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Images 1-5 relate to the article on collecting seed from threatened and declining plants for conservation in the seed bank at the National Botanic Garden of Wales. © Kevin McGinn.  
See page 46:

**Front cover, image 1:** Seed was collected from *Clinopodium acinos* (Basil Thyme) at Baglan, Glamorgan.

**2:** Richard and Kath Pryce help to locate *Persicaria minor* (Small Water-pepper) at Dinefwr Oxbow Lake, Carmarthenshire.

**3:** Seed was collected from *Vicia orobus* (Wood Bitter-vetch) from Gwenffrwd Dinas, Carmarthenshire, following a site visit by the Glynhir group.

**4:** *Cicendia filiformis* (Yellow Centaury) was a challenging species to collect.

**5:** *Scorzonera humilis* (Viper's-grass) was collected from Glamorgan.

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Items for inclusion in the next Welsh Bulletin should be sent to Richard Pryce by **May 2023**. Editors: *Richard D. Pryce*, Trevethin, School Road, Pwll, Llanelli, Carmarthenshire, SA15 4AL [PryceEco@aol.com](mailto:PryceEco@aol.com). *Sally Whyman* ([sally.whyman@museumwales.ac.uk](mailto:sally.whyman@museumwales.ac.uk)) and *Katherine Slade* ([katherine.slade@museumwales.ac.uk](mailto:katherine.slade@museumwales.ac.uk)), Natural Sciences, Amgueddfa Cymru-Museum Wales, Cathays Park, Cardiff, CF10 3NP.

See [bsbi.org.uk/wales](http://bsbi.org.uk/wales) for back issues. Printed versions of some back issues are still available on request.



# Guest Editorial

*Kevin McGinn, Science Officer at NBGW*

This coming spring will see the eagerly awaited publication of the BSBI's third atlas, Plant Atlas 2020. As a user of the atlas data, I can vouch for how important this work is. It is an achievement that all involved - BSBI staff, Vice-County Recorders (VCRs), recorders and supporters - should feel proud of.

I clearly remember discovering the second atlas (published 2002) in the library at Cardiff University in 2007. I was embarking on a research project on *Carpobrotus edulis* (Ice Plant) for my undergraduate degree and the value of the atlas as an incredible resource became immediately apparent. Based on the mapped distributions for a range of naturalised and invasive *Aizoaceae* (Dewplant family) species, I managed to locate populations in the field for vegetation survey and soil sampling.

For my PhD, the BSBI Maps webpage and assistance from VCRs was again integral in locating populations of 10 *Trifolium* (Clover) species for soil sampling. Nowadays, I am running a seed bank for the Welsh flora at the National Botanic Garden of Wales and, in our efforts to collect seed from threatened taxa for *ex-situ* conservation (see page 46), BSBI's distribution data and network of dedicated VCRs and botanists is more helpful than ever.

With over 30 million records gathered since the publication of the second atlas, the third atlas with analyses by the BSBI Science Team will evidence how the distributions of our flora have further changed over the past 20 years in the face of increasing pressures such as climate change, habitat loss and nitrogen deposition. The atlas data has real impact by providing an evidence base to inform conservation policy and prioritisation, for example, in drawing up Red Data Lists, State of Nature reports and Biodiversity Action Plans. On a local scale, the data can highlight the need for conservation action at the population level – and if conservation action is not implemented, the data exists to indicate shortcomings.

The significance of the BSBI's Atlas work is even greater when you consider how the first (1962) atlas pioneered the methodology of using 'dot-maps' aligned to the OS grid. This set a 'gold standard' that has since been followed by other organisations recording biodiversity.

Other applications of the atlas data include detecting emerging naturalised and invasive species, and, of course, having a resource showing 'what grows where' is a hugely useful way for botanists to verify the likelihood of their identifications.

Information about the upcoming publication can be found on the webpage [bsbi.org/atlas-2020](https://bsbi.org/atlas-2020). To relay the basics, a two-volume hard copy of the atlas will be available for pre-order from early 2023, with a 50% discount for BSBI members. There will also be a refreshed website with interactive distribution maps and additional graphics.

To celebrate the atlas publication and promote BSBI's work, launches are being planned during March. The BSBI Committee for Wales, including myself as the representative for the National Botanic Garden of Wales, are organising a Wales launch to be held at the Botanic Garden from 10:30am to 12 noon on 10<sup>th</sup> March. In addition to VCRs, the media, decision makers and the conservation sector will be invited with the aim of maximising impact, but if there's space, invitations will be extended to BSBI members in Wales – if you are interested in attending, please email [Kevin.McGinn@gardenofwales.org.uk](mailto:Kevin.McGinn@gardenofwales.org.uk) to be added to the reserve list. The launch will include short talks about the production of the atlas and trends in Wales, and summary reports in Welsh and English will be available, together with the cutting of a celebratory cake.

## BSBI Meetings in Wales 2023

*Andy Jones, Meetings*

Meetings across the UK are listed on the BSBI website.

### **Monday 10<sup>th</sup> July to Monday 17<sup>th</sup> July 2023** **Carmarthenshire (v.c.44) Glynhir Residential Meeting**

Leaders: Kath and Richard Pryce

The week-long annual Carmarthenshire Recording and Monitoring Meeting will include visits to sites around the county. The meeting will cater for both experienced and less proficient botanists and will provide an opportunity for the informal development of identification skills. Arrangements will be flexible, some days the group may stay as one body, other days smaller groups will visit different sites to monitor rare or scarce species or update grid squares not visited recently. Day outings will be tailored to individual needs to cover all fitness abilities. More information at [bsbi.org/carmarthenshire](https://bsbi.org/carmarthenshire).

**Wednesday 2 to Friday 4 August:  
BSBI Wales Annual Meeting and AGM 2023  
Gregynog Hall, Newtown (v.c.47)**

Wetlands – canal, floodplain, rivers, pools, upland bogs

Leader: Kate Thorne (v.c.47 Recorder)

The 2023 BSBI Wales Annual Meeting, exhibition and AGM together with the associated field excursions will be based at Gregynog Hall, near Newtown. The theme is wetlands. Accommodation will be in single-occupancy rooms with shared bathrooms.

A preliminary programme has been prepared that includes:

Field visits to local sites of botanical interest. We hope to be able to see *Luronium natans* (Floating Water-plantain), *Potamogeton compressus* (Grass-wrack Pondweed), *Limosella aquatica* (Mudwort), *Sparganium natans* (Least Bur-reed), *Carex magellanica* (Tall Bog-sedge), and *Pilularia globulifera* (Pillwort) depending on suitable site access and the weather.

There will be botanical workshops, the BSBI Wales AGM and a keynote talk by Alastair Hotchkiss. Members are invited to show exhibits and posters.

Accommodation has been reserved for 25 people so early booking is advised (booking deadline is 21 April 2023). More details will be available on the website in due course.

Booking and online payment will be possible via the Wales AGM webpage: [bsbi.org/welsh-agm](https://bsbi.org/welsh-agm)

**Sunday 3 September 2023 (Recording)  
Traeth Lligwy, northeast Anglesey (v.c.52)**

Leaders: Nigel Brown and Ian Bonner

An opportunity to help record in varied coastal habitats in northeast Anglesey as part of the ongoing monad-based updating of the Anglesey Flora. We will concentrate our efforts in SH4987, looking closely at strand line, sand dune, soft coastal cliff, saltmarsh, heath, scrub and unimproved grassland habitats.

We hope to relocate a twenty-year-old record of *Mentha pulegium* (Pennyroyal) at its only known Anglesey site as well as assess the populations of two horsetail hybrids (*Equisetum x fontqueri* (*E. palustre* x *E. telmateia*) and *E. x robertsii* (*E. arvense* x *E. telmatei*) and search for *Helictochloa pratensis* (Meadow Oat-grass). We will be joined by members of the Anglesey Flora Group.

Please wear appropriate footwear and bring sun cream and waterproofs.

**Meet:** 1000 at beach car park at Traeth Lligwy (Lligwy Beach) SH493.873 - car parking charge applies. Site has toilets and small cafe facilities.

**Contact:** Nigel Brown ([nigelhbrown55@yahoo.com](mailto:nigelhbrown55@yahoo.com)) for further information and booking (essential). Numbers limited to around 15 participants.

There may be a local flora group in your area which holds meetings in Wales additional to those listed above. A list for 2023 will be added and kept up to date on the Local Botany page: [bsbi.org/local-botany](http://bsbi.org/local-botany).

A message from the local Flora Group in Meirionnydd is below.

### **Local Flora Group, Meirionnydd (v.c.48)**

The joint vice-county recorders organise ten field visits per year to a wide variety of sites and habitats. The programme, which has a focus on recording, will be published in February 2023 in the Meirionnydd section of the BSBI website: [bsbi.org/merionethshire](http://bsbi.org/merionethshire). BSBI members from outside the vice-county are welcome to join us. Prior booking is essential.

## **BSBI Wales AGM 2022**

The 2022 BSBI Wales Annual Meeting, exhibition and AGM together with the associated field excursions was held from Friday 10 to Sunday 12 June 2022 based at Bangor University. Please see page 8 for the field meeting reports and page 16 for the AGM minutes.

Around 50 participants enjoyed excellent talks by Robbie Blackhall-Miles on conserving Wales' rarest plants and by Colin French who charted the work involved in producing the recent Flora of Cornwall.

The weekend included the field visits to local sites of botanical interest listed below, and the field reports for these are included in the following article.

Treborth Botanic Garden

The Great Orme - limestone habitats

Moelyci - wet grasslands

Cors Bodeilio - species rich fen

Cwm Idwal - upland vegetation and arctic alpinines

Morfa Aber - coastal vegetation

We are very grateful to the owners of these sites and excursion leaders for facilitating what were very enjoyable visits.

# Field visit reports for Wales Annual Meeting 2022

## **Treborth Botanic Garden, Bangor, Caernarvonshire (v.c.49) 10 June 2022**

Leaders: Sarah Edgar and Gerry Downing

We are very grateful to Natalie Chivers, Curator of the Botanic Garden for facilitating our visit and to Sarah Edgar and Gerry Downing of the Friends of Treborth Botanic Garden for providing an introductory talk on the history and management of the Garden and its current role in research, and for showcasing plants both from the UK and around the world.

As well as formal beds the Garden includes glasshouses, a laboratory, species rich meadows and woodland on the steep banks of the Menai Strait, part of the Coedydd Afon Menai SSSI. After the introductory talks the party broke into groups to explore the Garden aided by Sarah and Gerry. This was a very enjoyable afternoon and a great start to our weekend.

*John Palmer*

## **Great Orme, Llandudno, Caernarvonshire (v.c.49) 11 June 2022**

Leaders: Wendy McCarthy (v.c.49 Recorder) and Ted Phenna

We gathered at the summit visitor centre where we were greeted by warden Siôn Dafis who introduced us to the Great Orme with an informative talk on the site's various designations, its unique species and current management tasks. Setting off, we made our way down to Maes y Facrell, formerly grazing land but now a National Nature Reserve comprising a mosaic of species-rich grassland with fragments of limestone pavement. One of the six surviving *Cotoneaster cambricus* (Wild Cotoneaster) grows here and as it is now owned and managed by Natural Resources Wales, it was considered an ideal site for the planting out of propagated young plants in an effort to conserve the species future, and several were observed in flower.

*Filipendula vulgaris* (Dropwort) was seen nearby, its pink buds opening to creamy-white flowers, and *Euphrasia nemorosa* (Common Eyebright) carpeting the ground was not quite in flower. The perennial sub-species of *Lapsana communis* ssp. *intermedia* (Nipplewort) was of interest, especially to Arthur Chater who inspected several plants for a sac fungus, but none was found, perhaps it was a little too early in the year.



Lunch was taken on a grassy ridge with fine views of the town below and the Carneddau mountains across the Conwy estuary. A few early flowers of *Veronica spicata* (Spiked Speedwell) were admired and much photographed. Continuing down, we stopped off at a grassy triangle where we saw *Torilis nodosa* (Knotted Hedge-parsley), *Erodium moschatum* (Musk Stork's-bill) and *Geranium pusillum* (Small-flowered Crane's-bill) and some time was spent prostrate on a bank comparing *Trifolium striatum* (Knotted Clover) with *T. scabrum* (Rough Clover). We followed a path through woodland, its banks lined with *Poa nemoralis* (Wood Meadow-grass), *Melica uniflora* (Wood Melick) and *Elymus caninus* (Bearded Couch) and were pleased to see two fine spikes of *Orobanche hederæ* (Ivy Broomrape) growing at the base of a Beech tree.

Out on the open hill again, we were able to compare the floral characters of *Rosa rubiginosa* (Sweet-briar) with the rare *Rosa agrestis* (Small-leaved Sweet-briar). *Silene nutans* (Nottingham Catchfly) grew along the path edges while on the bank above, *Hypochaeris maculata* (Spotted Cat's-ear) and the rare *Hieracium pseudoleyi* (Purple-flushed Hawkweed) were in flower together. Invasive shrubs, including six *Cotoneaster* species, *Arbutus unedo* (Strawberry Tree) and *Berberis wilsonii* (Mrs. Wilson's Barberry) have naturalized here and much clearance work has to be undertaken in an effort to suppress them, while *Rubus* species (Bramble) and *Ulex europæus* (Gorse) take every opportunity to step into the cleared space.

Continuing uphill, a handful of *Epipactis atrorubens* (Dark-red Helleborine) were flowering by the path and *Clinopodium acinos* (Basil Thyme) was seen among *Helianthemum nummularium* (Common Rock-rose) and a few late-flowering *H. oelandicum* (Hoary Rock-rose). Some grasses typical of limestone included *Avenula pubescens* (Downy Oat-grass), *Helictochloa pratensis* (Meadow Oat-grass), *Koeleria macrantha* (Crested Hair-grass) and *Briza media* (Quaking-grass). On reaching the top of the path, some of the participants came with me to see *Valerianella eriocarpa* (Hairy-fruited Cornsalad) and although it was well past flowering, its distinctive calyces with unequal teeth were found. Here too were fine flowering plants of *Marrubium vulgare* (White Horehound).

The remaining members went into the woodland with Ted to see *Neottia nidus-avis* (Bird's-nest Orchids). Finally, we visited a small clearing to see *Genista tinctoria* (Dyer's Greenweed) at its only known site in the county. This site had also suffered from scrub invasion, with no sightings of the species for some ten years, but after voicing my concerns to the wardens, some clearance work had been carried out and three large healthy plants are now able to flourish.

Wendy McCarthy

## **Moelyci Environmental Centre and SSSI, Caernarvonshire (v.c.49) 11 June 2022**

Leaders: John Bratton and Delyth Williams

Seventeen of us arrived at this interesting site on a breezy, clear day in the hinterland between the Menai Strait and the backdrop of the mountains.

It is a large site with a convoluted history, best described now as one of the first community owned farms in the UK, a kind of management co-operative between various owners and concerns ranging from allotments, sheep farmers to a donkey sanctuary charity. These latter animals are of much interest in their own right, but they provide much needed grazing at appropriate times.

The site is cited for its wetland species over a number of slightly differing types of field, although two notable plants of dry areas are the rare *Asplenium obovatum* (Lanceolate Spleenwort) growing out of a wall and *Ornithopus perpusillus* (Bird's-foot) on a boulder.

One field yielded plenty of *Oenanthe crocata* (Hemlock Water-dropwort), interspersed with the now less common *Silene flos-cuculi* (Ragged-Robin) and a good distribution of the delightful *Wahlenbergia hederacea* (Ivy-leaved Bellflower), not in flower yet and *Comarum palustre* (Marsh Cinquefoil).

The most varied patch of mire was easily accessible without wellies: the stalk length of the *Hydrocotyle vulgaris* (Marsh Pennywort) was a good indicator of how relatively dry it was. Here we found a good range of sedges such as *Carex binervis* (Green-ribbed Sedge), *Carex hostiana* (Tawny Sedge) *Carex muricata* subsp. *pairae* (Prickly Sedge), *Carex pilulifera* (Pill Sedge) and the widely distributed but by no means common in Wales *Hypericum elodes* (Marsh St John's-wort). The buds smell of burnt caramel, or liquorice, on a good day. We also found *Eleogiton fluitans* (Floating Club-rush), not at all common in Wales.

