitable month, during which many people longed for the spring to arrive and to see green shoots emerging. As I write this, March is coming in with strong winds and rain. It seemed more difficult this winter and I realised how much I depend on plants to lift my spirits. Plants perk me up, they help purify the environment and they prolong life.

In preparing a presentation with Louise Marsh for the Bucks Members Environmental Recorders' Conference (BMERC) about the BSBI, I also became aware that I enjoy recording plants partly to see their patterns (distribution), to help share my knowledge and enthusiasm (passion) with others, and of course, to help protect the plants and habitats (places). Being part of a network and contributing to a much wider purpose is added value for me. (Have you spotted the common thread yet?)

Now the Wild Garlic is popping up, Lesser Celandines are in flower and Daisies continue to open up when the sun peeps through. Last March I began a local exploration of sites for Fingered Sedge (*Carex digitata*), which continues as I have now realised it is winter-green, so I can record it throughout the year. But I needed another species to target and have selected Mezereon (*Daphne mezereum*) and Spurge Laurel (*D. laureola*), both of which are uncommon and in flower now. As a friend said, 'You can smell Mezereon before you see it', and that definitely helps locate it in the woods. Spurge Laurel is more widespread and less choosy in its requirements, whereas Mezereon definitely prefers well-drained slopes in dappled shade on limestone rocks. Fingered Sedge likes those conditions too.

Many of the committees have met recently and are taking our work forward in diverse ways. Despite not meeting in person, this has led people to come up with new ideas and ways of achieving progress. Quite when we will be able to meet in reality will be seen in the future. Perhaps the September issue of *BSBI News* will reveal how our lives will have 'regrown'.

We have just appointed a new Chief Executive Officer, and I can confirm that Julia Hanmer, who previously worked for the Bat Conservation Trust, will be joining us from 6th April. We all look forward to welcoming her into the Society.

Lynne Farrell
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EDITORIAL

As promised in *BSBI News* 145 I am pleased to include an article in this issue outlining BSBI's new Policy on Nature Conservation (see next page) which I think will be welcomed by many members. There is also the latest update to the British Red Data List of vascular plants (p. 27), which I found particularly interesting, even though it deals mainly with the more obscure taxa, including many recently named (or re-named) critical species, subspecies and other segregates, most of which I'd not even heard of. The update mentions several taxa in groups covered by recent BSBI handbooks, such as Eyebrights and Gentians, and also some included in the latest published volume of Sell & Murrell's *Flora of Great Britain and Ireland*.

This issue also has more news of botanical discoveries, including Great Pignut on the South Downs and Jersey Pink in Hampshire. Are they native or 'naturalised'? Read the articles and decide for yourself!

BSBI has been looking at ways of going greener, and we experimented by printing the last issue of *BSBI News* on slightly lighter weight paper. No-one seems to have noticed and the printing quality and 'feel' of the newsletter are virtually the same as before, so we will continue with this for the current and future issues. There will be a very small saving in the amount of raw materials used to make the paper (which is environmentally certified by FSC) and a small but significant cost-saving in printing and postage. We've considered potato starch packaging; however, we've decided for now to continue sending out *BSBI News* in brown paper envelopes, since they are made from 80% recycled pulp and are fully recyclable. We'll continue to take steps to reduce BSBI's environmental impact and we hope you approve of our efforts.

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The BSBI and plant conservation

KEVIN WALKER

Edgar Milne-Redhead was a former president of the BSBI and a key figure in the Society's conservation work during the post-war period. He was in charge of the BSBI's Conservation Committee for a decade and represented the society at numerous meetings, most famously as chair of the committee set up to conserve the Lady's-slipper Orchid. It is therefore not surprising that conservation was a central theme of his presidential address delivered in 1971 (Milne-Redhead, 1971). This provided a blueprint for how the society could and should respond to the emerging environmental issues of the day. His concluding words are as relevant now as they were in the year of my birth: 'There is an undoubted need for statutory protection for both our rarest and some of our common plants; there is an even greater need to educate the public, making the most of the wonderful media at our disposal. We must somehow make it possible for the public to see and appreciate some of our botanical treasures rather than keep them hidden.'

Since this address threats to wildlife have increased tenfold and as a result, conservation has become mainstream. Organisations dedicated to conservation, such as Plantlife and the Wildlife Trusts, have flourished and environmental protection and legislation have increased. One could argue that the BSBI's purpose has not changed despite this growing concern for the environment. We've never campaigned, spoken out or got involved with practical conservation work, although many members have in a private capacity. But this misses the point. Like the BTO the BSBI's job is to gather the evidence that informs the good conservation work that others do. This evidence relies on the painstaking collection and checking of plant records by our fabulous volunteers. And we are very good at it. Over the last 50 years we have amassed a database of over 50 million records which we share widely with colleagues from around the globe. We work with conservationists to produce Red Lists, Biodiversity Actions Plans and more latterly State of Nature reports. Rare Plant Registers tell us what is important and unique at a local scale.

But given the pressures that wildlife is currently facing, evidence alone is not always enough. Sometimes we have to stand up for what we value most. The proposal to build a golf course on Coul Links SSSI brought this into sharp relief. It was clearly a site on national importance and quite understandably our recorders were totally opposed to it. As a result, BSBI joined forces with other environmental NGOs and put up a valiant defence which ultimately saved the site. But it's not just about protecting the best sites. The BSBI is sitting on a gold mine of information that could be used to meet the government's ambition of 'recovering' our nation's wildlife. Over the next decade we will be planting millions of trees that will be good for the climate but potentially bad for wildlife if the wrong trees are planted in the wrong places. In England we will see the development of Local Nature Recovery Networks where a whole variety of conservation measures will be built into local planning of housing, farming and forestry. We will also have a new environmental land management scheme that is likely to direct how our farmed landscape is managed for decades to come. To be successful, all these initiatives will require access to our data and expertise.

So it seems timely that the BSBI has published its long-awaited policy on nature conservation (*bsbi.org/wp-content/uploads/dlm_uploads/BSBI-Policy-on-nature-conservation.pdf*). This is a first for the Society and, whilst accepting that we are not a campaigning body or a land manager, it acknowledges the enormous contribution we could and should be making across a wide range of issues (see list of actions below).

Half a century on this policy is a fitting tribute to Edgar Milne-Redhead's vision of a world where

plants were protected, understood and in reach of the general public. The policy makes it clear that we have a contribution to make even in areas we have ignored in the past. It is ambitious, but I think it has to be if we are going to create a world where plants thrive and are valued.

References

Milne-Redhead, E. 1971. Presidential Address 1970. Botanical conservation in Britain, past, present and future. *Watsonia* 8: 195–203.

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Position Statement

BSBI's mission is to advance the study, understanding and enjoyment of wild plants and support their conservation in Britain and Ireland.

Nature conservation is the protection of plants, animals and habitats (often collectively termed biodiversity) from the damaging effects of human activity.

Among the main causes of biodiversity loss are climate change, land use change, intensification of land use including agriculture, hydrology change, nitrogen deposition and other pollutants, urbanisation, and human footfall.

Nature conservation projects can have a key role to play in restoring biodiversity, maintaining functioning and resilient ecosystems, and enhancing the environment. Enjoying nature and wildlife is valuable for human health; and it is essential to inspire everyone about the importance of plant biodiversity through public engagement and education.

BSBI recognises that, whilst primary responsibility for nature conservation policy and action rests with other organisations, the Society supports and encourages collaborative working at policy, strategic and tactical levels in the interests of nature conservation.

The primary role and strength of the BSBI is in its knowledge of the past and present distribution of plants and their ecology, encapsulated in data on plant distributions, and in the quality of the scientific analysis and interpretation of these data.

These temporal data on plant distribution are the collective achievement of an organised network of skilled voluntary recorders throughout Britain and Ireland who collate, verify and ensure the high quality of plant records held on the BSBI database.

BSBI wishes to use its unrivalled capabilities and the skills and enthusiasms of its membership to underpin the conservation of the British and Irish Flora and to contribute to local action to turn ambition into achievement.

Summary of Policy Objectives

(see *bsbi.org/wp-content/uploads/dlm_uploads/BSBI-Policy-on-nature-conservation.pdf* for full text)

Consultations and government policy

- Respond to consultations that affect the conservation of the British and Irish plants
- Respond to consultations with implications for national policy/law that will affect plant conservation
- Influence policy on key plant conservation issues through engagement in relevant forums
- Provide evidence where development may adversely impact legally protected habitats and plant species
- Raise awareness of the importance of plants amongst the wider public
- Provide guidance to members who wish to respond to local issues
- Provide high quality data to inform local planning design-making
- Promote best practice guidance and minimum expected standards for planners and developers

Practical conservation

- Promote best practice and evidence-based examples of plant conservation
- Provide high quality data to support plant conservation
- Collaborate with others involved in plant conservation and research
- Support the production of Red Lists
- Support the delivery of national and international conservation targets
- Identify sites of local and national importance for plants

Bunium bulbocastanum (Great Pignut) on the South Downs

DAVID STREETER

A recently discovered colony of *Bunium bulbocastanum* (Great Pignut) on the South Downs in West Sussex (v.c. 13). *Nick Sturt*

On 16 June 2018 the Sussex Botanical Recording Society held a meeting of 14 members based on the Fulking escarpment of the South Downs in West Sussex (v.c. 13). The excursion had been billed as an educational meeting and was intended to provide an opportunity for less experienced members to become more familiar with the rich downland flora for which the area is well-known.

At one point in the day a conscientious group of enthusiasts reported that they were having a problem with their field guides' umbellifer keys which were resolutely refusing to confirm that the white umbellifer that they were looking at was *Pimpinella saxifraga* (Burnet-saxifrage), the problem being that their plants had bracts! The identity of the plant remained unresolved during the excursion but subsequent detailed examination, including that of the characteristic stylopodium, resulted in the conclusion that the answer to the puzzle had to be *Bunium bulbocastanum* (Great Pignut), a view formally confirmed by Dr Mark Watson, the BSBI's umbellifer referee.

Not only is the plant the first record for v.c. 13, but is one of a group of essentially calcicole species, widespread in northern France (Delvosalle et al., 2009), but puzzlingly absent from the chalk south of the Thames and reappearing in the Chilterns to which they are more or less confined (Rose, 1960; Rose & Gehu, 1965; Southam, 2002).

The colony consisted of 11 plants growing in rough calcareous *Bromopsis erecta* dominated grassland at 148 m on a north-east facing slope close to the crest of the north escarpment of the South Downs at TQ 2412 1105. The land was acquired by the

National Trust in 1987 and has been subject to a grazing regime since (see below).

The site was revisited in 2019 by N. and E. Sturt and T. Lording when only one plant was found. In June 2020 G. Lyons discovered a large population at a second locality, not on NT property, about 175 m to the south-east of the original site, consisting of several hundreds of plants again in cattle grazed rough *Bromopsis erecta* dominated grassland. On 22 June 2020 the area was visited by N. and E. Sturt, D. Streeter and T. Lording when, in addition to G. Lyons' site, a third population in the same general area, consisting of several hundreds of plants, was discovered in short chalk turf between two parallel routes of the South Downs Way; however, only two plants were found at the original site.

Bunium bulbocastanum (Great Pignut) at the first site in June 2018. *Nick Sturt*

The apparently simultaneous appearance of two conspicuous colonies of a large and distinctive plant hitherto unknown in south-east England in a well-frequented and well-botanised part of the South Downs is a remarkable event.

Bunium bulbocastanum in Britain

Bunium bulbocastanum was first discovered in Britain by the Rev. W. H. Coleman in 1839 at Cherry Hinton near Cambridge growing as an arable weed in fields above the chalk pits. The plant has always had a very restricted distribution in Britain being confined to the chalk of the eastern end of the Chiltern escarpment between Tring and Cambridge. The *New Atlas of the British Flora* (Preston et al., 2002) records it in 11 post 2000 hectads.

Currently there appear to be about 34 extant sites distributed in vice-counties 24 (Bucks), 20 (Herts), 30 (Beds) and 29 (Cambs) (Figure 1). In Buckinghamshire *Bunium* is restricted to the Ivinghoe Hills complex, for which there are currently records from four tetrads. Numbers vary from a few plants to many

thousands. It is interesting that most of the grassland sites show evidence of past cultivation or are in broken turf associated with trackways. One location is an area of exceedingly species rich turf with nearby associates including such Chiltern specialties as *Pulsatilla vulgaris* (Pasqueflower) and *Tephroseris integrifolia* (Field Fleawort). A further site last known in the 1980s was an area of calcareous turf within a churchyard together with an adjoining trackway. (A. McVeigh, pers. comm.)

In Hertfordshire the best remaining *Bunium* sites are on chalky roadside verges. The *Flora of Hertfordshire* records it from nine tetrads but it is possible that may now have been reduced to no more than three or four (James, 2009; T. James, pers. comm.; I. Denholm, pers. comm.). A visit to these in July 2018 failed to find any plants but isolated individuals may have been missed among a sea of *Daucus*, *Pimpinella saxifraga* and *Heracleum sphondylium*. The plant was formerly also known as an arable weed but the Flora records these as long gone.

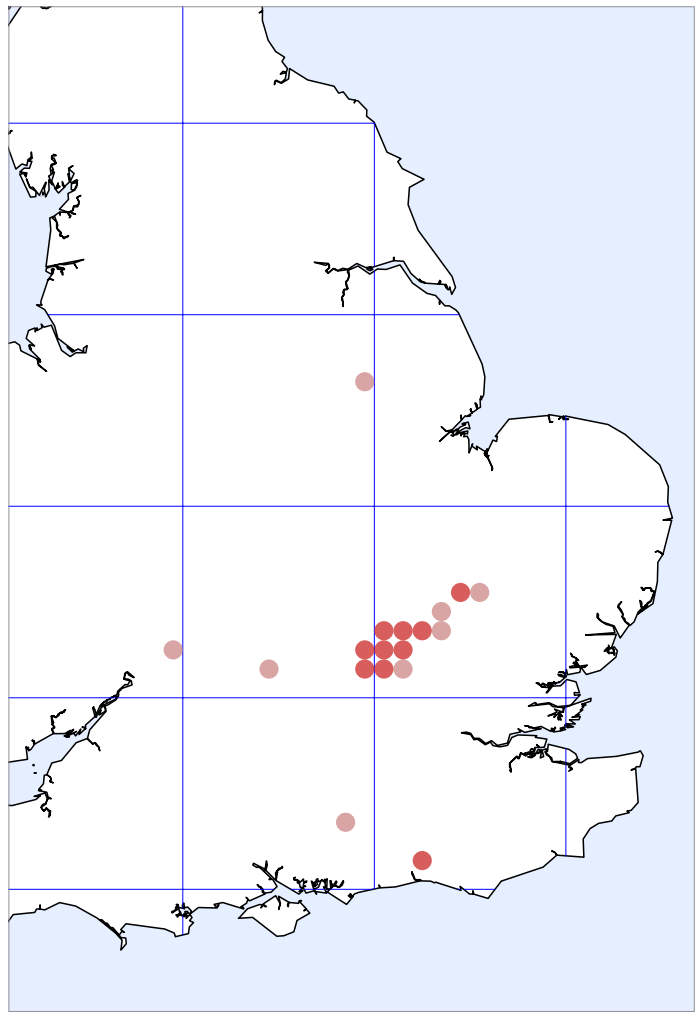

Figure 1. Records of *Bunium bulbocastanum* in south-east England (darker shade: 2000 onwards; lighter shade: pre-2000 records). The recently discovered population is the lowermost dot.

The *Flora of Bedfordshire* notes that the plant is locally frequent on the chalk and particularly occurs in grassland where cultivation has ceased or on areas of more established downland which were perhaps cultivated in the past. The plant was recorded from a total of 23 tetrads during the survey period with some evidence that it may be increasing its range (Boon, 2011).

In Cambridgeshire the plant still persists in about three localities in chalk grassland around the rim of the Cherry Hinton chalk pits where it is threatened by scrub development. The *Flora of Cambridgeshire* regards its continued existence as precarious. There is also an additional recent record for the railway cutting between Melbourn and Royston (Leslie, 2019).

It is worth noting that there are a few historical records for *Bunium* turning up outside the Chilterns. The *Flora of Gloucestershire* includes a record of a field that had been ploughed in 1917 at Hewletts Hill and details that 'the seed probably introduced with corn seed, it has since reverted to grass and

Table 1. Floristic table for 2 × 2 m sample areas at *Bunium* sites. Domin scale.

		Site 1	Site 2	Site 3
Grid reference		TQ 2411 1104	TQ 2422 1089	TQ 2438 1093
Date		16/06/2018	22/06/2020	22/06/2020
Altitude		148 m	47 m	62 m
Aspect		60°	350°	9°
Vascular plants				
Achillea millefolium	Yarrow	2		
Agrostis stolonifera	Creeping Bent	2		2
Anacamptis pyramidalis	Pyramidal Orchid			1
Anthoxanthum odoratum	Sweet Vernal-grass	2		
Bromopsis erecta	Upright Brome	7	9	7
Bunium bulbocastanum	Great Pignut	2	4	3 (33 plants)
Centaurea nigra/debeauxii agg.	Common/Chalk Knapweed	3	3	3
Cirsium arvense	Creeping Thistle			1
Crataegus monogyna (seedling)	Hawthorn	1		
Crepis capillaris	Smooth Hawk's-beard	1		
Dactylis glomerata	Cock's-foot	2	2	3
Festuca ovina	Sheep's Fescue	6	6	6
Galium album	Hedge Bedstraw	8		
Galium verum	Lady's Bedstraw	4	4	4
Geranium dissectum	Cut-leaved Crane's-bill		1	
Heracleum sphondylium	Hogweed			1
Holcus lanatus	Yorkshire-fog	4		3
Jacobaea vulgaris	Ragwort	1	1	2
Linum catharticum	Fairy Flax			3
Lolium perenne	Perennial Rye-grass		2	1
Lotus corniculatus	Common Bird's-foot-trefoil		2	3
Medicago lupulina	Black Medick	2	3	
Plantago lanceolata	Ribwort Plantain	2	2	2
Prunella vulgaris	Selfheal	1		
Ranunculus bulbosus	Bulbous Buttercup	1		3
Scabiosa columbaria	Small Scabious	2		
Taraxacum agg.	Dandelion	1	1	
Trifolium pratense	Red Clover	2		
Trifolium repens	White Clover	2	2	2
Trisetum flavescens	Yellow Oat-grass	2		
Veronica chamaedrys	Germander Speedwell	1		2
Vicia sativa	Common Vetch		3	
Viola hirta	Hairy Violet	1		
Mosses				
Calliergonella cuspidata				1
Homalothecium lutescens				2
Rhytidiadelphus squarrosus				9
Total species		25	15	22

the plant has disappeared' (Riddesdell et al., 1948). The *Flora of Bristol* has an undated record of *Bunium* from Yate and also mentions that '*Bunium* was once found for a single season in a Herefordshire cornfield' (White, 1912). Both Hewletts and Yate are in the Cotswolds, so the soil would be oolitic limestone. The BSBI Distribution Database (DDb) has a 1924 record for Headley Down, North Hampshire (v.c. 12) by Miss F. Davidson. There are no site details but Headley Down is on the Hythe Beds of the Lower Greensand, so the soil would be acid. This has raised questions about the validity of the record but on the other hand the plant is by no means confined to the chalk in northern France.

Bunium bulbocastanum in Sussex

The three South Downs localities discovered between 2018 and 2020 are all located on Perching Hill, part of the Fulking Escarpment between the villages of Fulking and Edburton. All three are located close to the crest of the north facing scarp within 300 m of each other.

The first site, discovered in June 2018, is an area of rough chalk grassland at c. 148 m OD with a 60° aspect. The pH of the soil is 6.3 (glass electrode). The National Trust acquired the land in 1987, at which time it was 'tall rank *Bromopsis erecta*' surrounded by barley. This was last cropped in 1986, after which the arable reversion was laid down to grass under an HLS agreement. The NT reintroduced grazing in 1987 with Welsh Mountain sheep, which continued for the next four years, since when grazing has continued with a mix of sheep and cattle (NT, pers. comm.).

The *Bunium* population consisted of just 11 widely scattered plants. The composition of the sward was recorded by standard NVC procedure using the Domin scale and a 2 m × 2 m sample area (Table 1). The floristic table indicates an NVC CG3b *Bromus erectus* grassland, *Centaurea nigra* sub-community.

Three features of the floristic table suggest a history of past cultivation. Firstly, the species richness is low compared with a typical example of rich well-established downland turf and there is a deficiency of characteristic calcicoles. Of the 25 species, only *Scabiosa columbaria* (Small Scabious) and *Viola hirta* (Hairy Violet) could reasonably be so classified, although *Carlina vulgaris* (Carline Thistle) and *Filipendula vulgaris* (Dropwort) do occur outside the sample area. Finally, the relatively high cover of *Holcus lanatus* (Yorkshire-foge) in otherwise typical chalk downland turf is often an indicator of a past history of cultivation or disturbance.

The second site, discovered by G. Lyons in June 2020, is located between 175 and 190 m to the south-east of the first site on land within Paythorne Farm outside the National Trust boundary. The grassland is rough, *Bromopsis erecta* dominated and currently cattle-grazed annually. The *Bunium* population is large, consisting of many hundreds of plants.

The floristic table indicates an NVC CG3 *Bromus erectus* grassland but the composition is markedly different to that of Site 1. The heavy cattle grazing has produced a rough tussocky sward completely dominated by tall *Bromopsis erecta* with much *Festuca* in the open patches with the *Lolium perenne* (Perennial Rye-grass) and *Trifolium repens* (White Clover) indicating local enrichment. Nutrient enrichment has also depressed the species richness and there is almost no evidence of a calcicole influence in the species list other than the *Bromopsis*.

The third site, consisting of several hundreds of plants, is an area of short calcareous turf running between two parallel tracks of the South Downs Way that was discovered on 22 June 2020. It is located within 170 m of the Paythorne Farm colony but on National Trust land.

The floristic table again indicates that the turf would be classified as NVC CG3 *Bromus erectus* grassland but it differs markedly from the Paythorne Farm site with a species richness and composition more similar to the first site. The structure is also more similar to a typical close chalk sward but there is the same noticeable deficiency in typical calcicoles such as *Poterium sanguisorba* (Salad Burnet), *Leontodon hispidus* (Rough Hawkbit) and *Plantago media* (Hoary Plantain), although *Cirsium acaule* (Dwarf Thistle) is present outside the sample. There is also a dense moss layer dominated by *Rhytidiadelphus squarrosus*.

Discussion

The sudden appearance of *Bunium* on the South Downs raises a number of puzzling questions. It is one of a small number of species that have long attracted comment on account of being widespread on the continent but absent from south-east England, reappearing in the Chilterns north of the Thames. The most familiar example is perhaps *Gentianella germanica* (Chiltern Gentian) but also including *Hypochaeris maculata* (Spotted Cat's-ear) and *Pulsatilla vulgaris* as well as *Bunium*. For instance, Southam comments of *Bunium* that 'It's absence from the North and South Downs is difficult to explain in view of its similar habitat at Boulogne' (Southam, 2002).

The obvious questions are when and how and from where did it come? The evidence would suggest a relatively recent arrival. The Fulking Escarpment is a well-botanised part of the South Downs and Site 3 runs parallel to and a few metres from a well-used section of the South Downs Way. It is highly unlikely that such conspicuous plants would have avoided detection for any significant length of time. Furthermore, Site 2, Paythorne Farm, is subject to regular biodiversity survey and the ecologist responsible is almost certain that the plant was not present in 2011 (G. Lyons, pers. comm.). On the other hand, it is quite possible that a small number of plants scattered over the large area of Site 1 could easily have been overlooked.

The nearest Chilterns site is 118 km and the area around Boulogne 124 km distant. The means of dispersal has to be seed. The number of potential dispersal agents is limited. It is noticeable that most of the earliest records describe the plant as an arable weed with some suggesting contamination of grain as the source (e.g. Crompton, 2001; Riddesdell et al., 1948). The neighboring fields to Site 1 were last under barley in 1986 and are up-slope of the *Bunium* site. Also, the National Trust head warden points out that 'Grain carting from these fields was run by tractor and trailer to the barns alongside Perching Drove so would have been run in the sunken tracks down the escarpment. So, all three locations are relatively close to the grain carting run (possibly how they spread there?)' (C. Cain, pers. comm.).

It is tempting to suggest that the plant was introduced whilst the surrounding area was under barley and established itself as an arable weed as a result of seed contamination. Subsequently it survived in areas of arable reversion, such as Site 1, where it could easily remain undetected until appropriate conditions became available and from where it then spread to suitable sites, developing large conspicuous colonies. The problem with this rather glib scenario is that, unlike the situation in the 19th century, the legislation regulating seed purity has markedly reduced the probability of contamination. Also, a perennial life history is an uncommon evolutionary strategy for an arable weed. For instance, out of 113 arable species listed by Wilson and King, only 2 are perennials (*Bunium* and *Convolvulus arvensis*) (Wilson & King, 2003). However, the apparent recent arrival of the plant, combined with its arable ecology and distance from nearest possible seed sources strongly suggest that the solution to its appearance does lie somewhere in the agricultural history of the site.

The appearance of *Bunium* on the South Downs raises the question of its status as a British plant. All standard floras regard it a native species. However, Crompton, when discussing the first Cherry Hinton records, raised the possibility that it was brought in with seed from the continent (Crompton, 2001) and this is picked up by Leslie, 'Its early history as an arable weed has led to the suggestion that Great Pignut may have originated with imported crop seeds' (Leslie, 2019). Then there is the record in the *Flora of Gloucestershire* of a field that had been ploughed in 1917 at Hewletts Hill and suggests that 'the seed probably introduced with corn seed' (Riddesdell et al., 1948). Boon in *Flora of Bedfordshire* comments that Dony in his *Flora of Bedfordshire* (1953) also questioned its native status (Boon, 2011).

It is a remarkable feature of the various descriptions of the ecology of *Bunium* that they almost all include a common theme, best summarised as an especial association with areas of rough chalk grassland with a history of arable cultivation (Boon, 2011; Southam, 2002; A. McVeigh, pers. comm. 2020) and this certainly accords with the South

Downs picture. It is also noticeable that most of the earliest records for a particular locality are for arable or cereal crops (Crompton, 2001; Druce, 1926; James, 2009; White, 1912; Riddesdell, 1948).

Pearman remarks that he has often wondered how the plant came to be discovered so late (D. Pearman, pers. comm. 2018). It does seem remarkable that such a conspicuous member of the arable flora would have escaped detection for about 300 years in one of the most intensely botanised parts of the country on the edge of Cambridge. It is difficult to avoid the conclusion that the most likely history of the plant in Britain is that it first appeared as an arable weed in Cherry Hinton in the 1830s, possibly imported with seed from the continent. If this is the case it would need to be reclassified as a neophyte.

If that is so, what does the history of *Bunium* have to say, if anything, about the other Chiltern specialties with a similar distribution? Not much. Unlike *Bunium*, there is no suggestion that these are other than long-established natives of mature, undisturbed calcareous grassland. The most informative of the group is probably *Pulsatilla* whose distribution most clearly underlines the anomaly of these species' absence from the chalk south of the Thames when they are widespread on the other side of the Channel. That puzzle still remains.

Acknowledgements

This paper has benefited from the continuous discussion and constant advice of Nick Sturt who also proof-read the final text and who realised that the SBRS members who first examined the plants had made a significant discovery.

Grateful thanks are also due to all those who have provided information, comment and discussion during its preparation, especially Charlie Cain, the National Trust's Area Ranger, Ian Denholm, Paul Harmes, Trevor James, Graeme Lyons, Andy McVeigh, David Pearman, Ann Sankey, Clive Stace, Alan Stewart and Mark Watson.

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Dianthus gallicus (Jersey Pink) newly recorded from mainland UK

PHIL COLLIER, ROBIN GARNETT & MARTIN RAND

The dunes on the south side of Hengistbury Head (South Hampshire, v.c. 11) are unusually extensive (for Hampshire!) and relatively remote compared with nearby coastal areas. Several plant species are common here while generally scarce elsewhere, including *Calystegia soldanella* (Sea Bindweed), *Euphorbia paralias* (Sea Spurge) and *Jasione montana* (Sheep's-bit).

