Botanical Society of Britain & Ireland

Welsh Bulletin

No. 97
January 2016

Editors: Richard Pryce, Sally Whyman & Katherine Slade

Front Cover Image: Marsh Gentian (*Gentiana pneumonanthe*): 50 spikes were found at the plateau of Tre Wilmot, Anglesey. **1:** (left to right) Ian Bonner, Martyn Stead & John Akeroyd at Treborth during the *Atriplex* workshop. **2:** *Misopates orontium* (Weasel's-snout). Images 1 & 2 and the front cover: Hugh Knott (see article, page 18).
3: Leaf (fallen) of putative *Fraxinus angustifolia* subsp. *oxycarpa* 'Raywood', with inset detail of brown (not black) bud. Photo: Polly Spencer-Vellacott (see article, page 45).

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Items for inclusion in the next Welsh Bulletin should be sent to Richard Pryce by **1st May 2016**: Pryceeco@aol.co.

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See www.bsbi.org.uk/wales.html for back issues. Printed versions of some back issues are still available on request @ £2.50 per issue; please contact Sally Whyman or Katherine Slade. Cheques are payable to BSBI (the BSBI Wales bank account has now closed). Future issues are available to BSBI members living outside of Wales by sending £2.50 in advance.

Welsh Officer News

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I hope that by the time this is published I will have spoken to, if not met in person, all Welsh vice-county recorders since my return from maternity leave in August. I am very glad to be back. If anyone wishes to contact me by phone, my normal working days are Wednesday – Friday.

With only four recording seasons to go until its publication, it is inevitable that much of my work will focus on supporting recording for Atlas 2020. Wales is doing well in terms of coverage, but there remain gaps. The maps in figure 1 below show the contrast between a very common (and visible year-round?) species like *Plantago lanceolata* (Ribwort Plantain) and another species which although common and easily recognised, has a somewhat restricted distribution and perhaps is highly visible in a relatively short period? The maps also illustrate the usefulness of the BSBI Distribution Database (DDb) found at www.bsbidb.org.uk; if you are an active recorder and do not have access, please contact me (or your vice-county recorder) for more details.

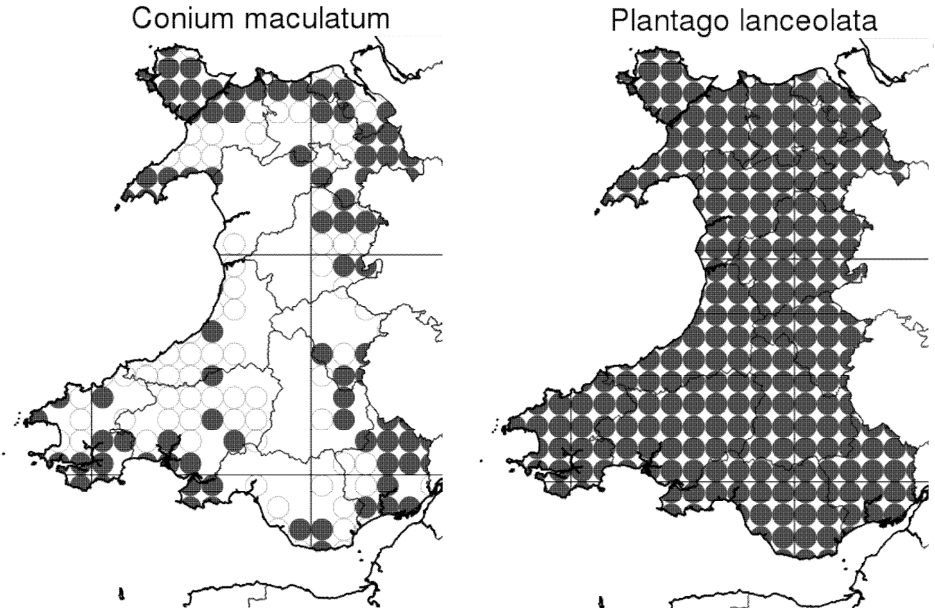

Figure 1: Maps showing records from 1987-1999 (open dots) and since 2000 (filled dots) of *Plantago lanceolata* and *Conium maculatum* Hemlock. Ref: BSBI Distribution Database, Oct 2015

If you are not a vice-county recorder, this would be an excellent time to get in touch with your vice-county recorder and offer to help. Vice-county recorders could offer you a 10km square that is in need of records. They might also be able to give you a list of "missing" species for a single 10km square, or a species that needs updating.