Much else and the cafe was most appreciated!

*Delyth Williams*

## **Cors Bodeilio, Anglesey (v.c.52), 11 June 2022**

Leader: Dr Peter Jones

The location of the 2022 BSBI Wales AGM in Bangor offered an opportunity for members to visit Cors Bodeilio National Nature Reserve (SH 501774), much of which is owned and managed by Natural Resources Wales. The site one of the three rich-fen National Nature Reserves (NNR) influenced by the Principal

Carboniferous Limestone Block of east-central Anglesey, and it forms a critical part of the Corsydd Mon/Anglesey Fens Special Area of Conservation (SAC), notified for the two fen habitats of 'Alkaline Fen' and 'Calcareous Fen with *Cladium mariscus* and species of the *Caricion davallianae*'. The walk was led by Dr Peter Jones of Natural Resources Wales (NRW) supported by a number of current and former NRW colleagues and attended by over a half a dozen members (including Ian Bonner, the BSBI co-vice-county recorder for Anglesey) on a gloriously sunny but windy day.

The excursion began by examining some interesting areas of fen meadow vegetation close to the site access point and with *Succisa pratensis* (Devil's-bit Scabious) and *Molinia caerulea* (Purple moor-grass). A new site location for *Neottia ovata* (Common Twayblade) was noted in the fen meadow, together with many other axiophytes including *Anagallis tenella* (Bog Pimpernel), *Dactylorhiza incarnata* (Early Marsh-orchid) and *Carex hostiana* (Tawny Sedge). The fen meadow grades seamlessly into mixed rich-fen vegetation on peat of c. 0.5 m thickness (much of the peat Bodeilio is relatively shallow due, it is believed, to past peat cutting) dominated by *Juncus subnodulosus* (Blunt-flowered rush; the vegetative characters of this late-flowering rush were demonstrated) together with a range of tall-herbs including *Filipendula ulmaria* (Meadowsweet), *Valeriana officinalis* (Common Valerian), *Angelica sylvestris* (Angelica) and *Silene flos-cuculi* (Ragged Robin), with open patches with an abundance of *Pedicularis palustris* (Marsh Lousewort). Areas of much lower and more open short-sedge fen also occur in this compartment, with a rich flora including *Schoenus nigricans* (Black bog-rush), *Carex lepidocarpa* (Long-stalked Yellow-sedge) and *Eleocharis quinqueflora* (Few-flowered Spikerush). *Schoenus* is a key component of rich-fen vegetation on the Anglesey fens and an eponymous element of the nationally rare *Schoenus nigricans* – *Juncus subnodulosus* plant community (M13 of the National Vegetation Classification). *Schoenus* tussocks strongly influence species richness by providing a substrate for many species which utilise the slightly drier and less base-enriched surface of the tussocks: *Selaginella selaginoides* (Lesser Clubmoss) is apparently confined to these tussocks, and other characteristic species include *Drosera rotundifolia* (Round-leaved Sundew), *Hypericum pulchrum* (Slender St John's-wort), *Erica tetralix* (Cross-leaved Heath) and the bryophyte *Hypnum jutlandicum* (Heath Plait-moss).

On re-joining the boardwalk approximately halfway between the carpark and the main axial drain which bisects the site we were able to examine fen dominated by *Cladium mariscus* (Great Fen Sedge) with an understorey of *Juncus subnodulosus*, *Molinia caerulea* and *Myrica gale* (Bog Myrtle). We stopped for lunch on a raised area of limestone referred to as the Ynys (island), an apt description of an area of

dryland surrounded by wet peatland, where we searched (unsuccessfully) for *Ophioglossum vulgatum* (Adder's-tongue Fern) within an area of modified neutral grassland.

After lunch we examined an old (un-dated) peat cutting between the Ynys fields and Bodeilio Common and found *Ophrys insectifera* (Fly Orchid) in flower on a number of *Schoenus* tussocks. This emblematic plant of the fens was first recorded at Cors Bodeilio by the Reverend Hugh Davies sometime prior to the publication of his landmark *Welsh Botany* in 1813 – the first Flora of a Welsh County. Its habitat at Bodeilio was described by R.H. Roberts (Roberts, 1959); uniquely in the context of the UK, almost all plants at Bodeilio and its now only other remaining site on Anglesey Cors Erddreiniog occur on tussocks of *Schoenus*. At the same location we found some of the first flowers of the year of *Utricularia minor* (Lesser Bladderwort) as well as the fine leaves and some flowering stems of *Carex lasiocarpa* (Slender Sedge). This species has responded well to careful hand mowing and raking of the Ynys peat cutting managed by NRW's Senior Reserve Manager for the fens Mr Emyr Humphreys, a measure designed to prevent over-dominance by taller graminoids. Much of the *C. lasiocarpa* at Bodeilio occurs at low cover values in swampy stands of vegetation dominated by *Juncus subnodulosus* but at this location it occurs in a perennially wet area of alkaline fen dominated by *Schoenus*. A groundwater-fed ditch nearby yielded more *C. lasiocarpa* as well as *C. rostrata* (Bottle Sedge) and *Potamogeton coloratus* (Fen Pondweed).

An artificial peat scrape created in 2012 to mimic a peat cutting lies next to the older Ynys margin feature and already supports a pioneer rich-fen flora, with the notable addition of a few plants of *Sparganium natans* (Least Bur-reed).

At the furthest part of our walk, we examined derelict alkaline fen on Cors y Plwyf – still within the SAC but outside the management influence of the NNR. This area supports an exceptional expanse of *Schoenus* dominated fen, but long-term lack of grazing means that the tussocks are over-dominated by the live growth and litter thatch of *Schoenus*, with a much-reduced diversity of species.

On the return leg of our walk, we examined an area of fen rewetted in 2013 by re-introducing an important groundwater flow pathway which was previously intercepted by drainage. Some of the wet ground poached by pony hooves at this location supports a fascinating pioneer fen flora of *Baldellia ranunculoides* (Lesser Water-plantain) and the rather uncommon grass *Catabrosa aquatica* (Whorl Grass), which appeared at Bodeilio in abundance in 2013 and 2014 following the onset of mowing management in some of the fen compartments.

Close to this location the group was able to examine some of the characteristic elements of calcareous fen dominated by *Cladium mariscus* (Great Fen Sedge) where grazing management, supported by episodes of mowing and conservation burning, ensures the retention of the low sedge and wetland forb flora so characteristic of this habitat: notable species in this regard include *Carex panicea* (Carnation Sedge), *C. hostiana* and *Dactylorhiza maculata* (Heath-spotted Orchid). The group visited a fascinating area influenced by a seasonal groundwater upwelling in the centre of the *Cladium* stand just north-west of the bridge over the main drain and here we recorded a range of different tussock morphologies of *Schoenus*, together with *Myrica gale*, *Calluna vulgaris* (Heather) and *Narthecium ossifragum* (Bog Asphodel) on the tussock tops (together with a few Fly Orchids and one of only two *Platanthera bifolia* (Lesser Butterfly Orchid) plants recorded on the reserve in 2022).

The excursion concluded with a visit to Tyddyn Ffieren – a compartment of the fen purchased with EU LIFE funding in 2011. This extensive expanse of rich-fen includes a number of artificial peat scrapes and we were able to see extensive colonies of the rare *Nitella tenuissima* (Dwarf Stonewort) which was first recorded at this location in 2021 (Jones, 2022).

The excursion added many valuable records for relevant monads for the forthcoming Anglesey Flora and also for the authors planned Ecological Flora of the Anglesey Fens.

References: Davies, H. (1813). *Welsh Botany*. London; Jones, P.S. (2022). *Nitella tenuissima* (Desv.) Kütz. (Dwarf Stonewort) at Cors Bodeilio National Nature Reserve, Anglesey. *BSBI Welsh Bulletin*, No. 109, 36-39.

*Peter Jones*

## **Cwm Idwal, Caernarvonshire (v.c.49) 12 June 2022**

Leader: Robbie Blackhall-Miles

A group of 10 of us led by Robbie Blackhall-Miles set off from the Ogwen visitor centre on our way up towards Llyn Idwal. On the way up we discussed the geology of the area and past quarrying activity and considered the viviparous means of reproduction of plants triggered by the sighting of *Festuca vivipara* (Viviparous Sheep's-fescue). Other plants of interest on the way to the lake were the spiky leaves of a section Celtica *Taraxacum* (Dandelion) and the fresh green *Cryptogramma crispera* (Parsley Fern) poking out of the sides of the gorge as we walked up. Once up at Llyn Idwal we were lucky enough to see *Isoetes lacustris*



(Quillwort) and *Lobelia dortmanna* (Water Lobelia) and spotted *Hammarbya paludosa* (Bog Orchid) just beginning to emerge. After skirting the lake's edge we stopped for a short while to consider the effects of sheep, goat and cattle grazing on the vegetation and noting the effect of cattle grazing on *Narthecium ossifragum* (Bog Asphodel) where it was much reduced compared to areas that were sheep grazed. Robbie talked to us about the link between landscape, culture and land management in influencing vegetation composition.

We then set off up the steps to the crags above Llyn Idwal towards Twll Du. The scramble up to 650 metres above sea level was a fairly strenuous exercise though some of the party bounced their way up like mountain goats. But it was worth the effort. We passed the clubmosses *Diphasiastrum alpinum* (Alpine Clubmoss), *Lycopodium clavatum* (Stag's-horn Clubmoss), *Selaginella selaginoides* (Lesser Clubmoss) and *Huperzia selago* (Fir Clubmoss) on the way and then with strict instructions not to touch the boulders were treated to sight of rarities such as *Saxifraga oppositifolia* (Purple Saxifrage), *Saxifraga cespitosa* (Tufted Saxifrage) and *Saxifraga hypnoides* (Mossy Saxifrage).

Our final stop at 650m was to marvel at the assemblage of plants growing out of the sheltered wet crevices with *Deschampsia cespitosa* (Tufted Hairgrass), *Trollius europaeus* (Globeflower), *Papaver cambricum* (Welsh Poppy), *Rhodiola rosea* (Roseroot), *Micranthes nivalis* (Alpine Saxifrage) and *Lathyrus linifolius* (Bitter Vetch) all playing their part. We then descended back to the visitor centre having had a very rewarding day.

*John Palmer*

## **Morfa Aber, Caernarvonshire (v.c.49), 12 June 2022**

Leaders: Wendy McCarthy (v.c.49 Recorder) and Martyn Stead

This RSPB reserve, located on the North Wales coast near Aber Falls, offered fine views across to Anglesey and Puffin Island providing a splendid backdrop for the 25 attendees. The reserve (known for Lapwings and winter waders) is grazed by sheep and popular with dog walkers and so the habitats are quite disturbed.

*Juncus gerardii* (Saltmarsh Rush) was abundant in the upper saltmarsh with a small amount of *Bolboschoenus maritimus* (Sea Club-rush), *Eleocharis uniglumis* (Slender Spike-rush), and *Carex distans* (Distant Sedge) all flowering and found in a grassier area. *Triglochin maritima* (Sea Arrowgrass), *Puccinellia maritima* (Common Saltmarsh-grass), *Tripolium pannonicum* (was *Aster tripolium*, Sea Aster) and *Armeria maritima* (Thrift) were quite widespread whilst *Lysimachia*

*maritima* (was *Glaux maritima*, Sea Milkwort) with its delicate pink flowers, occurred mainly in drier areas. *Paraphilis strigosa* (Hard Grass) has such an appropriate name! Although widely distributed in the upper zones of saltmarshes this slender grass is very difficult to see within a mass of other grasses, but with the Leader's help we were able to pick out its pale anthers just poking out from the raceme.

*Spergularia media* and *S. marina* (Greater and Lesser Sea Spurrey) were recorded. The former, found on the lower shore, is larger (flowers 10-12mm) while the latter has smaller flowers (5-8mm). The Lesser Sea Spurrey had noticeably prostrate rosettes on the path along the upper shore (trampling effect).

On the lower saltmarsh, short, bright green fleshy shoots of *Salicornia europaea* *agg.* (Common Glasswort) and *Suaeda maritima* (Annual Sea-blite) were just emerging from the mud. In a couple of places *Atriplex portulacoides* (Sea Purslane) was present, a small shrub easily identifiable from its pale grey, spoon-shaped leaves whilst *Spartina anglica* (Common Cord-grass), the pioneer species of mud-flats was extensive.

Upper shore colonisers included: *Beta vulgaris* ssp. *maritima* (Sea Beet) growing on the strandline, a few plants of *Eryngium maritimum* (Sea-holly), and on the sandy shingle, many patches of *Honkeya peploides* (Sea Sandwort) with its distinctive yellowish-green leaves and fleshy, pea-like fruits. *Elymus junceiformis* (was *Eltrygia juncea*, Sand Couch) another early coloniser, with a beautiful glaucous colour, was present in a few sandier spots together with *Carex arenaria* (Sand Sedge).

An artificial, brackish pond was full of *Stuckenia pectinata* (was *Potamogeton pectinatus*, Fennel Pondweed). (An identification tip from Jonathan Shanklin to separate this from other fine-leaved pondweeds - when you pull the leaf, the sheath and stipule come away easily). A small, wooded area at the back of the shore revealed *Drymochloa sylvatica* (formerly *Festuca altissima*, Wood Fescue) at its only site in Caernarvonshire. A couple of clumps were growing on/between boulders beside the Afon Aber, believed to have been washed down river from the steep gorge at Aber Falls. This grass (large leafy tufts, flat leafy blades lacking auricles and pale, nodding, open panicles, no awns) is typically found on rocky ledges in wooded ravines/valleys with high humidity.

Dry, disturbed, scrubby grassland between the coast and fields supported a good range of flowering species including *Cynoglossum officinale* (Hound's-tongue), *Ballota nigra* (Black Horehound), *Galium verum* (Lady's Bedstraw), *Erodium cicutarium* (Common Storksbill), and several Crane's-bills (*G. molle*, *robertianum*,

*lucidum, pusillum*). *Clematis vitalba* (Traveller's Joy) scrambled across the gorse and there was a small amount of *Hippophae rhamnoides* (Sea Buckthorn); native on the east coast but introduced here. *Avenula pubescens* (also seen at the Great Orme on the previous day) was also present.

For many of us, particularly those who record in counties with no coastline, this was a good opportunity to refresh our botanical knowledge of some seaside plants, while a few people focused on rusts and mildews and found a powdery mildew on gorse and a new Welsh record. Morfa Aber provided the ideal venue for a relaxing botany field trip on the final day of the BSBI Wales Summer meeting.

*Gillian Foulkes*

## Minutes of the BSBI Wales AGM 2022

Held in person at Penrhyn Room, Neuadd Reichel, University of Bangor

**Saturday 11 June 2022 at 9.30am**

Minutes of the 60<sup>th</sup> AGM of the BSBI in Wales

34 people were in attendance of whom approximately 10 were not resident in Wales. Most, if not all, were BSBI members.

1. **Welcome:** The Chairman, Stephanie Tyler welcomed everyone to this meeting.
2. **Apologies for Absence:** Julia Hanmer, Steve Gater, Gail Quartly-Bishop, Andy Jones, Chloe Griffiths, Cliona Byrne
3. **Minutes of 2021 AGM:** The minutes of the 59<sup>th</sup> Annual General Meeting held by email which were printed in Welsh Bulletin No.109, were agreed by all present and signed by the Chairman as a true record of the proceedings. (Proposed by Elsa Wood, seconded by Richard Pryce).
4. There were no **Matters Arising**.
5. **Chair's report:** Stephanie Tyler gave the following report:  
Croeso/Welcome to all BSBI members in Wales and from across the border to, at last, a face-to-face AGM.

This is my last report as Chair of the BSBI Wales Committee, but I am happy to be able to report on another productive year for plant recording throughout Wales

and for publications. It has also been a year with more involvement with HQ and other Country Committees, thanks in no small part to video conferencing software such as Zoom. Attendance at Wales Committee meetings by Zoom has included BSBI President Lynne Farrell, CEO Julia Hanmer and BSBI staff Louise Marsh and Sarah Woods, Steve Gater HGS, Dr Chris Cheffings - trustee, Jonathan Shanklin of the English Committee, Jim McKintosh and Liz Lavery from Scotland.