During a visit to the dunes on 8 September 2020, two of us (PC and RG) lingered to discuss the ID of *Jasione montana*. One of us glimpsed a *Dianthus* flower, only for a subconscious mind to immediately correct this 'mistake': 'it's only *Silene uniflora*'. Vegetatively this was not a bad call, but the conscious mind played its trump card again: 'that is a *Dianthus* flower'. Of course, we lingered much longer now. We could find only a few plants and a couple of rain drenched flowers. But there was enough material to suggest strongly that this was a small population of *D. gallicus*.

Given such a mouth-watering discovery, it took only a day for the third author (MR) to arrive on the scene, and later confirm from various sources that this was indeed the first record for v.c. 11 (South Hampshire) and mainland UK of *D. gallicus*, and not a different species or horticultural look-alike.

Stand of *Dianthus gallicus* (Jersey Pink) at Hengistbury Head, September 2020. *Martin Rand*

Known distribution and history

Dianthus gallicus Pers. (Jersey Pink) is a dune species of the Atlantic seaboard of France and Spain. Scattered records elsewhere in France and Europe are shown on the *Global Biodiversity Information Forum* (GBIF) website; but curiously, the mapping on the French national *SI Observation Flore* site shows it over much of the Pyrenean chain and northwards into the Massif Central. This is presumably because some recorders conflate it with *D. hyssopifolius* L. in part of the latter's range. Many authors, including Castroviejo et al. (1990) in Spain, treat it as a subspecies of *D. hyssopifolius*, but the ecology of the two is distinct in much of their range. Visible differences are few: shorter, more glaucous leaves and shorter epicalyx bracts in *D. gallicus*. Some authors mention depth of cutting of the petals but

Dianthus gallicus flower, October 2020. *Tristan Norton*

there is overlap; horticultural *D. hyssopifolius* seems to be selected for frilliness. Although the habitat of *D. hyssopifolius* over much of its range is upland grassland and glades, both occur in fixed dunes in northern Spain, where intermediates are said to be the commonest plants (Aizpuru et al., 2007). The north-eastern limit of *D. gallicus* is the western Cotentin peninsula in Basse-Normandie, where it was not recorded in the 19th-century Flora of the area (Corbière, 1893); it was not noted there until 1930 (Provost, 1993). From here it extends south and west to Galicia in Spain, but with few reliable records beyond Cantabria.

French botanists consider *D. gallicus* a recent introduction to Basse-Normandie, where it is now known in several more sites and is thought to be expanding its range (Zambettakis & Provost, 2009). Nonetheless, it is on the French Red List as 'Near Threatened' and has national statutory protection. It is surprisingly rare in some parts of its range; for instance, in the spectacularly dune-laden Gironde of SW France, it is known in only a few sites and in small numbers (Aniotsbehere, 2005).

The first British record was in 1892 on Jersey. Stace (2019) describes the Jersey population as 'naturalised', and the habitat as 'grassy coastal dunes'. The most recent record was in 2019, when the species was noted as 'rare' in its habitat. Anne Haden (pers. comm.) reports that seedlings are not found here. There is a good account of its chequered history in the States of Jersey *Biodiversity (Jersey Pink) Action Plan* (undated, post-2011), available on the internet.

Habitat in Hampshire

A groyne was constructed at the Head in 1938, which intercepts the long-shore drift. Aerial photographs taken by Cambridge University in 1949 show a broad sandy strand and a vestigial foredune under the cliff at Hengistbury Head. There is now a well-developed mobile foredune backed by semi-stabilised dune vegetation dominated by *Ammophila arenaria* (Marram). This grades to the north into an open *Calluna* heath established on the talus from the soft sandstone cliffs above, and to the east into areas of seasonally damp sandy flat.

The vegetation in the limited area where the *Dianthus* occurs is probably best characterised as *Ammophiletum arenariae* on a transition between a National Vegetation Classification SD6 mobile dune community and an SD7 semi-fixed community (Rodwell, 2000), albeit with little in the way of perennial grasses. There is an extensive ground

Habitat of *Dianthus gallicus* habitat at Hengistbury Head, with *Ammophila arenaria* (Marram) and *Polypodium interjectum* (Intermediate Polypody) in foreground, September 2020. *Martin Rand*

cover of *Cladonia* lichens in more open places, and in early November we were struck by the luxuriance of these mats, which shrouded much of the basal growth of the *Dianthus* with their podetia.

MR has recorded the following vascular plant species in the immediate neighbourhood of the *Dianthus* patches:

Ammophila arenaria (Marram)	Locally dominant
Calluna vulgaris (Heather)	Occasional
Calystegia soldanella (Sea Bindweed)	Rare
Carex arenaria (Sand Sedge)	Locally frequent
Erigeron canadensis (Canadian Fleabane)	Rare
Hieracium umbellatum (Umbellate Hawkweed)	Rare
Hypochaeris radicata (Cat's-ear)	Frequent
Jasione montana (Sheep's-bit)	Occasional
Lagurus ovatus (Hare's-tail)	Frequent
Polypodium interjectum (Intermediate Polypody)	Locally frequent
Silene uniflora (Sea Campion)	Occasional (seedlings)

Population in Hampshire

The *D. gallicus* plants in Hampshire are prostrate and mat-forming, with short erect-ascending flower stems. The four known large plants/patches are easily overlooked in their habitat, despite several visitors recording a few flowers since early September. It is possible that the true extent of the population will become more obvious if there is a spring/summer flush of flowering, as the numerous dead heads suggest.

Native or naturalised?

There remains an obvious question: how did *D. gallicus* plants find themselves in Hampshire? For the species to be long native to the area would require a pre-1930 dune system. A more recent natural introduction of seed by water or bird transport seems implausible, although consistent with its northward spread in France. Apart from a deliberate planting, for which there is no current evidence, other possible means of an introduction include:

- Naturalisation of a garden plant. *D. gallicus* is listed in the *European Garden Flora* (2011), and on the RHS and a few other UK gardening websites. However, it is not easy to find plants for sale in the UK. *D. hyssopifolius* is sold by a few nurseries (often under the older name *D. monspessulanus*), but available evidence suggests these are the type species. The main area of dune at Hengistbury is a spit beyond the Head which is heavily 'urbanised' with beach huts, but we have not found any plants in this area.
- Seed introduced with sand that has been replenished artificially from time to time since the mid-1970s to maintain the tourist beaches in the area. Sand for this purpose has been brought from the Isle of Wight and from Poole Harbour, but more recently it has been sourced from local offshore dredging.

Unfortunately, asking *how* or *why* about such an isolated plant distribution anomaly seldom yields a convincing answer; nevertheless, *D. gallicus* is an exciting and attractive addition to the flora of Hampshire.

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Further common problems with field identification

BOB LEANEY

Here are some more identification problems that frequently come up while tetrad recording with the Norfolk Flora Group. I hope, as always, that the issues discussed and illustrated will be helpful when identifying common plant taxa not exhibiting the characters used in standard keys.

Agrimonia eupatoria (Agrimony) vs *A. procera* (Fragrant Agrimony)

Although the two Agrimony species are quite easily separated when in fruit, in the vegetative state there can be problems. *A. procera* should of course be pleasantly perfumed when crushed. However, the scent is not strong and not a reliable character to confirm the scarcer species.

The two taxa show very similar habitat preferences, occurring on neutral and basic soils, but *A. procera* tends to avoid strongly calcareous soils. It should be suspected if one finds robust plants with large leaves showing more sharply pointed tips and serrations.

The usual confirmatory character recommended is the presence or absence of shiny, spherical, sessile glands on the leaf lamina under-surface. These should be present in good numbers in *A. procera*, but a few may also be present in *A. eupatoria*. Furthermore, these glands are extremely tiny (only readily seen under a microscope at 20–40×), so that they are easily missed, until one realises just how small they are. A better indumentum character is the density of the long, flexuous eglandular hairs on the leaf under-surface, mainly on the venation and midrib – sparse in *A. procera*, but quite profuse and dense in *A. eupatoria*.

The best character for *A. procera,* however, is the presence of quite dense short-stalked glands on the leaf under-surface midrib, as these are always present in profusion between the long eglandular hairs in *A. procera*, but absent, or virtually absent, in *A. eupatoria*. These stalked glands are small, but much easier to see with a ×10 lens than the sessile glands on the under-surface lamina. They are mentioned by Poland & Clement (2020) as occurring on the stems, but are more easily found on the leaves. To see them best the leaf should be turned upside down and the laminae bent downwards so that the midrib under-surface can be viewed in silhouette against the sky.

Hybrids between *Salix viminalis* (Osier), *Salix caprea* (Goat Willow) and *Salix cinerea* (Grey Willow)

Hybrids between these three species of willow are quite frequent but not often recognised. They are in fact quite easy to spot as a group because they share a very similar habit, leaf shape and leaf colour quite unlike any other willows. Once one gets one's eye in for this characteristic appearance, one begins to see them very frequently on fen, grazing marsh or riversides and also on moist roadsides or track-sides.

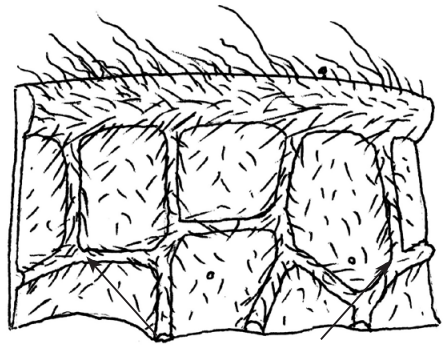
The three taxa involved are: *S.* × *smithiana* (*S. viminalis* × *caprea*) or Broad-leaved Osier; *S.* × *calodendron* (*S. viminalis* × *caprea* × *cinerea*) or Holme Willow and *S.* × *holosericea* (*S. viminalis* × *cinerea*) or Silky-leaved Willow. The triple hybrid *S.* × *calodendron* only occurs in the British Isles as female plants and is always in planted situations along paths and tracks. The two other taxa are often seen in similar situations, but also occur in more semi-natural habitats.

All three hybrids are tall, robust shrubs up to c. 10 m high with numerous erect or spreading branches, non-persistent stipules and dark grey-green lanceolate (to elliptic) leaves. The leaves mostly resemble *Salix cinerea* at a glance, but are longer and narrower, with more gradually attenuated and acuminate tips and no oblanceolate element to the shape (in other words widest at or below half-way). The leaves of all three taxa have undulate, subentire and ± narrowly recurved margins and are dull darkish-green above and ashy-grey pubescent

AGRIMONIA

Agrimonia eupatoria

- Small, greyish, mid green leaves.
- Leaflets blunt-tipped with blunt serrations.
- Dense, long, flexuous eglandular hairs and very sparse or absent stalked glands on under-surface of midrib.

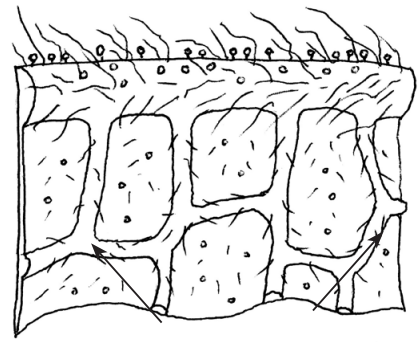


Densely hairy leaf venation

Very sparse, tiny sessile glands

Agrimonia procera

- Large, dark green leaves.
- Leaflets sharply pointed with sharp serrations.
- Sparse, long, flexuous eglandular hairs and dense stalked glands on under-surface of midrib.



Sparsely hairy leaf venation

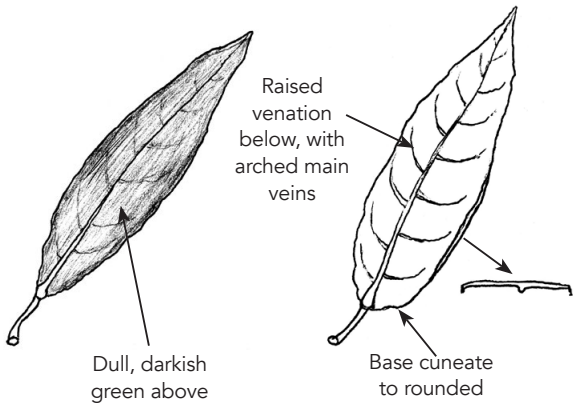
Frequent, tiny sessile glands

Mid-stem leaves of Agrimony (*Agrimonia eupatoria*) (left), and Fragrant Agrimony (*A. procera*) (right), both Norfolk specimens. Note *A. procera* has larger, darker green leaves, with more pointed leaflets and sharper serrations.

SALIX VIMINALIS / CAPREA / CINEREA HYBRIDS

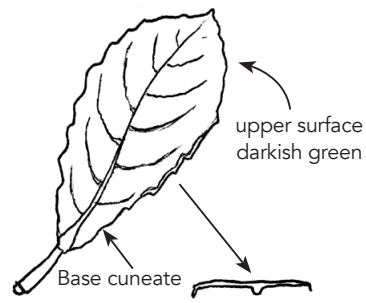
General features of the hybrids

- Leaves lanceolate to elliptic; tips acute and acuminate.
- Margins slightly undulate and subentire.
- Ashy-grey pubescent beneath; raised venation.



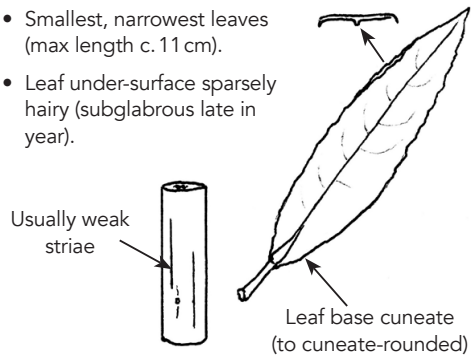
Salix cinerea

- Leaves oblanceolate to obovate; tips obtuse to acute (± shortly acuminate).
- Margins usually markedly undulate and obscurely serrate.
- Under-surface much as in hybrids (sometimes with rusty-red hairs).



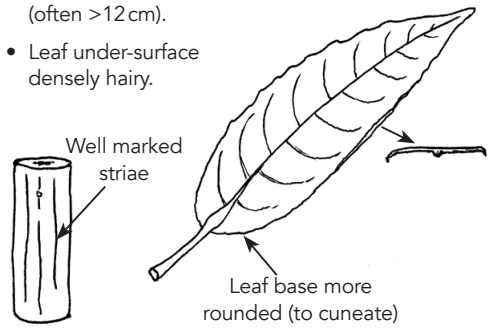
Salix × *holosericea*

- Smallest, narrowest leaves (max length c. 11 cm).
- Leaf under-surface sparsely hairy (subglabrous late in year).



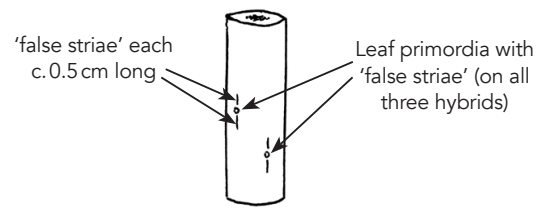
Salix × *calodendron*

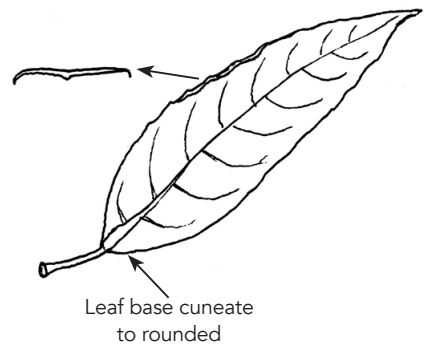
- Largest, broadest leaves (often >12 cm).
- Leaf under-surface densely hairy.



Salix × *smithiana*

- Moderately long, fairly broad leaves (max length c. 12 cm).
- Leaf under-surface densely hairy.
- First-year twigs soon glabrous and sublustrous.





beneath, with arched main veins and raised venation. The leaf edge in *Salix cinerea* is also recurved but usually more markedly undulate.

Once one has decided a willow is one of these *viminalis* hybrids they should usually be separable using a combination of leaf shape, maximum leaf length and presence or absence of striae on the peeled twigs. *S.* × *holosericea*, with the smaller-leaved *S. cinerea* as a parent, has the smallest and proportionately narrowest leaves, with a tendency towards a cuneate shape to the leaf base, and well-marked striae. *S.* × *calodendron* also has well-marked striae, but has the largest leaves, usually with some over 12 cm long. These are proportionately quite broad, with a more rounded shape to the leaf base. *S.* × *smithiana* also has leaves which are fairly broad, with a cuneate-rounded base, but the twigs lack striae.

When looking at leaf shape and size, it is important to look at the most typical leaves, rather than those found on regrowth, basal branches or on very young trees; try to examine leaves on the branches from as far up the tree as possible. Leaves in the mid-section of the branches are most typical and diagnostic. In assessing leaf shape, pick a few leaves showing the most characteristic shape, but for leaf size select the largest leaves and measure the maximum length of these.

Striae should be looked for on twigs which are 1–1.5 cm in diameter, if available, and to find them, carefully strip the bark off from all the way around the twig. What I take to be abortive leaf primordia (tiny, pinhead-sized pegs) have very short, raised ridges on either side of them, which should not be mistaken for striae. These 'false striae' (*see illustration*) occur in *S. caprea*, *S. cinerea* and all three hybrids, and are generally less than 0.5 cm long. True striae will have no pinhead-sized peg and are usually around 2–3 cm long.

With practice, most examples of these hybrid willows can be identified in the field using the above characters, as shown in the illustrations. To begin with, or with more challenging examples, one should take a representative branch, along with several of the largest leaves which can be found, having first checked for striae. I find that the best way to make a reliable determination in willows is to use the Stace key (Stace, 2019) and then check the provisional identification against the drawings and descriptions in the BSBI Handbook (Meikle, 1984); but with these hybrids one should not expect to make a definite identification in all cases. Meikle found that even the most careful of examinations left him with a 'residue of specimens that refused to conform' to the diagnostic criteria.

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Leaves of *Salix* × *holosericea* (left) and *S.* × *smithiana* (right). *Mike Crewe*

Common Broomrape (*Orobanche minor* Sm. var. *heliophila*) in Bishop Auckland 2019–2020; observations on the invasion of an alien holoparasite

PATRICIA S. GRAHAM & DAVID W. SHIMWELL

Just as we were completing this article for *BSBI News*, Thorogood & Rumsey (2020) published an in-depth paper on the nature of the variation of *Orobanche minor* Sm. in the British Isles in which the var. *heliophila* is recognised and described. Coincidentally, we had been monitoring populations of this taxon in Bishop Auckland (Co. Durham, v.c. 66) through 2019–2020, and we are pleased to offer the findings of our two-year investigation as a contribution to an understanding of the nature of this invasive alien holoparasite (i.e. a parasitic plant incapable of photosynthesis obtaining all nutrients and water from a host plant).

On 12 July 2019, PSG discovered a large population of *Orobanche minor* var. *heliophila* in the car park of Morrison's supermarket in Bishop Auckland (OS grid reference NZ2029). We subsequently began our survey on 16 July to count the individual spikes and measure their heights, before extending our survey car park-wide. We visited the site through the autumn of 2019 and the 2020 season from June onwards and summarise our findings here.

Orobanche minor var. *heliophila* (Common Broomrape) with its host *Brachyglottis* × *jubar* (Shrub Ragwort) in a car park in Bishop Auckland, August 2020 (Site A). *Photographs by Philippa Kurkutakis.*

Empirical field observations in 2019 and 2020

The first population to be discovered proved to be the largest population in the whole car park complex, on the park side of the shrubbery border along Bob Hardisty Drive (Site A). Here, pruning back to stop shrub encroachment had created a narrow, open margin, < 25 cm in width and some 6 m in length, with 83 spikes, both flowering and fruiting, distributed in intermittent clusters. The tallest spike measured 64 cm with its basal 'rapum' (a name derived from the 'turnip-like' bulb of the original Latin epithet of *O. rapum-genistae*) being of 35 mm circumference. The smallest plant at maturity was 14 cm and the greater proportion of spikes fell into a range of 18–37 cm. We recorded a second smaller population of c. 12 spikes at a similarly pruned shrub

margin on the south side of the pedestrian Four Clocks Tower walkway (Site B), noted single spikes in two other borders near the main entrance from Bob Hardisty Drive, and two other spikes in a small border near Bishopgate Medical Centre on Newgate Street in the south of the car park (Site C). The plant was clearly widespread throughout the car park complex.

A second visit to the locality on 20 August 2019, found only a single flowering spike at Site B, measuring 12 cm in height and bearing seven purplish flowers. All the other spikes present were brown and in the fruiting stage, while others had fallen into decay. However, the additional find of a dense patch of 16 spikes in an area covered by a 20 × 20 cm square paper bag in the southern border near Site C, suggested a second germination phase in the second half of July and early August.

Stems of *Orobanche minor* var. *heliophila* growing through tarmac at Site A.

Circumstances during the summer of 2020 restricted surveys of the *Orobanche* populations to a car park drive-through by DWS on 18 June to view the Site A population, and to separate comprehensive park-wide observations by DWS on 5 August and a photographic survey by PSG and her daughter Philippa Kurkutakis (who kindly took the photographs shown here) on 6 August. The combination of two years of observations enabled the following preliminary conclusions on the invasive characteristics and capabilities of the taxon.

Some preliminary conclusions

These empirical observations relate to the recent consensus of Joel et al. (2013) on the parasitic mechanisms and control strategies of various members of the family Orobanchaceae and also to the relationships of native and alien host-specific races of *Orobanche minor* s.l., as researched by Thorogood et al. (2008; 2009*a*; 2009*b*). We offer the following seven nuances as a contribution to the general understanding of the nature of colonisation and establishment.

Phenology. The earliest flowering specimen was recorded on 18 June in 2020 and the latest mature flowering spike was seen on 20 August 2019. Field observations on maturation suggest the occurrence of two phases of germination. The drying fruiting material collected for herbarium specimens yielded prolific amounts of seed, a small percentage of which germinated on damp blotting-paper within six weeks; attempts to establish seedlings in general purpose compost, mixed with surface litter predominated by the remains of *O. minor*, failed.

Changes in population sizes in the three main locations 2019/2020 chosen for study indicate that the numbers of spikes varies annually. Counts for the two years were as follows: Site A – 83/68; Site B – 13/47; Site C – 18/6. In one location there was a three-fold increase in inflorescences, in another a three-fold decrease and little can be concluded other than that population size may continue to change significantly from year to year on a long term basis.

Stems of *Orobanche minor* var. *heliophila* emerging from beneath slate chippings at Site B.

The host plant was exclusively the Shrub Ragwort *Brachyglottis* × *jubar*, 'Sunshine', formerly *Senecio greyii*; none of the other horticultural shrubs appeared to be parasitised. The main populations of the parasite were peripheral to the ornamental borders where the host may have been structurally weakened by pruning.

Associated species of weedy herb. The most frequently encountered associated herbaceous weed species included *Hypochaeris radicata* (Cat's-ear), *Medicago lupulina* (Black Medick), *Plantago major* (Greater Plantain), *Ranunculus acris* (Meadow Buttercup), *Senecio squalidus* (Oxford Ragwort) and *Trifolium repens* (White Clover). Since Rumsey & Jury (1991) had noted that *O. minor* s.l. is known to infect hundreds of species in taxonomically diverse families from Ranunculaceae to Poaceae, with a clear preference for hosts in the Fabaceae and Asteraceae, DWS collected specimens of *H. radicata*, *M. lupulina*, *S. squalidus* and *T. repens* for a closer anatomical examination for evidence of root parasitisation. As might have been anticipated, evidence was absent, indicating that there was an absence of gene flow between alien and native races of the holoparasitic angiosperm as described by Thorogood et al. (2009*a*), and there existed a distinct host-specific race of *Orobanche minor* for *Brachyglottis* × *jubar* (Thorogood et al., 2009b; Thorogood & Jury, 2020).

Growth in different substrates. The three main populations were all located on made ground topped by mineral soil, but single spikes and small colonies were noted on other substrates at the open edges of shrub borders. In August 2020 two spikes were actually growing through the tarmac of the car park and another two spikes were rooted in the crack between two paving slabs. There were also significant populations rooted beneath the underlying slate chippings where vegetative shrub cover was reduced, but there was obviously a subterranean root mat (*see photographs*).

Overall population area. The calculated distances between the three main populations were 100 m from Site A to Site B, and from there a further 70 m to Site C, suggesting the total population was distributed over an area of 1.3 hectares. The total number of spikes in the overall population in 2020 exceeded 120 and its commonness may provide some indication as to the reason the invasive proclivity of this introduced species has attracted the colloquial name of 'Hellroot' throughout the Eastern Seaboard states of the United States, and Washington and Oregon in the Pacific Northwest (USDA, 2020)

Site history. The supermarket complex had been constructed on the site of Bishop Auckland Goods Railway Station Sidings and Depot which continued in operation until after 1980. Becoming such a major site of dereliction and development in the centre of town, the area was surveyed regularly by PSG with a view to incorporating new records into the Durham Flora (Graham, 1988), followed by additional visits until the opening of the supermarket in the early 21st century. Latterly, on shopping excursions she has habitually parked adjacent to the trolley-park at Site A and would have been sure to notice the broomrape had it flowered before 2019.

Records for County Durham. The BSBI recorder for County Durham (v.c. 66), Keith Robson,

kindly supplied previous records and a map of the monad distribution of *Orobanche minor* s.l. in the vice-county. He revealed there had been less than fifteen individual records mapped in ten monads. Graham (1988) listed only three localities, two pre-1940 sites in clover fields in the Tyne Valley, one near Ryton (NZ1564), supporting a population of 'almost a thousand plants' and a third from 1973 in grassland adjacent to an old colliery railway, near Chopwell Wood (NZ1458). All other records are post-1988, mostly from the 21st century and probably for *O. minor* var. *heliophila*.

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Pavement plants in the Wirral

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Covid-19 has prevented many of us venturing far in our botanical rambles, necessitating closer study of our immediate neighbourhood. As the season progressed it became apparent my local council had abandoned street maintenance. Without the application of herbicides and street cleaning, plants appeared where few normally get a chance to grow.

In my local suburban streets in Heswall, Wirral (v.c. 58 Cheshire) garden boundaries are often made of brick, concrete or sandstone walls. Pavements are either tarred or made of concrete flags and both are occasionally interrupted by manhole covers. Between the pavement and the carriageway, a mown grass strip with street trees may occur and this is separated from the carriageway by a stone or concrete kerb. During the year plants appeared in the cracks and joints in the hard surfaces.

Accordingly, in late August 2020 two adjacent monads (SJ2880 and SJ2781) were surveyed, but only the plants growing in the cracks and joints of hard surfaces were recorded. The grass verge and garden walls were ignored. Up to two hours was spent recording in each monad but a few species known to have been present early in the year but no longer visible were included, e.g. annuals such as *Erophila verna* s.l. (Common Whitlowgrass).

This survey is similar to the street survey carried out in Dundee in 2001 and 2020 (Ballinger, 2020) where boundary walls were also included.

Results

A total of 144 taxa were recorded, with 102 and 103 taxa found in each of the two monads. Sixty species were found in both monads, leaving 84 species having been found in only one monad. Forty-three

percent of the taxa were annuals with 57 percent perennials and biennials and of these 14 species were woody and six were trees recorded as seedlings.

As the habitat is normally free of plants, all those recorded are therefore pioneer colonisers of bare ground in a suburban area. With the early arrival of trees, the succession would lead to scrub and woodland. This woodland would consist of *Acer pseudoplatanus* (Sycamore), *Eucalyptus* cf. *gunnii* (Cider Gum), *Fraxinus excelsior* (Ash), *Ulmus* sp. (Elm species), *Laburnum anagyroides* (Laburnum) and *Populus alba* (White Poplar); not the usual constituents of British woodland. The presence of a *Eucalyptus* seedling was surprising and of the numerous species native to Australia only a few are cultivated in Britain and Ireland. Of these *E. gunnii* is the most widely found and in Wirral produces abundant fruits. *Quercus* spp., *Fagus sylvatica* (Beech) and *Tilia* × *europaeae* (Lime) are common Wirral street trees but no seedlings of these taxa were found. It is possible that acorns were too large to lodge in the narrow cracks whilst *Tilia* × *europaea* may be largely sterile. The absence of *Fagus sylvatica* seedlings is more difficult to explain. Of the other woody species, no doubt *Buddleja davidii* (Butterfly-bush), (*Hedera helix* (Common Ivy), *Rubus fruticosus* agg. (Bramble) and *Ulex europaeus* (Gorse) would be prominent in a shrub layer of the future woodland.