Last year there were exceptional offers of field meetings, partly due to Paul Green's hard work. These were much enjoyed by all who attended. I have been involved in planning some of the meetings for next year, which will include recording meetings and training meetings – so please have a look at page 7 of this bulletin and at the 2016 Yearbook to see what you would like to do. I did manage to attend some meetings, at least briefly, last year - but mostly with a baby strapped to me!

Most vice-county recorders in Wales use the recording software MapMate, which is the BSBI's recommended software. MapMate makes data entry very straightforward and also makes the process of sending records to the BSBI's "hub" and DDb easy. If you are sending records to your vice-county recorder, it is worth discussing with them the format you use. If you are not a MapMate user, there are some spreadsheets which are now available as templates to help make your data as easy as possible to import into MapMate. When you are recording, there are always choices about how much detail to record. The BSBI recording strategy indicates that the minimum grid reference required is the tetrad (2km square). However, for any species of local or national interest (Red data book; Nationally Scarce/ Rare; Locally Scarce or Rare; uncommon aliens or axiophytes) a six figure grid reference really is the minimum. Following some recent discussions, to maximise the value of your records, it is always best to put as much detail as possible in the correct fields. For example, the site name and grid reference should be in those fields, never in the comments (if you need advice on how to create sites quickly in MapMate, please contact me!). Likewise, if you record the status, it should be in the status field. The comments box is incredibly valuable, but should never be used for information that can be put elsewhere, as it is much harder to search. It is frequently used for habitat or population descriptions, and may also be used to qualify other information, e.g. if you put a number when you have counted a population, the comments could be used to explain the number – rosettes, flowering spikes, approximate, minimum.

The great change for Atlas 2020 compared to the New Atlas in 2000 is that almost all our data is now electronic. This gives us great advantages in being able to assess coverage "live". We are therefore having a big push this year to make sure as much data as possible is already visible on the DDB, so that the

Atlas Coordinator has the best knowledge of where gaps remain. If you have records which are not currently on the DDb, please, please contact me to see what the best way is to get them on the DDb. This will also enable the vice-county recorders and referees to begin the massive task of verifying the data.

We are also really nearing the completion of the County Rare Plant Register project, and I am working with the recorders for Glamorgan and Pembrokeshire to hopefully publish their Registers in Spring 2016. We will also be compiling updates (mainly electronic) to the existing Registers. These will be provided to National Resources Wales staff for use in their GIS system, and will probably also be available via the BSBI's DDb to registered users. However, if you are interested in your local Rare Plants Register you should enquire of your vice-county recorder in the first instance (or myself).

Image 4: *Anemone apennina* (Blue Anemone) – a garden escape from Coed Marquis, Menai Bridge. Photo: Hugh Knott (see article on Anglesey Plants in 2015 on page 18).

BSBI Field Meetings Wales - 2016

SARAH STILLE, *BSBI Field Meetings Secretary. 38 Foregate, Fulwood, Preston, PR2 8LA. Tel. 01772 718249 mobile: 0777 893 2268. mossysal@btinternet.com*

Many thanks to everyone who has offered to lead field meetings in 2016. Please keep your ideas coming - you do not need to be a vice-county recorder, though it is a good idea to talk to your local recorder first. Full details of all meetings are in the BSBI Yearbook for 2016.