At the request of BSBI staff we produced our priorities for future work in Wales; we participated in the Strategy meeting and the Forum in March, we re-looked at our Constitution to be in line with other committees and we set out what we consider to be the roles of a Wales Officer. Sadly, I cannot report on real progress on funding for a Wales Officer despite great efforts by Julian Woodman, Julia Hanmer and others.

The work for and with BSBI HQ did not detract from our core work of recording and making our records accessible through the BSBI Distribution database (Ddb) and published material, and of training new botanists and enthusing people about plants. All vice-county recorders (VCRs) and many other individuals worked hard in filling gaps in coverage or re-finding rare species. Our Rare Plant Registers are continually being revised and one VCR – Delyth Williams in Flintshire managed to produce an updated Rare Plant Register. At least three VCRs are working towards producing county floras and most VCRs run local flora or botany groups with regular field meetings.

I appreciate that VCRs are inundated with requests for records, for annual reports and for articles for the Bulletin and on top of that requests by me for snippets for the Wales Round Up section in BSBI News. So a huge thank you to you all for finding the time to deal with all of this.

Many people contributed to the 2022 New Year Plant Hunt results although there was a slight decrease in Wales of the number of lists submitted compared with 2021. In Wales 122 lists were submitted compared with 138 in 2021 but that was still higher than the number of lists sent in from 2016 to 2020. A full account of the results and the number of species of native and non-native species recorded is of course on the BSBI website prepared by Andrew Rowley, Tom Humphreys and Louise Marsh.

I promised at the last AGM that I would find a replacement for Elsa as Secretary and am very grateful to Anne Griffiths for stepping so quickly and ably into Elsa's shoes. She has done a sterling job learning the ropes. A huge thanks to Elsa though for all her work over the years – about 50 I believe - and for providing wonderful cakes and biscuits for committee meetings.

Richard Pryce with Katherine Slade and Sally Whyman at Amgueddfa Cymru National Museum Wales have again produced and distributed two issues of the Welsh Bulletin during the year, for which I sincerely thank them all. Richard cajoles us into submitting articles and he manages to fill the issues. Our Bulletin continues to be a source of information and an interesting read. Stephen Coker also does a sterling job of formatting all our new hectad records and other interesting finds for the Bulletin so my thanks to him too.

I would like to pay a special tribute to my successor, John Palmer. John has been a tower of strength and has taken on not only organising this BSBI with the frustration of cancellations due to Covid in 2020 and 2021, but he has attended BSBI Zoom meetings on operational plans and has taken the lead on what needed to be done for our participation in the March Forum. He also prepared an excellent talk about the Welsh Committee and its roles for the Forum meeting; Liz Dean from Radnor also gave an interesting presentation on urban plants at the Forum. My thanks to her too. The BSBI Forum for those who didn't attend it, was to celebrate what's good and showcase what the BSBI has done over the previous year, to discuss the future and explore what that meant in terms of actions for the next year. John has helped out with numerous other tasks and lightened my load at a difficult time for me. The Committee will be in safe hands for the next four years.

We now have a new Plantlife representative at Committee meetings, Lizzie Wilberforce, and a new representative of the National Botanic Garden of Wales, Kevin McGinn. My thanks go to them both for agreeing to participate in our meetings. Kath Pryce has recovered well from her illness, and I am grateful to her for taking the minutes of meetings and of course to Andy Jones for organising field meetings. Finally, I thank all Committee members and other observers for their contributions at meetings, whether Zoom or face to face.

*Steph Tyler*

The thanks to Elsa Wood prompted much applause.

## **6. Election of Officers of the CfW:**

The following continue in their posts as officers of the Committee for Wales: Andy Jones as Meetings Secretary and Liz Dean as Treasurer (nominal but necessary to produce the Welsh Budget). A vote for election of the following Officers was required. John Palmer as Chairman and Anne Griffiths as Hon. Secretary. This was proposed by Richard Pryce and seconded by Ray Woods.



## 7. Election of other Committee Members:

It was proposed that the Committee members be re-elected *en-bloc*.

The Committee now comprises:

Chairman:	John Palmer
Vice Chairman:	vacant
Secretary:	Anne Griffiths
Treasurer:	Liz Dean
Meetings:	Andy Jones
Welsh Bulletin editor:	Richard Pryce
Voting Members:	Gail Quartly-Bishop, Chloe Griffith, Delyth Williams and Joanna Clark co-opted in 2022 - now to be elected.

The following are NON-VOTING observers:

Steve Chambers, John Crellin, Stephen Evans and Kate Thorne.

Kath Pryce (minuting secretary)

Bulletin Co-editors: Katherine Slade, Sally Whyman (corresponding members)

Observer ex officio HGS

CCW Observer: Julian Woodman

Plantlife Representative: Dr. Lizzie Wilberforce

NBGW: Kevin McGinn

All VCRs were invited to attend CfW committee meetings.

## 8. Any Other Business:

John Palmer thanked Stephanie Tyler for her four years as Chair.

A query from the floor asked about next year's BSBI Wales Annual Meeting and AGM. No date or venue has been decided. However Gregynog is a possible venue.

John Palmer wound-up the proceedings by reminding people about car sharing for field visits over the weekend, clearing exhibits by Sunday morning and tonight's talk by Colin French.

The meeting concluded at 10:00am.

# Trannon Moor/Carno Wind Farm – revisited 4 July 2022

*Gill Foulkes, Joint Vice County Recorder for Montgomeryshire, v.c.47*

Following a visit in 2021 to re-find an old Ben Averis record (2000) for *Carex pauciflora* (Few-flowered Sedge) (see Welsh Bulletin 109, March 2022), the Montgomeryshire flora group visited Trannon Moor in early July 2022 to look for *C. magellanica* (Tall Bog-sedge) and to seek out the only site for *Sparganium natans* (Least Bur-reed) in Montgomeryshire. Chris Forster Brown who discovered the *Sparganium* in 2003 (first v.c.47 record) joined us as well as Mark Lawley (v.c.47 Bryophyte Recorder). The site is located about 18km south-east of Machynlleth.

Trannon Moor sits on an extensive plateau lying between about 450-480m altitude and has a large wind farm, Caron. The plateau is sheep-grazed and appears to have quite a mix of habitats. Recent surveys have shown the presence of dry heath and acid grassland in addition to the blanket bog, and other mire communities. The vegetation is likely to have been grazed more heavily in the past which has reduced some areas of heathland to acid grassland.

As most participants were not familiar with *Carex pauciflora* we looked for this first. It was much easier to find than in 2021 and was much more abundant than anticipated, with an estimated at >1000 spikes in fruit. Extensive stands were easily identified without the need for close examination due to the distinctive straw-coloured utricles with an obvious persistent style. If you are surveying when the plant isn't in fruit however, it could be easily overlooked. The sedge is rhizomatous, so the number of spikes does not necessarily equate to the number of plants. *Andromeda polifolia* (Bog-rosemary) and *Carex magellanica* were frequent associates at Trannon. Like the *C. pauciflora*, *C. magellanica* is approaching the southern limit of its British range. It has long, brown, lanceolate glumes that are considerably narrower than the green utricles and have an acuminate apex (image 12, back cover) but it can be quite difficult to separate from *C. limosa* (Bog-sedge).

*Carex limosa* was plentiful and much more abundant in the wetter areas of Trannon often in association with *Menyanthes trifoliata* (Bogbean) and *Comarum palustris* (Marsh Cinquefoil). It has broader, dark brown ovate glumes that are just about wide enough to cover the utricle and have an acute/aristate apex. Ellenberg values for these three sedges are quite interesting (see table 1 on page 21). *C. limosa* can cope with standing water whereas *C. magellanica* cannot and like *C. pauciflora* requires extreme acidity (pH 1+).

ELLENBERG VALUES	Light (L)	Moisture (F)	pH (R)	Nitrogen (N)
<i>C. pauciflora</i>	8 (light loving)	9 (wet site indicator often on water-saturated, badly aerated soils)	1+ (extreme acidity as <i>Andromeda polifolia</i> )	1+ (extremely infertile)
<i>C. magellanica</i>	8 (light loving)	9 (wet site indicator often on water-saturated, badly aerated soils)	1+ (extreme acidity)	1+ (extremely infertile)
<i>C. limosa</i>	8 (light loving)	10+ (shallow-water sites that may lack standing water for extensive periods)	4	1 (extremely infertile)

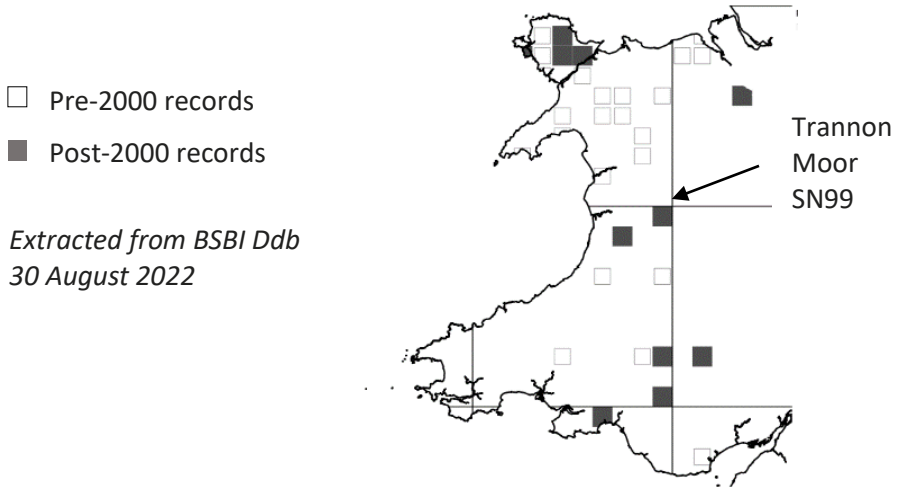
**Table 1:** Ellenberg Values for *Carex pauciflora*, *C. magellanica* and *C. limosa*.

*Sparganium natans* was a new species to most of us. The colony was growing in a boggy depression and its distinctive cream-coloured, ball-like capitula stood out clearly (image 13, back cover). Most plants seemed to be growing in liquified peat (presumably a pool in the past) although a few plants were in drier areas towards the edge. Chris Forster Brown's records show that it has expanded from about 200 plants in 2003, to around 450 plants in 2007, with hundreds of plants covering about 10m<sup>2</sup> in 2019 and probably spread over a slightly larger area in 2022.

Associates included: *C. limosa*, *Menyanthes trifoliata*, *Drosera rotundifolia* (Round-leaved Sundew), *Narthecium ossifragum* (Bog Asphodel), *C. echinata* (Star Sedge), *C. nigra* (Common Sedge), *C. panicea* (Carnation Sedge), *Molinia caerulea* (Purple Moor-grass), *Equisetum fluviatile* (Water Horsetail), *Juncus bulbosus* (Bulbous Rush), *Eriophorum angustifolium* (Cottongrass), and *Sphagna*.

*Sparganium natans* seems to be persisting in a few scattered populations in Wales having been recorded in six Welsh counties since 2000 (see distribution map on page 22) with drainage and eutrophication presumably accounting for losses.

Two interesting dung bryophytes were found near the *Sparganium* by Mark Lawley and Ralph Martin, *Splachnum ampullaceum* (Cruet Collar-moss) and *S. sphaericum* (Round-fruited Collar-moss). *S. ampullaceum* is listed as Endangered and it has suffered significant (over 50%) decline; "lost from Carmarthenshire and various sites in most other vice-counties because of decline in cattle grazing in wetlands" (Bosanquet and Dines, 2011).



Extracted from BSBI Ddb  
30 August 2022

**Map:** *Sparganium natans* distribution in Wales pre- and post-2000 at hectad resolution

### Other interesting habitat on Trannon Moor

Although not visited by the group on 4 July, recently surveyed areas appear to show lightly grazed, tussocky, rush-pasture. This mire community (largely M23, *Juncus effusus/acuteiflorus* – *Galium palustre* rush pasture) is scattered throughout but particularly in the upper reaches of streams around very wet pockets of *Menyanthes trifoliata*, *Comarum palustre* and/or *Potamogeton polygonifolius* (Bog Pondweed). The rush pasture supports a number of common plant species typical of the M23 community, with occasional stands of the less common *Scutellaria minor* (Lesser Skullcap) and frequent *Viola palustris* (Marsh Violet). A few species favouring less acidic ground were noted in rush pasture in the north-east: *Galium uliginosum* (Fen Bedstraw), *Carex hostiana* (Tawny Sedge), *C. hostiana* x *C. viridula* subsp. *oedocarpa* and *Triglochin palustris* (Marsh Arrow-grass), all very localized. Base-rich flushes, identified as M10 *Carex dioica* – *Pinguicula vulgaris* mire by CFB, with *Selaginella selaginoides* (Lesser Clubmoss) and some of the above ‘less acidic’ species, have been recorded on the north-western slopes. These flushes are also bryologically-rich, with a very good range of ‘*Drepanocladus*’ species, *Palustriella* and others. *Carex dioica* (Dioecious Sedge) is, unusually, also found on the higher ground in the moorland.

Good quality acid grassland has also been recorded in the north-west and *Carex lepidocarpa* (Long-stalked Yellow-sedge), another species favouring base-rich sites, has been recorded in flushes on the northern edge.

## A final comment on Trannon Moor

One of the participants on the July outing observed, “*Although the vegetation has, as usual, been degraded/modified by historic grazing and drainage, floristically this is one of the best blanket bogs I have seen in Wales - and it may still be improving after what was, no doubt, long years of heavy grazing prior to the wind farm being established. The current thinking is that due to historic land use patterns there is too much Calluna on much of the north Wales blanket peat - perhaps good blanket bog in Wales should look more like Trannon.*”

The sites mentioned in this article are currently undesignated, but a fuller report has been sent to Natural Resources Wales (August 2022) to raise awareness of the quality of Trannon Moor and its potential.