Most taxa (78%) were natives or archaeophytes, but the remaining neophytes (22% or 32 species) are of some interest. According to the BSBI Distribution Database (DDb) about half were first recorded in Cheshire before 1966, including several in the 19th century, e.g. *Veronica persica* (Common Field-speedwell) (1858) and *Geranium pyrenaicum* (Hedgerow Crane's-bill) (1873). Seven species were first recorded since 2000. *Verbena bonariensis* (Argentine Vervain), *Campanula medium* (Canterbury-bells) and *Lavandula angustifolia* (Garden Lavender) are garden escapes. However, *Polypogon viridis* (Water Bent), *Erigeron sumatrensis* (Guernsey Fleabane) and *E. floribundus* (Bilbao's Fleabane) are recent introductions and all are rapidly becoming more frequent. *Polypogon viridis,* especially, since first recorded in Wirral in 2012 (DDb) has become the commonest plant found at the base of garden walls. The origin of introduced species is varied but many are garden or agricultural escapes.

A typical street in Heswall with garden wall, pavement, grass verge, street and garden trees, November 2020. *Eric Greenwood*

The surveyed roads included bus routes, which are salted in winter. Unsurprisingly 18 species (12%) showed some salt tolerance. These included *Catapodium marinum* (Sea Fern-grass), *Cochlearia danica* (Danish Scurvygrass) and *Lobularia maritima* (Sweet Alison) all with Ellenberg salt tolerance values of 3 or 4 (Hill et al., 2004).

Average Ellenberg values for reaction (pH) were 6.5 (Table 1) and for nitrogen (fertility) 5.5 (Table 2). This indicates that overall, pavement plants favoured neutral soils of intermediate fertility. Nevertheless, there were species that favoured more acid soils, e.g. *Agrostis capillaris* (Common Bent) and *Juncus effusus* (Soft-rush) and others more alkaline ones, e.g. *Anisantha sterilis* (Barren Brome), *Artemisia vulgaris* (Mugwort), *Malva neglecta* (Dwarf Mallow) and

Medicago lupulina (Black Medick). Similarly, there were wide variations in substrate fertility attributes. A few species were characteristic of infertile soils, e.g. *Arabidopsis thaliana* (Thale Cress), *Briza maxima* (Greater Quaking-grass), *Erigeron karvinskianus* (Mexican Fleabane) and *Sedum acre* (Biting Stonecrop), whilst others favoured highly fertile substrates, e.g. *Alliaria petiolata* (Garlic Mustard), *Urtica dioica* (Common Nettle), *Conium maculatum* (Hemlock) and *Galium aparine* (Cleavers).

Table 1. Reaction values

Value	Number of taxa
4	6
5	6
6	43
7	64
8	7
Average	6.5

Table 2. Nitrogen values

Value	Number of taxa
2	5
3	7
4	17
5	25
6	36
7	31
8	5
Average	5.5

Comparison with Dundee street flora

Although a direct comparison with Ballinger's study cannot be made the street flora of Heswall is significantly richer with 144 taxa recorded as opposed to 90 in Dundee. All the most frequently occurring species in Dundee occurred in both monads in Heswall and are probably as frequent. In addition, *Polypogon viridis* is abundant in Heswall and this has probably not spread as far north as Dundee. However, he also recorded *Asplenium ruta-muraria* (Wall-rue), presumably on walls. This was present on Heswall garden walls and similarly *Campanula poscharskyana* (Trailing Bellflower), an increasing species in Dundee, was a common constituent of the Heswall garden wall flora but was not found on pavements or roadsides. Ballinger recorded *Epilobium ciliatum* (American Willowherb) as an increasing species but surprisingly it was not recorded in the Heswall monads yet is frequent in the neighbourhood. However, the hybrid with *Epilobium montanum* (Broad-leaved Willowherb), *E.* × *interjectum*, was recorded.

Water Bent (*Polypogon viridis*) growing at the junction of a sandstone wall and pavement (November 2020); a typical habitat. *Eric Greenwood*

Conclusion

This exercise proved rewarding and revealed initial colonisation of cracks in hard surfaces of pavements and roadside kerbs involved a wide variety of plants, demonstrating that scrub and woodland would soon develop if allowed to do so. Alien or introduced species were prominent and amongst the newcomers *Erigeron* species and *Polypogon viridis* have become abundant within a few years of arrival.

The full list of species is available on request and a copy has been sent to the Vice-county Recorder, Graeme Kay. Shortly after the survey the council resumed street maintenance and most of the plants were killed with herbicide and/or removed.

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Holcus lanatus L. and *H. mollis* L. – and reassessing the distribution of *H.* × *hybridus* Wein.

MIKE WILCOX

Holcus mollis (Creeping Soft-grass). *John Norton*

On occasion, it may be possible that *Holcus lanatus* (Yorkshire-fog) and *H. mollis* (Creeping Soft-grass) could be occasionally confused. The first species is (usually) tufted and the second rhizomatous but this may not be obvious in denser vegetation (for the former), or on compact ground (for the latter). [There is said to be a rhizomatous form of *H. lanatus* 'var. *soboliferus*' but I have seen what appears to be a 'stoloniferous' form of it with a 'stolon' at least 40 cm with rooting nodes: as it is not green, it may be a rhizome, but as it is only covered by loose decaying vegetation, rather than truly underground, it could be a form of a stolon]. The long awns of *H. mollis* projecting beyond the glume should help in part with its identification, though hybrids will have intermediate or long awns also. In Cope & Gray (2009) it gives the 'bearded nodes' as a distinctive character of *H. mollis* but it does not illustrate the difference and *H. lanatus* has very hairy nodes and some hybrids are similar to either parent (see below). The hairs at the nodes in *H. mollis* are mostly long and it is usually almost glabrous above and below it, making the node stand out; *H. lanatus* has shortly hairy sheaths above and below its hairy nodes, which has many dense short hairs as well as some longer ones.

In Britain and Ireland the hybrid (presumed to be the triploid (3×) c. 2n = 21) has been recorded in 25 vice counties (14 England; 4 Wales; 2 Scotland and 5 in Ireland). Checking fertility is key to the correct identification from fresh anthers. In some cases those records claimed to be a 'field observation' on the BSBI database need confirmation (I would suggest that this hybrid cannot be done in the field). Also, there appears to be records of the hybrid in some Floras which do not appear on the BSBI database. With the hybrid, the situation may be a little more complex.

In Britain and Ireland most of the hybrids are said to look closer to *H. mollis* or intermediate, especially in awn length but on the continent they describe two forms, one closer to *H. lanatus* (f. *superlanatus*) and one closer to *H. mollis* (f. *supermollis*) (Stace et al., 2015). In Jones (1958) the pentaploid (5×, 2n = 35)

race of *H. mollis* was said to be relatively frequent in populations of *H. mollis*; he collected this 'race' from 27 sites, totalling 358 samples. However, this race was said to be largely sterile and has *H. lanatus* in its genetic makeup, whereas the (fertile) 4× *H. mollis* does not have *H. lanatus* in it (there were a few other very rare ploidy levels, with 6× and 7× found by Jones but they are not commented on here for the time being; those such as 7× could be a form of the hybrid also or backcrosses). Jones (1958) only found one 3× hybrid from all the samples (in Scotland) in that study suggesting it is quite rare.

Thus, though not mentioned in the *Hybrid Flora* (Stace et al., 2015), the 5× race is essentially a form of *H.* × *hybridus* and perhaps we should treat it as such for the time being (it appears to be the form described by Wein [1913] as f. *supermollis*). In looking for this form of the hybrid it would be useful to reassess populations of *H. mollis*, collecting any plant thought to be this species (at least to just below the first node of the stem). It is likely a number of those or most (given how rare Jones [1958] found the 3× hybrid) recorded as the assumed 3× hybrid, will be the sterile 5× *H. mollis* form, and or errors, especially if a 'field observation' only. The specimen(s) must be roughly at the flowering stage (check that it has anthers) and or any plants you suspect as being the 'intermediate' hybrid. Each collection must be separate so that any loose anthers belong to that plant and that plant alone, (though only anthers still in the florets will be checked).

The distribution of *H. mollis* is unlikely to change, but as this form of the hybrid is likely to be fairly frequent it may change the status of the hybrid (and as Jones pointed out it may be more frequent in some places than the 4× plants of *H. mollis*; surviving as a perennial and or occasionally re-establishing through crossing with *H. lanatus*). Therefore, it might be possible to show the distribution of the two hybrid forms, mainly based on sterility and awn length. There is a possibility that there are many partially fertile plants, and these would require more study. In France (see Tison & Foucault, 2014) it is thought that the 'hybrid' is more frequent than *H. mollis* in most areas (Jean-Marc Tison pers. comm., 2020) but they do not differentiate between any forms and no chromosome numbers were given. It is possible that the 'more frequent' hybrid in France (in many cases) relates to the pentaploid race of *H. mollis*. Please collect any '*H. mollis*-like' plants and if you have any 'confirmed' specimens of the hybrid, or find a suspected hybrid or have sent material to a herbarium please let me know. I look forward to hearing from anyone with any (amount of) material.

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Vascular plant Red Data List for Great Britain: a summary of amendments in years 14 and 15 (2019–20) of the annual amendments process

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ON BEHALF OF THE GB RED LIST GROUP FOR VASCULAR PLANTS

Following previous updates (listed under 'References' below), the GB Red List Group for vascular plants has agreed further changes to the GB *Red Data List* covering years 14 and 15 (2019–20) of the annual amendments process. As usual, these are being submitted to JNCC to be incorporated into the master list on the JNCC website; in addition, a copy of the latest version of the *Red Data List,* including the Waiting List, is posted on the Taxon Lists page of the BSBI website (*bsbi.org/taxon-lists*).

The main additions and amendments are summarised below. They fall into four categories: (a) additions to the Main List; (b) amendments to taxa already on the Main List; (c) additions to the Waiting List; and (d) other changes, including removal of taxa from Main List or Waiting List to the Parking List. For an explanation of the various lists, see Cheffings & Farrell (2005) and Pearman & Leach (2017). It should be noted that, as usual, all new and amended threat statuses have been determined in accordance with the IUCN threat criteria used to compile the original GB *Red Data List* (IUCN, 2001; 2003). In the following account, threat categories are abbreviated as follows: **EX/EW** globally extinct/extinct in the wild, **RE** regionally extinct (i.e. extinct within GB but still extant somewhere else in the world), **CR** critically endangered, **EN** endangered, **VU** vulnerable, **NT** near threatened, **DD** data deficient, **LC** least concern (= not threatened) – see Cheffings & Farrell (2005) for definitions of these categories, and Stroh et al. (2014, p. 10) for a summary of the IUCN threat criteria A–D and the various sub-criteria. As you will see, many of the changes result from publication of two important Floras, the final instalment (actually Volume 1) of the monumental *Flora of Great Britain and Ireland* (Sell & Murrell, 2018), and the much-revamped fourth edition of the *New Flora of the British Isles* (Stace, 2019). In the following account, references to these are shortened to *S&M* and *NF4* respectively.

Additions to the Main List

- *Alchemilla sciura* is a recently described species (Lynes, 2019), apparently restricted to a single site in Scotland where there are fewer than 250 plants; as such, it is added to the Main List as **EN** under criterion D. (*Alchemilla acutidens* agg. is included in both *S&M* and *NF4*, but we have decided to hold off making any further additions or amendments to *Alchemilla* on the Red List until after publication of the BSBI Handbook which is currently at an advanced stage of preparation. For now, therefore, *A. acutidens* remains on the Waiting List.)
- *Centaurium intermedium* was included as a full species in Rich & McVeigh (2019), rather than with the various hybrids and back-crosses between *C. erythraea* and *C. littorale* that *NF4* batches together under the name *C.* × *intermedium.* On this basis, we are adding *C. intermedium* to the Main List as **EN** under criterion D. It is likely that this taxon is also an English endemic. *Centaurium tenuiflorum* subsp. *anglicum*, previously not listed, is added to the Main List as **LC**, with a note to highlight the probability that it is an English endemic.
- *Diphasiastrum tristachyum* is added to the Main List as **RE**, since 19th-century material later determined as *D.* × *issleri* has now been re-determined as this species (see Rumsey [2012]

for a full discussion of the records and its presumed-native status).

- *Dryopteris* species. Following a decision to adopt *S&M*'s approach to the naming of segregates within the *Dryopteris affinis* complex – i.e. treating them as full species rather than as subspecies – there are three taxa being added to the Main List: the recently described *Dryopteris cluthensis* (= *D. affinis* subsp. *cluthensis* [Church et al., 2019]) is added as **DD**, while *D. lacunosa* and *D. robusta* (both included within *D. affinis* subsp. *borreri* in *NF4*) are added as **LC**.
- The plant that many of us have never stopped calling *Gentianella anglica* has had a chequered history. When the GB Red List was published in 2005, its taxonomic worth was, with some justification, being questioned (e.g. Winfield et al., 2003), so it was included on the Waiting List with a note 'further taxonomic studies required' (Cheffings & Farrell, 2005). A few years later, Sell & Murrell (2009) considered it best regarded as an early-flowering form of *G. amarella* – var. *praecox*. Further research and debate ensued, and the current consensus (Rich & McVeigh, 2019) is that it should be treated as a (GB endemic) subspecies of *G. amarella*, subsp. *anglica*. Accordingly, for the first time it is added to the Main List, its threat status being assessed as **VU** under criterion A2c.

Gentianella amarella subsp. *anglica* is being added to the Main List after more than 15 years languishing on the Waiting List. *Fred Rumsey*

- *Gentianella uliginosa* has undergone a similar process: it was included on the Main List in 2005, before Sell & Murrell (2009) reduced it to varietal status as *G. amarella* var. *uliginosa*, at which point it was removed to the Waiting List. The view now is that, while British '*uliginosa*' is not the same as Continental material of that name, it nevertheless merits recognition at subspecies level as *G. amarella* subsp. *occidentalis* (Rich & McVeigh, 2019). As such, it is re-instated to the Main List with the same threat status as it had in 2005, i.e. **VU** under criteria B1ab(v) + 2ab(v).
- *Myosotis stricta* was described, new to the British flora, by Jones & Rumsey (2019), on the basis of 20th-century specimens in **BM**. It is likely to have been overlooked for *M. ramosissima* and/or *M. discolor*, so its present status in GB remains obscure; for now, though, it is added to the Main List as **DD**.
- *Rosa corymbifera* and *R. squarrosa*, both previously hiding within *Rosa canina* agg. (under groups '*Pubescentes*' and '*Dumales*' respectively), are separately listed in *NF4*. They are likely to have similar distributions to *Rosa canina*, so both are being added to the Main List as **LC**.
- We have decided that we can no longer exclude the possibility that southern European *Serapias* species occurring in the wild in GB may have arrived unaided, i.e. by long-distance wind

dispersal. For the moment, we are persuaded that, in the absence of evidence to the contrary, such occurrences are probably best treated equivocally as 'Native or Alien'. That being the case, *Serapias lingua*, previously on the Waiting List (Leach, 2019), is added to the Main List as **CR** under criterion D. *S. parviflora* is also being added as **RE**. The latter was discovered at its sole locality, in Cornwall, in 1989, but hasn't been seen since 2008 despite repeated searches; it is presumed extinct. *NF4* gives both these species as 'possibly native'.

- *Sorbus spectans*, inexplicably omitted from previous lists, is added to the Main List as **CR** under criterion D (in line with its threat status in Rivers, Beech et al. [2019]).
- *Taraxacum* species. Seven dandelions are added to the Main List. *T. amicorum* and *T. atrocollinum*, two GB endemics in section *Celtica* recently described by Richards (2019), are added as **LC**. (NB: *T. amicorum* was the plant initially determined as the eastern European species *T. litorale* [Leach & Richards, 2018].) *T. chlorofrugale*, another newly described taxon (Richards, 2019) within s. *Celtica* which occurs in scattered localities across southern Britain as well as in continental Europe, is added as **LC**. *T. inclinorum* and *T. pietii-oosterveldii*, s. *Celtica* species described from Ireland (Richards & Doogue, 2017), have now also been recorded in GB. A handful of widely scattered records of *T. pietii-oosterveldii* in England and Wales suggest that this species is **LC**; but *T. inclinorum*, discovered in 2020 in S. Somerset (Exmoor) may be rare and geographically restricted, so is listed for now as **DD** while its distribution is elucidated. *T. pseudomarklundii*, an otherwise south-western European taxon with affinities to both sections *Naevosa* and *Celtica*, has been recently recorded from numerous localities across at least eight hectads in S. Devon (Day & Richards, 2020), where it occurs on 'steep grassy lane banks' and is presumed to be native. As such, we are adding it to the Main List as **LC**. Lastly, a dandelion in s. *Erythrosperma* seemingly restricted to a single site in East Anglia has recently been determined as the central European *T. isophyllum* (Rich & Richards, 2020). Its limited extent and small population size (Richards pers. comm.) mean that it is added to the Main List as **EN** under criterion D.

Serapias parviflora, not seen in GB since 2008, is another Waiting List species now being added to the Main List. *John Martin*

Amendments to taxa already listed on the Main List

- We have made numerous name changes to bring the list into line with the taxon names used in *NF4*. Our convention, as previously, is to adopt the taxonomy and nomenclature given in the latest 'Stace', unless there are compelling reasons to do otherwise. We do not give a list of all the name changes here, but in the updated Main List each name change is accompanied by a note of the 'old' name by which a taxon was earlier listed. See Rand (2019) for a really useful summary of the main changes between Stace (2010) and *NF4*.

- Following further investigations by R.A. Jones (as yet unpubl.), we are able to confirm that *Baldellia repens* (= *B. ranunculoides* subsp. *repens* in *NF4*) occurs in fewer than five localities and faces a plausible threat to some of its surviving populations; previously listed as **DD**, it is amended to **VU** under criterion D2.
- Re-assessments of threat status of GB *Dryopteris* taxa have been undertaken by F.J. Rumsey: *Dryopteris pseudocomplexa*, previously **DD**, is now listed as **VU** under criterion D1, while *D. pseudodisjuncta*, also **DD**, is reckoned to be **CR** under criterion D. *D. affinis* subsp. *kerryensis*, is, for reasons already stated, listed under the name *D. kerryensis*.
- *Euphrasia* species. We have revised the nomenclature of *Euphrasia* to reflect the names and taxonomic ranks given in Metherell & Rumsey (2018). In addition, Rumsey (unpubl.) has carried out a review of all *Euphrasia* threat statuses, principally to remedy the fact that, ever since 2005, so many of these taxa have been listed as **DD** with the note '*Euphrasia* is a critical group that is poorly recorded'. He was convinced we could do better than this, and so carried out new assessments based on up-to-date population counts, loss of sites/hectads and estimated changes to Area of Occupancy (AOO) and/or Extent of Occupancy (EOO). This has led to a number of amendments to threat status which are summarised in Table 1 (p. 32). (For explanation of AOO and EOO, see Cheffings & Farrell (2005) or Stroh et al. [2014].)
- *Sorbus* species. Threat statuses for many *Sorbus* spp are being amended to bring them into line with Europe-wide IUCN threat assessments (Rivers, Beech et al., 2019). *Sorbus arranensis*, previously **VU**, is now **EN** under criteria B1ab(iii) + 2ab(iii); *S. bristoliensis*, previously **VU**, is now **EN** under criterion D; *S. devoniensis*, previously **LC**, is now **VU** under criterion D1; *S. evansii* and *S. greenii*, both previously **EN**, are now **CR** under D; *S. lancastriensis*, previously **NT**, is now **LC**; *S. porrigentiformis*, previously **LC**, is now **VU** under criterion D1; *S. pseudofennica*, previously **VU**, is now **CR** under criterion B1ab(iii); *S. richii*, previously **EN**, is now **CR** under criterion D; *S. subcuneata*, previously **VU**, is now **EN** under criterion D; *S. vexans* and *S. whiteana*, both previously **EN**, are now **CR** under criterion D. These (mainly elevated) threat statuses should not be taken to imply that populations are declining; as much as anything they reflect the fact that population size estimates are now based on counts of *mature* individuals, as recommended under the IUCN guidance, rather than *all* individuals.
- *Taraxacum retzii* has been recorded from several more localities in recent years, and its populations are not considered to be under any particular threat; previously listed as **DD**, it is amended to **LC**.

Additions to the Waiting List

- *Armeria maritima* subsp. *miscella* has a mainly Lusitanian distribution in mainland Europe. It occurs in the Channel Islands, apparently, but is also said to occur in Devon (*S&M*). The view expressed in *NF4* is that it 'needs more study', while Smith et al. (2016) state that all *Armeria maritima* in Devon is subsp. *maritima* – so, for the moment, subsp. *miscella* is added to the Waiting List until a clearer picture emerges.
- *Cystopteris fragilis* subsp. *huteri*. Some authorities consider varietal status more appropriate for this taxon, although *NF4* seems happy enough with it. Its distribution is well known, being restricted to rocky gullies on Snowdonia where it was first recorded in 1853. *S&M* didn't recognise it, while admittedly pointing out that *C. fragilis* is 'very variable and probably [needs] to be divided into several taxa'. Until its taxonomic status is resolved, we are adding it to the Waiting List.
- We are also adding several *Dactylorhiza* taxa to the Waiting List: *D. fuchsii* subsp. *okellyi*, which *NF4* considers to be 'doubtfully worth subsp. rank'; *D. incarnata* subsp. *lobelii*, recently reported as occurring in GB but requiring further work

(F.J. Rumsey pers. comm.); *D. maculata*, subsp. *maculata* and/or *elodes*, for which *NF4* says 'the evidence is weak'; and *D. purpurella* subsp. *cambrensis*, previously on the Main List, which may be better considered as a variety rather than a subspecies.

- *Dryopteris remota*. Thought to be an apomictic derivative of *D. affinis* × *expansa*, *D. remota* formerly occurred in Ireland and Scotland (Dumbartonshire). There are plants still in cultivation, but the taxon was considered extinct in the wild until found, as a presumed garden escape, in N. Somerset in 2014 – the first record of it in the wild in England (Crouch & Rumsey, 2015). It is added to the Waiting List while its current distribution and status in GB is clarified.
- *Gymnadenia densiflora* subsp. *friesica* has been tentatively recorded by Bateman & Denholm (2019) from Glamorgan and (possibly) Sussex; it is being added, for the time being, to the Waiting List pending further investigations.
- For the Rock Sea-lavenders, *Limonium binervosum* agg., we have decided to follow *S&M*'s approach which recognises *all* of Ingrouille & Stace's (1986) taxa – of whatever rank – as full species. We are amending the names of those already on the Waiting List accordingly; so, for example, *Limonium binervosum* subsp. *saxonicum* now appears as *L. saxonicum*. We are also adding those of Ingrouille & Stace's *varieties* that *S&M* treats as species, e.g. *L. britannicum* subsp. *coombense* var. *grandicaule*, which appears under the name *L. grandicaule*. Furthermore, the following new taxa described in *S&M* are added to the list, namely: *L. sabulicola*, *L. intercedens*, *L. calcicola*, *L. sanctamargaritense*, *L. altum*, *L. obesifolium*, *L. ginae* and *L. woolacombensis*. A consensus is yet to emerge as to the merits or otherwise of recognising so many *Limonium* taxa at species level – *NF4* takes one approach, *S&M* another – so, for the time being, they will remain on the Waiting List. It should be noted, however, that our knowledge of the geographical limits of most taxa is fairly good and we suspect that while many may be highly restricted, their populations are, for the most part, not threatened. As such, it is likely that, if added to the Main List, they would mostly be **LC**.
- The following presumed-native/archaeophyte *Polygonum aviculare* segregates, also described in *S&M* – and earlier championed by Chater (2010) – are added to the Waiting List: *P. neolittorale*,

Cystopteris fragilis subsp. *huteri* is added to the Waiting List until its taxonomic position can be clarified. *Fred Rumsey*

Table 1. *Euphrasia* species for which threat statuses have been re-assessed and revised.

Species	Old threat status	Revised threat status	Notes
Euphrasia anglica (previously *E. officinalis* subsp. *anglica*)	EN	Still **EN** under A2c	Note name change. Still reckoned to be **EN** due to reduction in AOO, but also qualifies due to hectad losses and reduction in EOO
Euphrasia arctica (previously *E. arctica* subspp. *arctica* and *borealis*)	DD	**NT** under A	Subspp *arctica* and *borealis* (both previously DD) removed to Parking List, as Metherell & Rumsey consider best viewed as a single variable taxon at species level. Revised threat status based on estimated reductions in AOO and EOO
Euphrasia campbelliae	DD	**VU** under C2a(i)	Revised threat status based on restricted range, estimated population size and evidence of recent declines including losses due to hybridisation
Euphrasia confusa	DD	**VU** under A2c	Revised threat status based on estimated reductions in AOO and EOO
Euphrasia foulaensis	DD	**VU** under A2c	Revised threat status based on estimated reductions in AOO and EOO
Euphrasia frigida	DD	**EN** under A2c	Revised threat status based on estimated reductions in AOO and EOO, including a major decline in Scotland
Euphrasia heslop-harrisonii	LC	**NT** under A	Revised threat status based on recent losses at hectad level
Euphrasia micrantha	DD	**VU** under A2c	Revised threat status based on estimated reductions in AOO and EOO; reduction in EOO is especially marked
Euphrasia montana (previously *E. officinalis* subsp. *monticola*)	VU	**EN** under A2c	Note name change. Revised threat status based on estimated reductions in AOO and EOO, including a massive loss in Scotland
Euphrasia nemorosa	LC	**NT** under A	Revised threat status based on estimated reduction in AOO, including a marked decline in Scotland
Euphrasia ostenfeldii	DD	**VU** under A2c	Revised threat status based on estimated reduction in AOO, including marked decline within its core range in Scotland
Euphrasia pseudokerneri	EN	**VU** under A2c	Revised threat status based on estimated reductions in AOO/EOO being less severe than previously thought; greatest losses in W of range
Euphrasia rostkoviana (previously *E. officinalis* subsp. *pratensis*)	VU	**EN** under A2c	Revised threat status based on estimated reductions in AOO and EOO
Euphrasia rotundifolia	EN	Still **EN**, under D and C2a(i)	Now qualifying as **EN** under criterion C2a(i), previously listed under D only
Euphrasia scottica	LC	**NT** under A	Revised threat status based on estimated recent reductions in AOO/EOO
Euphrasia tetraquetra	DD	**NT** under A	Revised threat status based on estimated reductions in AOO/EOO, although suspected that a proportion of this decline could be due to it having been over-recorded in past (Rumsey pers. comm.)
Euphrasia vigursii	EN	Still **EN** under A	Latest re-assessment of threat status indicates *at least* **EN** under criterion A; may also qualify under criterion B, while recent tetrad/hectad decline suggests it could be close to **CR**

P. denudatum, P. chamaechyton, P. microspermum, P. parvulum, P. polychnemiforme, P. agrestinum and *P. oedocarpum*. We suspect that these will all prove to be widespread taxa in GB, but at the moment we just don't have sufficient data to underpin any threat assessments; equally, it remains to be seen to what extent they will be accepted and recorded by UK botanists, although some are clearly frustrated by the over-simplification of the current two-way split between *P. aviculare* and *P. arenastrum* (the latter, incidentally, named *P. depressum* in *NF4*).