T = Training meeting (at differing ability levels)
R = Recording meeting
G = General interest

12 - 13 March [T]
Euphrasias. Treborth Botanic Garden, Caernarvonshire, v.c.49
Leader: Chris Metherall

16 April [G]
Llandudno, Great Orme, Caernarvonshire, v.c.49
Leader: Wendy McCarthy

22 May [R]
Llanbrynmair, Montgomery, v.c.47
Leader: Andy Jones

25 - 26 June [T]
Grasses. Vale of Glamorgan, v.c.41
Leaders: Arthur Copping & Julian Woodman

2-9 July [R/G]
Glynhir, Carmarthenshire, v.c.44
Leaders: Richard & Kath Pryce

9 July [R/G]
Prestatyn, Flintshire, v.c.51
Leader: Emily Meilleur

12 - 15 July [G]
2016 Welsh AGM & field meeting
Brecon, v.c.42. See page 16.
Organiser: John Crellin.

21 - 24 July [R]
Caerdeon Residential
Merioneth, v.c.48
Leader: Sarah Stille

29 - 31 July [T]
Brambles. Ruthin, Denbighshire, v.c.50
Leader: David Earl & John Palmer

1 - 2 October
Dryopteris (Buckler Ferns)
Plas Tan-y-Bwlch, Merionethshire & Caernarvonshire, v.c.48/49
Leaders: Polly Spencer-Vellacott & Fred Rumsey

Minutes of the 2015 BSBI Wales Annual General Meeting

The 53th AGM of BSBI Wales, held at Plas Tan-y-Bwlch on Saturday 11th July 2015, at 9:30 am.

1. **Welcome**: The Chair, Julian Woodman, welcomed all assembled to Plas Tan-y-Bwlch.
There were 28 members present who were resident in Wales and eligible to vote, including the Chair and Secretary.

2. **Apologies for Absence:** Liz Dean, Margaret Perring, Sue Spencer, Kate Thorne and Stephen Evans

3. **Minutes of 2014 AGM:** Minutes of the 52nd Annual General Meeting held at the Royal George Hotel, Tintern, Monmouthshire on Thursday 19th June 2014 were agreed as a true record with the spelling of Colin Cheesman's name corrected. The minutes were proposed by Mike Porter, seconded by Andy Jones and signed by the Chairman.

4. **Matters Arising:** There were no matters arising.

5. **Chairman's Statement:** Julian Woodman thanked Sarah Stille and all involved in the organisation of the 2015 AGM, including leaders of field meetings [at this point Sarah Stille also took the opportunity to thank the leaders]. The Chairman continued by saying that all were sad to lose Paul Green as joint Welsh Officer but welcomed Polly Spencer-Vellacott's anticipated return in August. A grant from NRW had now been secured to support the Welsh Officer post although its reduction would necessitate a cutback from 5 to just 3 days per week. Elsa Wood and Andy Jones were thanked for their involvement in this unexpected outcome. Pete Stroh was thanked for attending this Welsh AGM and for giving a talk the previous evening. The Chairman announced that next year's Welsh AGM would be held in Brecon from Tuesday 12th -15th July 2016 and concluded by reminding attendees that the purposes of these meetings were to meet others, observe and record plants and to generally have an enjoyable weekend.

6. **Hon. Secretary's Report:** Elsa Wood began by thanking Plas Tan-y-Bwlch for making this another very successful Welsh AGM. She then thanked

all those involved in the production of the Welsh Bulletin, including Katherine Slade, Sally Whyman, Richard Pryce, Julian Woodman and, in particular, Stephen Coker for all the hours and hair-tearing, to produce *Welsh Plant Records*. She reminded members living outside Wales that if they wished to receive copies (which are available at £2.50 per issue), they should email Katherine Slade or Sally Whyman. (Several present at the meeting expressed an interest and RDP noted their names)

7. **Hon. Treasurer's Report - changes in Financial Administration for the Welsh Committee**: The Committee for Wales had decided that as all money is now dealt with by central BSBI, the Welsh Treasurer's post is now superfluous. However Liz Dean, the retiring Treasurer, had produced the following statement of account for the period January-December 2014 which was presented to the meeting in her absence.