*Outing participants: Kate Thorne & Gill Foulkes (Joint Plant Recorders for v.c.47), Chris Forster Brown, Mark Lawley (v.c.47 Bryophyte Recorder), John Clayfield, David Elias, Peter Foulkes, Ralph Martin, Sue Southam, John Thorne.*

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# The Juniper of Wales

Findings from my MSc Dissertation, Aberystwyth University

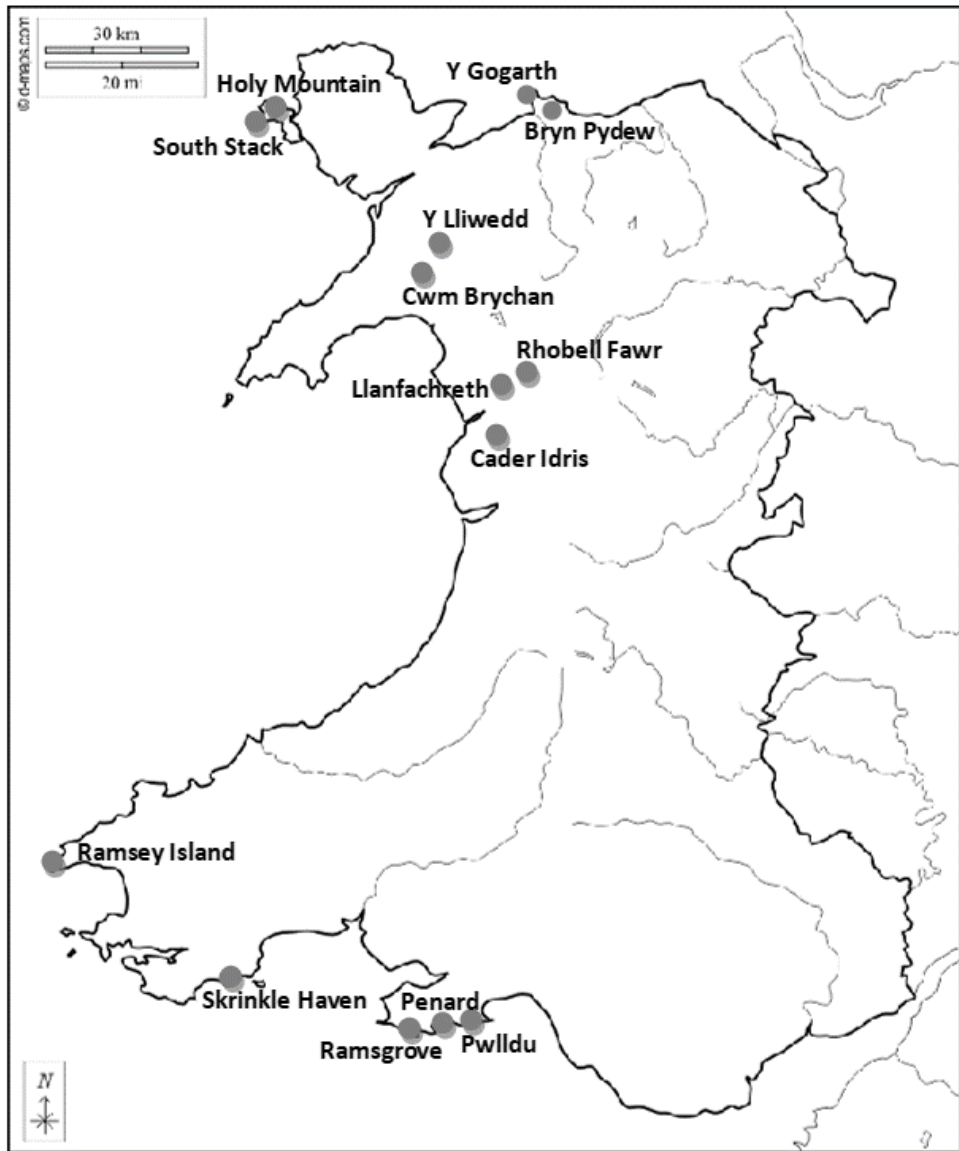
*Finley Reynolds*

Common Juniper (*Juniperus communis* L.) is a very important plant because its berries are used to make gin – or at least this is what most people remarked when I told them about my project. Aside from the very important gin fact, Juniper is a very important plant because it is one of only three native conifers to Britain (Yew (*Taxus baccata*) and Scots Pine (*Pinus sylvestris*) being the others) and its existence is threatened due to a great decline over the last few decades (Thomas *et al.* 2007). Juniper is listed as a priority species by both the JNCC and EU Habitats Directive and has its own Species Action Plan for its protection and conservation. The plant can be found in all soil types and so grows on the chalky downlands of Hampshire, to the uplands of Cumbria and into the Scottish Highlands (Thomas *et al.* 2007). In Cornwall, there is a unique population, labelled as subspecies *hemisphaerica*, although previous analysis has been inconclusive on its genetic uniqueness (Adams 2014).

Within Wales, the main populations of Juniper are found in Snowdonia, on the Creuddyn peninsula, Holy Island and on the Gower peninsula (BSBI 2022). My project visited the 14 known populations within Wales (image 6 on the following page), to assess the in-situ populations' health and current management strategy, as well as undertaking genetic analysis to determine the genetic distribution of the country's Junipers.

Juniper is currently being threatened in the UK by a water mould pathogen, *Phytophthora austrocedri* which causes dieback in the species (Green 2015), however this study found no present water mould dieback at any of the locations, in line with official reports. The greatest threats to Welsh Junipers are the historic change in farming practices increasing land fertility through synthetic fertilisers, browsing damage by increased livestock grazing and stocking rates, and the species poor natural regeneration rates. Juniper is dioecious and wind pollinated, with cones being produced annually, and berries taking three years to mature. Successful seed production and germination is as low as 3% (Verheyen *et al.* 2005), leading to the majority of the British population being older, with Juniper living up to 120+ years and is thus less reproductively active. Climatic and weather conditions can also affect Junipers, with frosts shown to affect reproductive success (Raatikainen 1993), as well as wind and salt spray impact causing serious damage, as observed in my investigation. Historic and current management of

burning heathland also has affected Juniper, as the species is very vulnerable to fire damage. All of these threats combined highlight the plight of Juniper in Wales.



**Image 6:** The fourteen locations of known Juniper in Wales, which were visited in this study.

Over the months of May and June, I embarked on an epic tour of Wales, visiting each of the 14 Juniper sites to assess the health and management of the specimens, and collect a sample for genetic analysis back in the labs at Aberystwyth University. Whilst out in the field, I met a number of rangers and landowners, who took me up mountains and along cliff faces, to access the Junipers. A few sites I visited by myself, Cader Idris being the most memorable, with a difficult climb up the mountain accompanied by atmospheric roaring thunder in the valley below me. Upon reaching the summit, I found two very sad-looking, scraggly, Juniper bushes. The results, once extracted in the labs and run through the GenALex software and STRUCTURE programs, resulted in images 9 and 10 on inside back cover.

From the 73 samples collected and processed, 50 yielded results, showing four distinct haplotypes (gene variants) across the three microsatellite loci tested. Image 9 shows these four haplotypes as the colours shown, and how they are distributed across Wales. Overall, it shows that population diversity is variable, with the exception of a few populations with one dominant genetic cluster. Image 10 shows the geographical placing of the genetic distribution, with the blue cluster being more dominant in the south, the yellow cluster in Snowdonia, and the green and red clusters in the north, with exceptions. Ramsey Island and Cwm Bychan are both locations of specific genetic interest, especially with regards to provenance in ex-situ conservation programs.

The results from the health and management side of the study showed most of the Junipers to have some form of damage (wind, salt spray or browsing), although for the majority, not to a significant enough level to truly threaten the survival of the plant. There were a few individuals however that had significant damage, mainly those at Gogarth and Cader Idris. The population on Lliwedd was both the largest and the healthiest, thanks to an implemented shepherding regime. The majority of the sites had no management strategies (seven of the fourteen sites), with the management taking place at the remaining sites consisting of: opening up surrounding scrub to reduce overcrowding, management of invasive *Cotoneaster* and grazing. The last form of management, occurring at six of the sites, was the taking of clonal cuttings to be grown on at Aberconwy Nurseries, thus keeping a living genetic bank of the species. At three locations cuttings have been transplanted back out to the field to boost the populations' numbers. A summary of the management for each site is shown in table 2 on the following page.

Current knowledge on Welsh Junipers is mainly based on studies done in Snowdonia and at Ramsey Island. My study is the first to investigate all the known Juniper populations from across Wales. The study carried out on Ramsey Island

was to address whether the Junipers were of *ssp. hemisphaerica*, as a hypothesis put forward by Dutch geneticist Van Der Merwe stated that the subspecies from Cornwall had migrated across the Bristol Channel and inhabited south Wales (Merwe 2000). The Ramsey Island study's results did not support this hypothesis, and the Junipers of Ramsey Island lost their subspecies status (Squirrell and Hollingsworth 2008). It is also hypothesised that the Junipers of Anglesey and Gower may be subspecies *hemisphaerica*, and the results from my study may provide further evidence of this.

<u>Location</u>	<u>Site Management</u>						
	None	Grazing	Removed grazing	Cotoneaster removal	Shrub/grassland removal	Cuttings taken	Transplanted cuttings
<b>South Stack</b>	X					X	X
<b>Holy Mountain</b>	X					X	
<b>Y Gogarth</b>		X		X			
<b>Bryn Pydew</b>				X	X		
<b>Lliwedd</b>		X	X				
<b>Cwm Bychan</b>	X					X	
<b>Llanfachreth</b>	X	X					
<b>Rhobell Fawr</b>		X				X	X
<b>Cader Idris</b>	X						
<b>Penard</b>				X	X		
<b>Pwlldu</b>					X		
<b>Ramsgrove</b>				X	X		
<b>Skrinkle Haven</b>	X					X	
<b>Ramsey Island</b>	X					X	X

**Table 2:** A summary of Juniper management for each of the 14 Welsh sites

It is also hypothesised that the Junipers of Anglesey and Gower may be ssp. *hemisphaerica*, and the results from my study may provide further evidence of this.

Whilst the aforementioned study found no similarity between the Junipers of Cornwall or Ramsey Island, it did find some lesser similarities between the Cornish, Holy Mountain, Bryn Pydew and Penard populations. In my study, we found similarities between the Holy Mountain and Cader Idris individuals (and Skrinkle Haven, to a lesser extent), and between the Penard, Bryn Pydew and Gogarth populations. This may suggest *hemisphaerica* ancestry, or genetic influence on these populations, although further research would need to be conducted. Whilst the results from this investigation never intended, nor had the scope, to identify Juniper subspecies in the region, it adds further possible evidence towards it.

Population genetics play an important role in conservation programs, and the findings of this study, i.e. the four distinct haplotypes within Wales, are especially important when considering population provenance and geneflow, for future ex-situ conservation efforts. The main suggestions to come out of the study are: 1) the creation of more “living herbaria” to house clonal cuttings of all the Welsh populations, as, for example, currently seen at Aberconwy Nurseries. 2) ex-situ growing-on and cross breeding of Junipers at these living herbaria, for translocation back to the wild sites to boost numbers. 3) the identification of other wild sites suitable for translocated juveniles, based upon the ideal conditions identified through this study.

With the above suggestions, in addition to the Species Action Plan and the current actions of the land managers, the conservation of Juniper in Wales should improve the national population and see the survival of Juniper - a win for all the gin lovers out there!

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## Notable plant species in 2022 in v.c.35

*Steph Tyler and Elsa Wood, Joint Vice-County Recorders for Monmouthshire, v.c.35*

One of the most exciting finds in 2022 was the re-discovery by Sarah Clay and Charlotte and Des Evans of *Epipactis leptochila* (Narrow-lipped Helleborine) on the Wyndcliff (ST5197), where it was last recorded in 1926. Trevor Evans in his Flora of Monmouthshire considered it to be extinct. Happily, this is not so.

As if the re-discovery of *Epipactis leptochila* was not enough, Colin Titcombe and Chris Hatch found about 50 plants of *Impatiens noli-tangere* (Touch-me-not Balsam) below Piercefield carpark towards the River Wye (ST5296). Trevor Evans didn't mention this species in his Flora of Monmouthshire but Schoolbred noted a record in 1888 in the same place as seen in 2022 (Wade 1970). It may have been a garden escape from Piercefield House. It has taken more than 130 years for it to be re-discovered – an amazing find. What apparently extinct species is going to be next re-discovered?

Other highlights include finding Smooth Finger-grass, *Digitaria ischaemum*, in the street at Abergavenny (SO2914) whilst we were leading an Urban Plant Course for SEWBReC. This alien grass was found at Newport Docks in 1906 but has not been recorded since. Other once rare alien grasses such as *Bromus secalinus* (Rye Brome), *Setaria verticillata* (Rough Bristle-grass), *Panicum capillare* (Witch Grass) and *Echinochloa crus-galli* (Cockspur) have become increasingly common at the edge of maize crops and elsewhere.

In Monmouthshire v.c.35 we found four vice-county firsts: *Alchemilla filicaulis* subsp. *filicaulis* (Slender Lady's-mantle) which turned up on a limestone track in Great Barnets Wood (ST5194); it coincided with receiving the new *Alchemilla* handbook! (*A. filicaulis* ssp. *vestita* (Hairy Lady's-mantle) is the usual subspecies in

unimproved old pastures). Also, *Alopecurus x brachystylus*, the hybrid between *A. pratensis*, (Meadow Foxtail) and *A. geniculatus*, (Marsh Foxtail) was found growing near the River Monnow at Monmouth Cap (SO3926), *Scrophularia vernalis* (Yellow Figwort) found by Bob Hewitt at Abersychan (SO2703) and the neophyte duckweed *Spirodela oligorrhiza* (Lesser Greater Duckweed) in a water butt in an allotment in Newport (ST3189).

We have continued our survey of plants in arable fields with 95 fields visited in 2022. Depressingly, at only one site were *Euphorbia exigua* (Dwarf Spurge) and *Stachys arvensis* (Field Woundwort) found – in fields where they were also found in 2021 – and two sites for *Kickxia elatine* (Sharp-leaved Fluellen). Cornfield plants have been mainly restricted to the very fringes of fields and gateways which have escaped herbicide sprays. In only a handful of fields have plants been more widespread within the crop.

We turned our attention in late September to allotments which are potential reservoirs for cornfield plants because herbicides are much less used in these. We were delighted to find *Misopates orontium* (Weasel's-snout) at Chepstow allotments (ST5392), the first record for v.c.35 since 1988 (except for a naturalised population in EW's garden!). At other allotments, *Spergula arvensis* (Corn Spurrey), *Urtica urens* (Small Nettle), both *Galinsoga quadriradiata* (Shaggy-soldier) and *G. parviflora* (Gallant-soldier) and all the usual denizens of arable fields were found but in much larger numbers than in arable fields. *Mercurialis annua* (Annual Mercury) and *Oxalis debilis* (Large-flowered Pink-sorrel) in the allotments at Usk (SO3801) and the alien duckweed *Lemna valdiviana* (Valdivia Duckweed) and *Nicandra physalodes* (Apple-of-Peru) in those at Underwood (ST3989), were all new hectad records. In early November at the edge of Christchurch cemetery (ST3388) we found one plant of *Lepidium virginicum* (Least Pepperwort), our first post 2000 record in the vice-county. Evans (2007) listed only five records of this casual, the last being about 1953.

*Oenanthe pimpinelloides* (Corky-fruited Water-dropwort) continues to turn up in new localities. In spring 2022 three small clumps appeared in a meadow at Lydart (SO5007), near Penallt in eastern Monmouthshire and then a patch was seen in another meadow near Llanvaches (ST4292) in the south of the vice-county. It was also found to be abundant in a field down on the Levels near Pye Corner, Newport (ST3585) in July. It is interesting to realise that up to 2004 it was known only from a roadside verge near Tynewydd (ST2791) (Evans 2007). Since then it has been found in fields at Monmouth, in a number of fields on the Levels as well as at St Maughans (SO4617) and at the additional sites in 2022.



Other noteworthy new hectad records included *Polypodium cambricum* (Southern Polypody) on the walls of the church at Christchurch (ST3489); *Dactylorhiza x hallii* (*D. maculatum* x *D. praetermissa*) (Heath Spotted x Southern Marsh-orchid) in Chepstow Park Wood (ST4897) and at Earlswood (ST4495); *Polypogon monspeliensis* (Annual Beard-grass) and *Diplotaxis muralis* (Annual Wall-rocket) at Wainfelin near Pontypool (SO2700), where a surprise was 15-20 plants of *Euphorbia stricta* (Upright (Tintern) Spurge) on a bank by a car park. Other hectad records were *Reseda alba* (White Mignonette) growing in abundance along a track by the edge of a maize field in SO3603 and *Panicum capillare* (Witch-grass) at Llanfoist cemetery in SO2813.

*Ranunculus sardous* (Hairy Buttercup) mainly occurs in north-east Monmouthshire in SO40 and SO41; the discovery of a large population at Great House Farm, south of Llansoy (SO4303) is the southernmost location for this species post 2000. Abundant *Urtica urens* was also found there. *Oxybasis glauca* (syn. *Chenopodium glaucum*) (Oak-leaved Goosefoot) continues to spread or perhaps be more noticed? It was found near a muck heap a few kilometres south of Raglan in SO3906, another new hectad record.

*Erodium moschatum* (Musk Stork's-bill) was found by EW and the Monmouthshire Botany Group in the car park at the Duffryn Recreation ground, Newport (ST2886). It had been recorded in only three sites up until 2000. *Hypericum elodes* (Marsh St John's-wort) was only recorded by Evans (2007) in 10 tetrads so the discovery by EW and AW of this species in a pond near Crumlin (ST2097) in a new tetrad was of note. Many plants of *Drosera rotundifolia* (Round-leaved Sundew) in wet flushes on an old coal tip were a bonus on a day botanising around Mynydd Varteg (SO2505).

*Saxifraga granulata* (Meadow Saxifrage) grows along rivers in Monmouthshire rather than in meadows, although there is a good population in strips of meadow along the drive to Llanover House (SO3108). It occurs sporadically along the River Usk but is rare on the River Wye although is much more frequent along the Wye tributaries, the River Monnow and Afon Honddu in the Black Mountains and extending downriver to below Skenfrith (SO4619). In 2022 a small colony was found by SJT on the Pill brook, an Olway tributary, near Llansoy (SO4301) and subsequent searches by Pip Morrison, SJT, EW and AW revealed it at three more locations on this small stream (SO4302, SO4401).