- *Pteridium aquilinum* subsp. *osmundaceum*, recognised by *S&M*, is added to the Waiting List, although it may be no more than a form of the boreal plant treated in *NF4* as *P. aquilinum* subsp. *latiusculum*, which is already on the Waiting List under the name *P. pinetorum* (= *P. aquilinum* subsp. *pinetorum*). Essentially, in the northern hemisphere two taxonomic groupings can be recognised – a southern '*aquilinum*' and a boreal '*latiusculum*'. Recent phylogenetic studies (Wolf et al., 2019) support earlier work by Thomson (2004) and Der et al. (2009), indicating that N. American (subsp. *latiusculum*), Asian (subsp. *japonicum*) and Eurasian boreal forms differ genetically through introgression with the local southern taxa. *P. aquilinum* subsp. *pinetorum* shows elements of genetic similarity with several of these boreal taxa and may contain African elements too. It is apparently represented in GB by a few isolated (but extensive) clonal patches, some of which may have further hybridised with the surrounding subsp. *aquilinum*. The Perthshire subsp. *osmundaceum* may represent just such a plant. There is, at present, insufficient information to make threat assessments for any *P. aquilinum* taxa other than *P. aquilinum* sensu lato; **LC** seems likely for most, although subsp. *osmundaceum* is admittedly highly restricted in its distribution. (*P. aquilinum* subsp. *atlanticum*, another taxon included in *S&M*, is being added to the Parking List. Molecular and cultivation experiments suggest its recognition as a distinct taxon is untenable [F.J. Rumsey pers. comm.].)
- *Ranunculus auricomus* sensu lato in GB encompasses a large number of apomictic species. The treatment of the group in *S&M* follows Leslie (1976). A total of 56 taxa are thus added to the Waiting List, although in *S&M* it is noted that 'the majority of taxa… [are] from… East Anglia and south-east England… Further investigation will undoubtedly reveal more taxa in all areas and there are likely to be several hundred overall'. At present we have no idea how we ought to be dealing with such species from a Red-listing standpoint. But doing nothing doesn't seem to be an option either, not least because all our taxa appear to be GB endemics, in that 'none … appear to show a satisfactory match with plants described from the rest of Europe' (*S&M* again).
- *Thalictrum minus* agg. *S&M* recognises eight native species within this aggregate: *T. arenarium, T. babingtonii, T. collinum, T. montanum, T. kochii, T. umbrosum* and *T. majus* – plus a ninth, *T. expansum*, which appears to fall outside the limits of the aggregate. Some of these taxa, e.g. *T. majus*, have a long history of being recognised at one rank or another in GB, and they all occur in – and were originally described from – continental Europe. However, it remains to be seen to what extent British botanists will accept the species, and in any case we presently don't have enough information to assign threat statuses. For now, then, they are being added to the Waiting List.
- *Tuberaria guttata* in N. Wales is given as (the near-endemic) subsp. *brewerí* in *S&M*, as distinct from subsp. *guttata* which occurs in the Channel Islands and France. Subsp. *brewerí* is mentioned in *NF4*, too, but with the qualifier that it is 'probably not worth subsp. status'. *T. guttata* is on the Main List, of course, where it is listed as **NT** under criterion B; subsp. *brewerí*, on the other hand, we are adding to the Waiting List until doubts about its taxonomic 'worth' can be resolved.
- *Ulmus* species. *S&M* provides, for the first time, a comprehensive account of *Ulmus* taxa in Britain.

A total of 57 species are being added to the Waiting List, until further information can be gathered on their distribution and abundance. Many appear to be highly restricted, and most are GB endemics. Some of the comments made under *Ranunculus auricomus* also apply here!

Other changes, including removal of taxa to the Parking List

- *Elytrigia* (now *Elymus*) *campestris*, previously on the Main List as **LC**, is removed to the Waiting List following doubt expressed in *NF4* about whether glaucous, maritime forms of *E. repens*, variously called *E. campestris*/*E. campestris* subsp. *maritima* (or *E. repens* subspp. *arenosus* and/or *littoreus*), merit naming as separate taxa. The view in *NF4* seems to be that British material referred to *E. campestris* is probably best considered as *E. repens*.
- *Anagallis arvensis* subspecies are treated as full species (now in the genus *Lysimachia*) in *NF4* which means there is no need for three entries on the Red List, one for the species and two for subspp. *arvensis* and *foemina*. Therefore, the entry for *Anagallis arvensis* is removed, while subsp. *arvensis* becomes *Lysimachia arvensis* and subsp. *foemina* becomes *L. foemina*.
- Three species of *Hypericum* described in *S&M* – *H. densiflorum*, *H. lineolatum* and *H. microphyllum* – are mentioned in *NF4* merely as forms within the 'very variable' *H. perforatum*. F.J. Rumsey has consulted with N. Robson and others with a particular interest in *Hypericum*, who see little merit in distinguishing these as species. We are therefore adding them to the Parking List. (We have yet to decide what to do about *S&M*'s *H. graciliramum*, which equates to *H.* × *desetangsii* nothosubsp. *carinthiacum* in *NF4*. This appears to be rare in GB, the predominant form being named nothosubsp. *desetangsii* in *NF4*.)
- *Taraxacum texelense*, previously on the Main List as **DD**, is removed to the Parking List as British records are no longer regarded as this species (A.J. Richards pers. comm.).
- There has been much discussion over the years as to the value (or validity) of distinguishing two subspecies of *Veronica spicata* in GB, i.e. subspp. *spicata* and *hybrida*. In *NF4*, Stace notes that 'the differences are not constant and these races are only two of a large number in Europe'. We tend to concur with that view, and are therefore removing them from the Waiting List to the Parking List.

Acknowledgements

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National Plant Monitoring Scheme – a brief note

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Annual UK Biodiversity Indicators, published by Defra and the Joint Nature Conservancy Council, provide researchers, academics and statutory bodies with a robust and reliable source of evidence for reporting biodiversity change and shaping policies around habitat management. In 2020, for the first time ever, data collected by volunteers as part of the National Plant Monitoring Scheme have been included as an experimental 'Official Statistic' within the indicator for Plants of the Wider Countryside. More details are available in the infographic below and here: *jncc.gov.uk/our-work/ukbi-c7-plants-of-the-wider-countryside*. You can find out more about the Scheme at *www.npms.org.uk*.

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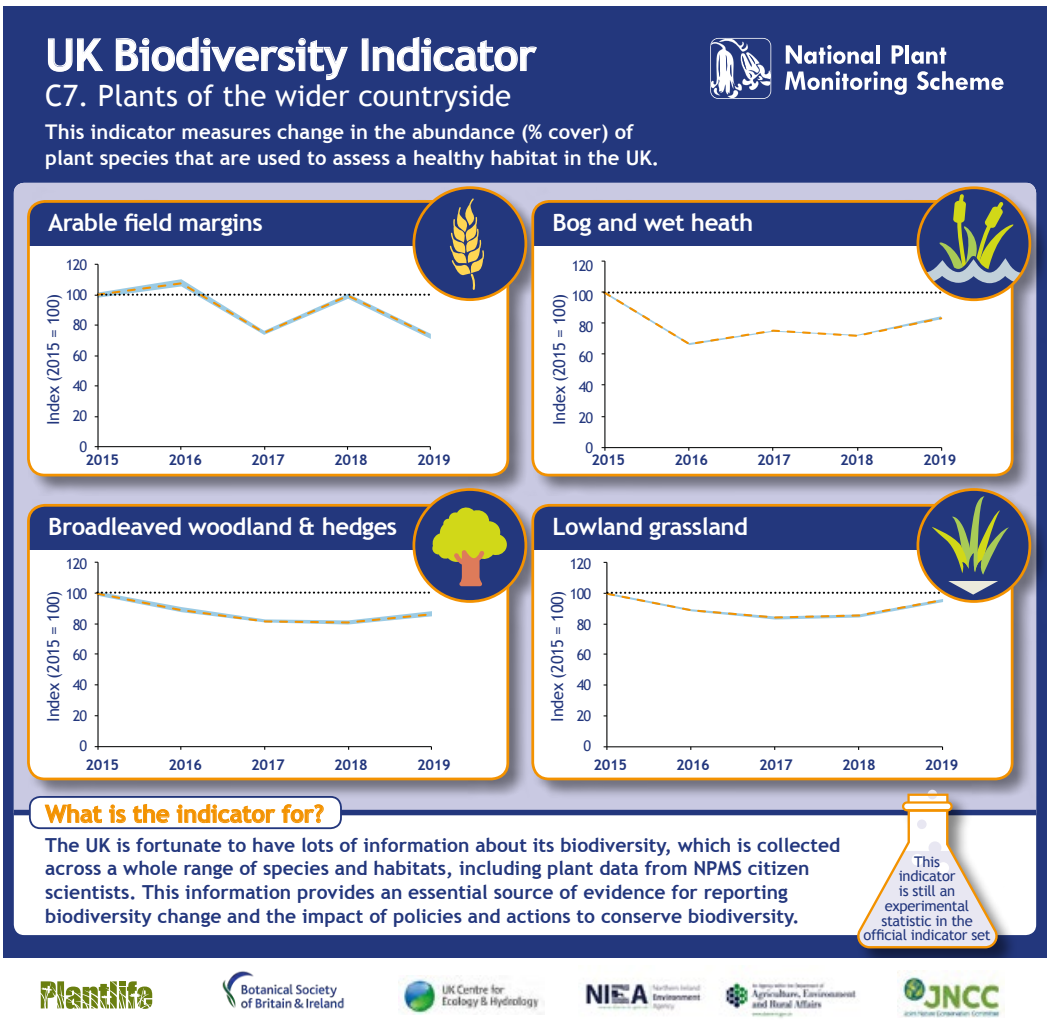

Rough Hawkbit (*Leontodon hispidus*). *Debbie Allan*

BEGINNER'S CORNER

When is a Dandelion not a Dandelion? (A beginner's guide to yellow composites)

HAZEL METHERELL

In summer there appear lots of dandelion-ish looking flowers, but they are often not. The heads consist of many individual flowers called 'florets', the outer ones usually each with one long yellow 'ray.' I am not covering flowers with much smaller heads, like Prickly Lettuce (*Lactuca serriola*), Nipplewort (*Lapsana communis*) or Wall Lettuce (*Mycelis muralis*), or anything rare enough not to come across it accidentally. And we're certainly not going to delve into Hawkweeds (*Hieracia*) at this stage!

If the plant has long raggedly-lobed leaves in a ground-level rosette, with bare unbranched stems (oozing latex when snapped) and a single densely packed head of yellow florets… you have the real thing: *Taraxacum* agg., a Dandelion. There are over 250 species. Let's not go there for now! But if you want a taste see *bsbi.org/identification/taraxacum*.

Let's start with an easy one! Mouse-ear Hawkweed (*Pilosella officinarum*). The flowers are generally a more lemon shade than the other options; a single head on an unbranched stem. You can soon spot them at a distance. The leaves have long white hairs, each about 10 mm long. *Pilus* is Latin for hair, so *Pilosella* is very appropriate.

No long white hairs? Then look at the bracts ('phyllaries') encircling the green part of the flowerhead. Hawk's-beards (*Crepis*) have an inner set of bracts clasping the flower bases like a cup, and an outer set of smaller bracts spreading outwards like a saucer. The most common ones are Smooth Hawk's-beard (*C. capillaris*), which is usually hairless and Beaked Hawk's-beard (*C. vesicaria*) which is usually downy. Both usually have multiple (i.e. branched) flowerheads. Unfortunately the only reliable way to tell them apart is by looking at the little parachute fruits. In Beaked Hawk's-beard the seed is drawn out into a long tip, like a long beak, with the parachute hairs at the top. In Smooth Hawk's-beard the seed is courgette-shaped with the hairs on the end, without a beak. Sounds tricky, but they are very distinct.

Lemon yellow flowers of Mouse-ear Hawkweed (*Pilosella officinarum*) (left). *John Norton*. Close up of a plant showing the long white hairs on leaves (right). *All other photographs by Debbie Allan.*

Beaked hawk's-beard (*Crepis vesicaria*) (left) and Smooth Hawk's-beard (*C. capillaris*) (right), showing branched inflorescence and 'cup and saucer' phyllaries.

No outer set of bracts? Then consider Hawkbits next (why do they give groups such similar and unhelpful English names?). Hawkbits (*Leontodon*) have a basal rosette of leaves and one or two flowers on leafless stems. Flowerheads are 25–40 mm diameter. Look at the leaves. If they have forked hairs, like a tiny 'letter Y' then you have a Hawkbit. There are two common ones: Rough Hawkbit (*L. hispidus*) and Lesser Hawkbit (*L saxatilis*), usually with a single flowerhead on each stem, and again the only reliable way to tell them apart is by looking at the fruits. Rough Hawkbit has the usual long white hairs on the top of all the fruits. In Lesser Hawkbit the hairs are missing from the outermost ring of fruits. In general, the flowerheads and leaves of Rough Hawkbit are larger than Lesser Hawkbit, and the stem is hairier.

Just unforked 'simple' hairs? Now you need to resort to surgery! Both of the following usually have multiple flowerheads. The key character is that if you pull the head apart, and there are papery scales

between the florets you have a Cat's-ear (*Hypochaeris*). They also usually have characteristic little leafy scales up the stem… the cat's ears? There is one common species *H. radicata*, just called 'Cat's-ear'; but if you see one with dark blotches on the leaves don't pick it – it might be the rare Spotted Cat's-ear (*H. maculata*). Also look out for Smooth Cat's-ear (*H. glabra*) an uncommon species of acid grassland with tiny flowerheads about 1 cm across.

No papery scales? Then it's probably Autumn Hawkbit (this was previously *Leontodon autumnalis*, but has been moved to a new genus to become *Scorzoneroides autumnalis*). It's generally less hairy with a few unforked hairs on the underside of the leaves, and a tapering from stem to flower base. The outer florets are reddish underneath.

Finally I'll go through the Sow-thistles (*Sonchus*) because they're obvious and three are common. These are often large, stately plants with several flowers, each on a stem branching from the same point (an 'umbel', like an umbrella) and jagged leaves which clasp the stem. They have latex in the stems like Dandelions. Perennial Sow-thistle (*S. arvensis*), is worth looking at under a hand lens to see what the books mean by 'glandular hairs'. The stems and green bracts under the flowerhead are covered in hairs with sticky yellow blobs on the tip of each. The leaf bases are V-shaped, 'clasping' the stem on both sides. Smooth Sow-thistle (*S. oleraceus*). Guess what? No hairs, glandular or otherwise! Leaf bases are similar to *S. arvensis*. Prickly Sow-thistle (*S. asper*). Yes, you've got it, there is no missing the prickly leaves that curl up and under on each side of the stem.

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Left to right, top to bottom: Leaf of Lesser Hawkbit (*Leontodon saxatilis*) showing forked hairs; Cat's-ear (*Hypochaeris radicata*) with scales on the flower stalk; Autumn Hawkbit (*Scorzoneroides autumnalis*) looking very much like a dandelion; Perennial Sow-thistle (*Sonchus arvensis*) showing the yellow glands.

ADVENTIVES AND ALIENS

Adventives and Aliens News 23

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The generosity of contributors requires me to keep this introduction as short as I can, so that as much of the botanical interest as possible can be shared. Suffice it to say that, where feasible, remarks that might have gone into the preamble have been integrated into the record entries themselves, if in a compressed form. Many thanks.

V.c. 3 (S. Devon)

Pelargonium peltatum (L.) L' Hér. ex Aiton (Ivy-leaved Geranium). Plymouth (SX47595377), 14/8/2020, P. Pullen: growing on a limestone cliff amongst ivy and brambles. A trailing or climbing perennial (Geraniaceae) with somewhat fleshy leaves and very variable with respect to flower colour and markings. A native of S. Africa. The determination is somewhat provisional and the plant could be a hybrid (P. Pullen pers. comm.).

Yucca filamentosa, Plymouth, South Devon (v.c. 3). *Phil Pullen*

Salvia hispanica L. (Chia). Exeter Quay (SX919921), 28/11/2020, R. Hodgson: several flowering plants growing at quay side. The first Devon record. It is almost certainly being under-recorded in the non-flowering stages. The DDb now contains 11 other records divided between v.cc. 6, 12, 23, 29, 39 and 40. See Adventives & Aliens News 14 for more details of the Chew Valley Lake (v.c. 6) record. It has also been reported in v.cc. 14 and 44 (M. Berry, 2019).

Yucca filamentosa L. (Adam's-needle). Plymouth (SX4960359662), 28/9/2020, P. Pullen (conf. J. Poland): four plants growing close together on disturbed ground at Derriford Hospital. An evergreen garden shrub (Asparagaceae), native to the south-eastern US. The trunk is absent or prostrate (vs erect in *Y. gloriosa* [Spanish-dagger]). The leaves soon split into fine filaments particularly towards the tips, thus the specific epithet. See Poland & Clement (2020), p. 112.

V.c. 4 (N. Devon)

Mirabilis jalapa (Marvel-of-Peru). Bideford (SS46022623), 13/11/2020, R.I. Kirby: one plant growing on pavement at base of high south-facing retaining wall, Torrington Lane, East-the-Water. The first Devon record. A perennial garden plant (Nyctaginaceae), native to tropical America. It seems to set good seed. Of the two principal colour forms, red- and yellow-flowered, the red seems by far the most common. It is the only ('wild') British representative of the family, which includes the Bougainvilleas. Clement et al. (2005): 38. Stace (2019): 537.

Salvia hispanica, Exeter Quay, South Devon (v.c. 3). *Bob Hodgson*

V.c. 9 (Dorset)

Scabiosa ochroleuca L. (Yellow Scabious). Swanage (SZ0299078595), 2/8/2020, D. Leadbetter: one plant escaped from sown area, west end of Manor Road. A garden biennial (Dipsacaceae) with yellow or cream corollas, a native of central and south-eastern Europe. It is sometimes treated at varietal rank, i.e. *Scabiosa columbaria* L. var. *ochroleuca* (L.) Coulter. There are six records in the DDb, all but one of them post-2000.

V.c. 10 (Isle of Wight)

Silene dichotoma (Forked Catchfly). Bowcombe area (SZ461863), 11/2020, P. Stanley & M. Larter: 15 plants in game cover (Fennel) on chalk, Idlecombe Farm; Shorwell area (SZ468834), 22/11/2020, P. Stanley & M. Larter: 35 plants in game cover of Fennel on chalk, New Barn Farm. The last v.c. 10 record was for 1965 (Bill Shepard). There are four post-2000 records in the DDb, for v.cc. 1 (2017), 8 (2020), 18 (2019) and 113 (2000–2009). A Eurasian annual (Caryophyllaceae) which once occurred in wheat fields, presumably when the grain was imported from places where *S. dichotoma* is/was a frequent weed, e.g. south-eastern Europe and Turkey. It is also listed as a bird-seed and wool alien. The epithet 'dichotoma' refers to the forking inflorescence (often with solitary alar flowers in the forks). Clement et al. (2005): 74. Stace (2019): 503.

Centaurea intybacea Lam. (False Chicory-knapweed). West of Newport (SZ461891), 10/2020, P. Stanley & M. Larter: one plant in extensive crop of *Trifolium alexandrinum* (Egyptian Clover), Betty Haunt Lane. There are no records in the DDb and this might be the first post-1930 record for Britain and Ireland. A native of south-western Europe (France and Spain), where one of its habitats is broken rocky ground by the sea. Online images show a glabrous, variably branched or even unbranched composite. The capitula, with plumes of pinkish-purple ligulate florets, occur singly on long peduncles; the rounded involucre with shiny, tightly appressed phyllaries, each oblong-ovate in outline and with a row of yellowish-white apical teeth. The upper cauline leaves are linear and more or less entire, the lower and mid cauline leaves deeply pinnately lobed. The stem becomes woody at the base but it might behave as an annual in this country. It is 40–100 cm tall. According to some authorities, it rightly belongs in the genus *Cheirolophus*. Of the weeds found as impurities of these various clover crops (see Adventives & Aliens News 19 and 21, v.c. 10), this species is the odd one out, the others overwhelmingly originating in the Mediterranean/E. Mediterranean and/or south-west Asia. It should be looked for in clover crops elsewhere.

Centaurea solstitialis (Yellow Star-thistle). Brook (SZ384839), 10/2020, P. Stanley & M. Larter: two plants by side of dung heap with sown Lucerne in close proximity. Plants were also seen at this site by Robin Lang (8/2020). The last v.c. 10 record was for 1932 (Gladys Bullock). See v.c. 15.

V.c. 11 (S. Hants)

Tagetes minuta (Southern Marigold). Chandler's Ford (SU437212), 26/10/2020, M. Rand: several plants in suburban road gutter, Carlyn Drive. The first v.c. record since 1961. An annual composite native to S. America. There are recent records from 1997 as a relic wool alien at Flitwick (v.c. 30) and from 2019 for Dowlais (v.c. 41). As well as wool, it is listed as a cotton and bird-seed casual, Clement & Foster (1994). Clement et al. (2005): 362. Stace (2019): 820.

V.c. 12 (N. Hants)

Scilla bifolia (Alpine Squill). Winchester (SU49042925), 7/3/2020, A. Stewart (comm. A. Mundell): under Lime tree on grass verge, spreading or surviving from planted, Northbrook Avenue. A bulbous garden perennial (Asparagaceae), native to Europe and south-west Asia. Stace (2019): 965.

V.c. 13 (W. Sussex)

Paulownia tomentosa (Foxglove Tree). Bognor Regis (SZ9399), 13/5/2020, M. Shaw (det. M. Berry): base of wall in railway station car park. There was no parent tree obviously present nearby. The first v.c. record. A deciduous ornamental tree (Paulowniaceae), native to China. Self-sown plants are increasing, probably with warming climate. Stace (2019): 680.

V.c. 14 (E. Sussex)

Hyssopus officinalis (Hyssop). Lewes (TQ4225610340), 7/10/2020, P. Harmes (det. M. Berry): one plant in pavement crack outside property, Chapel Hill. The first v.c. 14 record. It will be interesting to see if it persists. A loosely tufted, aromatic, evergreen subshrub (Lamiaceae), native to the Mediterranean. It is a somewhat variable species. Stace (2019): 666.

V.c. 15 (E. Kent)

Centaurea solstitialis (Yellow Star-thistle). Wye area (TR0614846728), 30/7/2019, D. Chesterman: one plant in field east of Wye, growing where *Trifolium pratense* (Red Clover) had been sown. Always rare in Kent, this is the first record for some time. See *Kent Botany* 2019, pp. 11–12. An annual grain, bird-seed,

Paulownia tomentosa, Bognor Regis, West Sussex (v.c. 13). *Mike Shaw*

lucerne seed and wool alien (Asteraceae) from the Mediterranean, it is much rarer nationally than it was in former times. It is/was also a serious arable weed in California. See Adventives & Aliens News 19, v.c. 10. Stace (2019): 736.

V.c. 19 (N. Essex)

Trifolium pannonicum (Hungarian Clover). Chignall C.P. (TL6811), 12/6/2020, G. Clark (det. K. Adams): in flower on both sides of farm track, Walnut Tree Farm, first seen in 2019; Great Clacton C.P. (TM1917), 18/8/2019, Tendring Wild Flower Group (det. K. Adams): patch in flower, track by arable field, Sladbury's Farm; Little Clacton C.P. (TM1919), 18/8/2019, TWFG (det. K. Adams): patch on track by arable field, west of Great Holland Pits. A southern European annual (Fabaceae) known in Britain and Ireland as a possible fodder and definite ballast alien, as well as a probable introduction with grass seed. It is also a garden plant. See Adventives & Aliens News 17, v.c. H2. *Essex Botany* No. 11 (Summer 2020), p. 4. Stace (2019): 188.

V.c. 21 (Middlesex)

Alyssum montanum L. (Mountain Alison). Orde Hall Street WC1 (TQ30458194), 1/7/2020, J. Edgington (det. E.J. Clement & R.M. Burton): plants covering an area of c. 1 m × 0.5 m on ground by the north boundary of Tybald's Estate. John Edgington described the associates as being quite typical for this sort of habitat in Central London. They include *Artemisia vulgaris* (Mugwort), *Ailanthus altissima* (Tree-of-heaven), *Lipandra polysperma* (Many-seeded Goosefoot), *Malva sylvestris* (Common Mallow) and *Mercurialis annua* (Annual Mercury). There were indications the area had been planted out in the past but long since neglected. A garden perennial (Brassicaceae) native to Europe. *A. alyssoides* (Small Alison) is an annual or biennial with paler flowers. *A. murale*, for which there are historical records for v.cc. 8 and 21, has a corymbose inflorescence (a raceme in *A. montanum*), flowers with entire petals (notched in *A. montanum*) and leaves greener above than below (white-appressed hairy both sides in *A. montanum*).

Portulaca oleracea (Common Purslane). Lincoln's Inn Fields (TQ30758145), 9/9/2020, J. Edgington (det. M. Berry): covering a c. 0.5 m × 0.5 m area in grassy border adjacent to pavement on north side of Lincoln's Inn Fields. A Mediterranean annual (Portulacaceae) with surprisingly few records for Central London. John Edgington measured the seeds at 0.6–0.8 mm indicating subsp. *oleracea*, which would agree with the roughly prostrate, mat-like growth. Contemporary records might have a number of different origins with its use as a pot herb and/or health food as well as other miscellaneous sources, at least as important, if not more so, than bird-seed. Clement et al. (2005): 68. Stace (2019): 539. Increasing.

Alyssum montanum, London WC1, Middlesex (v.c. 21). *John Edgington*

Arthraxon hispidus (Thunb.) Makino (Small Carpet-grass). Ickenham/Uxbridge (TQ0786), 10/10/2020, G. Tranter (det. G. Hanson/comm. M. Spencer): small, non-flowering mat growing alongside *Erucastrum abyssinicum* and *Guizotia abyssinica*, under bird feeder in garden. The first county record. An annual, mat-forming grass native to Asia, Australasia and tropical Africa. It is also an invasive alien of the south-eastern US. See Adventives & Aliens News 6, v.c. 36.

V.c. 27 (E. Norfolk)

Sidalcea malviflora (Greek Mallow). North Walsham and Dilham Canal (TG294317), 10/2020, M. Ghullam (comm. S. Pryce): one plant with very pale pink flowers on 'shoulder' of canal embankment (in the Royston Bridge to Swafield section of the canal). *Sidalcea* are N. American perennials (Malvaceae) with flowers that lack an epicalyx, have linear stigmas and deeply dissected upper stem leaves. Garden plants are probably most often hybrids involving permutations of *S. malviflora*, *S. candida* and *S. oregana* among others, and this plant might well be a hybrid cultivar. Stace (2019): 404.

Calandrinia ciliata (Ruíz & Pav.) DC. (Red-maids). North Walsham and Dilham Canal (TG2931), 14/5/2019, S. Pryce (det. M. Crewe/comm. S. Pryce): one plant of numerous prostrate stems on 'shoulder' of canal embankment, a few hundred yards north-west of Royston Bridge. Suki Pryce described the substrate as being typical of that used to build up the embankment, 'probably fairly free-draining but capable of binding and with some loam fill'. It could not be found in 2020 (S. Pryce

Calandrinia ciliata, North Walsham and Dilham Canal, East Norfolk (v.c. 27). *Suki Pryce*

pers. comm.). It is an annual, native to western N. America and S. America. The two sepals per flower are typical for Portulacaceae. It is described as a grain and seed alien in this country but there might well be other means of introduction. Apart from a 2020 v.c. 1a record, there are no other recent ones but it was once semi-established on cultivated sandy ground in v.cc. 3 and 113, Clement & Foster (1994). The S. American *C. umbellata* has been recorded from v.c. 1. It has narrower, more linear leaves and smaller flowers in a congested terminal cyme rather than a lax raceme. The N. American *C. breweri* has never been claimed for Britain and Ireland. It can only be reliably separated from *C. ciliata* by certain fruiting characters. The Chilean *C. grandiflora* is a rarely grown, relatively tall, large-flowered garden plant.

Rubia tinctorum (Madder). Norwich (TG20), 9/2020, R.M. Leaney: several plants in the paved footings of Maddermarket Church. The first Norfolk record. 'Maddermarket' indicates a former commercial association between species and place, but Rob Leaney and Jo Parmenter tend to think these plants have a more recent origin, in some way connected with use of the (non-working) church by various local activity groups. An herbaceous perennial (Rubiaceae) native to the eastern Mediterranean and Asia, once widely cultivated as a dye plant – in England especially in the Faversham area of Kent. It is now also a garden plant. *BSBI News* 74, pp. 1 and 42–44. Stace (2019): 575.

Cotula australis (Annual Buttonweed). North Walsham (TG23), 6/2020, M. Ghullam: over 150 plants in tarmacked pavement, at kerb edge, in gutter and along gravelled driveway. Some of the associates were also notable aliens – *Oenothera stricta* (Fragrant Evening-primrose), *Briza maxima* (Greater Quaking-grass), *Polypogon viridis* (Water Bent) and *Erigeron sumatrensis* (Guernsey Fleabane). The second Norfolk and East Norfolk record, the other being in the amenity grassland of a caravan and camping site. Adventives & Aliens News 21, v.c. 14.

V.c. 29 (Cambs)

Eryngium paniculatum Cav. & Dombey ex F. Delaroche (Chupalla). Shepreth (TL392479), 29/3/2019, P.J. Reynolds (comm. J. Shanklin): one plant self-sown in asphalt at base of house wall, Dowcra's Close. The plant almost certainly originated from the garden of Dowcra's Manor, where this species has long been in cultivation. The long, linear basal leaves have erecto-patent spines at their margins and are up to 5 cm wide (usually less). The long, upright, paniculate inflorescences comprise numerous, greenish-white, globular capitula, each equipped with up to ten leathery, spineless bracts. It is a native (Apiaceae) of Brazil, Argentina and Chile, and can attain a height of 2 m. See Adventives & Aliens News 20, v.c. 83. Another of the S. American *Eryngium* species whose basal leaf tussocks resemble those of quite unrelated families (e.g. Asparagaceae and Bromeliaceae).