BSBI Wales: Accounts for 1 January to 31 December 2014

		Y/E		To Closure	
Income		**31.12.2014**		**13.03.2015**	
Welsh Bulletin subscriptions		126		52	
J.Green donations		50		30	
		176		82	
Less Expenses					
Printing	0				
Postage	7				
Room Hire	150		50		
Stationery	0				
		-157	50	-50	
Profit for period		19		32	
Reserves brought forward		487		506	
Reserves carried forward		**506**		538	
Represented By:					
Lloyds Bank		**506**		538	537.76

8. **BSBI Welsh Officer Post**:
The meeting was informed that, following a period of uncertainty, the Welsh Officer post would continue on a part time basis, and that Polly Spencer-Vellacott (present at today's meeting) would return from maternity leave in August. Paul Green's tenure had finished on 12th June and all agreed that his contributions had been very valuable, particularly as regards records and monitoring.

9. **BSBI Welsh Officer's Report**: This report had been provided by Polly but was read to the meeting by the Hon Secretary.

Vice-county Recorder support: Have been in touch with all VCRs this year, and have visited either at home or joined in the field - 35, 41 (east), 42, 46, 47, 48, 49, 50, 51, 52. Discussions on Atlas 2020 approach and assistance with MapMate / DDb in most cases.

Rare Plant Registers: Been supporting preparation of new registers for VC41 (though not complete), and advising for 45.

Monitoring: No monitoring as such was carried out up to 12th June, as far more than required had already been done under the NRW grant quota. Instead the Welsh Officer helped out with recording for Atlas 2020.

Some of the more interesting finds by the Welsh Officer in 2015:

- A second extant site for *Trifolium suffocatum* was found at Ogmore-by-Sea in Glamorgan.
- *Imperatoria ostruthium* was re-found for Wales at Uwch Mynydd on verge of the A4212, Merionethshire.
- *Fumaria purpurea* was found new for Denbighshire.
- *Arum italicum* subsp. *italicum* x *maculatum* was found new for Glamorgan and is likely to be the first record for Wales.

Training:

- *Euphrasia* course at Amgueddfa Cymru - National Museum Wales in Cardiff was attended by 15 members and much enjoyed.
- A survey of the River Ely, west of Cardiff in search of *Chrysosplenium alternifolium* was very successful, finding the *Chrysosplenium* to be abundant.

Meetings & events:

- The Welsh Officer ran 3 *Viola* workshops at the BSBI Recorders Conference in Shrewsbury.

- Teifi Marshes NR was a recording meeting for *Atlas 2020* in Cardiganshire – well attended – a total of 451 records were collected over the two days.
- Mynydd y Gwyddel was to search for *Trifolium occidentale* on the coast in Caernarvonshire. Because of bad weather, plans were changed and the group searched and updated records for *Fumaria purpurea* and *F. bastardii* instead.
- Two days were spent looking for *Fumaria purpurea* in Flintshire at Dolphin and Cwm – first day only saw a single plant of *Fumaria purpurea*. The second day *Fumarias* were in extremely large numbers, four species seen.
- Hope to do more similar next year and cover different groups as requested by members/ VCRs in Wales.

Publicity: Welsh Officer blog is active, posting photos and short notes mainly about field meetings and of rare plants seen around Wales. 17 posts so far this year.

Practical notes:

- Polly took maternity leave from 19th July 2014. Paul became full time Welsh Officer until 12th June 2015 when the Welsh Officer's contract with NRW grant expired.
- New NRW grant funding took place from 13th June for a part time Welsh Officer.
- Paul is covering this part time post ad hoc until Polly's return from maternity leave on 24th July.

10. **Election of Officers and Members to the Committee for Wales**
The following members retire from the Committee in 2015 and have agreed to stand for re-election: Stephanie Tyler (Vice-chair), Elsa Wood (Hon. Secretary), Kath Pryce (Hon. Minutes Secretary), Ray Woods and the Welsh Bulletin Editors Richard Pryce, Katherine Slade and Sally Whyman. They were proposed for re-election by Sarah Stille, seconded by Ian Bonner and their re-election was approved by those present. Elsa Wood then asked for any further nominations from the floor but none were forthcoming.

Arthur Chater announced that he wished to retire from the Committee today and the meeting expressed their sincere appreciation for his long standing service and valuable contributions to the Committee as well as Welsh BSBI matters over many years. All agreed that he will be very much missed.