It seems that all records of the *Wolffia arrhiza* (Rootless Duckweed) found on the Gwent Levels may need to be questioned. Lansdown et al. (2022) suggested that previous records were actually the neophytes *Wolffia columbiana* (Columbian Watermeal) and *W. globosa* (Asian Watermeal).

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## Breconshire (v.c.42): Making Botany Fun

*Anne Griffiths*

The Brecknock Botany Group meet up on a monthly basis over the winter, under the guidance of joint Vice-County Recorder, John Crellin. These meetings are known as KBO (Keep Botanising Overwinter), we discuss topics and plans for the forthcoming year. They take place in warm surroundings, generally involving coffee, cake and lunch.

This year's early spring challenge was to find *Adoxa moschatellina* (Moschatel) in monads where it has been seen before but not recently. A list was produced, we set off with great enthusiasm, either individually, in pairs or as a group. The weather at times was grim, eating a soggy sandwich in cold rain and howling wind. At other times we would sit in a warm café, drinking coffee, eating cake and glowing, having found *Adoxa* in a new monad! In total, we found *Adoxa* in 36 new monads and 24 updates from between 1957 and 1999. This was much fun and certainly our group are looking forward to doing this again in 2023.

Another list was put together of Brecknock rarities to look for in previous known locations and to raise awareness in case of finds in new locations. We found *Clinopodium ascendens* (Common Calamint) at a new site (SO1823), this species is rare for us.

We rediscovered *Convallaria majalis* (Lily-of-the-valley) (SN8615), *Erigeron acris* (Blue Fleabane) (SO2313), *Galium sternerii* (Limestone Bedstraw) (SO1215), *Geranium sanguineum* (Bloody Crane's-bill) (SO2112), *Neottia nidus-avis* (Bird's-nest Orchid) (SO2212), *Sambucus ebulus* (Dwarf Elder) (SO1035) and *Sibthorpia europaea* (Cornish Moneywort) (SO2013). Unfortunately, we were unable to find two species that we were specifically looking for, *Myosotis ramosissima* (Early Forget-me-not) and *Stellaria nemorum* ssp. *montana* (Wood Stitchwort) despite repeated searches.

This project was good fun especially when the outcome was positive but disappointing when we failed to find what we set out to rediscover. We are looking forward to doing this again next year.

Another project that we started as a group in 2021, taking advantage of the drought conditions, was to record the flora of the reservoirs and lakes in vice-county 42.

Last year we looked at three reservoirs, Pontsticill, Pentwyn (both SO0514) and Talybont (SO0918). This year we looked at Llwyn-On (SO0011), Pant y Llyn (SO0346) and Llyn y Fan Fawr (SN8321). We rediscovered many plants on the Brecknock Rare Plant Register, including *Utricularia minor* (Lesser Bladderwort) (SO0446), *Eleogiton fluitans* (Floating Club-rush) (SO0446), *Bidens tripartita* (Trifid Bur-marigold) (SO0917) and *Persicaria minor* (Small Water-pepper) (SO0011).

The seeds of the *Persicaria minor* are now in the National Seed Bank of Wales.

The best fun of all was had by John in Llyn y Fan Fawr (SN8321), when discovering *Isoetes lacustris* (Quillwort) for the first time since 1972, first recorded in 1901. He ended up with wet feet, water to the top of his wellies, being steered from the bank! It is always amusing watching the misfortunes of others! On a negative note, was the amount of *Crassula helmsii* (New Zealand Pigmyweed) at both Llwyn-On and Pant y Llyn.

This project was great fun, tramping about in muddy wellies, finding lovely plants with great company. We will certainly be carrying on with this in 2023 and aim to record most of the reservoirs and lakes in Brecknock.

To me there are three types of botany: Civilised, Spartan and Despondent.

Civilised involves drinking coffee and eating cake in a warm location, having had a fantastic day of botany.

Spartan is when the weather is really rough, your sandwich is soggy, your coffee is cold, but you are still having a great day of botany.

Despondent describes the sort of day when you fail to find the rare plant that you are looking for but, worse, you find it in a neighbouring vice-county when you are walking back to your car!

# Re-discovery of Narrow-lipped Helleborine in Monmouthshire

*Steph Tyler and Elsa Wood, Joint Vice-County Recorders for Monmouthshire, v.c.35*

Evans (1997) in his list of extinct plants in Monmouthshire (v.c.35) included *Epipactis leptochila* (Narrow-lipped Helleborine). This had been recorded on limestone in the lower Wye Valley at Wyndcliff but had last been seen in 1926. Evans mentioned two other possible records from more than thirty years ago, but these had not been confirmed.

On 22 July 2022 Sarah Clay contacted SJT by email and sent two photos of a helleborine that Des Evans and she had found in a beech wood on Sarah's land above the Wyndcliff (image 14, back cover). Des thought it was something different and Sarah tentatively identified it from her flower books as *Epipactis leptochila*. SJT at first assumed it was another Broad-leaved Helleborine because in one photo the flowers looked purple rather than greenish-white; she had received several photos of helleborines from other people around the vice-county but always they turned out to be *E. helleborine* (Broad-leaved Helleborine). She looked again at the photo and the flowers did look very like *leptochila* with a pointed lower lip; then Sarah sent another photo, a close-up of the flowers taken by Claudy Fox which was very convincing (image 15, back cover). Elsa Wood and SJT visited the site to look at the plant and SJT sent the photos to the helleborine referee, Professor John Richards. He quickly replied, writing:

*“Yes, this does seem to be E. leptochila. Was there just a single plant? I agree that the flowers are more purple than normal, but it is automatically self-pollinating without a viscidium and the flower shape and size seems typical. It is just possible that it is E. leptochila x helleborine, but then I would expect both parents to be present. Interesting that it has reoccurred”.*

Since then, Sarah has, during bramble clearing work, located three more non-flowering helleborines, possibly also *leptochila*.

Spurred on by the amazing find at Wyndcliff SJT and EW looked more closely at helleborines that they found in July and August 2022. In a wood in the east of the county they found another helleborine that had greenish flowers rather like *leptochila*. Admittedly many typical Broad-leaved Helleborines were also seen nearby. SJT photographed the strange plant – (image 16, back cover) and sent the photo to John Richards. He replied *“I think this is just a slender greenish E. helleborine. I can see a viscidium and marked rostellum on 2-3 flowers, the pollinia remain intact with no indication of self-pollination and the labellum is short and*

recurred.” He did ask that it would be useful to see the whole plant, especially the basal leaves.

It is easy to claim a species is extinct in a vice-county, but future events often prove you wrong. There is a challenge for other botanists to re-find more of the 72 species that Evans listed as extinct. Almost ten years ago, we provided details of ten of these ‘extinct’ species that had recently been re-found (Tyler & Wood, 2014, BSBI Welsh Bulletin 93) and then in the following year three more species were re-found *Eleocharis uniglumis* (Slender Spike-rush) by EW and Adrian Wood, *Fumaria purpurea* (Purple Ramping-fumitory) at two sites by EW and Paul Green and *Valerianella carinata* (Keel-fruited Cornsalad) which has turned out to be widespread. That leaves almost 60 extinct species still to be re-found!

## References

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## Anglesey (v.c.52) Botanical Review 2022

*Nigel Brown and Ian Bonner, Joint Vice-County Recorders for Anglesey, v.c.52*

The records entered so far into Mapmate for 2022 include seven new vice-county records and 32 new hectad records, a remarkably similar tally to last year, but significantly less than 2020 (see the table below). The complete list will appear in Welsh Plant Records in BSBI Welsh Bulletin 112).

	2020	2021	2022
New taxa for vice-county 52, Anglesey	9	7	7
New hectad records	51	30	32

Of the new vice-county records in 2022 two taxa are likely to be native additions. *Epipactis helleborine* ssp. *neerlandica* is a subspecies of Broad-leaved Helleborine until now known only from Kenfig dunes in south Wales. Last year Robbie Blackhall-Miles found putative material of this taxon at Newborough in the south of the island. This year he re-found the small population and took further taxonomic advice. Morphologically the Newborough plants look like subspecies *neerlandica* and we await genetic analysis for confirmation.

*Lamiastrum galeobdolon* ssp. *montanum* (Yellow Archangel) can also be considered native. A small population was found by Charles Aron on a steep shady

lane side by a mature mixed woodland at Red Wharf Bay (SH5278). Although the variegated form of Yellow Archangel (*L. galeobdolon* ssp. *argentatum*) is becoming widespread and familiar in northwest Wales, the true native taxon, *L. galeobdolon* ssp. *montanum* appears to be absent from the mainland west of the Conwy valley and north of Portmadoc including the Llyn (personal communication Wendy McCarthy). There are no historic records of Yellow Archangel on Anglesey (Roberts 1982). This present find therefore represents a significant westerly extension of its natural range in north Wales.

The other additions to the Anglesey Flora are all neophytes: *Cyclamen coum* (Eastern Sowbread) in amenity woodland at Cemaes Bay (SH3793); *Saxifraga x arendsii* naturalised on derelict industrial ground at Amlwch (SH4493); *Echium pininana* (Giant Viper's-bugloss) by a footpath in Menai Bridge (SH5572 – this striking monocarpic native of La Palma in the Canaries is now established in maritime southern Britain and is spreading north, benefiting from milder winters; *Vinca major* var. *oxyloba* (Greater Periwinkle) on a roadside near Llangristiolus (SH4173) – note that the purplish-blue flowered form of *V. major* is widely found on the island but this is the first record for the violet-blue flowered form var. *oxyloba*; and finally *Iberis umbellata* (Garden Candytuft) on a disturbed coastal roadside verge at Red Wharf Bay (SH5780).

The new hectad records are split between 11 native taxa and 21 introduced taxa.

Of the natives, *Clematis vitalba* (Traveller's-joy) continues to expand from its core limestone area in the south and east of Anglesey. A single large plant was found in semi-fixed dune grassland between Newborough Forest and the Cefni estuary in SH36, leaving only SH27, the south end of Holy Island, without a record.

*Myriophyllum verticillatum* (Whorled Water-milfoil) was plentiful in the main river channel of the Afon Crigyll near RAF Valley in SH3376. This represents a range extension from its only other station on the island where it is concentrated in the Malltraeth Depression south of Llangefni. This species has a chequered history being recorded in the early floras of 1813 and 1895 (Davies, 1813 and Griffith, c.1895); but then not being noted again until 2008 when it was found in several parts of Cors Ddyga.

The fertile hybrid Orache, *Atriplex x hulmeana* (*A. littoralis* (Grass-leaved Orache) x *A. prostrata* (Spear-leaved Orache) was first found in 2014 in the Cefni Estuary SH3965). Publication of a paper in British & Irish Botany in 2022 by Michael Wilcox, suggesting that this hybrid backcrosses with its parents forming a range of variation which can be picked out by the range of leaf lobing lead to Ivor and Jane Rees finding the hybrid at Lleiniog (SH6279) in June and on the other side of the

Island on the Crigyll estuary (SH3274) in late July. This continues to expand the range of this hybrid so that by late 2022 it is now known from 13 monads in six hectads.

*Poa compressa* (Flattened Meadow-grass) is poorly recorded on the island with just eight monads, mainly in the southeast, so it is pleasing to report that Richard Birch found it in a new hectad on a stone wall in Beaumaris (SH6076).

Ivor and Jane Rees filled the only hectad gap on Anglesey for *Conium maculatum* (Hemlock) when they found it growing by the Coast Path in Moelfre (SH5186) in late May. Hemlock has a mainly western distribution on the island save for a concentration around Penmon.

The BSBI Field trip to Cors Bodeilio near Llangefni in June produced three new hectad records, including *Dactylorhiza incarnata* ssp. *coccinea* (Early Marsh-orchid), the brick red form, in SH5077, more usually associated with the west coast dune slacks. Interestingly, 2022 saw several white flowered forms of Early Marsh-orchid known as *D. incarnata* ssp. *ochroleuca* flowering at the North Wales Wildlife Trust's Reserve at nearby Cors Goch (SH5081). If accepted this will be a new vice-county record.

A first record of *Lysimachia vulgaris* (Yellow Loosestrife) for the Holy Island section of Anglesey was made at Breakwater Country Park, Holyhead (SH2283). This is part of an Area of Outstanding Natural Beauty (AONB) and is well managed by Anglesey Countryside Services department with a diverse flora from exposed coastal heath to sheltered scrub and derelict quarries and a variety of species-rich grasslands.

Among the introduced species found in new hectads: *Allium triquetrum* (Three-cornered Garlic) has now effectively colonised all the island's hectads with its discovery in Cemaes (SH3793) in February this year. This is an obvious species which rarely goes undetected and yet when R.H. Roberts wrote his Flora of Anglesey in 1982, he had recorded it in just two localities – its expansion on Anglesey since then has been dramatic. *Tellima grandiflora* (Fringecups) was unknown to Roberts, but this year's find of a small colony in SH4977 near Cors Bodeilio takes the known sites to seven in four different hectads. Anglesey's roses are not well understood but *Rosa multiflora* (Many-flowered Rose) is a striking introduced species which is hard to miss when in flower and a June record of this species in SH4173 takes its known sites to eight in six hectads.

Among bird seed aliens *Lipandra polysperma* (Many-seeded Goosefoot) previously known as *Chenopodium polyspermum*, is widespread in south and east England but much less so in northwest Wales and especially Anglesey where Hugh



Knott's record beneath his garden bird feeder in Menai Bridge (SH5571) constitutes only the second confirmed record for the island. *Amsinckia micrantha* (Common Fiddleneck) is another grain impurity on the increase in the wild in Britain where it is now widespread in eastern areas of England and Scotland. John Harold made the second find and a new hectad record of this species on Anglesey when he came across a few plants on a roadside verge at Caim (SH6280) near Penmon.

*Lilium pyrenaicum* (Pyrenean Lily) is a handsome, long-lived bulbous species which has been cultivated in Britain since the 16<sup>th</sup> century and was first recorded in the wild in the 1853. It is now widely reported as an established alien, particularly in southwest England, south Wales, and eastern Scotland. On Anglesey there is a single record from the Bodorgan area of the island and two older records from the central/northeast region in SH48. This year's find of a strong colony near Point Lynas (SH4893) at the northeast tip of Anglesey takes the known sites to four in three hectads. Another new hectad find at Point Lynas was *Melilotus altissimus* (Tall Melilot), the first record for the northern half of the island. This species is clearly expanding on Anglesey – Roberts recorded it in just two sites while we presently know it in 12.

Ivor and Jane's find of *Foeniculum vulgare* (Fennel) in SH3088 is the first record for the northwest coast between the Inland Sea and Carmel Head.

On the island's east coast *Euphorbia lathyris* (Caper Spurge) turned up in only its sixth Anglesey locality near the shoreline at the eastern end of Red Wharf Bay (SH5780).

Joanna and James Robertson discovered *Oxalis exilis* (Least Yellow-sorrel) in the churchyard of Llanfair yn y Cwmwd in SH4466, a new hectad, and only the fifth record for the island of this Australasian plant which, though widely established in England, is as yet still rather local in Wales.

Charles Aron noted *Senecio inaequidens* (Narrow-leaved Ragwort) on disturbed ground on a new housing estate in Llangefni (SH4676), only the 3<sup>rd</sup> record for Anglesey. Given the rapid increase of this South African alien in other parts of Britain, it is perhaps surprising that it has not made greater inroads on Anglesey since it was first recorded in 2008.

While neither new vice-county nor hectad records, the following are also of note:

Additional bird seed aliens include *Ambrosia artemisiifolia* (Ragweed) recorded by Jim Clark in his garden by Llyn Traffwll, Valley, one of only three sites for this species on Anglesey.