V.c. 31 (Hunts)

Beckmannia syzigachne (American Slough-grass). St. Ives (TL30717242), 1/9/2019, N. Millar (conf. & comm. D. Broughton): single plant in gutter on south side of road, Beech Drive. The first v.c. record. It was once a persistent dock alien at Avonmouth (v.c. 34)

and has been detected as an impurity of rye-grass seed imported from N. America, Ryves *et al* (1996). In Belgium it is a regular, recently increasing alien seen mostly in port areas, but sometimes where the means of introduction is not obvious (The Manual of the Alien Plants of Belgium, online). An annual or short-lived perennial grass and a native of N. America and Asia. There are no (?) recent, confirmed records for the very similar (but properly perennial) Eurasian native, *B. eruciformis* (European Slough-grass). Ryves *et al* (1996), fig. 17. Stace (2019): 1083.

V.c. 35 (Mons)

Lemna turionifera (Red Duckweed). St. Brides Wentlooge (ST300815), 29/7/2020, B. Stewart (comm. S.J. Tyler): present in a reen. There are 11 other v.c. 35 records in the DDb. There are otherwise records for the following v.cc: 5, 6, 7, 8, 9, 11, 13, 21, 24, 27, 28, 29, 33, 35, 40, 41, 42, 52, 53, 54, 57 and 83. Quite surprising for a species unknown in this country before 2007 and hard not to conclude that it is being missed elsewhere. A native (Araceae) of N. America and Asia. It is keyed out along with the American species *L. valdiviana* (Valdivia Duckweed) on p. 60 of Poland & Clement (2020). Stace (2019): 876.

V.c. 40 (Salop)

Nemesia denticulata (Toothed Aloha). Ludlow (SO512743), 24/8/2019, A. Woods: in pavement of Lower Broad Street. A S. African perennial (Scrophulariaceae) which is particularly a feature of planters and hanging baskets and can readily self-sow from them. Stace (2019): 644.

V.c. 42 (Brecs)

Borago pygmaea (Slender Borage). Llandbedr (SO236203), 21/10/2020, M. Biss (comm. S.J. Tyler): on rough ground outside a garden, Neuadd Fechan. It seems to be the first v.c. record. A perennial garden plant (Boraginaceae), native to Corsica and Sardinia. It was originally described in a different family, basionym *Campanula pygmaea* DC. Clement et al. (2005): 234. Stace (2019): 594.

Typha laxmannii, Bamford, Derbyshire (v.c. 57). *Mick Lacey*

V.c. 57 (Derbys)

Typha laxmannii Lepechin (Laxmann's Bulrush). Bamford (SK2076182287), 16/11/2020, M. Lacey (det. R. Lansdown): established along gravelly ditch in waste ground, the site of derelict Marquis of Granby pub. It appeared to be the dominant reedmace, with just a small clump of *T. latifolia* (Bulrush) at one end of the ditch. The first v.c. record. A native (Typhaceae) of south-eastern Europe and Asia, planted at the margins of ornamental lakes and ponds etc. It differs from *T. minima* (Slender Bulrush) (see Stace [2019]: 973) in its wider leaves (up to 7 mm but more usually 2–4 mm vs 1–3 mm), longer female spikes (4–7 cm vs 1.5–4 cm) separated from the male spikes by an obvious gap (1–6 cm vs more or less contiguous) and the absence of bracts. There are three other records in the DDb for v.cc. 8, 55 and 64.

V.c. 58 (Cheshire)

Alchemilla conjuncta (Silver Lady's-mantle). Sale (SJ796929), 26/5/2020, G.M. Kay: two plants in willow scrub, Priory Gardens. Graeme Kay emphasises that 'the site bears no resemblance to a garden'. The first county record. A perennial garden herb (Rosaceae), a native of the Jura and western Alps. Vegetatively, it most resembles *A. alpina* (Alpine Lady's-mantle) but has deeply lobed simple leaves rather than more or less compound ones. A few sites in N. Wales and Scotland were once thought to hold small native populations. They are now generally viewed as having been introduced. As a garden escape it is predictably much rarer in the south. Stace (2019): 281.

V.c. 63 (S.W. Yorks)

Amaranthus cruentus (Purple Amaranth). Bradford (SE1554431530), 7/2020, M. Wilcox: on waste ground, Holme Top. There are no other v.c. 63 records in the DDb. An annual garden escape and soya bean alien (Amaranthaceae), probably originating in Central America. It is very similar to *A. hybridus* (Green Amaranth) and has been considered a subspecies of it. It also closely resembles *A. hypochondriacus* (Prince's-feather). This latter species is relatively rare in Britain and Ireland, but in Belgium, interestingly, is far more frequent than *A. cruentus*. Stace (2019): 528.

V.c. 64 (M.W. Yorks)

Crataegus pentagyna Waldst. & Kit. ex Willd. (Small-flowered Black-hawthorn). Skelton Grange (SE3437930646), 22/9/2018, D. Broughton: four bushes in hedgerow, Knowsthorpe Lane. Planted but having survived for c. 30 years. Still present in 2020. A south-eastern European native, increasingly(?) planted. The mature black or purple-black fruits distinguish it from the species in Stace (2019), all of which have fruits of varying shades of red at maturity. There are additional records in the DDb for v.cc. 17, 21, 29 and 67, all post-2010. For a blogpost see *botanyhuntsyorks.blogspot.com/2018/09/black-fruited-hawthorns.html*.

Crataegus pentagyna, Skelton Grange, Mid-West Yorkshire (v.c. 64). *David Broughton*

Cicerbita macrophylla (Willd.) Wallr. subsp. *macrophylla* (Common Blue Sow-thistle). Clapham (SD74556918), 20/4/2019, D. Broughton: growing with subsp. *uralensis* in a car park near public toilets. The latter subsp. (a native of Russia) has been known here since 2018, the rarer subsp. (from the Caucasus) being recognised in 2019 when a visit to the site coincided with its flowering. See *alienplantsbelgium*.

Cicerbita macrophylla subsp. *macrophylla*, Clapham, Mid-West Yorkshire (v.c. 64). *David Broughton*

be/content/cicerbita-macrophylla for a full treatment of the differences. David Broughton has also written a blog post about the discovery, *botanyhuntsyorks.blogspot.com/2019/07/cicerbita-at-clapham.html*. Has it been overlooked elsewhere, with or without subsp. *uralensis*? See Adventives & Aliens News 6, v.c. 14.

V.c. 67 (S. Northumb)

Euphorbia stricta (Upright Spurge). Hexham (NY939633), 8/10/2020, A.J. Richards: three large plants self-sown onto steep gravel path in housing estate. It is a rare native annual as well as garden plant. The third v.c. record. Stace (2019): 360.

V.c. 68 (N. Northumb)

Euphorbia stricta (Upright Spurge). Howick (NU249176), 8/7/2020, A.J. Richards: by southern pair of picnic tables on east side of car park, Howick Gardens. Professor Richards commented that it is not grown in the gardens, so probably came in with a visitor. The first v.c. record.

V.c. 87 (W. Perth)

Ventenata dubia (Leers) Coss. & Durieu (Wiregrass). Dunblane (NN778016), 20/6/2019, E. Lavery & J.R. Jones (det. T.A. Cope): in tall grass on north bank and within 3 m of the Allan Water, Laighills Park. In his adjudication Dr Cope underscored the distinctive ribbed glumes and dimorphic florets, the lower of which is persistent. An annual grass found as a native in central Europe, the Mediterranean, southern Russia and south-west Asia. There appear to be only two other British records, for v.cc. 63 (1972) and 18 (1986). In both cases it is believed to have been introduced with grass seed. *BSBI News* 45 p. 1 and pp. 24–25. Ryves *et al* (1996), fig. 16.

V.c. 106 (E. Ross)

Trifolium incarnatum subsp. *incarnatum* (Crimson Clover). Hilton area (NH862773), 27/5/2020, T.D. Easter: c. 20 plants in field margin and on south-facing hedge bank, Clashnamuiach, very near the Dornoch Firth. Adventives & Aliens News 21, v.c. 12.

V.c. H21 (Co Dublin)

Senecio minimus (Toothed Fireweed). Sandyford (O1976726493), 15/11/2020, A. Fitzgerald: scattered plants on concrete paving and in open area of a grassy verge near fencing, waste ground just north of Burton Hall Avenue. A new hectad record for the v.c. An annual and short-lived perennial composite, native to New Zealand, a wool casual and nursery weed. Alexis Fitzgerald commented that it seems to be in the process of spreading in the east/south-east of Ireland, with another recent record from v.c. H6, probably competing for similar niches to those of alien *Erigeron* (Fleabane) species. He further speculates if a 2019 v.c. 49 record on the Llyn Peninsula, might have resulted from long-distance wind dispersal from eastern Ireland. *BSBI News* 97, p. 49 (photocopied image of voucher specimen from Tresco, v.c. 1b). *BSBI News* 137, pp. 58–59; *BSBI News* 141, pp. 52–54. Stace (2019): 804.

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Poland, J. & Clement, E.J. 2020. *The Vegetative Key to the British Flora* (2nd edn). John Poland, Southampton.

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The North Walsham and Dilham Canal: a fruitful place for adventives and aliens

SUKI PRYCE

The North Walsham and Dilham Canal (NWDC) is a partly-restored canal in East Norfolk (v.c. 27), cutting through what was once the meandering course of the upper River Ant. Despite – or even because of – the restoration, the canal corridor is surprisingly rich in different habitats, biodiversity and plants. I began plant recording there in 2017, and since then (and helped with IDs and surveying by members of the Norfolk Flora Group) nearly 400 plant taxa have been found along approximately 4 miles of the restored area. These include many intriguing 'out-of-place' plants, and it has seemed worthwhile to wonder how these arrived at the canal. Vernacular names of species are given in the table.

Substrates

Most of the adventives occur on the sides and shoulders of the embankments which enclose both the canal bed and also the ditches ('back sokes') on their outer sides. The embankments have been built up using a wide range of imported fill, over a period of several years. To serve its engineering function as a reasonably stable, self-binding but also free-draining medium, this fill mostly comprises light, sandy/gravelly loams. The fill is mainly supplied by a local skip-hire firm, and judging by the taxa which have been found along the canal, it seems that many of them have come from gardens, farmland, wasteland, industrial, urban or coastal areas. Table 1 shows the adventives found so far, and attempts to group them according to the likely source of the substrate in which they arrived.

Effects of management on habitats

The tops of the embankments are regularly mown and provide a fairly short-sward habitat which may extend to the 'shoulders'. The *Anemone blanda, Limnanthes douglasii* and *Lathyrus latifolius* were found in this sort of habitat. The inner (canal) sides are rough-cut around 2–4 times per year, resulting in a medium height (typically up to 60–100 cm) habitat which seems to favour a very wide range of taxa which can tolerate a certain amount of competition. Interesting perennial aliens persisting in these sorts of areas include *Euphorbia oblongata*, *Geum quellyon,* and *Sidalcea malviflora.* The soke bank sides are cut less frequently (from once a year to once every four years), and provide more of a tall herb habitat where substrates are richer. Where they are poorer, this habitat resembles that of the inner canal banks, and the *Allium trifoliatum*, for example, was found in this sort of spot.

Ongoing maintenance work such as reprofiling the embankments, desilting sokes, removing woody plants, plus natural phenomena such as bank slippages, create occasional disturbance which must also help the growth of new adventive propagules. Perhaps the strangest of these was a single, tiny, small-leaved, hard-to-determine specimen on a gravelly ditch-side slippage site. Many of us tried and failed to ID it, but it was our Vice-county Recorder Bob Ellis who suggested *Lysimachia maritima*. By what route did this coastal plant arrive in the Ant valley, one wonders?

Now you see them…

The canal embankments are still being built up sporadically, so new fill – with all its unknown propagules – is still being introduced to the corridor. But even in the fairly stable, undisturbed areas, new taxa which seem to appear out of the blue, may disappear in a year (*Calandrinia ciliata* [*see photo in Adventives and Aliens News, p. 44*], *Anemone blanda*, *Limnanthes douglasii*), or may persist, and then again may reappear after a year or two's absence. For example, what seemed to be a well-established patch

Symphytum × *hidcotense* (Comfrey 'Hidcote Blue') (top left); *Potentilla argentea* (Hoary Cinquefoil) (top right); *Euphorbia oblongata* (Balkan Spurge) (bottom left); *Lysimachia maritima* (Sea-milkwort) (bottom right). *Suki Pryce*

of *Galega officinalis* some 30 square metres in size on a ditch-side in 2019 had disappeared without trace in 2020. Yet a patch of *Potentilla argentea* has survived since I've known the site on a quite competitive 'shoulder' location, despite being somewhat out-of-place there. And the solitary patch of the annual alien *Ambrosia artemisiifolia* found in 2018 didn't reproduce itself in 2019: instead a single specimen was back in 2020, but 200 metres away from its predecessors. Finally, how do perennials I've never seen in previous years, such as *Primula veris*, *Leucojum aestivum* and *Anemone* × *hybridus*, suddenly appear – apparently out-of-the-blue – as well-established clumps in undisturbed areas? I have suspected guerrilla gardening, but no-one has owned up to it!

Conclusion

How long this wealth of adventives will continue to appear once the sections of the Dilham Canal involved are fully restored, and the substrates settle

down, we don't know. But for now, the site continues to be a treasure trove for fans of adventives and aliens.

Suki Pryce
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Table 1. Adventives and aliens found along the North Norfolk and Dilham Canal restored sections, grouped by likely origins of imported fill. ***A*** = alien; ***R*** = rare in Norfolk

Normally found on poor/dry/sandy/chalky soils

Chalk Knapweed *Centaurea debeauxii*, Common Centaury *Centaureum erythrea*, Wild Carrot *Daucus carota*, Hoary Cinquefoil *Potentilla argentea* ***R***, Sticky Groundsel *Senecio viscosus* ***A***, Heath Groundsel *Senecio sylvaticus*

Normally found on dunes, sea cliffs, etc.

Sea Milkwort *Lysimachia maritima* ***R***

Associated with saline environments

Narrow-leaved Pepperwort *Lepidium ruderale*

Probably came in on agricultural/countryside soil

Fool's Parsley *Aethusa cynapium*, Fiddleneck *Amsinckia micrantha* ***A***, Wild Oat *Avena fatua* ***A***, Sugar Beet *Beta vulgaris* subsp. *vulgaris*, Cockspur *Echinocloa crus-galli* ***A***, Bifid Hemp-nettle *Galeopsis bifida* ***R***, Hedgerow Crane's-bill *Geranium pyrenaicum*, Scarlet Pimpernel *Lysimachia arvensis*, Musk Mallow *Malva moschata*, White Melilot *Melilotus alba* ***R***, Wild Radish *Raphanus raphanastrum*, Soapwort *Saponaria officinalis*, Field Madder *Sherardia arvensis*, Field Penny-cress *Thlaspi arvense*, Alsike Clover *Trifolium hybridum* ***R***, Great Mullein *Verbascum thapsus*

Probably came in on urban/waste ground spoil

Common Ragweed *Ambrosia artemisiifolia* ***A***, ***R***, Butterfly-bush *Buddleja davidii* ***A***, Greater Celandine *Chelidonium majus*, Annual Wall-rocket *Diplotaxis muralis*, Perennial Wall-rocket *Diplotaxis tenuifolius* ***R***, Canadian Fleabane *Erigeron canadensis* ***A***, Jersey Fleabane *Erigeron sumatrensis* ***A***, Annual Beard-grass *Polypogon monspeliensis* ***A***, Water Bent *Polypogon viridis* ***A***, Narrow-leaved Ragwort *Senecio inaequidens* ***A***, ***R***, Tomato *Solanum lycopersicum* ***A*** (probably from sewage sludge)

Probably came in on garden/allotment soil

Double Sneezewort *Achillea ptarmica* flore pleno ***A***, Soft Lady's Mantle *Alchemilla mollis* ***A***, Hirsute Garlic *Allium trifoliatum* ***A***, Balkan Anemone *Anemone blanda* ***A***, Japanese Anemone *Anemone* × *hybrida* ***A***,***R***, Snapdragon *Antirrhinum majus*, Columbine *Aquilegia vulgaris* ***A***, Red Garden Orache *Atriplex hortensis* var. *rubra* ***A***, Swiss Chard *Beta vulgaris* subsp. *cicla*, Red-maids *Calandrinia ciliata* ***R***, Pot Marigold *Calendula officinalis* ***A***, Peach-leaved Bellflower *Campanula persicifolia* ***A***, Cornflower *Centaurea cyanus* ***A***, Greater Celandine *Chelidonium majus*, Galingale *Cyperus longus*, Californian Poppy *Eschscholzia californica* ***A***, Caper Spurge *Euphorbia lathyrus*, Balkan Spurge *Euphorbia oblongata* ***A***, ***R***, Snowdrop *Galanthus* agg., Goat's-rue *Galega officinalis* ***A***, ***R***, Chilean Avens *Geum quellyon* ***A***, ***R***, Jerusalem Artichoke *Helianthus tuberosus* ***A***, ***R***, Spanish Bluebell *Hyacinthoides hispanicus* ***A***, Broad-leaved Everlasting-pea *Lathyrus latifolius* ***R***, Shasta Daisy *Leucanthemum* × *superbum* ***A***, Summer Snowflake *Leucojum aestivum* ***A***, Meadow-foam *Limnanthes douglasii* ***A***, ***R***, Lobelia *Lobelia erinus* ***A***, Welsh Poppy *Meconopsis cambrica*, Apple Mint *Mentha* × *villosa* ***A***, Grape Hyacinth *Muscari armeniacum* ***A***, Opium Poppy *Papaver somniferum* ***A***, Flowering Currant *Ribes sanguineum* ***A***, Greek Mallow *Sidalcea malviflora* ***A***, Michaelmas Daisy *Symphyotrichum* agg. ***A***, Comfrey 'Hidcote Blue' *Symphytum* × *hidcotense* ***A***, Nasturtium *Tropaeolum majus* ***A***, Argentinian Vervain *Verbena bonariensis* ***A***

The last of wool aliens?

JOHN KILLICK

Two species of *Xanthium* (Cockleburs), for which I am writing captions for the 2022 Atlas, are wool aliens. As new records have become scanty, I sought an explanation.

I found Henry Day's website[1] very informative.

Shoddy is recycled wool and production began in West Yorkshire in 1813. Old clothes were ground down into a fibrous state that could be re-spun into yarn. The rags for this process were soon collected in streets all over Britain by rag dealers or 'rag and bone men'. Rag recycling was so profitable that rags were soon imported from many other places; Day's website cites imports arriving by train and barge from the USA (notably Philadelphia in 1864) and Europe, and via Liverpool and Hull. The shoddy industry, centred in West Yorkshire, operated for nearly two centuries. Between 1860 and 1900 wool was Britain's second or sometimes third most valuable import[2].

Shimwell (2006) cited many forms of wool waste and associated plants, notably, but not only, in Yorkshire. Some species appeared next to scouring mills that cleaned raw wool. Much more of the waste, shoddy manure, had value as slow-release nitrogenous fertiliser, especially for rhubarb and *Brassica*; it contained many wool aliens but Shimwell didn't mention *Xanthium*.

Shoddy in its heyday had a huge variety of uses: carpets, blankets, clothes, insulation and above all as uniforms for armies, bus and hospital workers. Uniforms were exported overseas for other countries' wars, until that in the Middle East in 1973. But then, with the military switching to cotton, the coming of synthetic fibres, and central heating, demand fell, and with it many sources of wool aliens. Day's finally ceased trading in 2000.

Details of previous wool aliens are cited by Lousley (1961); the numerous records were from Yorkshire and a fairly small number of other counties; 70% of these aliens came from Australia and 20% from South Africa, but not from the sources Day cited.

Finally, the increasing use of scouring equipment patented in New Zealand in 1972 has largely eliminated imports of raw wool (Shimwell, 2006). On a world scale half of natural fibres were replaced by synthetic 20 years ago, and of natural fibres in 2019[3] 81% consisted of cotton and only 3% wool. Recent UK wool statistics suggest that our imports of non-manufactured wool (42 million kg in 2018[4]) are valued far, far below our 10 top imports, and represent only 600 g per head of population.

References

1 *henryday.co.uk/the-shoddy-industry.html*
2 *tradingconsequences.blogs.edina.ac.uk*
3 *news.bio-based.eu/natural-fibres-and-the-world-economy-july-2019*
4 Google search

Lousley, J.E. 1961. A census list of wool aliens found in Britain, 1946–1960. *Proceedings of the Botanical Society of the British Isles* 4: 221–247.

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Xanthium spinosum (Spiny Cocklebur) (photographed in Almería, Spain). *Sarah Ball*

Symphyotrichum squamatum in Broadmayne, Dorset

ROBIN WALLS

For the first time, my daughter and I embarked on a BSBI New Year Plant Hunt. On 2 January 2021 we recorded in three monads covering my village and the next one, notching up 46 species in flower and recording many more not in flower. This seems a respectable total, but there was one plant I could not identify, which made the whole exercise very worthwhile.

Thinking it might be an *Erigeron/Conyza* and probably alien, I sent pictures to Martin Rand and Matt Berry both of whom responded quickly that it was *Symphyotrichum squamatum* (Spreng.) G.L. Nesom (Saltmarsh Aster). This was new to me and unrecognised on the DDb until I entered the older name, *Aster squamatus*. This confirmed it as a first for Dorset (v.c. 9) and very rare in Britain and Ireland.

The plant looks several years old, although Stace (2019) describes it as annual/biennial. I must have walked past it several times without giving it a second glance. Either it has escaped the attention of the tidy villagers or it is a beneficiary of Covid-19 disrupting normal spraying services. Although well over a metre tall, it is an unassuming plant and only likely to attract the attention of nerdy botanists (or ones desperate for anything in flower), so very probably overlooked in southern Britain. As a South American species that has naturalised in southern Europe, it may be a species that will spread northwards in coming years.

Reference

Stace, C.A. 2019. *New Flora of the British Isles* (4th edn). C & M Floristics, Middlewood Green, Suffolk.

Robin M. Walls
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Single plant of *Symphyotrichum squamatum* (Saltmarsh Aster) on a street in Broadmayne, Dorchester (v.c. 9), January 2021 (top) and close-up showing phyllaries (bottom). *Robin Walls*

Plant Alert – March 2021 update

Spring has finally sprung, marking the beginning of another Plant Alert season. By the time this has reached you, we will have just finished our first event of 2021, a presentation covering the challenges of finding the future's invasive plants, hosted by the Field Studies Council as part of their Natural History Live virtual sessions.

In the darker months, we began cleaning the Plant Alert dataset, in particular verifying records from photos submitted and removing those that were not from inside gardens. Probably encouraged through our media campaign and illustration of newspaper articles with well-known invasives such as Japanese Knotweed and Himalayan Balsam, a number of people reported these species from their local area, but not from inside of gardens. The removal of these records will, of course, change our list of top reported species, and we hope, further highlight other ornamentals potentially making the initial leap out of gardens.

Up to March 2021, we have now received 488 records with 191 unique species recorded. Of those records, *Phaenosperma globosa* (Waterfall Millet) and *Araujia sericifera* (Cruel Plant) are of a number of species yet to be recorded on the BSBI database outside of gardens. *Phaenosperma globosa* is a clump-forming evergreen grass spreading by stolons. The attractive flowerheads grow to around 120 cm tall and develop into arching sprays of bead-like seeds. Although not currently readily available, it is becoming more popular as an architectural plant, meaning it is a species to keep an eye on.

Araujia sericifera is a twining, fast-growing, evergreen climber in the Apocynaceae, producing small sprays of bell-shaped, scented, white or pink flowers in late summer to autumn. Preferring a sheltered position, it will be one to watch in courtyard gardens and urban microclimates. A native of South America, it is listed as an invasive species in parts of Australia, South Africa and North America and also known from several southern European countries.

If either of these species is growing in a garden near you, we would appreciate further records of their behaviour. Those who have already sent in records of dominating ornamentals in the garden may be pleased to hear Plant Alert data is currently being used to help update the list of recommended species for horticulturalists for 'non-invasive gardening' plant choices. '*A guide to plants you can use in place of invasive non-natives*' encompasses three booklets covering aquatics, landscaping and home gardening plant choices of those less likely to cause problems to the environment should they escape from the garden.

With the growing season underway, nurseries and garden centres are full to bursting with over 80,000 ornamental plants (RHS Plant Finder 2020) for us to choose from. Help us by spreading the word on Plant Alert to enable gardeners to report those plants spreading to an extent that they have to be controlled to prevent them overgrowing other plants or parts of the garden where they are not wanted.

To keep abreast of Plant Alert events and records find us on Twitter @Plant_Alert or our website

April Webb
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www.plantalert.org

Araujia sericifera, Johannesburg, South Africa. *Paul Venter (creativecommons.org/licenses/by-sa/3.0)*

NOTICES

NEW BSBI FUNDRAISING MANAGER

The BSBI is excited to welcome Sarah Woods to its staff team as the Society's first Fundraising Manager. Sarah will be looking to diversify the income of the charity, supporting existing projects such as Atlas 2020 and the work of our Country Officers, as well as seeking out new funding opportunities. You can read more about Sarah and the skills she brings to the BSBI in this interview for our News & Views blog: *https://lnkd.in/dbG2FdC*

Louise Marsh

BSBI FIELD MEETINGS

With road maps for lockdown emerging from our governments it begins to look possible that there will be field meetings this year. It is likely that some of the early meetings, particularly those with a residential component, will be cancelled and others will be restricted in numbers. Any updates will be posted on the meetings web page, along with the latest coronavirus advice from the Trustees.

I have revised the BSBI Guidance for participants at field meetings to include mention of coronavirus. In particular, all participants must follow the coronavirus protocols and any other safety advice required by the leader on the day. By the time this April issue of *BSBI News* comes out I'm hoping to have held my first local group meeting of the year and the beginners' meeting for the BSBI will not be far off. If you have been putting off signing up for a meeting do get in touch with the organisers, if only to give an expression of interest. You will be made very welcome.

Jonathan Shanklin
Hon. Field Meetings Secretary
fieldmeetings@bsbi.org

BOOK ORDERS

All orders for the BSBI Handbook 'Monograph of British and Irish Hieracium section Foliosa and section Prenanthoides ' were posted by early March. If you have not received your copy please notify me at the address below.

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BSBI Membership Secretary
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MEMBERS' ACCESS TO THE BSBI'S DISTRIBUTION DATABASE

The plan to provide members with access to the BSBI's Distribution Database (DDb) was first mooted by BSBI's former president Chris Metherell two years ago and following extensive discussion we are now able to announce that this will take place later this year. This will provide members with the ability to access the Society's c. 50 million botanical records. In many cases the records will be available at full resolution including accompanying notes and site details but, for privacy reasons, recorder names will not be included. To safeguard certain vulnerable sites and rare plants some records will be 'blurred' to reduced precision and with site details hidden. The default level of access available to BSBI members will vary across the country, to accommodate the concerns of our Vice-county Recorders. We're grateful for the help and support of Vice-county Recorders who have helped to ensure that we can take this significant step toward open data without endangering important sites and taxa or damaging relations with data providers or landowners.

How can data be used?

The BSBI is providing access to members for personal use only and is specifically excluding use of data to assist with any professional or commercial activity. Members will be able to download subsets of records for analysis, but incorporating data into a separate database, publishing records or sharing data with third parties is not permitted in either a professional or personal capacity.

BSBI members are bound by the society's Code of Conduct (*bsbi.org/wp-content/uploads/dlm_uploads/Code-of-Conduct-v5-final.pdf*) which expressly prohibits activity that damages wild places; this includes foraging. Many records in the database are from private land or locations with restricted access and it is important to note that inclusion of sites in the database does not imply any right of access.

We are confident that members will respect these constraints, but access to the database will be entirely at BSBI's discretion and we would take swift action if data were misused.

When will the access changes take place?

We are still finalising arrangements with our Vice-county Recorders who will need some time to discuss the changes with local stakeholders and to

review records. We will announce final details over the summer on the BSBI website and in the mid-monthly eNewsletter.

Why is BSBI opening-up its data?