Several orchids had a good year including *Anacamptis pyramidalis* (Pyramidal Orchid). Jane and Ivor Rees noted it in abundance on the small dune system at the east end of Red Wharf Bay SH5680 in late June. While it is regularly abundant on the west coast of the island its appearance in the north and east is much more variable and the populations generally much smaller. *Ophrys apifera* (Bee Orchid) appeared on two relandscaped former waste disposal sites - Clegyr Mawr (SH3777) and Penhesgyn (SH5374), while Steve Roberts, Environmental Manager at Wylfa nuclear power plant found a third population next to the main reactor hall (SH3593). Four records of the Marsh Orchid hybrid *Dactylorhiza x venusta* (*D. fuchsii* Common Spotted-orchid x *D. purpurella* Northern Marsh-orchid) were noted this summer.

Other orchids fared less well including *Spiranthes spiralis* (Autumn Lady's-tresses) whose numbers were well-down on previous years at Aberffraw Dunes in the southwest of Anglesey, perhaps due to the hot dry conditions of mid and late summer. However, Tim Blackstock rediscovered a small population of *S. spiralis* in a disused limestone quarry near Penmon in SH6081 after a 20-year gap.

Geoff Radford's discovery of a few plants of *Arabis hirsuta* (Hairy Rock-cress) at the Rhuddlan Fawr end of the NWWT's Cors Goch Reserve (SH4881) near Brynteg was very welcome. This short-lived calcicole is clearly in decline on Anglesey and out of a total of 23 monads, all over limestone and in the east of the island, only four monads have post 2000 records. Likewise, the persistence of *Avenula pratensis* (Meadow Oat-grass) at Bwrdd Arthur (SH5881) as noted by Karen Rawlins (Natural Resources Wales) and Ian Bonner is pleasing since it is known from just five monads on the island, three of those with no post-2000 records.

We have been trying to get to grips with *Symphytotrichum* species (Michaelmas-daisies) – quite challenging, so any determination is greeted with delight. *S. x versicolor* (Late Michaelmas-daisy) was identified in damp grassland by Llyn Coron (SH3770), only the fourth record for the island.

Jane and Ivor continue to document coastal *Atriplex* (Oraches) thoroughly. Species such as *A. littoralis* (Grass-leaved Orache) seem more frequent than in the past and to have colonised new areas since R.H. Roberts' day, for example around the Braint estuary at Newborough Warren (SH4363). In addition to *A. x hulmeana* already mentioned, Ivor determined *A. x gustafssoniana* (Kattegat Orache) on both the west coast (Crugyll estuary SH3274 near Rhosneigr) as well as on the east coast (Red Wharf Bay SH5580). This hybrid between *A. longipes* (Long-stalked Orache) and *A. prostrata* (Spear-leaved Orache) seems widespread around Anglesey's coastline.

Among wetland species *Baldellia ranunculoides* (Lesser Water-plantain) continues to flourish across a range of coastal and inland base rich mires where management maintains open ground with fluctuating water levels, for example at the RSPB's Plas Bog reserve near Valley, SH3376. Here too flourishes Anglesey's only known population of *Lathyrus palustris* (Marsh Pea).

*Carex limosa* (Bog-sedge) has had a good showing at Cors Goch this summer according to Geoff Radford where it has been flourishing alongside the board walk. This is a very local wetland species on Anglesey with records from just 6 monads of which two are pre-2000 only.

The June BSBI meeting in Bangor benefited the island by providing an excursion to Cors Bodeilio NNR (SH4977) which yielded several notable taxa including *Utricularia minor* (Lesser Bladderwort) and the charophytes, *Chara hispida* (Bristly Stonewort) and *C. vulgaris* (Common Stonewort).

The dry conditions of late summer created a wide draw-down zone at Llyn Cefni just north of Llangefni where *Bidens tripartita* (Trifid Bur-marigold) put on a fine display and *Eleocharis acicularis* (Needle Spike-rush), *Rorippa palustris* (Marsh Yellow-cress) and *Littorella uniflora* (Shoreweed) were all abundant.

Two little known inland mires were visited in June – Caer-Glaw (SH3776) and Pentre Bwaau (SH3779). The former displayed extensive populations of *Comarum palustre* (Marsh Cinquefoil), *Menyanthes trifoliata* (Bogbean) and *Silene flos-cuculi* (Ragged Robin). Nine species of sedge were identified, several populations of *Dactylorhiza purpurella* (Northern Marsh-orchid) and the hybrid Marsh-orchid, *D. x venusta* (*D. fuchsii* (Common Spotted-orchid) x *D. purpurella*). *Ranunculus lingua* (Greater Spearwort) was locally common and a single plant of the local *Dryopteris carthusiana* (Narrow Buckler-fern) was found. A small area of *Eriophorum angustifolium* (Common Cottongrass) sits at the heart of this intact peat mire basin. *Trifolium striatum* (Knotted Clover) was a pleasing find on a rocky outcrop on the perimeter of the site.

Pentre Bwaau proved somewhat more eutrophic but was notable for the sizeable population of *Carex paniculata* (Greater Tussock-sedge) probably one of the largest on the island with around 500 mature plants.

Tre'r Gof SSSI is a fine peat basin by the coast close to Wylfa nuclear power station. Recent habitat management by Kehoe Countryside employing a combination of cattle grazing and local cutting of *Cladium mariscus* (Great Fen-sedge) has had a very positive effect on the population of *Thelypteris palustris* (Marsh Fern) there which now covers an acre of the fen.

Another wetland fern, *Osmunda regalis* (Royal Fern) was discovered by Julie Rose at a new site on wet heath on Holyhead Mountain (SH2082). This species was also found by Simon Hunt in similar habitat at a new site near the coast inland from Lligwy Bay (SH4886). These new records take the island tally of monads with *Osmunda* to 23 of which 11 have no post-2000 records.

A celebrated species of Anglesey's wet heaths is Marsh Gentian (*Gentiana pneumonanthe*) which benefits hugely from tailored management work by the North Wales Wildlife Trust and other agencies and private landowners. Despite the drought it appears to have had another successful flowering season with over 2000 flowering stems counted at Cors Goch for example (SH4980).

*Empetrum nigrum* (Crowberry) is tolerant of drier heath and it is pleasing to report the finding of another population of this species at Newborough, doubling the known population size for Anglesey! Graham Williams, Senior Officer with Natural Resources Wales's Land Management Team in northwest Wales located a single plant growing in sand dune heath within Newborough Forest (SH3965). The only other population as far as we know grows on a dry rocky outcrop on nearby Llanddwyn (SH3863).

Even more tolerant of dry conditions is a suite of four species of 'heaths' of introduced status by the South Stack transmitter station (SH2182). These have been known for a few years, but John Poland paid a visit to this partially man-made site in June and confirmed the identity and persistence of *Erica terminalis* (Corsican Heath), *E. vagans* (Cornish Heath) and *E. x darleyensis* (Darley Dale Heath) and *Gaultheria mucronata* (Prickly Heath).

Grasses of note this year included *Calamagrostis epigejos* (Wood Small-reed) found by Richard Birch in a new coastal monad, SH5183 near Benllech on the east coast. Also, by the coast, Ivor and Jane Rees discovered *Panicum miliaceum* (Common Millet) by the Old Mill at Aberffraw (SH3569). It is the only known post-2000 site on the island for this attractive alien grass.

*Erigeron floribundus* (Bilbao's Fleabane) continues to add monads to its distribution on the island with a new site in central Llangefni (SH4575).

*Calystegia sepium* ssp. *roseata* is a poorly known subspecies of Hedge Bindweed found locally near the west coast of the British Isles and whose status is confusing. It may or may not be native. It may or may not be derived from a hybrid between *C. sepium* and *C. americana* (Hedge False Bindweed). Ivor Rees has been keeping tabs on its only known Anglesey population at Penrhosfeilw (SH2279) and this summer sent fresh material to the Natural History Museum in London for genetic analysis.

Another western speciality is the endemic *Fumaria purpurea* (Purple Ramping-fumitory) for which Anglesey boasts six monads, all on the south and east coasts. There were two records this year, both from the Red Wharf Bay area. Julie Rose spotted a small clump by the coastal road as we finished a Flora Group meeting in SH5780 and earlier in the year Jane and Ivor Rees found a small patch growing in a hedge bank a little further from the coast below Llanddona (SH5680).

Ivor Rees extended the known easterly extent of *Limonium humile* (Lax-flowered Sea-lavender) when he found it growing below Nelson's Monument along the Menai Strait below Llanfair PG (SH5572). Also along the Menai Strait, James Robertson counted 12 clumps of *Helleborus viridis* (Green Hellebore) at a known site in the wooded grounds of Plas Newydd (SH5270). It seems to be doing well with additional off-shoots/young plants associated with the main clumps. At the far eastern end of the Menai Strait *Juglans regia* (Walnut) fruited spectacularly well by the ruins of Penmon Priory (SH6380), no doubt in partial response to the summer's heat.

Further west along the Strait at Llanidan, Ivor and Jane Rees report that *Viola odoratum* ssp. *dumetorum* (Sweet Violet) still flourishes on the lane down below Llanidan (SH4967 and SH4966) – it is such a fine white form. At the far western end of the Strait, Robbie Blackhall-Miles found further colonies of *Pyrola minor* (Common Wintergreen) in Newborough Forest including a patch of 100 plants beneath a mix of *Pinus nigra* ssp. *laricio* (Corsican Pine) and *Betula pubescens* (Downy Birch) in SH3865.

The west coast of the island produced another record of *Trifolium ornithopodioides* (Bird's-foot Clover) found by Mandy Forde at Cynrig, by L. Traffwll (SH3276) while James Robertson estimated 400-500 plants of the island's County Flower, *Tuberaria guttata* (Spotted Rock-rose) close to flowering on 8<sup>th</sup> May at Glannau Rhoscolyn SSSI (SH2676). Nearby, at Penrhosfeilw Common (SH2279) Ivor and Jane report that *Viola lactea* (Pale Dog-violet) is responding well to excellent coastal heath management by the RSPB.

Pro-active management of dune systems on the west coast under the auspices of NRW through the Sands of Life Programme and Dynamic Dunes Project has resulted in local removal of several populations of so-called Invasive Non-Native Species (INNS) such as *Crococsmia x crocosmiiflora* (Montbretia) and *Rosa rugosa* (Japanese Rose) at sites such as Aberffraw where there has also been large scale strategic remobilisation of sand in SH3567. Further north, at Cymyran NRW has undertaken scrub management to open up the heath and hopefully benefit the last remaining colony of *Juncus capitatus* (Dwarf Rush).

On the eastern side of the island *Hypericum hirsutum* (Hairy St John's-wort) had another good year at Cors Goch (SH5081) according to Geoff Radford. This is very pleasing news as we have only two extant sites for this limestone-loving St John's-wort on Anglesey. It reinforces the view that where appropriate management is applied our flora responds well.

The Flora Group held just four formal field trips this year and our thanks to Richard Birch for organising two of them.

Seed of *Salsola kali* ssp. *kali* (Prickly Saltwort) was collected under licence from Newborough for the Millennium Seed Bank and National Botanic Garden of Wales. See article on page 46.

Ivor Rees authored a scholarly paper on *Limonium binervosum* (Sea-lavender) for British and Irish Botany and wrote a stimulating review of the rapid spread of *Raphanus raphanistrum* ssp. *maritimus* (Sea Radish) for BSBI News.

Robbie Blackhall-Miles authored a fascinating paper for British Wildlife and for the Anglesey Antiquarians on Wild Leeks of the Cymry which discusses the status of *Allium ampeloprasum* var. *ampeloprasum* (Wild Leek) on Anglesey. We send Robbie our congratulations on being elected Vice-President of the Linnean Society of London this year. James Robertson continues to contribute regularly to British Wildlife and frequently uses Anglesey plants and habitats to illustrate his topical, highly regarded commentaries on plant conservation.

Last, but certainly not least, Trevor Dines has authored a comprehensive and significant report on the status of *Tuberaria guttata* (Spotted Rock-rose) in Wales (Dines 2022). This bench-mark survey was funded by the Natur am byth! Partnership which unites nine environmental charities and NRW to save species from extinction and reconnect people to nature. In total, 34,000 Spotted Rock-rose plants were counted across 11 sites, all but one on Anglesey. The major core of the Welsh population lies between Treaddur Bay and Rhoscolyn, where five sites (Porth Diana, Lee Caravan Park, Bryn Ffysiwn, Carreg-lŵyd and Pant yr Hyman) together account for 79% of all plants.

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## Highlights for 2022 from East Glamorgan

*David J. Barden, Joint Vice-County Recorder for East Glamorgan, v.c.41*

Botanical activities in the eastern half of v.c.41 have, as in previous years, largely centred on the excursions run by the Glamorgan Botany Group. As usual, we held six excursions this year, which were all well-attended, with numbers varying from 10 to 17.

We started the year in April with an excursion to Ogmores-by-Sea (SS8675), which could be regarded as ‘epic’ both for its duration (7 hours in the field!) and for the quality of the botanising. Short coastal turf held excitement in the shape of several annual *Trifolium* (Clover) species, as well as small populations of the vice-county rarities *Moenchia erecta* (Upright Chickweed), *Viola canina* (Heath Dog Violet), *Vicia lathyroides* (Spring Vetch) and *Sison segetum* (Corn Parsley), the latter being a new hectad record.

In May, mixed habitats near Trelewis (ST0998) were rewarding for a range of species typical of coal-spoil, mature Beech woodland and ‘ffridd’ pasture, including a large population of *Genista anglica* (Petty Whin) in full flower, and an attractive pink-flowered variant of *Oxalis acetosella* (Wood-sorrel) known as var. *subpurpurascens*.

The weather in June was not kind, with frequent spells of heavy rain, but we nevertheless had an excellent visit to Port Talbot Docks (SS7788), under the guidance of Barry Stewart, who last year had found a large population of the national rarity *Orobanche picridis* (Oxtongue Broomrape) on a remote part of a massive brownfield site near the steelworks. In fact, we spotted numerous plants on a road verge early on, so we then changed our plans and visited a different site at Baglan (SS7391) that Barry was keen to show us. This didn’t disappoint, with



highlights being sheets of *Clinopodium acinos* (Basil Thyme), a scattering of *Galium parisiense* (Wall Bedstraw), and an array of *Vulpia* (Fescue) species.

On a hot and sunny day in July we visited Cosmeston Lakes Country Park near Penarth (ST1769), where we explored the meadows, ponds and short, open limestone grasslands of the former quarrying areas. The highlight was a very large and widespread population of *Centaureum pulchellum* (Lesser Centaury), one of the largest in eastern parts of the vice-county, and we were able to use the recently published BSBI Handbook by Tim Rich and Andy McVeigh (2019) to compare the differences between this diminutive species and *Centaureum erythraea* (Common Centaury).

August's excursion centred on common grazed lands and some private fields north of Pencoed (SS9683), where over a limited area we found plenty of *Vaccinium oxycoccos* (Cranberry) in fruit, *Menyanthes trifoliata* (Bogbean) and *Carex rostrata* (Bottle Sedge). In privately-owned fields nearby, we checked up on populations of *Trocdaris verticillata* (*Carum verticillatum*) (Whorled Caraway) and *Osmunda regalis* (Royal Fern), both rare on this side of the vice-county.

Finally, in September at Nantyffyllon north of Maesteg (SS8593), we started off along rough tracks where we made a new hectad record for *Carex disticha* (Brown Sedge). We then ascended across rough(er) heathy moorland and forestry to the crags of Darren y Bannau (SS8793), where our reward was two patches of *Hymenophyllum wilsonii* (Wilson's Filmy-fern) amongst shaded boulders, again a new hectad record.

Away from the planned excursions, in the last two years we've had records for *Mentha pulegium* (Pennyroyal) from two colliery spoil sites at Blaencaerau, north of Maesteg (SS8694) and at Pentre, near Treorchy (SS9796). Like two other records for this species made in the last 30 years, these appear to be the introduced var. *erecta*, the native form not having been seen in Glamorgan for many years.

Finally, also recorded in 2021, but not realised as significant until recently, was a site for *Viola hirta* (Hairy Violet) × *odorata* (Sweet Violet) = *V.* × *scabra* (a hybrid Violet) from a trackside near Graig Penllyn in the Vale (SS9877), the first vice-county record since 1900, and only the third recent record from Wales.

By the time this article is published, the full account of Glamorgan Botany Group's activities for 2023 should be available on the BSBI website: [bsbi.org/glamorgan](http://bsbi.org/glamorgan)

## Reference

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# Seed Banking efforts by the National Botanic Garden of Wales in 2022

*Kevin McGinn, Science Officer at NBGW*

Many readers will already know about the new seed bank at the National Botanic Garden of Wales (NBGW). Two labs in our Science Centre at NBGW are now equipped for the long-term conservation of seeds to international standards. Our aim is to build population-level seed collections to help safeguard the Welsh flora.

In 2022 and 2023, we are making targeted seed collections from threatened and declining species in Wales as a partner of the Millennium Seed Bank (MSB) Partnership's 'UK Threatened Flora Project'. This initiative is building seed collections from multiple populations of threatened species to capture genetic variation across the UK. Half of each seed collection from Wales is stored at NBGW, and the other half is sent to the MSB. These collections will ensure that seed material from a wide range of origins is available for future *in-situ* conservation action, while also providing a valuable resource for research and engagement.

It is difficult to overemphasise how the BSBI's work and network of passionate botanists facilitates the collection efforts. The BSBI's GB Red List allows us to prioritise target taxa, and when it comes to locating species in the field, the BSBI's distribution records are of course critical, as is the local knowledge and identification skills of VCRs and other botanists. A huge thank you to all who have helped in 2022 by sharing knowledge and experience and by giving up time so willingly.

The drought in 2022 posed some challenges to our collection plans by speeding up flowering and seed set, but despite this, we were able to make 23 conservation collections from GB-red-listed species. See images 1 to 5 at the beginning of this issue. Collections included: *Euphrasia anglica* (English Eyebright) from Waun Las NNR on-site at NBGW; *Clinopodium acinos* (Basil Thyme) (image 1, front cover) and *Matthiola sinuata* (Sea Stock) from Baglan; *Hypopitys monotropa* (Yellow Bird's-nest) from Cwm Clydach near Abergavenny (thank you to Anne Griffiths for field assistance); *Salsola kali* (Prickly Saltwort) from Pembrey and Anglesey (thank you to Nigel Brown for making the Anglesey collection); the arable annuals *Scleranthus annuus* (Annual Knawel) and *Spergula arvensis* (Corn Spurrey) from Mwnt in Ceredigion; *S. arvensis* from Llwyn-Onn reservoir near Merthyr; *Juncus compressus* (Round-fruited Rush) from Llangorse Lake (thank you to John Crellin for field assistance), Powys; *Galatella linosyris* (Goldilocks Aster) from Gower;

*Scorzonera humilis* (Viper's-grass) from Glamorgan (image 5, page 2); and *Ophrys insectifera* (Fly Orchid) from Anglesey (thank you to Peter Jones of Natural Resources Wales for making this collection).

The lower water levels of ponds, reservoirs and rivers in 2022 in fact appeared to benefit *Persicaria* species by creating more bare mud and gravelly shoreline habitat. We seized the opportunity to make collections from three sites for *Persicaria mitis* (Tasteless Water-pepper) in Monmouthshire and Glamorgan, and four sites for *Persicaria minor* (Small Water-pepper) in south to mid Wales (image 2, page 2). Thanks go to Julian Woodman, Steph Tyler and Richard and Kath Pryce for assisting in the field and with identifications.

In July 2022, the Glynhir group found *Vicia orobus* (Wood Bitter-vetch)(image 3, page 2) and *Euphrasia anglica* at RSBP reserve Gwenffrwd-Dinas, and a return trip was fruitful in finding a good amount of ripe seed, despite some rodent predation on the *Vicia* seeds.

One of the most challenging species to collect despite knowing of a healthy population was *Cicendia filiformis* (Yellow Centaury) – its diminutive nature meant crawling along a farm track on Dowrog Common, Pembrokeshire, for many hours to find ripe seed capsules at eye level amongst other vegetation (image 4, page 2).

One of my favourite sites was that of *Blysmus compressus* (Flat-sedge) at Hen-Allt common, Powys (thanks to John Crellin for local knowledge). This small, isolated population is confined to a flush microhabitat just a few metres square, below a mineral-rich spring in a gully, with tufa deposits at the spring head. As a real bonus, *Colchicum autumnale* (Meadow Saffron) was in full bloom just a few metres away under *Pteridium aquilinum* (Bracken).

Although this may not sound like a large number of collections, when you include securing landowner and SSSI permissions beforehand, and then processing the voucher specimens and seed collections back at NBGW, it all adds up. Thankfully there are plenty of hands at NBGW to help out as members of the horticulture team and our science placement students have opportunities to get involved and learn about the seed banking process.

A few taxa eluded us this year, including *Oenanthe fistulosa* (Tubular Water-dropwort) and *Dactylorhiza viridis* (Frog Orchid), but 2023 will provide further opportunity to make collections from these, along with a broader list of 50 target taxa with the UK Threatened Flora Project.

# Monmouthshire Report on Arable Plants 2022

*Steph Tyler, Joint Vice-County Recorder for Monmouthshire, v.c.35*

## Introduction

We surveyed plants in 72 arable fields in Monmouthshire in the late summer and autumn 2021 and briefly described our results in the Welsh Bulletin (Tyler & Wood 2022). The few highlights included finding *Lamium amplexicaule* (Henbit Dead-nettle) and *Euphorbia exigua* (Dwarf Spurge).

In 2022 we decided to look at more fields and in all 93 arable fields were surveyed for plants between 26 July and 28 October. Many of these arable fields had maize crops (43) and the rest were a mix of beet or Brassicas, standing or stubble wheat, barley and oats, sunflowers, pumpkins, broad beans, and potatoes. Cereal stubble proved particularly unrewarding.

From 3 October through to 23 November 2022 when the first frosts occurred, 18 allotments were also visited to assess whether these supported any scarce species and whether arable plants were more abundant or whether there was a wider range of arable species in allotments than in agricultural fields.

Unfortunately, although some other allotments were found in central Monmouthshire access to these was denied due to high locked gates and barbed wire with no allotment holders present to ask for permission.

## Arable fields

Numbers of arable ‘weeds’ in each field varied from just four to 29 species with a mean of 13 species. However, some heavily sprayed fields where the stubble had been ploughed in appeared to be devoid of any plants and these were ignored.

Even in fields that we surveyed, almost invariably because of extensive herbicide use, plants were restricted to gateways or to very narrow fringes at the edges. In very few instances were plants seen within the crop.

In 2022 some 81 species were recorded in arable fields. This excludes *Lamium album* (White Dead-nettle), *Anisantha sterilis* (Barren Brome) and *Elytrigia repens* (Couch) which occurred on some grassy fringes to fields. The most frequently encountered species are shown in table 3 on the following page and are given as a percentage occurrence. Figures for 2021 are also shown.

Arable 'weed' species		2022 (93)	2021 (72)
<i>Chenopodium album</i>	Fathen	78	69
<i>Veronica persica</i>	Field Speedwell	69	62
<i>Capsella bursa-pastoris</i>	Shepherd's Purse	66	54
<i>Sonchus asper</i>	Prickly Sowthistle	61	42
<i>Polygonum aviculare</i>	Knotgrass	59	53
<i>Senecio vulgaris</i>	Groundsel	54	51
<i>Tripleurospermum inodorum</i>	Scentless Mayweed	50	44
<i>Geranium dissectum</i>	Cut-leaved Cranesbill	46	58
<i>Solanum nigrum</i>	Black Nightshade	46	51
<i>Matricaria discoidea</i>	Pineapple-weed	44	NC
<i>Persicaria maculosa</i>	Redshank	44	62.5
<i>Matricaria chamomila</i>	Scented Mayweed	41	61
<i>Atriplex patula</i>	Common Orache	41	44
<i>Polygonum arenastrum</i>	Equal-leaved Knotgrass	39	37.5
<i>Stellaria media</i>	Chickweed	37	52
<i>Chenopodium ficifolium</i>	Fig-leaved Goosefoot	31	43
<i>Atriplex prostrata</i>	Spear-leaved Orache	30	37.5
<i>Lapsana communis</i>	Nipplewort	30	NC
<i>Sonchus oleraceus</i>	Smooth Sowthistle	30	14
<i>Chenopodium rubrum</i>	Red Goosefoot	28	25
<i>Lepidium didymium</i>	Lesser Swine-cress	26	39
<i>Anagallis arvensis</i>	Scarlet Pimpernel	24	42
<i>Gnaphalium uliginosum</i>	Marsh Cudweed	24	42
<i>Viola arvensis</i>	Field Pansy	23	33
<i>Lamium purpureum</i>	Red Dead-nettle	20	43
<i>Euphorbia helioscopia</i>	Sun Spurge	17	26
<i>Fumaria muralis</i>	Wall Fumitory	16	23
<i>Chenopodium polyspermum</i>	Many-seeded Goosefoot	16	37.5
<i>Sisymbrium officinale</i>	Hedge Mustard	16	17
<i>Myosotis arvensis</i>	Field Forget-me-not	14	21
<i>Lepidium coronopus</i>	Swine-cress	14	25
<i>Fallopia convolvulus</i>	Black Bindweed	14	21
<i>Veronica arvensis</i>	Wall Speedwell	13	18
<i>Persicaria lapathifolium</i>	Pale Persicaria	12	29
<i>Echinochloa crus-gallii</i>	Cockspur	11	21
<i>Fumaria officinalis</i>	Common Fumitory	10	2

**Table 3:** Most frequently encountered species found in arable fields in Monmouthshire in 2022 and 2021, given as a percentage occurrence.

## Less widespread species in 2022

*Euphorbia peplus* (Petty Spurge) was only found in five arable fields so was less frequently seen than *E. helioscopia*. Both *Fumaria muralis* and *F. officinalis* were encountered in 10% or more of the fields but with the former being more frequent. Wild Radish was found in seven fields but where it was present it was sometimes locally frequent.

No *Centaurea cyanus* (Cornflower) or *Glebionis segetum* (Corn Marigold) were seen and *Papaver rhoeas* (Common Poppy) was rare, only seen in three fields. Some interesting species seen in 2021 were rare or absent in this survey. No *Lamium amplexicaule* was seen, nor *Aphanes arvensis* (Parsley-piert). At only one site were *Euphorbia exigua* (Dwarf Spurge) and *Stachys arvensis* (Field Woundwort) recorded. Both of these were in fields where they were found in 2021. Also found at just one site were *Ranunculus sardous* (Hairy Buttercup), *Chenopodium glaucum* (Oak-leaved Goosefoot), *Polygonum rurivagum* (Cornfield Knotgrass), *Thlapsi arvense* (Field Pennycress) and the neophytes *Amaranthus hybridus* (Green Amaranth), and *Lactuca serriola* (Prickly Lettuce). *Kickxia elatine* (Sharp-leaved Fluellen) occurred at just two sites as did *Urtica urens* (Small Nettle), *Ambrosia artemisiifolia* (Ragweed) and *Sherardia arvensis* (Field Madder).

The following species were seen at three sites: *Persicaria amphibia* (Amphibious Bistort), *Aethusa cynapium* (Fool's Parsley) and *Mentha arvensis* (Corn Mint). At four or five sites were *Epilobium tetrapterum* (Square-stalked Willowherb), *Avena fatua* (Wild oat), *Juncus bufonius* (Toad Rush) and *Spergula arvensis* (Corn Spurrey). This last species was abundant in one cereal stubble on an organic farm.

Alien grasses were generally scarce apart from *Echinochloa crus-galli* (Cocksbur) in 10 fields, with *Bromus secalinus* (Rye-brome) at three sites, *Setaria verticillata* (Rough Bristle-grass) in seven fields, this species often being locally frequent to abundant. *Phalaris paradoxa* (Awned Canary-grass) and *Panicum capillare* (Witch-grass) were only found at a single site.

There were some notable differences in frequency of occurrence of some species between 2021 and 2022. For example, *Avena fatua* (Wild Oat) was found in only four fields (4%) in 2022 compared to 29% in 2021 and *Avena sativa* in 21.5% in 2022 compared to 14% in 2021. *Gnaphalium uliginosum* was more frequent in 2021 (42%) than in 2022 (24%) but 2022 was a much drier year. Likewise, *Juncus bufonius* was only recorded in 4% of fields in 2022 compared with 15% in 2021.

Of the two common fumitories, *Fumaria muralis* was more common than *F. officinalis* in both years. The former occurred in 15% and 23% of fields in 2021 and 2022 respectively, compared to figures of 2% and 9% for *F. officinalis*.

## Allotments

Generally, arable weeds were widespread in allotments as there was little use of herbicides. However, with several exceptions, they did not produce rare or scarce arable plants. The exceptions were *Misopates orontium* (Weasel's Snout) at Chepstow, *Urtica urens*, *Spergula arvensis*, *Kicksia elatine* and *Mercurialis annua* (Annual Mercury). *Misopates orontium* is very rare in Monmouthshire, the only other extant site being where it was introduced in the 1980s where it is well naturalised in Elsa Wood's garden near Tintern. Evans (2007) last noted it in Wilcrick in 1988. *Urtica urens* occurred at allotments at Rogiet and Caldicot where it was locally frequent. *Spergula arvensis* was seen at two allotments whilst *Mercurialis annua* and *Kickxia elatine* were each found in just one allotment, at Usk and at Monmouth respectively.

Species diversity was high with many more species present in allotments than in arable fields. Species numbered from 26 to 40 although some species such as *Dipsacus fullonum* (Teasel) and *Epilobium* sp. other than *E. tetragonum*, were not listed. A few species were universal or almost so (occurring in 89-100% of allotments) - *Capsella bursa-pastoris*, *Chenopodium album*, *Euphorbia peplus* and *E. helioscopia*, *Lamium purpureum*, *Lapsana communis*, *Senecio vulgaris*, *Sonchus oleraceus*, *Stellaria media* and *Veronica persica*. Other species that were recorded frequently are shown in table 4, page 52.

Species occurring in from three to five sites (17-28% of sites), included *Polygonum aviculare* (Knotgrass) and *P. arenastrum* (Equal-leaved Knotgrass), *Symphytum x uplandicum* (Russian Comfrey), *Matricaria chamomila* (Scented Mayweed), *Helminthotheca echioides* (Bristly Ox-tongue), *Veronica serpyllifolia* (Thyme-leaved Speedwell), *Vicia sativa* (Common Vetch) and *Oenothera biennis* (Common Evening-Primrose).

Some other species that were only recorded in one or two allotments included *Aethusa cynapium* (Fool's Parsley), *Anthemis cotula* (Stinking Mayweed), *Chenopodium ficifolium* (Fig-leaved Goosefoot), *C. rubrum* (Red Goosefoot), *Geranium molle* (Dove's-foot Cranesbill), *Gnaphalium uliginosum* (Marsh Cudweed), *Malva neglecta* (Small Mallow), *Viola arvensis* (Field Pansy) and *Reseda luteola* (Weld).