Our members are at the heart of everything we do and our database of botanical records represents the efforts of legions of volunteers over many decades. We believe that increased access to these data will strengthen our volunteer network, support local groups and assist focused recording.

Lynne Farrell, Tom Humphrey and Kevin Walker
contact: tom.humphrey@bsbi.org

CHANGES TO ARRANGEMENTS FOR THE PANEL OF REFEREES

I shall be sharing responsibility for administering the Panel of Referees and Specialists with Jeremy Ison, so for the time being any comments, questions and changes to details should be sent by email to me, with a copy to Jo Parmenter (Secretary of Science & Data Committee), as before. My full details appear on the inside front cover.

Jo, David Pearman and I have conducted a brief review of coverage of taxa and topics, and we have come up with a list of recently arising 'crucial' vacancies for referees and have also identified some desirable taxon groups which are currently missing. Jo and I will be approaching members we think may be best placed to take on some of these, but we are also open to offers if you have the breadth of knowledge needed. Those we have not yet matched to candidates include several genera of Caryophyllaceae, *Veronica*, *Verbascum*, *Symphyotrichum*, most of Asteraceae tribe Anthemideae and *Juncus*. If you would like to see the full list, please contact me.

Given that there may be quite a lot of referee changes in the very near future, I shall also look at speeding the process of approval for new referees via email approval by the Science & Data Committee, and I will ensure that the list is kept updated in the members' section of the BSBI website. We shall be keeping Jeremy informed of developments, and we hope to collaborate on the task in the future.

Martin Rand
VC11recorder@hantsplants.net

Jo Parmenter
jo.parmenter@tlp.uk.com

PANEL OF VICE-COUNTY RECORDERS

In Hertfordshire (v.c. 20), Alla Mashanova (**alla.mashanova@herts.ac.uk**) and Astrid Biddle (**astridbiddle@aol.com**) join Ian Denholm as joint VCRs for the county. Thanks very much to Alla, Astrid and Ian.

There are a few changes to VCR contact details. Graham Day (v.c. H38) has been happily ensconced at his new home for over a year, but the change of address was not picked up in the Yearbook. Letters can be sent to 2 Windmill Lane, Portaferry, Co. Down BT22 1RW. Clare Heardman (v.c. H3) has a new email address: **clare.heardman@housing.gov.ie**. Similarly, Ralph Sheppard (v.c. H35) should now be contacted at **sheppardcarnowen@outlook.com**. Oisín Duffy & Mairéad Crawford (v.c. H34) have a new address: 12 Airfield Point, Dunmore East, Co. Waterford, X91 H6Y7. The email address for Mark Spencer, VCR for Middlesex (v.c. 21) is incorrect in the Yearbook. The correct address is **lnhs_plant_recorder@hotmail.co.uk** (instead of ending .com).

In England, there are vacancies for Buckinghamshire, East & West Sussex and Dorset (alongside Robin Walls). In Scotland, there are vacancies in Argyll (alongside Gordon Rothero), Banffshire, Dunbartonshire and Midlothian. And in Ireland, Cavan, Co. Longford, W. Mayo and Waterford are currently without a VCR in post.

If you, or someone you know, are interested in taking up the role of VCR (or perhaps first trying it out as a trainee VCR), and would like to discuss what is involved, then please do get in touch with me, or the relevant Country Officer, using the contact details given on the inside front cover.

Pete Stroh
peter.stroh@bsbi.org

MARSH BOTANY AWARD

We note and congratulate Ian Bennallick as the winner of the 2020 award, which is for an individual's lifetime achievement and an outstanding contribution in the field of botanical conservation. We listed award winners up to 2016 in *BSBI News* 116: 4 & 135: 79; those since that date have been:

2017 Brian Laney
2018 Libby Houston
2019 Clive Stace

David Pearman
dpearman4@gmail.com

SPREADING THE WORD ABOUT BSBI

Over the past year, we have developed three new ways for non-members to find out more about BSBI. Firstly, we produce an electronic sampler of every issue of *BSBI News*: five full-colour pages showing the Table of Contents and first pages of a range of articles. Secondly, from every issue we select one full article and make it freely available to download. The samplers and the full articles from this and recent issues of *BSBI News* can be found on the *BSBI News* page on the website: bsbi.org/bsbi-news. Thirdly, in December 2020 we launched our mid-monthly eNewsletter to keep members and supporters updated on BSBI projects, activities, fundraising, news and events. Almost 1500 people have already used this link to subscribe: *bsbi.org/email-signup*. Why not encourage any friends and colleagues who love wild flowers but are not yet BSBI members to take a look at the *BSBI News* webpage, download the samplers and free articles, and then sign up to the newsletter?

Louise Marsh and John Norton

BSBI CONFERENCES: WATCH THE VIDEOS ON OUR YOUTUBE CHANNEL

So far this year we have held, via Zoom, Spring Conferences in Scotland and Ireland and an Annual Meeting in England. Talks given at all these events were recorded and uploaded to the BSBI YouTube channel so even if you weren't able to attend, you can enjoy the talks at leisure from the comfort of your own home. Subjects covered range from Sandy Knapp's one-hour discussion of the Nightshade family, Solanaceae, to Stuart Adair's report on 20 years of conservation at Carrifran Wildwood in Scotland and the discovery of *Epipactis dunensis* (Dune Helleborine) in County Dublin – a new orchid for Ireland. You can find all these videos, and many other botanical videos by BSBI and partners, here: *www.youtube.com/botanicalsocietyofbritainandireland*.

Louise Marsh

BRITISH & IRISH BOTANY 3:1

The first issue of the 2021 volume of *British & Irish Botany*, BSBI's open access, online scientific journal, was published in February (see box for Table of Contents). You can view or download the papers free of charge, as well as previous issues and guidelines for submission, from the B&IB website: *britishandirishbotany.org/index.php/bib*. You can also phone us on 07725 862957 to discuss a proposal.

Ian Denholm & Louise Marsh
bib@bsbi.org

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Survey of the nothogenus ×*Elyhordeum*, with the description of a new nothospecies – Michael P. Wilcox, Stuart D. Desjardins, Clive A. Stace

Diphasiastrum × *issleri* (Lycopodiaceae) in England and Wales – Fred Rumsey, Chris Metherell, Hazel Metherell

Conservation of Britain's biodiversity: distribution and status of the Welsh endemic *Hieracium breconicola*, Beacons Hawkweed (Asteraceae) – Sarah J. Lee, Timothy C.G. Rich

An overview of *Scheuchzeria palustris* in Scotland and a new locality in Westerness (v.c. 97) – Paul A. Smith, Ian M. Strachan, Andrew M. Coupar

Conservation of Britain's biodiversity: distribution and status of the Welsh endemic *Hieracium britannicoides*, Confused Hawkweed (Asteraceae) – Sarah J. Lee, Wendy McCarthy, Timothy C.G. Rich

Scotland's heritage of naturalised medicinal plants – Michael E. Braithwaite

Observations on two non-native alder species (Betulaceae) naturalising in Ireland – Daniel J. Buckley

SOME RESULTS FROM BSBI NEW YEAR PLANT HUNT 2021

BSBI's tenth New Year Plant Hunt (NYPH) ran from Friday 1st to Monday 4th January 2021 and attracted 1,811 volunteers who used smartphones and an online recording form to submit lists of native and non-native plants they found in flower in the wild during a three-hour walk at locations across Britain and Ireland. In total, 1,195 lists were submitted comprising 21,419 records of 710 plant species in bloom.

Full breakdowns and analyses of results from this and previous years can be found by following links at *www.bsbi.org/new-year-plant-hunt*; you can also visit our NYPH micro-site, where there is an interactive map – clicking on a marker will bring up the species list for that location. The aim of this

article, however, is to consider the differences and similarities between results from 2021 compared to previous years, and to look at the role Covid-19 may have played.

Similarities to previous years

In 2021, as in previous years, almost twice as many species recorded were flowering late (53%) rather than early (24%), as opposed to 23% which would either be expected to flower at New Year or are typical 'all-year-rounders'. These proportions suggest that the majority of plant species flowering out of season are 'autumn stragglers' that continue to flower in the winter due to mild weather.

The four species most frequently recorded in flower in 2021 were identical to previous years and were all recorded in more than 50% of 2021 lists: Daisy *Bellis perennis*, Groundsel *Senecio vulgaris*, Dandelion *Taraxacum* agg., and Annual Meadow-grass *Poa annua*.

The proportion of native: alien taxa was similar to previous years: 53% of species recorded in 2021 were native, compared to 52% in 2019 and 2020, and 64% of records submitted were of natives, as in 2017–2020.

What was different – and why?

In 2021, a total of 1,195 lists were submitted, an increase of 49.7% compared to 2020 and the highest number of lists ever submitted. This total includes ten 'lists' where plant hunters found no species in bloom. From these lists 21,419 unique records were used in the analysis, an increase of 43.9% compared to 2020. We also recorded our largest number of participants, with 1,811 people taking part and submitting records (a modest increase of 5.7% on 2020, our previous record year). We put this anomaly down to the effect of the pandemic: no group Hunts took place in 2021 due to the restrictions around Covid-19, so people went out hunting individually or in small groups (families and support bubbles); this is likely to have led to the disproportionate increase in lists and records compared to participants.

It does not, however, necessarily explain the increase in the number of species recorded: 710 species, the highest number in the ten years of the Hunt. This could be for a variety of reasons: firstly, with more lists submitted this year, there is a higher probability of new species being recorded. Secondly, the restrictions may have led people to undertake their plant hunts closer to home and, therefore, there may be an increase in urban and suburban lists which tend to have higher numbers recorded due to the 'urban heat-island effect'. Thirdly, this year has seen a drastic change in the way we interact with wildlife, with reduced maintenance (weed control, mowing, etc.) potentially increasing the amount of wild and/or naturalised plants, especially in urban areas.

As in previous years, NYPH results indicate how our plants are responding to 'unseasonal' weather. Temperatures leading up to the NYPH in 2021 were 2.7 degrees above average, the same as in 2015 and 2019. December alone was only half a degree above average with a lot of wet and wintry weather across the north of the UK. These temperature anomalies are taken as an average from the whole of the UK so there may be regional differences, especially this year where a lot of people were out sampling in snow. This could explain why there is an increase in the number of lists that have between 1 and 5 species. The lack of organised group hunts, where botanists at all skill levels can hunt together, may also have influenced list numbers, as trained botanists usually provide training and guidance to people new to botanical surveying.

In summary, while the pandemic appears to have impacted this year's NYPH results in several ways and thrown up some interesting differences to this year's results, we still need to keep collecting data year on year so we can build up a clearer picture of how our wild and naturalised plants are responding to changing weather patterns. So if you were one of the 1,811 people who contributed to this year's NYPH we'd like to say a huge thank you and we hope you'll take part in our eleventh NYPH in 2022 – watch out for details on the BSBI website.

Acknowledgments

2021 saw both the highest ever number of NYPH participants and the highest ever number of volunteer members of BSBI's Events & Communications Committee publicising the event in advance and then working shifts over the four-day period to handle enquiries, process incoming data, advise on plant identifications and offer social media support. We owe a huge debt of gratitude to these dedicated volunteers: Joshua Ajowele, Leif Bersweden, Ryan Clark, Ciara Dwyer, George Garnett, Isobel Girvan, Ellen Goddard, Moira O'Donnell, Jo Parmenter, April Webb and Rebecca Wheeler.

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COUNTRY ROUNDUPS

Compiled by Pete Stroh
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ENGLAND

The edict to plant trees for the stated reason of helping to reduce our carbon footprint has resulted in many examples of planting in unsuitable areas, leading to damage or destruction of botanical sites. This has happened despite the fact that the peat bogs and grassland riddled with recent tree plantings perform exactly the same function (but better!). Mike Porter (joint VCR for v.cc. 69 and 70) has drawn my attention to affected areas in Cumbria, including wet heath and blanket bog with associated acid grassland and, elsewhere, a nice species-rich grassy bank. Although in almost all cases the perpetrators admitted that they were in the wrong, the promised full restoration of sites has, as yet, failed to materialise. However, one consequence of the adverse publicity these activities provoked has been an increase in the number of requests for Mike and his fellow Vice-county Recorders to check out sites where tree-planting is planned. In the long run, this increased concern with planting trees only in suitable areas may well prove to be a significant positive step.

It's worth mentioning briefly that the BSBI has been working with the Woodland Trust and Natural England to develop a targeting tool that can be used to ensure inappropriate planting doesn't happen on good quality sites in the future, and there will be more on this topic in a future issue of *BSBI News*.

There were two notable plant finds in Devon in 2020 that I didn't have room for in the last issue. Mary Briggs discovered *Carex disticha* (Brown Sedge) in North Devon (v.c. 4) at the same location where it was last seen in 1912, near to South Moulton. Those who live in other parts of England might be surprised to know that this is a very rare species in the south-west, but not, you'll perhaps be less surprised to learn, as rare as *Euphrasia scottica* (Scottish Eyebright), which has been found for the first time in Devon by Alex Worsley (conf. Chris Metherell) whilst botanising in a rich valley mire on Exmoor (v.c. 4). In other exciting Devonian news, Roger Smith has been busy working to make 'A New Flora of Devon' available online. It can be found at *devonassoc.org.uk/index-to-a-new-flora-of-devon*, complete with an errata page for those with the book and a compilation of records published in Devonshire Association Transactions since publication up to the end of 2019. It's a fantastic resource, especially for those who missed out on purchasing the hardback book which sold out within a few months of publication in 2016.

Carex disticha (Brown Sedge). *Pete Stroh*

And one more notable find not mentioned in recent Roundups. In June 2020, Marilyn Abdulla examined plants at the margin of a pond at Beeston Common SSSI (v.c. 27) which were thought to be *Bolboshoenus maritimus* (Sea Club-rush) and queried them as possible *B. laticarpus* (Inland Club-rush). Local botanist Mike Padfield was contacted and collected samples in early September, and agreed with Marilyn's identification, using guidance for separating the taxa in Rumsey et al. (2019). Ripe nutlet samples were then sent to Fred Rumsey, who confirmed it as this species. This is the first Norfolk record for *B. laticarpus*, and I think a very nice example of critical recording and botanical collaboration. Thanks to Mike for letting me know. I'm always keen to hear of any notable finds made by members, using the email address at the top of this Roundup.

In North-east Yorkshire (v.c. 62) Dave Barlow has produced a Rare Plant Register for the county, which can be found here: *bsbi.org/north-east-yorkshire*. It's a wonderfully informative work, introducing the reader to the county and some of the more botanically interesting sites, before presenting detailed

Bolboschoenus laticarpus (Inland Club-rush), Beeston Common, East Norfolk (v.c. 27). *Mike Padfield*

species accounts. It's certainly a must-read for anyone hoping to visit the area, as well as for those who are fortunate enough to live in the county.

Dave has also been busy helping to highlight the 'hidden natural heritage' of urban areas, working with artist Sara Cooper and the Middlesbrough Cultural Partnership. He led several botanical surveys of the town in 2020 (abiding by social distancing rules), with the group paying close attention to the plants found in pavement cracks, and on roadside verges, buildings and walls. One of the species recorded was *Arabidopsis thaliana* (Thale Cress), the properties of which have been found to lead to a quicker recovery time for breast cancer patients, and fewer secondary effects compared with those subjected to chemical treatment (Bömer et al., 2020). Sara used this as inspiration for her finished work, a mural of a repeat pattern of Thale Cress which has just been installed in the underpass gallery at Middlesbrough station.

John Durkin has produced a short Flora of Deepdale Wood (v.c. 66), a beautiful site located on a side valley of the River Tees that joins the Tees at Barnard Castle. It is, as John describes, one of 'the four Teesdale Great Woods'. Read all about it here: *www.durhamnature.co.uk/deepdale.html* (scroll down to the image of *Campanula latifolium* to access the Flora).

David Morris found out last year that the local records centre had in its archive the digitised master cards from the 1998 *Flora of Oxfordshire*, amounting to almost 300,000 records, and he has been checking these with the intention to transfer to the DDb, which will add very significantly to the historic data holding for v.c. 23. David has also had the 1998 *Flora* digitised by a professional archiving company, and that will be going on the web soon, and he hopes to do the same for Druce's 1927 Flora (only the 1886 Flora is online, the later edition still being in copyright). He has also set up a project for volunteers to digitise cards and correspondence received from John Killick when David took over as VCR for the county, which will likely result in several tens of thousands of records, adding yet more detail to the historic picture, perhaps especially for locally rare and extinct plants. Once all this is complete, Oxfordshire should have well over 1 million records digitised. Many thanks to David, and to the volunteers assisting with digitising, for such an incredible effort.

Finally, editions of Ken Adams' always excellent and informative 'Essex Botany' are regularly snapped up at BSBI recorders meetings, and it's now possible to receive back issues for free (except for p&p) by visiting *www.kenadams.org.uk/esb/Essex%20Botany%20Newsletters.htm*. I've mentioned this publication before, but it's worth repeating that the newsletters are a goldmine of information, and worth making space for on your bookshelves.

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Pete Stroh

WALES

According to the summary of New Year Plant Hunts (NYPH) throughout Britain and Ireland, 132 lists were submitted from Wales, a significant increase on past years. Most species recorded were 'autumn stragglers' rather than winter or early flowerers and the majority were native species; not surprising as most records were from rural habitats. Perhaps the best find should go to Sue and Steve Southam in Montgomeryshire (v.c. 47) who recorded 31 species including a splendid *Carduus nutans* (Musk Thistle).

Carduus nutans (Musk Thistle), Montgomeryshire (v.c. 47). *Sue Southam*

The pick of the non-natives in flower was *Lagurus ovatus* (Hare's-tail), a new vice-county record for Cardiganshire (v.c. 46) found by Andy Jones. Andy mentions that a beneficial side-effect of the NYPH was having the time to look more closely at a few flowering taxa, including the hybrid between *Ulex europaeus* (European Gorse) and *U. gallii* (Western Gorse) (*U.* × *breoganii*), which appears to be far more widespread than previously noticed and may well be overlooked for the NYPH in other south-western counties.

David Barden, Joint VCR for East Glamorgan (v.c. 41), has published a detailed Flora of a relatively compact but remarkably diverse area of rhôs pasture. *The Wild Plants of Llantrisant Common and Y Gweira* covers the 400+ taxa found during his nine-year survey of the site, and includes distribution maps and quadrat studies, as well as plenty of photos, identification tips and historical context to make it appeal to a wide audience (*see review, p. 76*).

In Breconshire (v.c. 42), John Crellin and the local botany group visited their only *Sibthorpia europaea* (Cornish Moneywort) site late in 2020, finding an abundance of the plant all along the stream it grows by, having survived the installation of a nearby hydro scheme. The site was first found in 2000 by Steve Chambers and others, prior to the installation of a gas pipeline across the headwaters, ruling that activity out as a vector for introduction.

Sibthorpia europaea (Cornish Moneywort), Breconshire (v.c. 42). *John Crellin*

A new edition of the Breconshire County Rare Plant Register has been completed and a few copies printed, thanks to the generosity of the Brecon Beacons National Park Authority. This edition has a cut-off date of 2000 and was intended to match the Atlas data – but 2021 had to be included after finding so many good things! John has also submitted a long list of altitude records to David Pearman, many of which beat the previous known limit for a species. These are very useful for many purposes, not least the forthcoming Atlas, which will include information on this subject.

In Pembrokeshire (v.c. 45), Stephen Evans has been typically busy, and made a visit to the Conwy valley in North Wales to see and collect cuttings from the captive Pembrokeshire *Juniperus communis* (Juniper) stocks which are kindly maintained, along with material from other Welsh junipers, by the owners of the nursery. This effort is a revival of the previous attempts to bolster the handful of relict male and female bushes on Ramsey Island. Unfortunately, Covid-19 prevented the usual annual surveys of *Platanthera bifolia* (Lesser Butterfly-orchid) and *Melittis melissophyllum* (Bastard Balm) populations in the county that have been undertaken in June for more than 20 years. However, grocery shopping proved productive, with some work on *M. melissophyllum* undertaken en route to the store, as well as checks on the only Welsh plant of Sea Pea *Lathyrus japonicus* on the sandy shingle at Ceibwr. Later in the summer, when restrictions were lifted (temporarily, as it turned out), the 21st annual count of Shore Dock *Rumex rupestris* at Marloes revealed some surprises. There had been a massive winter cliff slump at the Hooper's Point end confirming that the upper beach was definitely no longer suitable for the plant. Moreover, the surviving population at Watery Bay could not be recorded owing

to another cliff collapse that had blocked the tricky beach access via a cave complex. The species could, however, be spotted from the cliff top so its survival into 2020 was confirmed.

Stephen also visited the *Asparagus prostratus* (Wild Asparagus) colonies on the army range at Penally, and was encouraged to find berries on one of the female plants. Twenty-five berries were pushed into the sandy cliff top turf; berries had last been found in 2004 when some were similarly pressed into the ground. Two tiny plants germinated from this in situ 'planting'; one has survived and its growth has been followed each year.

Matt Sutton contributed a number of excellent records for the county, including the exciting find of *Hymenophyllum tunbrigense* (Tunbridge Filmy-fern) from block scree on the NW-facing slopes of 120 m high cliffs at Pwll Deri whilst recording bryophytes in late October. It is the first discovery of this fern on the extensive sea-cliffs of Pembrokeshire. Matt also found *Dryopteris expansa* (Northern Buckler-fern) new to the county on the edge of block scree on the same cliff. Finally, Stephen mentions that one of the redeeming experiences during lockdown in 2020 was being able to enjoy the splendour of *Dactylorhiza praetermissa/ purpurella* (Marsh Orchids) stands on one of their three wet fields. Over 3,600 purple flowering spikes were counted in June, the numbers increasing each year from just a single spike found in 2011!

Following the letter sent to the Kenfig Corporation Trust from SJT and Lynne Farrell, although we had no response, Julian Woodman reports that NRW has entered into a management agreement with the Corporation Trust, a little like the Section 16 agreements for SSSIs, and that a new Kenfig warden has been appointed.

Steph Tyler

SCOTLAND

The level of recording activity in 2020 was, understandably, lower than in previous years. However, any comparison between 2020 and 2019 was always going to be distorted by the frenzy of recording in 2019 associated with Atlas 2020. A snapshot comparison with a more 'normal' year shows that, while the geographical range of recording in Scotland was much less in 2020 than in 2019, the species diversity recorded was still relatively rich, and compared with the 2019, a higher proportion of monads visited in 2020 were recorded in depth (more than 250 records/ monad).

Far from being a year only of negatives, 2020 – for all its restrictions – offered some real positives. For instance, a common theme among Scottish vice-county Annual Reports has been the precious opportunity for personal study and in-depth fieldwork in a small, local area afforded by all the restrictions on meeting and travelling. This was particularly true in urban areas: people took time to look more closely than usual at their local flora, and in many places the absence of weed control by councils allowed all sorts of botanical wonders to spring up!

Street weeds were a particular focus in Edinburgh. In St Andrews, Sandy Edwards conducted a study of pavement weeds and found a lot more *Mycelis muralis* (Wall Lettuce) than usual (this was also noticed by recorders in Fort William) and a notable increase in *Conyza canadensis* (Canadian Fleabane). In Dundee, Brian Ballinger looked at sections of 50 walls, as well as repeating a 2001 study of 25 local streets. And in Glasgow, two newly-found aliens, both expected to increase, were first vice-county records for Lanarkshire: *Lactuca*

Hymenophyllum tunbrigense (Tunbridge Filmy-fern) (taken on Colonsay, 2018). *Pete Stroh*

virosa (Great Lettuce), until now only recorded from the east of Scotland, and *Picris hieracioides* subsp. *hieracioides* (Hawkweed Oxtongue).

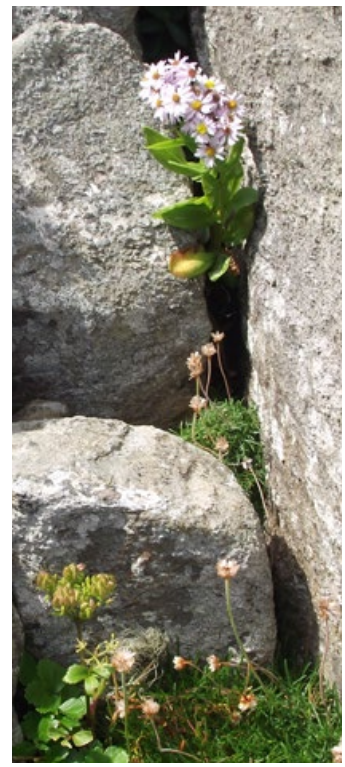
Another positive experience for many people was the diversity they recorded by visiting the same location(s) several times in a season, in contrast to the more familiar 'one hit wonder' approach of field outings. It makes one realise just how much is routinely missed: a single visit might only yield 60–70% of a site's actual species total.

In addition to fieldwork, lockdown provided the perfect excuse for some scholarship and admin work. In Orkney (v.c. 111), John Crossley has taken time to draft academic material on *Tripleurospermum* (Mayweed) hybrids and the occurrence of glands in *Dryopteris* (Buckler-ferns), and to put together comprehensive data on native *Betula pubescens* (Downy Birch) on the island of Hoy. In many vice-counties, significant time was spent on data validation.

Rare Plant Registers are being written for Kincardineshire (v.c. 91) and for Wigtownshire (v.c. 74) – where the new Recorder, Michael Jeeves, has hit the ground running – and existing Rare Plant Registers have been updated in three other vice-counties. Two county Floras have been updated and three brand new Floras are in preparation: for Selkirkshire (v.c. 79), Roxburghshire (v.c. 80) and Moray (v.c. 95).

Readers are directed to the vice-county reports, available in the 2021 Scottish Newsletter (*bsbi.org/scottish-newsletter*), for a full account of the year's activity and the most significant finds. There is space here to mention just a few random examples – to showcase the sheer variety of places Scottish botanists got to in the lockdown year, and something of what they found there…

The cliffs at Tantallon Castle, East Lothian – *Scabiosa columbaria* (Small Scabious). Mud exposed by low water levels at the western end of Loch Venacher, near Callander – *Alopecurus aequalis* (Orange Foxtail), *Helosciadium inundatum* (Lesser Marshwort), *Eleogiton fluitans* (Floating Club-rush) and *Lythrum portula* (Water-purslane). Neave Island, off the very north coast of Scotland near Bettyhill – the unusual pairing of *Salix herbacea* (Dwarf Willow) and *Scilla verna* (Spring Squill). Rarely-visited mountain corries on the north of the Aonach Eagach, Glencoe – *Lycopodium annotinum* (Interrupted Clubmoss). The railway carpark at Stonehaven – *Hieracium sabaudum* f. *bladonii* (a Hawkweed). The ferry port at Stromness, Orkney – *Cochlearia danica* (Danish Scurvy-grass) as a new vice-county record. The west coast of Lewis, Outer Hebrides – *Tripolium pannonicum* var. *condensatus* (Sea Aster). Waterside Bing, East Ayrshire – second ever record of *Anacamptis pyramidalis* (Pyramidal Orchid) in the county. The Ben Alder hills, Inverness-shire (coincidentally visited by several different botanists!) resulting in a tremendous haul of detailed arctic-alpine records. An access road in Cloich Forest, Peeblesshire – *Logfia minima* (Small Cudweed). The area around Kirkcudbright – 15 *Rubus* (Bramble) species on a Bramble Workshop. Seaside crags at Strathsteven, between Brora and Golspie, Sutherland – *Asplenium marinum* (Sea Spleenwort) for the first time in 123 years. The car park at Aviemore station, Inverness-shire – *Linaria* × *dominii* (Purple Toadflax × Pale Toadflax hybrid). Arable areas in South Mainland, Shetland – *Silene gallica* (Small-flowered Catchfly), a second vice-county record. A neglected brown-field site near Kirkintilloch – a huge population of *Hypopitys monotropa* (Yellow Bird's-nest). The island of Eigg – *Solanum nigrum* (Black Nightshade) as a new vice-county record.



Aster tripolium var. *condensatus* (Sea Aster) with *Ligusticum scoticum* (Scots Lovage), near Dalbeg, Isle of Lewis, August 2020. *Paul Smith*

Here's to a return to widespread group fieldwork sometime soon. Hopefully, reading this has put you in mind to travel to far-flung places and enjoy the wonders of field botany in Scotland!

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IRELAND

The year started off with the New Year Plant Hunt, and again there was a good turnout from Ireland, with 98 lists submitted. The highest number of plants in flower on a single list was 72, and in all 2,178 individual records were made.

Various restrictions have meant that there are not many botanical finds to report. However, Ciarán Byrne discovered a fifth site for *Equisetum hyemale* (Rough Horsetail) in a wood on the bank of the Arrigle River, a tributary of the River Nore, at Pleberstown in February of this year. It is a new hectad record in Co. Kilkenny (v.c. H11). And staying in the county, I have recently been told that *Fumaria densiflora* (Dense-flowered Fumitory) was found as a weed in the corner of a commercial onion field at Sheaston by Roger Goodwillie last year. This is the only Irish record south of Co. Dublin (v.c. H21), and only the third Irish record post 2000, as prior to this there are no records after 1962.

In Co. Louth (v.c. H31), Edna and Ciarán Flynn found *Vaccinium vitis-idaea* (Cowberry) in February at a new site in the Cooley Mountains on Clermont Cairn, which is both a new hectad record and only the third hectad in which the species has been recorded from in the county.

There is a new vice-county recorder in place for W. Mayo (v.c. H27), Eoin McGreal. He takes over from Gerry Sharkey, who retired from the post last year. Eoin has already been busy and has set up a joint county page on the BSBI website for both the Mayo vice-counties, with Eamonn Delaney the Vice-county Recorder for E. Mayo (H26). There are also new county pages for Co. Clare (v.c. H9), Co. Louth, and for the three Vice-counties that make up Co. Cork (v.cc. H3–5).

By the time you read this report the Irish Spring Conference will have taken place. There were ten presentations on the day, all of which can be viewed by visiting the BSBI Irish Conference webpage.

Paul Green

Equisetum hyemale (Rough Horsetail), Pleberstown, Co. Kilkenny (v.c. H11), February 2021. *Ciarán Byrne*

Vaccinium vitis-idaea (Cowberry), Clermont Cairn, Co. Louth (v.c. H31), February 2021. *Edna Flynn*

OBITUARIES

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PETER MICHAEL BENOIT (1931–2021)

Peter Benoit was one of the most knowledgeable and critical of the Welsh field botanists of his time, and certainly one of the most informative to be with in the field. His expertise was especially with hybrids and confusing groups of species, rather than with the apomictic genera (although he knew his Hawkweeds well), and as Recorder for Merioneth (v.c. 48) for 56 years he had an unrivalled knowledge of the plants of the county.

Peter was born on 8 March 1931. Although his family originated in Surrey, he was brought up in Meriden, Solihull and his enthusiasm for plants was fostered by local walks there with his mother, herself a competent botanist, as were his maternal grandparents. Shortly after World War II broke out, at the age of 9 in 1940, he went with his mother to live with an aunt in Barmouth, leaving his by now estranged father behind, and after a while they moved to live on their own at Pencarreg, at the top of a steep road above the town; they were joined there later by his widowed grandmother. His interest in plants rapidly increased there, and he was largely self-taught with the help of Johns' *Flowers of the Field*, Bentham & Hooker's *Handbook of the British Flora*, Butcher & Strudwick's *Further Illustrations of British Plants* and others. He was initially placed in primary school, but because of his nervous disposition his mother allowed him to leave and he was largely educated at home. He did receive some more formal lessons however, including Latin, from a tutor in Barmouth. He acquired Clapham, Tutin & Warburg's *Flora of the British Isles* on its publication in 1952, and got to know the other local botanists, as well as several further afield, including Dick Roberts, Price Evans, Bill Condry, Arthur Chater (I first met him in 1956) and Mary Richards. He first met the latter early in 1953, when she collected him at Dolgellau station and was astonished that Peter, with his botanical reputation, was so young; he had his first field outing with her that summer. Their explorations of Merioneth resulted in their joint publication of *A Contribution to a Flora of Merioneth* in *Nature in Wales* in 1961, a second revised edition being separately published in 1964. Alas, it remained

Peter Benoit, photographed in 2005. *Arthur Chater*

a contribution, though a very informative one, and no proper Flora of the county has since been written (and the only earlier one, by Daniel Angell Jones, remains in manuscript). Peter belonged to the surprisingly large cohort of distinguished field botanists who did not drive, saying he had been too nervous to learn, and he was thus dependent on public transport and friends for most of his botanising. The latter were the more significant in the earlier days, as he was clearly very short of funds. Until he did a number of contract surveys for the Nature Conservancy and then the Countryside Council for Wales he seems to have had no paid employment; he did though get a job with the County Council in Dolgellau, but after the first day, which he did not enjoy, he never went back. Edgar Milne-Redhead arranged for him to be offered the chance of a job in the Kew Herbarium, but Peter declined the offer as he was too attached to his way of life at Barmouth. After Mary Richards moved to Northern Rhodesia (Zambia), Peter's explorations of Merioneth continued with other motorised botanists, especially with Kathleen Stevens of Tywyn, and extending up to his successor as County Recorder, Sarah Stille. For health reasons, in contrast to most others who botanised in the county, he tended to concentrate on lowland rather that the already better-botanised upland sites. For several decades he regularly tutored on field courses at the Field Studies Council's and other centres in North Wales, chiefly Drapers at Rhyd-y-creuau and Plas Tan-y-bwlch. Under pressure he gave a very few formal talks at meetings.

Although a rather shy person, he was a great communicator of his remarkable botanical knowledge to others, and the field meetings he led were very popular. In the field his combination of mild eccentricity and the eagerness with which he imparted his knowledge endeared him to his companions. In pursuit of a rarity he could forget his limitations and cause alarm by disappearing down a gulley or clamber up a cliff. If a farmer loomed on the horizon, he would hurry off in the other direction. For many years after the rest of us started using plastic bags to collect our specimens in, he used brown paper bags provided by his mother from the chemist's shop where she worked. In later years he usually carried two carrier bags, in one of which he would repeatedly rummage for his frameless lens wrapped up in tissue. The contracts he did for the Nature Conservancy Council and the Countryside Council for Wales included notably their Rare Plants Project in the 1970s, and he also did a variety of site surveys for them as well as for the Wildlife Trusts. He went on several occasions to stay with the Bedfordshire botanists John and Christina Dony for a week, and it was presumably through such friends and other botanical contacts throughout the country who gave him books and papers that he obtained much of his remarkably up-to-date knowledge of taxonomy, as he would have been unable to access most of the necessary literature in Barmouth. From 1958 he co-edited *Nature in Wales*, and contributed the regular field notes on plants and other articles, but resigned in 1967 after disagreements with his difficult co-editor Ronald Lockley. He became an expert bryologist, doing contracts for CCW, including a detailed report on Coed Crafnant in collaboration with Jackie Maynard. In 1978 he also became interested in, and quite expert on, lichens after Doris Pugh showed him Francis Rose's *Observer's Book of Lichens*, and in 1989 he published a list of interesting Montgomeryshire ones that he had recorded.

Peter joined the BSBI in 1953, although his membership lapsed a couple of times for financial reasons, and became Recorder for Merioneth only a year later in 1954; his service of 56 years is currently the longest on record for any Vice-county Recorder. (After a lifetime's generous work in the botanical community, and of contributing his plant records to the BSBI and the Wildlife Trusts he became very possessive and secretive of records of the rarer species made by him and others, and resigned his recordership in 2010 after refusing to give more than hectad references and disapproving of a Rare Plant Register, saying that he deeply resented 'his' records being computerised and made public, and of them being used by others. An unfortunate experience involving the unexplained

disappearance of a *Trichomanes* colony that he once showed to people may have contributed to this.) He also became very involved with the neighbouring county Montgomeryshire, being a member of their Field Society from 1975 until 2001 and leading over a dozen field meetings for them (mostly in Merioneth!) from as early as 1959. He worked closely with Janet McNair, and later with Doris Pugh and then Marjorie Wainwright and others both in the field and by post. He would go to stay at times with both of the latter two, who would meet him from the train and spend long days in the field and long evenings studying their specimens with him. Ian Trueman remembers that Marjorie would send scouts out ahead of their field meetings to locate trees with good mosses and lichens on their trunks, so that they could keep Peter away from them as he could spend hours examining the trunk of a good tree. Alan Morton remembers his helpfulness in the field when working on this Flora with identification tips especially for rushes and sedges, and his total lack of enthusiasm for Alan's offer to use DMAP for an Atlas Flora of Merioneth. When the *Flora of Montgomeryshire* (1995) was being prepared, Peter became a mainstay of the project, but on publication he declined to be listed as a co-author as he thought that more work should have been done.

Peter was the conscientious and helpful BSBI referee for a number of genera, including *Cerastium*, *Stellaria*, *Erodium*, *Ulex*, *Circaea*, *Veronica hederifolia* agg., *Galeopsis tetrahit* agg. and *Juncus bulbosus* agg. His clarification of a number of taxonomic problems were the result of his experiments in hybridisation, notably on *Cardamine flexuosa* × *hirsuta*, *Erodium cicutarium* × *lebelii*, *Circaea alpina* × *lutetiana* and *Galeopsis bifida* × *tetrahit*. His investigations into *Myosotis*, *Ulex*, *Catapodium* and *Festuca* × *Vulpia* hybrids, and on the differentiations of *Juncus kochii*, *J. foliosus* and *Veronica hederifolia* subsp. *lucorum*, were especially helpful and influential. A typical comment on his helpfulness is the following from Ian Bonner: 'When I was working for NC/NCC in north-east Wales in the early 1970s Peter was very patient and helpful in determining/confirming plants I collected in Denbighshire and always wrote extensive and detailed letters explaining his conclusions, often illustrated with helpful sketches. At that time I was surveying parts of the Denbigh Moors in conjunction with the proposed Brenig reservoir and sent him an unusual sedge from flushes at Gors Maen Llwyd which he determined as the hybrid between *Carex echinata* and *C. dioica* (*C.* × *gaudiniana*) new to Wales. This resulted in our only meeting in the field when I met the Crosville bus from Barmouth for a joint visit to see the plant, which is still present.'

Peter made a large number of first records for Merioneth and other neighbouring counties. Natives for Merioneth included *Hypericum undulatum* at Arthog and *Spergularia rupicola* at Harlech in 1952, *Salicornia perennis* at Barmouth (1954), *Rhynchospora fusca* at Arthog (1963), *Myriophyllum spicatum* at Morfa Harlech (1970), *Carex demissa* × *laevigata* at Llanbedr (1970), *Juncus foliosus* near Barmouth (1972), *Carex limosa* at Trawsfynydd (1978), *Vulpia ciliata* subsp. *ambigua* and *Koeleria macrantha* at Aberdyfi, *Puccinellia distans* at Arthog and *Carex disticha* at Llanaber (all 1991). Natives for Montgomeryshire included *Carex strigosa* at Abermule (1977), *Dryopteris aemula* at Aberllefenni (1978) and *Asplenium obovatum* at Machynlleth (1979), and for Flintshire *Carex strigosa* in Whitford Wood (1967). In addition he made many other first records of hybrids, subspecies and aliens. A large number of his specimens are in the National Museum of Wales herbarium at Cardiff, with others at Kew and elsewhere. His reports, manuscript notes and site surveys for NCC and CCW are scanned and in the Natural Resources Wales archives, and it is hoped that as much of his extensive and informative botanical correspondence that has been preserved and others of his papers will be deposited in the National Library of Wales.

Peter's mother died in 2000, and thereafter increasing health problems began to restrict his botanising. One of his final projects was to record each coastal 1 km square in the county, and he continued to visit other sites reachable by bus or train or with friends by car. In 2015 he went into a care home in Barmouth where he was well looked after until his death on 20 January 2021 at the age of 89. I am grateful to Sarah Stille, Ruth Dawes,

Penny Condry, Jackie Maynard, Sue Southam, Ian Bonner, Ian Trueman, Alan Morton and others for memories and information.

Selected publications

All papers are by P.M. Benoit unless stated.

1955.The sand dune areas of Cardigan Bay. *Nature in Wales* 1: 116–119.
1958. A new hybrid sedge [*Carex binervis* × *punctata*]. *Watsonia* 4: 122–124.
1958. Some notes on recent winter weather conditions and their effect on plant growth. *Nature in Wales* 4: 583–589.
1959. Two interesting botanical discoveries in Merionethshire [*Eleocharis parvula* and *Hypochaeris glabra* × *radicata*]. *Nature in Wales* 5: 725–728.
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Benoit, P. & Richards, M. 1961. A contribution to a Flora of Merioneth. *Nature in Wales* 7: 47–66, 92–111, 146–169.
Benoit, P. & Richards, M. 1962. A contribution to a Flora of Merioneth. Errata. *Nature in Wales* 8: 27.
1962. *Erodium glutinosum* in Wales. *Nature in Wales* 8: 3–6.
1963. Alpine plant discoveries in Merioneth. *Nature in Wales* 8: 116–121.
Benoit, P. & Richards, M. 1963. *A contribution to a Flora of Merioneth* (2nd edn). West Wales Naturalists' Trust, Haverfordwest.
1964. Borth Bog (Fld Mtg Rep.). *Botanical Society of the British Isles. Welsh Bulletin* 1: 10–11.
1969. *Critical supplement to the Atlas of the British Flora*. Edited by F. H. Perring. (Review.) *Watsonia* 7: 111–112.
1970. *Festuca altissima* in Merioneth (Exhbt). *Watsonia* 8: 84.
1971. *Veronica hederifolia* L. sensu lato – in Wales. *Watsonia* 8: 399.
1972. Synthesised *Geranium purpureum* × *robertianum* (Exhbt). *Watsonia* 9: 197.
1973. *Juncus foliosus* Desf. – in Wales. *Watsonia* 9: 373.
1979. *A survey of rare vascular plants in Gwynedd and Clwyd 1. Vice-County 48, Merioneth.* NCC North Wales Regional Report; NW 79/5. Nature Conservancy Council, Bangor.
1984. Tal-y-llyn Lake, Merioneth (Fld Mtg Rpt). *Watsonia* 15: 66.
1988. Melin-y-wig, Gwynedd/Clwyd (Fld Mtg Rpt). *BSBI News* 48: 53.
1990. (County Report) Merioneth. *Botanical Society of the British Isles. Welsh Bulletin* 50: 17.
2005. Peter Benoit's anniversary: a correction. *Botanical Society of the British Isles. Welsh Bulletin* 76: 5.
2006. Recording in Merioneth. *Botanical Society of the British Isles. Welsh Bulletin* 78: 12–13.
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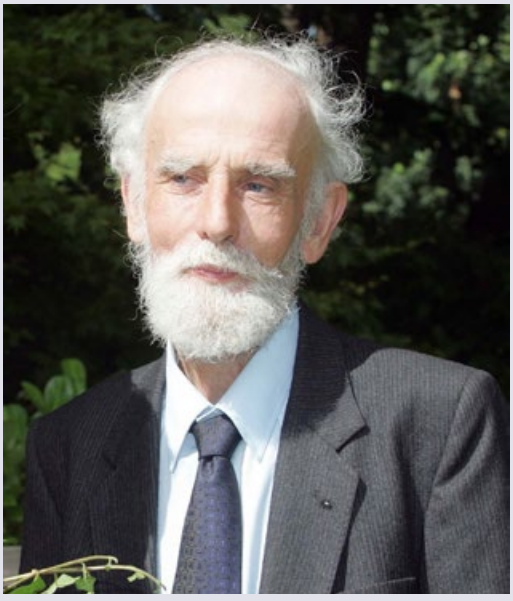
Arthur Chater

JOHN HARRON (1944–2020)

John Harron was a quiet and modest man who died at his North Down home on 22 October 2020. An exceptional field botanist, he was a BSBI member for 47 years and made an enormous contribution to the known flora of the north-east of Ireland. The BSBI database holds almost 100,000 field records attributed to John Harron – roughly a third from Co Down (H38) and a further third from Co Antrim (H39). The remainder are spread across other Ulster counties.

John was born on 29 July 1944 in Helen's Bay (Co Down), the eldest of Kathleen and William Harron's five children. He attended Glencraig Primary School and Holywood Technical College. After a brief period in London, he worked in Belfast for a chartered surveyor. Even in his early years, he



John Harron, photographed in 2005. *Andrew Peden*

liked to head off to the Mournes or Donegal on his bicycle, while staying at youth hostels. He had a talent for sketching and developed a passion for drawing maps. He completed two years Voluntary Service Overseas in Gambia (1979–1981) and after that he opted for a life outside the rat-race, returning to Helen's Bay and working on the neighbouring Mackie's estate as a gardener.

John is best known for his *Flora of Lough Neagh* (1986), which showcased his meticulous field records to a wider audience. Before this, lists of John's notable finds had already appeared in the pages of the *Irish Naturalists' Journal*, while in 1972 the Belfast Naturalists' Field Club published the supplement to the second edition of the *Flora of the North-east of Ireland* which contained John's records from within the area of that Flora (Down, Antrim, Londonderry). John subsequently provided a huge number of records which were incorporated into the third edition of this *Flora* when it duly appeared in 1992. John's name appears on the title page alongside Stan Beesley and Doreen Lambert as Paul Hackney's effective co-authors.

In 1987–88 the BSBI carried out recording for its Monitoring Scheme and John was the most assiduous of the contributors from Northern Ireland. Paul Hackney well remembers receiving thick parcels of completed cards which were duly passed on to an astonished Tim Rich who remarked that he wished that he had a dozen more John Harrons for the Scheme. John later showed the same commitment to the BSBI Atlas 2000 scheme.

Leading up to Atlas 2020, some Ulster vice-county recorders started to receive the most amazing correspondence from John Harron. Over 2–3 years, John painstakingly collated thousands of unpublished post-2000 records for Antrim and Londonderry and posted them for us to digitise. He re-visited good sites to update records of rare plants, which made a big difference to recent coverage in these vice-counties. It was a huge pleasure to receive this treasure trove and we found that John's field records were brought to life by his ability to write wonderfully vivid and perceptive accounts of the plants and habitats that he knew and understood. He truly was a remarkable field naturalist, committed to the tradition of recording and documenting Ireland's wild flora. There were very few, if any, of his contemporaries who could match his dedication and expertise practised over so many decades.

After the death of his mother (1983) and father (1986), John began to travel in the winter, setting off with a small backpack and a huge camera. He visited many countries, including Morocco, Ethiopia, Yemen, Israel, Turkey, India, South Africa, South America, Australia and New Zealand, not only exploring them but also photographing and studying them, all the time respecting and appreciating each and every culture that he stumbled upon. At home, John was a very generous and hospitable host with a great commitment to his extended family. He always had food and drinks to share and made a great effort to round everyone up for a Halloween bonfire.

The eulogy at John's funeral ended with these words. 'John was fiercely independent, highly intelligent, thoughtful and sensitive and had the rare ability to listen to others with focus and genuine interest. He had a strong sense of family and was a life force, at one with the landscape and nature.'

I would like to thank the members of the Ulster botanical recording community who sent in tributes to John. I'm also grateful to John's family for permission to reproduce the photograph included here. A personal appreciation by Ian McNeill is included below.

David McNeill

John Harron – a personal appreciation

I first met John Harron in December 1983 when I visited him in his home at Helen's Bay, on the Co Down side of Belfast Lough. I had been botanising in the Cookstown area from 1980, and had made contact with the BSBI and Doreen Lambert, the Recorder for Co Tyrone. I soon heard about John Harron, and Doreen encouraged me to get in touch with him. So, on the evening of 2 December, my son David and I arrived at John's home.

We were given a very warm welcome, and soon we were talking animatedly about flowers, about the

joys of stumbling on a rare plant, our mutual love of the landscape of Ulster. My 1983 diary summarised the evening: 'great evening of 'flower-talk''. John had completed his formal education at 15, but his subsequent self-education was truly remarkable. He had encyclopaedic knowledge of the plants of Ulster (and further afield) and this went back into the historical record. He had a working knowledge of geology, of soil types and the other ancillary -ologies needed by a field-botanist. His bookshelves were stacked with flower-guides and county floras, but also all sorts of books on many other interests.

We marvelled, too, at how he had adopted a very alternative lifestyle, and was happy with it. Apart from his books, he lived frugally. He made enough money from gardening to keep the wolf from the door. But he hadn't to face the daily commute, he had no boss breathing down his neck – he traded those things for his freedom.

We arranged that he should come to Cookstown the following summer and see around our patch. This he duly did, and he visited us in Cookstown and East Tyrone several times over the next couple of years. Eventually we settled on a routine where John and I met up for a day's botanising once or twice a year, usually on 'neutral' ground in Co Derry or Co Antrim.

To see John in the 'field' was to see a master at work. He had so many field skills. First of all, he could look at his OS map and know immediately where the 'plum' spots were likely to be. He had uncanny skill, when he looked around him, of finding the best place to seek the good plants. He could name almost any plant just from its appearance. If he had to study it through a lens, he knew exactly what to look for, perhaps hairs on the sepals or some such key feature. I never saw him use a field-card – he noted down details of any rarer plant in a notebook.

He would march over uninteresting ground at some speed but could spend an hour on a spot of good ground. He could walk over a bog and not get stuck in the mire. He could crawl under a barbed-wire fence, the barbs an inch from his face. He could wade through rivers. John particularly loved river valleys and glens and described rivers as nature's highways. He had a remarkable sense of knowing what to expect in any given terrain or what plants had a community affinity to one another. So, on a piece of rocky heath he would announce: 'we should be finding *Cirsium dissectum* here', and then, almost immediately: 'ah, there it is'.

Sometimes he could be outrageously dramatic. I can still see him in the grounds of a Cookstown hotel pointing at the ground in front of him and declaiming, in true Shakespearean fashion: 'I am in the presence of a very rare grass'. It was *Poa chaixii*.

For a few years around 1970 John concentrated on a remarkable study of the flora around Lough Neagh. He would walk several miles of lough shore in a day. Some of this time he had no car and had to depend on public transport. I challenge you to work out the logistics of that from a base at Helen's Bay.

Pat Kertland was a leading light in Ulster botany at the time and she gradually persuaded John to turn his vast store of Lough Neagh records into a Flora, so that others could share in the fruits of his labour. She recruited Brian Rushton, from the University of Ulster at Coleraine, to mentor John in the mysteries of Flora production and subsequent printing and producing a book. John and Brian worked well together, but it was a case of slow but steady progress. The book came on sale in 1986 entitled, simply, *Flora of Lough Neagh*. No frills, no glamour, but superb in what it set out to do, to give details of the plants to be found around the lake, set in a background of the general ecology of the lake. There were distribution maps for rarer plants. I said: 'no glamour', but the front cover was most evocative with its wonderful silhouette view of the beautiful Flowering Rush – thanks to David Ledsham.

Coming up to the BSBI proposed Atlas 2000, John planned to re-visit Lough Neagh to get an up-to-date view. He was horrified. With modern machinery, drainage of marshland had gone on apace. Intensive farming had conquered. The ground was enriched by run-off from fields and the polluted water of the lake had come onshore in periods of flood. Where there were once little marshy fields, now large fields of Perennial Ryegrass grazing came within an inch of the lake. In places

MICHAEL MAURICE SHAW (1949–2020)

BSBI Handbook No. 20 Hawkweeds of South-east England was reviewed enthusiastically by Geoffrey Kitchener in *BSBI News* 145 and its author lived long enough to be gratified by its reception and its sales. He did not, alas, realise his ambition of working on a companion volume covering the South-west.

Michael Maurice ('Mike') Shaw was born on 7 March 1949 in Bristol to Maurice and Florence Shaw, née Ralphs. Mike was four when his father was appointed Bursar of Coton House, a residential training centre for electrical engineering

Mike Shaw at the Booth Museum of Natural History (Brighton) in 2015, working on the herbarium of the late A. Wilberforce Jones. *Nick Sturt*

apprentices at Associated Electrical Industries outside Rugby. The family moved and it was while roaming free in the grounds of Coton House and the nearby village of Churchover that Mike and his younger brother Peter developed an intelligent interest in everything they saw around them. Peter recalls that Mike's study of botany began in these 'idyllic years' and he was already pressing specimens in a tennis racket press which he had adapted for the purpose.

Their father's position with AEI rendered both Mike and Peter eligible to sit the AEI scholarships to Rugby School, which they both won, gaining places as day-boys. Taking the sciences at GCE A Level, Mike steered himself towards medicine and went on to train at Guys Hospital (1967–72). It was during a placement at Weir Hospital, Balham that he met a young nurse, Jean. They were married in his final year. Their long, happy marriage produced Roger, an IT consultant, and Elizabeth, a teacher.

After a few years in different medical posts Mike opted for general practice in 1977 and moved to Aldwick Bay, Bognor Regis. His innate sense of duty made him a respected and popular family GP but also limited his field botany for many years, although he did find time for that traditional pastime of doctors, golf. His partners knew to their cost that he was totally averse to playing the safe shot and thus one imagines that Mike will have kept up his plant studies while searching for his ball in the rough! With the family growing up, there was gradually more scope for botany. He was already a member of BSBI and the Wild Flower Society when he was introduced to the Sussex Botanical Recording Society (SBRS) by Paul Harmes, BSBI Recorder for East Sussex; they had struck up an acquaintance on a few WFS events and Paul recalls that Mike decided to join during a particularly exhilarating meeting on Amberley Wild Brooks at which several prominent SBRS members were present.

It was not long before Mike impressed not only Paul but also Paul's West Sussex counterpart Alan Knapp, so that he was inveigled onto the SBRS Committee. With the untimely death of Alan in 2010 it was natural that the mantle of Recorder should fall upon Mike – in any case there was no escape as Mary Briggs had him in her sights. He performed his role with all the thoroughness and aplomb which he brought to his medical career, forming a particularly complementary partnership with Paul in the East. Similarly, Mike was automatically co-opted onto the SBRS Working Group preparing a new county Flora. Here his thought, care and capacity for sheer hard work proved invaluable as the team struggled to overcome the loss of Alan and to boil down a mass of data into a coherent treatment of the vascular plants of Sussex present and past.

Mike stepped down from v.c. 13 Recorder at the end of 2015 to take responsibility for the Flora accounts of two critical groups, working on *Rubus* subgenus *Rubus* with David Allen and Rob Randall, and on *Hieracium* with the help of David McCosh. In addition Mike contributed many of the close-up photographs of plants in the text and his skill with the digital camera is certainly to the fore in the *Hawkweeds of South-east England*. On many field meetings of the SBRS Mike proved a popular leader or companion, always ready to help with a tricky determination or defuse tense debates with a jocular remark. The seriousness which he brought to his school studies was still evident in the form of careful preparation for any outing he was to lead and diligent homework afterwards as he worked on specimens gathered and faithfully reported back.

In what was to be his last season of field botany Mike, like many in 2020, re-discovered his home patch, in this case the western end of the West Sussex coastal plain, and in terms of numbers he was one of the most productive Sussex recorders over that summer. He managed to re-find a number of species which had previously evaded him when looking for missing tetrad records in the final stages of the survey for the *Flora of Sussex*; but as a dedicated lover of aliens and adventives it was unusual birdseed germinations or something strange on the allotments which gave him the most pleasure. Among his crop of treasures in 2020 were *Amaranthus blitum* (Guernsey Pigweed) growing as a pavement weed in Bognor Regis (first W. Sussex record in 20 years), *Malva alcea* in another pavement crack at Nyetimber (first W.

Sussex record) and a self-sown plant of *Paulownia tomentosa* (Foxglove Tree) at the base of a wall in the car park at Bognor Regis railway station.

I visited Mike in October. He had been given his cancer diagnosis a month or two before and decided not to take up the treatment offered. We sat in his sunny conservatory and talked of plants. The garden was immaculate; a few choice Hieracia were in discreet cultivation behind a shed. He told me he was tidying up his *Hieracium* herbarium for despatch to the Natural History Museum (**BM**). We planned to meet again soon but the Covid situation put paid to that and in the event Mike's health declined quickly; he died peacefully on 12 December. The pared-down funeral dictated by Covid restrictions meant that the large number of botanical friends who would have wanted to gather to pay their respects were unable to attend, but the written tributes read out by the minister in front of family presented a vivid portrait of the man. The esteem in which his medical colleagues held him was very evident but a fellow Rugbeian also gave us a glimpse of the young Mike – studious in lessons but possessed of a wicked sense of humour outside them. It reminded me of an occasion when I was on the receiving end of Mike's mischief. We were out recording together for the Flora at a quiet country station: Mike spotted an official approaching clearly about to draw attention to the large Keep-out signs but instead of warning me he retreated quietly in order to enjoy my embarrassment from a safe distance.

Nick J.H. Sturt

OBITUARY NOTES

Since we compiled the last Obituary Notes, news has reached us of the death of the following members or former members. We send our sympathy to their families and friends. Obituaries of Peter Benoit and Mike Shaw are included in this issue.