Species		% occurrence (n-18)
<i>Capsella bursa-pastoris</i>	Shepherd's Purse	100
<i>Euphorbia helioscopia</i>	Sun Spurge	100
<i>Euphorbia peplus</i>	Petty Spurge	100
<i>Lamium purpureum</i>	Red Dead-nettle	100
<i>Sonchus oleraceus</i>	Smooth Sowthistle	100
<i>Stellaria media</i>	Chickweed	94
<i>Veronica persica</i>	Field Speedwell	94
<i>Chenopodium album</i>	Fat Hen	94
<i>Lapsana communis</i>	Nipplewort	89
<i>Persicaria maculosa</i>	Redshank	83
<i>Solanum nigrum</i>	Black Nightshade	83
<i>Oxalis corniculata</i>	Creeping Yellow-Sorrel	78
<i>Geranium dissectum</i>	Cut-leaved Cranesbill	78
<i>Anagallis arvensis</i>	Scarlet Pimpernel	78
<i>Epilobium tetrapterum</i>	Square-stalked Willowherb	78
<i>Lepidium didymum</i>	Lesser Swinecress	72
<i>Chenopodium polyspermum</i>	Many-seeded Goosefoot	67
<i>Borago officinalis</i>	Borage	61
<i>Fumaria muralis</i>	Common Ramping Fumitory	61
<i>Arabidopsis thaliana</i>	Thale Cress	56
<i>Myosotis arvensis</i>	Field Forget-me-not	56
<i>Tanacetum parthenium</i>	Feverfew	50
<i>Convolvulus arvensis</i>	Field Bindweed	44
<i>Fumaria officinalis</i>	Common Fumitory	44
<i>Lepidium coronopus</i>	Swinecress	44
<i>Sonchus asper</i>	Prickly Sowthistle	39
<i>Matricaria discoidea</i>	Pineappleweed	39
<i>Atriplex patula</i>	Common Orache	39
<i>Atriplex prostrata</i>	Spear-leaved Orache	39
<i>Fallopia convolvulus</i>	Black Bindweed	33
<i>Veronica polita</i>	Grey Field Speedwell	33

**Table 4.** The more common species found in allotments in Monmouthshire, in order of abundance.

## Neophytes

A wide range of neophytes or casual species were seen. *Oxalis corniculata* (Procumbent Yellow-Sorrel) was widespread, occurring in many plots in 78% of allotments with both the green and purple forms common. *Oxalis debilis* (Large-flowered Pink-Sorrel) was found in five sites (28%) as were *Erigeron sumatrensis* (Guernsey Fleabane) and *Galinsoga quadriradiata* (Shaggy Soldier). Occurring in one to four sites were *Euphorbia lathyris* (Caper Spurge), *Erigeron floribundus* (Bilbao's Fleabane), *Papaver somniferum* (Opium Poppy), *Amaranthus hybridus* (Green Amaranth), *Nicandra physalodes* (Apple-of-Peru), *Nicotiana tobacum* (Tobacco), *Lactuca serriola* (Prickly Lettuce), *Galinsoga parviflora* (Gallant Soldier), *Fagopyron esculentum* (Buckwheat), *Panicum capillare* (Witch-Grass) and *Echinochloa crus-galli* (Cockspur). Evans (2007) noted only six sites in v.c.35 for *Galinsoga quadriradiata* and seven for *G. parviflora*, suggesting that their occurrence was associated with peat-based compost. Since 2000 we have found the former at more than 12 sites but only six for *G. parviflora*.

## Conclusion

Few plants of interest now occur in most arable fields in v.c.35; this is largely due to the impact of the repeated use of herbicides across the fields and extending close to the field margins.

Allotments, whilst supporting larger populations of common arable 'weeds', were not generally a reservoir of scarce species. There were, however, many more species associated with allotments than with arable fields and several species of note were found.

## References

- Evans, T.G. 2007. *Flora of Monmouthshire*. Chepstow Society
- Tyler, S.J. & Wood, E. 2022. Arable plants autumn 2021 in Monmouthshire. *BSBI Welsh Bulletin* 109: 32-36

## Carmarthenshire Recording Update – late 2022

*Richard & Kath Pryce, Joint Vice-county Recorders for Carmarthenshire, v.c.44*

Most 2022 recording highlights have been reported in the BSBI Yearbook 2023 (Pryce & Pryce 2023) and BSBI News (Tyler 2022 and Tyler 2023) so we will confine this article to significant records that we've received since about September 2022.

Stephanie Thomas recently reported her 26 June discovery of *Hypopitys monotropa* subsp. *hypophaeaea* (Yellow Bird's-nest) at Burry Port. She noted at least six to eight plants and possibly more underground, near the north-eastern end of, and between the twin slag/sandstone walls bounding the northern side of the former, now demolished, Grillo lead oxide works (SN448004). Growing below a few scattered *Salix cinerea* (Grey Willow), *Betula pubescens* (Downy Birch) and *Pinus nigra* subsp. *laricio* (Corsican Pine), the plants were also sheltered by the parallel walls. Although generally associated with the fungus *Tricholoma* sp. she didn't find any nearby but noted black earth tongues at the same spot. This new discovery is within about 2km east of the large population on the scrubbed-over fly ash deposits at Pwll in the Millennium Coastal Park that was extant between 2004 and 2013 and first recorded by Philip Jones (Jones 2008). Both this and Stephanie's population are on former industrial sites. Other small populations have been recorded over the years from wet, shaded dune-land in Pembrey Forest about 4km – 5km to the west, from the 1960s and most recently in 2013.

Ian Morgan's (IKM) report of his 2022 back-lane wanderings included, in June, a single plant of a white cultivar of *Sutera cordata* (Bacopa), the second vice-county record. It was growing at the edge of a kerb in John Street, Llanelli (SN506002) and he believed it to have germinated from seed from a hanging basket, perhaps from 2021.

Also in Llanelli, this time in Copperworks Road (SS507993) on 25 September, Ian reported a tree of *Quercus rubra* (Red Oak) about 20 feet tall growing in a most peculiar position, immediately adjacent to the wall of a back-street garage. He provided a photo (see image 7, p55), showing how close it is growing to the wall – surely nobody could have planted it in such a peculiar place. A naturalised *Parthenocissus inserta* (False Virginia Creeper) was growing nearby.

In Ammanford on 18 August, Ian came across a single plant of *Rumex maritimus* (Golden Dock) growing as a weed in a newly planted (ie. winter 2021/22) urban swale in a car park in the centre of the town (SN630121). He considered it certainly to be an introduction, probably accidentally, with the horticultural

wetland plants originally used for landscaping this soakaway. This is the first record for Carmarthenshire.

Dr Kevin McGinn, botanist at the National Botanic Garden of Wales, sent a list of his most interesting records of the year. On 6 June, he made the seventh vice-county record of *Houttuynia cordata* (Fish-plant): a single shoot growing in grass next to a footpath gate and public refuse bin in Llandybie (SN614146). It was growing with *Urtica dioica* (Common Nettle), *Heracleum sphondylium* (Hogweed), *Agrostis stolonifera* (Creeping Bent) and *Ranunculus repens* (Creeping Buttercup). He also discovered a single plant of *Drabella muralis* (*Draba muralis*) (Wall Whitlowgrass) growing beneath an old lime mortar wall in a freshly created vegetable bed in a garden at Llandybie on 31 May and thinks that the plant germinated from the soil seed bank. It produced seed from which many seedlings arose later in 2022: this is the first vice-county record.

Also, in the same garden, Kevin found a seedling that he suspected to be  $\times$  *Reyloppia conollyana* (*Fallopia*  $\times$  *conollyana*) (*Reynoutria japonica*  $\times$  *Fallopia baldschuanica*) where *R. japonica* (Japanese Knotweed) had been dug and eradicated in the previous two years. A large *F. baldschuanica* (Russian-vine) grows in the neighbour's garden but the seedling did not look right for pure *F. baldschuanica*. The seedling was potted on for identification purposes and a photo (image 8, p56) sent to knotweed expert, John Bailey at the University of



**Image 7:** A 20-foot-tall *Quercus rubra* (Red Oak) growing immediately adjacent to the wall of a back-street garage in Copperworks Road, Llanelli on 25 September 2022. © Ian Morgan

Leicester, who confirmed it to be the hybrid. It successfully overwintered in 2021-2022. This is the second area where  $\times$  *Reyilopia conollyana* has been found in Carmarthenshire: Ian Morgan who made the first records in the Llanelli area has noted seeds in *R. japonica* plants growing in the vicinity of *F. baldschuanica*. His comment was:

"These seeds are fertile and I have grown them successfully to produce the hybrid, a lax and unattractive plant that looks like a sprawling *Reyilopia japonica* that has been mechanically damaged. The hybrids do not normally survive but must do so in some winters, particularly in urban 'heat island' situations."

Perhaps it is likely to become more frequent as the climate warms.

Kevin also communicated Andy Shaw's record of *Polycarpon tetraphyllum* (Four-leaved Allseed) which he discovered during a visit to the National Botanic Garden of Wales, Middleton, Llanarthne on 1 July. The plant was locally abundant on a grit hard standing outside the horticulture block (SN520182) and was another first record for the county.



**Image 8:** Seedling of  $\times$  *Reyilopia conollyana* (*Fallopia*  $\times$  *conollyana*) (*Reynoutria japonica*  $\times$  *Fallopia baldschuanica*) found in a Llandybie garden by Kevin McGinn, potted on and confirmed by John Bailey. © Kevin McGinn.

Sarah Andrews sent us her last record from Carmarthenshire before her move away from the county. It was the first time she'd seen *Epipactis helleborine* (Broad-leaved Helleborine) on her smallholding near Cwrt-y-cadno (SN685453) in the eleven years that she'd been living there. She discovered the single plant growing beneath a tree behind her shipping container in August. There are only four previous records of the species from SN64 and only two of those are post-2000.

On 15 November Matt Sutton came across a well-established plant of *Lonicera x henryi* (Henry's Honeysuckle) growing with *Crococsmia x crocosmiflora* (Montbretia) on the wooded side of the track to Tan-y-Lan, near Llangadog (SN697240). This is the first vice-county record of *L. x henryi* and presumably has its origins as a garden throw-out.

Also in November, Kath and I sent about 220 *Taraxacum* (Dandelion) herbarium sheets collected earlier in the year to John Richards for determination. Within a couple of weeks, he'd worked through them and had replied. He was able to determine 207 of the specimens, six of which were first records for Carmarthenshire. These were *Taraxacum akteum* from Dan-y-graig, Brechfa (SN4628) which was also an extension of its range, *T. effictum* inedit from Glanymor School, Burry Port (SN4401), *T. angulare* from New Lodge wood between Pwll and Burry Port (SN4601), *T. fulvum* from near Abergwenlais (SN7539), *T. multicolorans* from near Llethr, Llandovery (SN7535) and *T. pseudoproximum* from Pembrey Burrows LNR (SS4199). This latter appears to be only the fifth British record, which is a section *Erythrosperma* species only known from Hengistbury Head and Plymouth Hoe with the others unconfirmed. There were also four second county records: *T. exsertiforme* (SN2224), *T. pachylobum* (SN4701), *T. retzii* (SN2126) and *T. scotiniforme* (SN6540). We now have about 165 *Taraxacum* species recorded in Carmarthenshire. John never ceases to amaze us by his ability to recall all the characters of the 250+ *Taraxacum* taxa to come up with a determination in a couple of minutes whilst also weighing-up the plasticity of individual features to come to a conclusion, generally without reference to the various texts.

The last record of interest of the year was made by IKM on 10 December of a plant of *Datura stramonium* (Thorn Apple) at the edge of the pavement in West View Terrace, Bigyn, Llanelli (SS509998).

In addition to our thanks to the contributors and referees included above, we also thank all observers who have sent us records during the year and land-managers who have invited us to provide them with species lists whilst also gathering data for the forthcoming County Flora.



## References

- Jones, P.[A.] 2008. *Monotropa hypopitys* (Yellow Bird's-nest) and tree/fungus partners. *BSBI News* 109: 40-41
- Pryce, R.D. & Pryce, K.A. 2023. *Glynhir 2022 Review*. BSBI Yearbook 2023
- Tyler, S.J. 2022. Country Roundups, Wales. *BSBI News* 151: 66
- Tyler, S.J. 2023. Country Roundups, Wales. *BSBI News* 152: ---

## Images on inside back cover

See article on Juniper on page 24:

- 9:** Genetic diversity of the 50 Junipers successfully scored, as created via STRUCTURE (version 2.3.4 Jul 2012).
- 10:** Genetic distribution based on average haplotype.
- 11:** A Juniper plant with fleshy female cones.

## Images on back cover:

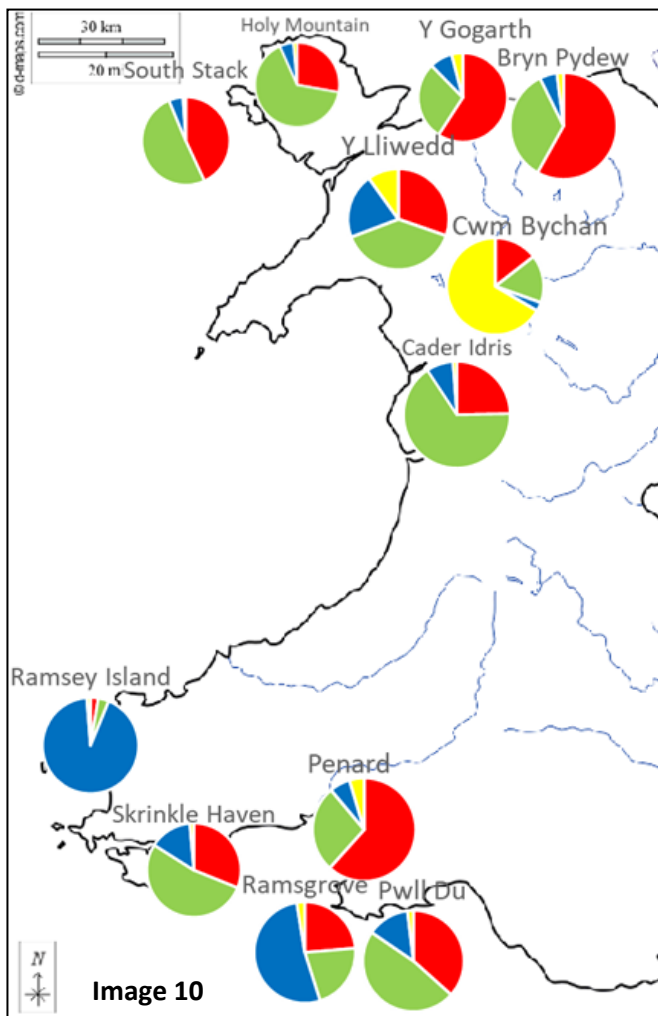
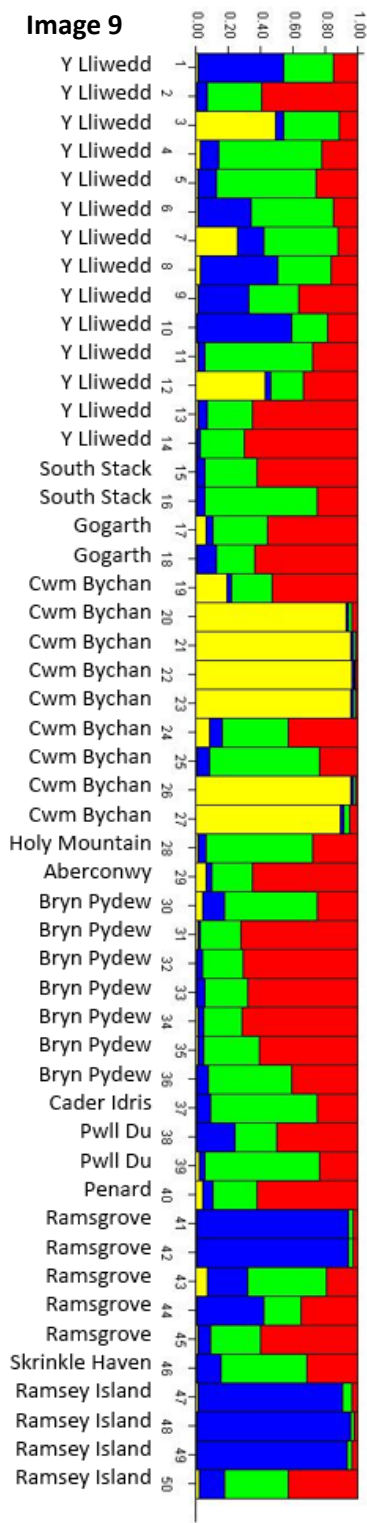
- 12:** *Carex magellanica* on Trannon Moor, Montgomeryshire, 4 July 2022. Note the long, brown, lanceolate glumes with an acuminate apex that are considerably narrower than the green utricles. © Sue Southam. See article on page 20.
- 13:** *Sparganium natans* on Trannon Moor, Montgomeryshire, 4 July 2022 showing the remains of a single male capitulum (top of each spike) and two sessile female capitula (below). © Sue Southam. See article on page 20.

Images below relate to the article on page 34:

- 14:** Narrow-lipped Helleborine (*Epipactis leptochila*) found by Sarah Clay and Des Evans in a beech wood on Sarah's land above the Wyndcliff on 22 July 2022. © Sarah Clay.
- 15:** Close-up of the Narrow-lipped Helleborine flowers. © Claudy Fox.
- 16:** Strange Broad-leaved Helleborine (*Epipactis helleborine*) at Joe Ryder farm. © Steph Tyler.



**Image 9**



**Image 10**





12



13



14



15



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