Mr P.M. Benoit of Barmouth, a Vice-county Recorder for 56 years.

Mrs P.M. Donovan of Buxted, a member for 44 years.

Mr D.C. Lang of Ringmer near Lewes, a member for 43 years.

Mr E.W. Latham of Shirland, Alfreton, a member for 18 years.

Mr R.D. Meikle of Minehead, a member for 74 years.

Dr A.T. Pickering of Oakwood, Hexham, a member for 31 years.

Mr D. Russell of Bude, a member for 6 years.

Dr M.M. Shaw of Aldwick Bay, Bognor Regis, a member for 33 years.

Dr A. Tupholme of Bingley, a member for 24 years.

Mr A. Woodcock of Sheffield, a member for 24 years.

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Date of compilation: 3 March 2021.

REVIEWS

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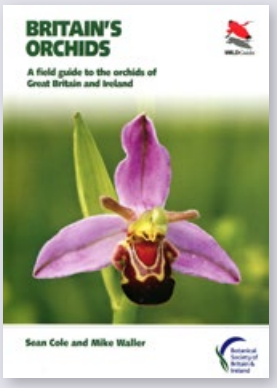


Britain's Orchids. A Field Guide to the Orchids of Great Britain and Ireland
Sean Cole & Mike Waller
Princeton University Press, Princeton, N.J., commissioned by WILDGuides, 2020;
pp. 288, c. 1,200 photographs, 52 maps, 98 watercolours by Sarah Stribbling; sbk, £20.00. ISBN 9780691177618

Orchids have a fascination for people who are not necessarily botanists, and the majority simply think they can recognise one by eye matching what they see with a picture in a book. If you are a County Recorder who has had real trouble convincing that *Linaria purpurea* is not a Monkey Orchid, that an albino Common Spotted is not a Lesser Butterfly, a pink concolorous one is not Chalk Fragrant, and a droughted Broad-leaved Helleborine is not a Narrow-lipped – then this is the book for you.

We are somewhat awash with orchid books these days, from the magnificent large format *Orchids of the British Isles* by Foley & Clarke (2005) and the equally attractive and informative *Orchids of Britain & Ireland*, 2nd edition (2018) by Anne and Simon Harrap, to books on where to find them and dig them up (by inference) for growing in your garden to 'increase their chances of survival'. This sumptuous successor to David Lang's 2004 WILDGuides *Britain's Orchids*, however, is the book for the discerning, especially for those who find the books with photos of the best flowering spikes of each taxon that can be found rather lacking when out in the real world of orchid flower variation, immature, post-mature, or depauperate state – when trying to come up with a name for a record. This really is a comprehensive identification guide to our native and alien orchids and their hybrids in all their possible final forms and developmental stages, from initial leafing, via unopened buds, and flowering sequence to mature seed pods, with myriads of photos and spectacular life-like pencil and watercolour images.

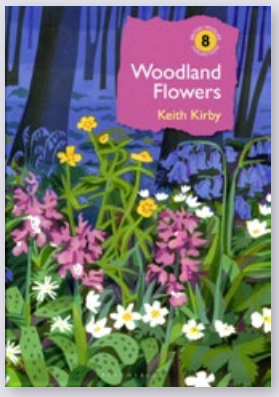
Beginning with the definition of an orchid, their taxonomy, life histories, and pollination, ten pages are devoted to orchid habitats, with six-to-the-page shots of orchid populations in a wide range of environments, followed by 20 pages devoted to identifying orchids in leaf. Then four pages of watercolour drawings of orchids in bud, two on orchid 'lookalikes' to mislead the novice (though they missed my Purple Toadflax!) and 22 pages on how to identify orchid taxa in flower, with superb side-by side montages of whole plant watercolour drawings of related taxa in comparative order of similarity; followed by four on identification by flower structure, incorporating some 70 annotated close-up photos. Then we have 150 pages of individual taxon accounts, covering all the species, subspecies and varieties, each species with a full flower-spike watercolour annotated with identification tips, a map, leaf-flower-seed stage calendar and numerous close-ups of flowers in bud, fully open and in seed. There are, for example, 24 images of flower variation in the helleborines – including my narrow-lipped form of Broad-leaved brought on by sudden drought that I referred to above. Twenty-four pages are then devoted to hybrids and four to adventives and extinctions. Throughout the book the numerous close-ups of flowers are meticulously annotated with their distinguishing features, and in addition to the two authors some 60 orchid photographers have contributed photographs.

Although the authors have very successfully taken into account all the latest genetic evidence for the inter-relationships and current nomenclature of the taxa, none of the scientific names they have chosen to use has an authority appended, even in the summary tables. For what is intended to be a definitive guide for all levels of expertise this omission must be considered ill-judged, as it will cause confusion and frustration; it

is to be hoped that it can be put right in any future edition.

Despite all the orchid guides you might already have, if you need to definitively identify an orchid this book has now got to be on your bookshelf. My only regret is that the rather small imposed 15 × 21 cm format does not really do justice to the detail in the flower spike and habitat shots, and if there is to be a second edition it would be good to see the sort of optical processing of the spikes and flower close-ups to make them stand out against their backgrounds, as has so miraculously improved the images in the 2nd edition of Harrap's *Orchids of Britain and Ireland*.

Ken Adams



Woodland Flowers. Colourful Past, Uncertain Future
Keith Kirby
Bloomsbury, London, 2020; pp. 400, with many coloured photographs; hbk, £35.00.
ISBN 9781472949073

Woodland in Great Britain has to cope with change. The changing of the seasons in a woodland is an obvious spectacle that everyone can appreciate. Less obvious, however, are changes caused by the decline of traditional woodland management or rising deer populations. Understanding the effect these changes have on woodland plants, and predicting how they may be affected by climate change and rewilding, is essential for their conservation.

Woodland Flowers is the eighth title to be released in the British Wildlife Collection since this series commenced in 2012. It focuses on the vascular plant ground flora of woodland, in the author's words the 'flowers, ferns, sedges and grasses', and it seeks to understand these plants as they grow within woods (it points out that no British plant will grow only in woodland). It confines itself to woodland in Great Britain, but offers comparisons with Irish woods and with woodland communities on the Continent. There is a comprehensive approach, with chapters covering historic plant distribution, the effect of different soils, seasonal change, new woodlands, and the various ways woodland plants have responded to natural disturbance and human management. The Bluebell is used effectively to introduce the book's subject. There are around 30 self-contained profiles of other woodland plants that complement points in the chapters, providing information on the history, ecology and distribution of plants such as *Linnaea borealis*, *Mercurialis perennis*, *Paris quadrifolia*, *Trientalis europaea*, *Dryopteris aemula*, *Hedera helix*, *Urtica dioica*, *Allium ursinum*, *Melampyrum pratense* and *Carex depauperata*. A great strength throughout are the references, demonstrating use of the author's own experience as well many other woodland researchers, past and present. There are clear and concise descriptions to explain some complicated concepts, including a 'dartboard' diagram illustrating the vegetation types of the National Vegetation Classification.

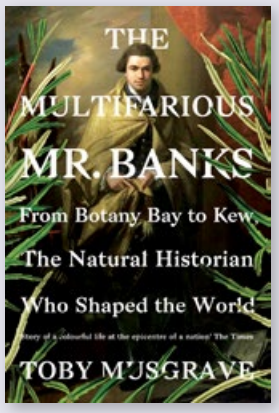
With a focus on vascular plants there are understandably limited references to other important woodland organisms. An explanation of the importance of woodland fungi is provided, as well as reference made to the importance of the coppice cycle and the caterpillar food-plants of rare woodland butterflies, such as the Heath Fritillary. A detailed insight is provided on woodland grazing by different animals and should be essential reading for woodland managers, with studies demonstrating the short and long term effects of fencing grazing animals out of woods. The book finishes by asking important questions about the forms of future management required by our woodlands, including rewilding, so that woodland plants can expand and also adapt to a changing climate.

The illustration on the jacket cover is attractive and the colour photographs throughout are excellent quality. English names of plants are preferred in the text, with Latin names provided at first mention only. There is no glossary other than a limited explanation of woodland terms on page 15. I only noticed one minor error, in the percentages depicted on a pie chart at page 236 (describing Frans Vera's shifting mosaic cycle of wildwood).

Keith Kirby has produced an extremely detailed and well researched book and his passion for woodlands really comes across. It more than tackles its remit and goes above and beyond to provide a comprehensive assessment of British woodlands past, present and future. The use of common names should make it appeal to a wider audience than botanists and I would recommend

it to anyone interested in understanding woodland in Great Britain and especially to anyone with a responsibility for managing woodland.

Stephen Lemon



The Multifarious Mr Banks: from Botany Bay to Kew, the Natural Historian Who Shaped the World

Toby Musgrave

Yale University Press, New Haven, 2020; pp. xvii + 368, 48 colour illustrations; hbk, £25.00. ISBN 9780300223835

Joseph Banks was a larger than life character. Perhaps best known, at least in botanical circles, for his natural history collecting on Captain James Cook's *HMS Endeavour* voyage from 1768 to 1770, he also wielded great influence in the science and politics of late 18th and early 19th century Britain. This biography by garden historian Toby Musgrave is published in time to commemorate the 200th anniversary of Banks' death in 1820. The book has three large sections – Banks' early life up to his return from the Endeavour voyage, his influence in the establishment and history of the Royal Botanic Gardens at Kew, and his remarkable pulling of the strings of power in Georgian Britain.

Rather haphazardly educated, Banks discovered a love of botany at Eton. His wealth and contacts allowed him to join the *Endeavour* expedition to observe the Transit of Venus from Tahiti – the ultimate 'Grand Tour'. Along the way some 30,000 plant specimens were collected, most unknown in Europe. Sadly though, the results of his botanising were never published in his lifetime – the full edition of Banks' planned *Florilegium* was only accomplished in the 1980s. Linnaeus himself never saw any of the spoils of the voyage – but his son did and named *Banksia* in Joseph's honour. Botanists will revel in the details of plants seen on the voyage – and in how plant collecting was done in the 18th century.

Upon his return, Banks – after an attempt to accompany Cook again with somewhat disastrous consequences and a massive temper tantrum – settled to life as a man of celebrity. Banks had the wealth, position in society and the patina of his voyage that made him the man of the hour. He had fingers in every pie, from the King's gardens at Kew to organising the smuggling of Merino sheep from Spain to his 42-year Presidency of the Royal Society. He married a young heiress (after rakish behaviour both at home and abroad) and successfully lobbied the King to be made a Baronet, cementing his place in society. Musgrave depicts Banks at the centre of everything – the ultimate interferer.

One thread running through Banks' life was that of mercantilist imperialism, his projects were focused on consolidating the Empire. That endeavour though was not without its seamier side. I was surprised at the detail about the heroic history of Kew post-Banks, but the lack of detail about the suffering of the petty thieves who were transported to Botany Bay. Like most of us, Banks was a mixture of good and bad, but we must recognise the failings even of 'great men'. Banks' and Britain's vision of imperial power had its day, today's narratives are different, and no less important. The other constant thread in Banks' life was plants and Musgrave's book is an engaging picture of how a love of plants can lead to many things, even 'shaping the world'.

Sandra Knapp

Bedfordshire – Our Changing Habitats and Wildlife. A Photographic Record

Richard Revels, Graham Bellamy & Chris Boon

Bedford: Bedfordshire Natural History Society, 2020; pp. 156, c. 250 photographs and maps; hbk, £20.00. ISBN 9781916241701

Change in the natural environment is arguably one of the most important topics in conservation biology. The massive increase in the number and frequency of county Floras in recent decades has given botanists and policy makers at least some of the data required

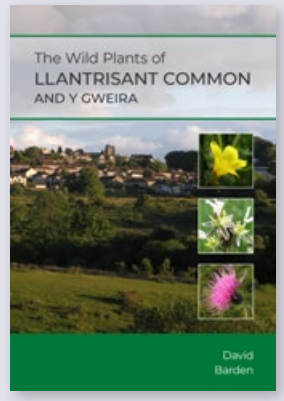
to highlight loss or increase in species, as well as change in the quality and quantity of semi-natural habitats.

Twenty years ago, *Wild Bedfordshire* (published by BNHS) was an ambitious attempt to create a baseline for measuring change, with photographs of 50 habitats, and 100 sites from fixed points, with the idea of repeating the same exercise 20 years later. This volume is the intended publication. Richard Revels, who took most of the original photographs, was joined by a team including the other authors, visiting each site (where accessible), and taking a new photograph.

The first of four chapters is a summary (by guest author John Comont) of change in habitats and species as a result of planning and agricultural policies, inevitably making for rather depressing reading. Chapter two gives habitat descriptions with stunning photographs of woodland, grassland, freshwater, mire and heath, and peripheral habitats such as road verges and field margins. Chapter three describes species change, again with excellent photographs of a range of taxa, including animals and fungi. The final chapter is less visually appealing, consisting of tables of details of where the photographs were taken. But this chapter is arguably the most important – it provides the data for the exercise to be repeated again. Repeatability is one of the most elusive qualities of most surveys.

Does this book achieve its admirable objectives? There are very few pairs of (before and after) photographs, and I found this disappointing (although all photographs are available on line). However, the first chapter sets out the scale of the change, and the chapters on habitats and species were glorious to look at. This is a beautiful publication with excellent design and layout, and an abundance of magnificent photographs. But I fear this obscures the underlying story of loss and degradation, and this should be shouted from the rooftops. The ambition to repeat the exercise is admirable, and there should be an equivalent publication for every county.

Sarah Whild



The Wild Plants of Llantrisant Common and Y Gweira
David Barden
Published by the author, 2020; pp. 192, c. 375 photographs, 415 maps and aerial photos; pbk, £12.50. ISBN 9781527276604

Subtitled 'A botanical exploration of a diverse grassland site in South Wales', this book is a welcome and fresh approach to the detailed recording of plants over a relatively small area, being aimed both at a general readership, particularly those with a latent interest in wildlife, whilst being sufficiently technical to be of considerable interest to the experienced botanist.

The subject is a grassland SSSI situated about eight miles north-west of Cardiff and embracing both Llantrisant Common and the adjoining Y Gweira, a Wildlife Trust nature reserve; in total, 269 acres (108.5 ha). Set out in a concise and informative manner, introductory sections include landscape, climate, geology, history (including old photographs), ecology, management and threats.

The main body of the book (130 pages) is a well illustrated alphabetical catalogue (by scientific name) of the plants found during the 2011–2019 study-period, including details of their frequencies, locations and habitats. In past floristic texts relevant to the area Llantrisant is surprisingly rarely mentioned, and it seems to have fallen to Mary Gillham between 1967 and 1987 to discover many of the specialities, such as *Sibthorpia* and *Botrychium*, for which the site is now noted. However, David Barden's book is the first published work to provide a detailed account of the site.

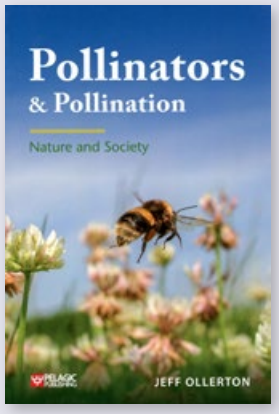
The site is small enough for the author to have been able to record comprehensively all plants at 10 m precision (and to 1 m for more significant species) enabling the inclusion of detailed distribution maps for every species. I certainly commend his approach. He also includes very useful, personally observed, illustrated identification tips that offer invaluable pointers to budding botanists.

An unusual and welcome addition is the section of illustrated 'Habitat Studies' reminiscent of J.G. Dony's classic work in Bedfordshire and Hertfordshire. They centre around the species recorded in twenty-one 2 × 2 m quadrats augmented by a short habitat description and a note of physical parameters. Some Studies include more

than one vegetation type, e.g. a woodland edge or a stream bank but, where mixed habitats were not involved, a mention of the NVC community would have been a useful addition.

I found the small scale of the introductory maps rather difficult to read and the unnecessarily prominent grid lines on the aerial photograph detract from its easy interpretation: perhaps spreading each over two pages might have been possible. This niggle aside, the book is excellent and I can highly recommend it, not only to local residents and visitors, but also to the botanical community. It is a first-class example of how to produce a detailed but readable site Flora, and the author is to be congratulated.

Richard Pryce



Pollinators & Pollination: Nature and Society
Jeff Ollerton
Pelagic Publishing, Exeter, UK, 2021; pp.x + 286, 97 illustrations and diagrams; pbk, £25. ISBN 9781784272289

When considering interactions between pollinators and flowers, several different approaches can be taken. One can ask, for instance, why flowers have evolved to attract and reward visitors? What is it for? A genotype that survives through evolutionary time is likely to have avoided inbreeding depression by achieving cross-pollination with multiple individuals. It is this, rather than reproductive assurance *per se* that has selected for the enormous diversity of flower forms and pollination syndromes. Quality is selected for rather than quantity (of seeds).

Alternatively, one can consider the energetics of the pollinator-flower interaction. It will pay the pollinator to be efficient as it garners resource, just as it will pay the plant to optimise the pay-off between expenditure (on flower size, number, production of nectar and pollen per flower) and the quality of the seeds produced (by cross-pollination), while saving on wasteful selfs.

Another approach considers the ecology of pollination systems and syndromes. Many flowers are not pollinator specialists, and many pollinators visit a wide range of often unspecialised flowers. These generalist systems will be less efficient for the pollinator and the plant, and will tend to increase the proportion of seeds that result from self-pollination within and between flowers, and so show inbreeding depression if self-fertile. However, in stressful environments such systems may be favoured when 'any seed is better than none'.

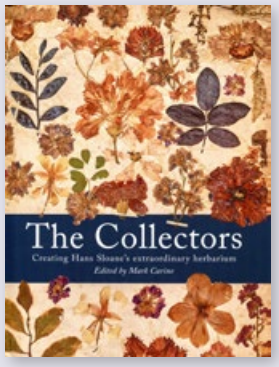
Then there is the agronomic approach. There has been much publicity in recent years concerning shortages of pollinators, and failure of pollination systems, so that crops dependent on pollination fail. Is this true? To what extent is reproductive assurance in fruit and seed crops dependent on the quantity and diversity of pollinators?

Finally, traditionally, an author may consider the pollination syndromes themselves, particularly the specialist systems with arcane flowers and complex pollinator behaviour. This is the charismatic, crowd-pleasing face of anthecology, which however tends to avoid the difficult questions.

Pollination biology has engendered many texts which have considered some of these approaches (although, very rarely, the first, most fundamental one), and originality tends to be at a premium. Ollerton has adopted several distinctive approaches, for instance by considering the importance of pollinators in garden and urban environments. In this he has called upon his familiarity with his home environment in Northampton, and his expertise as an entomologist. His approach tends to be empirical rather than experimental, but he is an acute observer. There are also chapters on the politics of pollination; managing, restoring and connecting habitats; temporal cycles in pollination; changes to the pollinator suite and its relative abundance, with a chapter concentrating on the arrival of new bees in the UK; and a slightly perfunctory chapter on the role of pollinators in agriculture which concentrates on the tropical crops of cocoa and coffee. The earlier chapters cover well-trodden ground on pollination syndromes and pollination ecology, and tend to concentrate on the work of Ollerton and his group on tropical Apocynaceae and Stapeliaceae, and on the Flora of the Canary Islands. In general the book is an easy and pleasant read and there is a long and very useful reference list. Some of the colour photographs are reproduced rather too small and dark to be

of much use. In general, the book makes a useful if somewhat superficial contribution to our understanding of the social relevance of pollination systems, but leaves a discussion of fundamental theories underlining anthecology to other tomes.

John Richards



The Collectors – Creating Hans Sloane's Extraordinary Herbarium
Mark Carine (Editor)
The Trustees of the Natural History Museum, London, 2020; pp. 208, c. 180 illustrations; hbk, £25. ISBN 9780565094881

Hans Sloane and the existence of his remarkable collections are well known in botanical circles, but their contributors and, to a much greater extent, their contents, are a mystery to most. Over a period of 70 years, from the 1680s to his death in 1753, he was given or acquired the collections of many of his contemporaries and, of great importance, referenced most of the specimens therein to his copy of Ray's *Historia Plantarum*, (1686-1704), which is now held with the herbarium. Those not included in that work are referenced to later publications. Of course, all those works used the cumbersome pre-Linnean polynomials, but at least this referencing is a major help.

The 335 volumes containing the herbarium are now housed in a special room in the Natural History Museum, and contain c. 120,000 specimens. Most volumes comprise those of just a single collector, and most too are in the order that that collector arranged them. Many (? most) are not dated and can only be ascribed to the collector's active period, and most too give no location. There are some that have still not been identified. The only guide to their contents is that by J.E. Dandy (*The Sloane Herbarium*, 1958), building on work by his predecessor, James Britten. Dandy's book gives the broad contents of each volume, with excellent links to a much fuller second half on both the compilers of each collection and, in turn, their contributors.

I have to say that the book is beautifully produced, properly bound, with an abundance of illustrations, almost all of actual specimens in the collection, and with a good bibliography. In five broad chapters this book gives details on many of the principal collectors and cataloguers, both at home and abroad, for at least 90% of the specimens are not plants native to Britain or Ireland. The chapters are written by 24 different authors, and though they inevitably differ in style, they are edited into a relatively seamless whole. And the price too is perfectly acceptable.

If I found the book a trifle lightweight, this is almost certainly because all that it set out to do was to lift the curtain on this great Herbarium – it is good for background and for whetting the appetite. To that extent one might say that it complements Dandy's book, which remains the only real entrée to the contents; for many years it was virtually remaindered, but now it costs up to £100 or more. Sloane's correspondence, which might provide more background to many of the specimens, is held separately at the British Library.

David Pearman

The Whole Story. Painting More Than Just the Flowers
Christina Hart-Davies
Two Rivers Press, Reading, 2020; pp. viii + 76, with numerous coloured illustrations; pbk, £15.99. ISBN 9781909747630

'Arty' plant books are usually just that – full of artistic licence and too often botanically inaccurate. But this is an exception. It is scrupulously accurate, and full of really beautiful and life-like paintings by an artist widely renowned for her outstanding work in such books as *Collins Wild Flower Guide*. She makes the point that there is so much to learn and enjoy by looking at wild plants closely in their habitats, and finding out how they interact with their cohabitants and environment. This is an ideal book for a BSBI member to buy, read and enjoy, and then (as I shall do) pass on as a gift to someone who they feel might appreciate and learn from it.

Clive Stace

LETTERS

LOOKING BACK WITH A SMILE

Now that most (not quite all) of my field botanising consists of 'armchair botanical reminiscing', here is a botanical anecdote.

It was way back in 1986. I was talking to my students (in Wrexham) about the ecology of plant distribution and we got round to the protection of rarities. I mentioned that *Cypripedium calceolus* (Lady's-slipper) was probably the most famous rarity in Britain, and that the books simply said that it was confined to a single site 'in the north of England'. That was also the end of my knowledge at the time. After the lecture, one of the students came over and said 'My father knows exactly where the Lady's-slipper grows – I'll ask him to write to you'. At first I was rather sceptical, but he was a mature lad with a 'north of England' accent so I wasn't sure.

The following week, the smiling student came to me again, this time with the promised letter, and sure enough – there were the details, including a grid reference and 'best flowering dates'! In the fullness of time, off I went by myself to 'the north of England'. I followed the instructions in the letter for over two hours – and got absolutely nowhere. Back to the car – fed up. Then I noticed a small stile in a hedge. Off along the path – round several corners, and there was a tent in a clearing, with a young man cooking a meal. We passed the time of day and I made some non-committal remarks about wild flowers and the weather. We soon realised that we were on the same wavelength – I realised that he was an NCC warden, guarding the plant, and he guessed that I was not about to uproot his precious Lady's-slipper. The plant, round the corner, was in glorious flower, and I got some good photos. I signed a form saying that (a) I would not visit the site for 10 years and (b) that I would not divulge the location to anyone. Being a good boy I have kept both promises! Some years later I found the *calceolus* again – this time in Switzerland, and later still I was shown the plant being successfully cultivated in a research establishment in Wales – but neither experience could compete with that first sighting in 'the north of England'. I now read that 'my' site has been published, and is in the public domain, and that the Lady's-slipper has been re-established successfully in more than one location in the UK – so I suppose that it is no longer the rarest plant in Britain – but I suggest that it's a good candidate for the most beautiful. Agreed?

Goronwy Wynne
'Gwylfa', Licswm, Holywell, Flintshire CH8 8NQ
g.wynne276@btinternet.com

Cypripedium calceolus (Lady's-slipper) in 'the north of England', June 1986. *Goronwy Wynne*

ADDER'S-TONGUE DISPERSAL

I enjoyed reading Patricia Graham and David Shimwell's meticulous article on Adder's-tongue (*Ophioglossum vulgatum*) in *BSBI News* 146. I have enjoyed it with a chuckle, as I have lived in three houses with that fern in the lawn. They have one important feature in common: all are over a hundred years old. The County Durham colony would seem to date from a similar period, not least because my great grandfather lived in the same road in Bishop Auckland! A century gives plenty of opportunity for the fern's spores to have colonised naturally, and I suggest that the other explanations, though feasible, are much less likely.

Coincidentally, I had been writing poetry about my lawn a few days before receiving *BSBI News*. It includes the fern. Here it is:

We are all connected –
Not just us humans, but all of life –
You, *my lawn*, included.

Ground prepared when we moved in
Not rye but fescue sown
To give the weeds a chance.
We set some rules: mowing mostly weekly,
Feed but sparse – to starve the thugs and
Leave gaps for hardship growth.
Daisies not allowed.
You left to do the rest.

Look what you did:
A clover carpet all in white
As befits a house with clover in its name
Clover creeps to dodge the mower –
So do sun-bright buttercups – but they are barred.
Moss a plenty, softly tread,
Night-sprung fungi
A tiny unexpected fern.

Your very grass has changed
Fescue given way to vernal-grass
Which thrives on hardship,
Sadly cut too soon to make sweet-scented hay.

You, my lawn, bound up with me in life
Much your own creation, not the will of man.

Michael Braithwaite
Clarilaw Farmhouse, Hawick TD9 8PT
mebraithwaite@btinternet.com

THE WILD FOOD PLANTS OF IRELAND

We would be grateful for the opportunity to comment on the recent review of our book *The Wild Food Plants of Ireland*, which appeared in *BSBI News* (January 2021). Our comments are by way of clarification of some of the points raised in the review and which will provide additional information for your readers.

Firstly, we would like to state that the book was the result of a close, working partnership and a fully shared and equal co-authorship on the text, layout and design. With respect to the food elements, we provide a culinary section under each species account and give cooking suggestions and comprehensive references to recipes for the species in question. These credit their authors and point readers to the recipes' authors, thus avoiding duplication and the need to list ingredients in full. The food element is complemented by a culinary index, which is three and a half pages in length and contains 255 dishes. This is separate from the general index of species names. The significance and relevance of the animal forage species is due to their inclusion on the International Treaty on Plant Genetic Resources for Food and Agriculture, as the conservation of their gene pools is considered vital for future food security and country interdependence. With the rapid loss of biodiversity, highlighting the critical value of these plants is of great importance both economically and for farmers and agriculture. By also covering conservation and related issues the book demonstrates that it is not only about foraging.

We hope our book will bring the richness and uses of our wild food plants to a wide audience and the need to protect them as a vital resource for future generations.

Tom Curtis and Paul Whelan
tombotanist1771@gmail.com
paulwhelan@biology.ie

SECURING THE FUTURE OF BOTANY: SUPPORTING THE BSBI

Every donation to the Botanical Society of Britain and Ireland directly supports our mission to advance the understanding and appreciation of wild plants and support their conservation in Britain and Ireland. Through your membership of BSBI, you are already directly helping this work to continue; thank you.

But to ensure we continue to advance the cause of botany, we need to invest.

- Invest in a future generation of trained, engaged, diverse botanists.
- Invest in the technology and systems that allow us to gather and interrogate high quality data to address biodiversity loss.
- Invest in sharing our findings, work and passion with policy makers, conservationists and our communities at large.

Support the work you care about today by making a donation. The BSBI currently has a number of funding priorities:

- Our Atlas Appeal: *bsbi.org/appeal*
- Donations to our core work: *bsbi.org/donations*
- Legacies: *bsbi.org/legacies*

For more information or to discuss your support, please contact Sarah Woods, BSBI's Fundraising Manager, on 07570 254619 or via sarah.woods@bsbi.org

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Botanical Society of Britain & Ireland

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