The Committee for Wales now comprises:

Chairman:	Julian Woodman
Vice Chair:	Stephanie Tyler
Secretary:	Elsa Wood
Treasurer:	no longer required
Bulletin Editors:	Richard Pryce. Co-opted: Sally Whyman & Katherine Slade
Meetings Secretary:	Sarah Stille
Minutes Secretary:	Kath Pryce
Committee Members:	Ian Bonner, Steve Chambers, John Crellin, Natasha de Vere, Liz Dean, Stephen Evans, Peter Jones, Sue Spencer, Kate Thorne, Delyth Williams and Ray Woods.
BSBI Welsh Officer:	Polly Spencer-Vellacott
CCW Observer:	Andy Jones.
Plantlife Representative:	Colin Cheesman

11. **Other Business:**

Invitation to join the BSBI Board of Trustees
Delyth Williams (who sits on the BSBI Board of Trustees) told the meeting that the Board is short of members and appealed to those present to consider offering their services, and also to inform members not present who may be interested. She said it involved 3 meetings in London plus one internet meeting per year and that skills in legal matters, finance, HR, media, fundraising or PR were particularly required.

The meeting closed at 10.00am.

Report of the 53rd Welsh AGM 10-12 July 2015

SARAH STILLE & RICHARD PRYCE

The Snowdonia National Park's Environmental Studies Centre at Plas Tan y Bwlch is in a former family mansion situated high above the River Dwyryd estuary with wonderful views to the sea and to the mountains of the Rhinogydd and the Migneint to the south. The house in its well-forested grounds is a delightful setting for any gathering and BSBI in Wales were pleased to be welcoming members here once again.

The theme of Peatlands had been suggested by Mike Porter's kind offer to lead workshops on sedges. Unfortunately, in the event, he was unable to be present, but there was plenty of activity on the first day, with Pete Stroh going off early on Friday afternoon to make over 250 records in a nearby site and Martin Rand offering help with MapMate queries. After supper and a short introduction to the vice-county of Merioneth, we had two excellent speakers. Gethin Davies spoke about the Snowdonia National Park's peatland restoration project for which he is responsible. Finally, everyone was stirred to attention by Peter Stroh's update on Atlas 2020; his maps and comments about the vice-counties' progress certainly hit the spot for some vice-county recorders!

Field meetings continued the Peatlands theme and offered a choice of square-bashing for Atlas 2020 or visits to better-recorded sites of particular interest to visitors. The scarce lowland mire habitat of Arthog Bog SSSI, owned and managed by RSPB, was visited to see *Impatiens noli-tangere* (Touch-me-not Balsam) and *Ranunculus lingua* (Greater Spearwort) – but only the latter was found on this occasion. A quick visit to the sand-dunes at Fairbourne brought *Carduus tenuiflorus* (Slender Thistle) to add to the list. Another group re-visited Castell Prysor, one of the vice-county's most flower-rich sites, finding *Vicia orobus* (Wood Bitter-vetch) and re-finding *Galium boreale* (Northern Bedstraw) for the first time this millennium. Pete Stroh led a further group to Ithfaen Quarry whose bedrock is mostly slate but with volcanic intrusions, both granitic and micro-gabbro. A suite of base-rich indicators, *Linum catharticum* (Fairy Flax), *Briza media* (Quaking Grass) and the carices, *Carex pulicaris* (Flea Sedge), *C. hostiana* (Tawny Sedge) and *C. dioica* (Dioecious Sedge) were included in a fantastic 266 records for this 'virgin' tetrad.

Saturday's supper was enhanced as usual by drinks provided for by the generous legacy of the late John Topp. The evening continued well, with an excellent talk from Dr Peter Jones, Peatland Ecologist with Natural Resources Wales. He gave us a splendid overview of Welsh peatlands, starting by

explaining that the definition includes all land having peat accumulations greater than half a metre thick. The deepest in Wales is at Crymlyn Bog, Swansea where it reaches a depth of 13m, the average over the whole principality being about 1m. Peatlands are the most acid and least nutrient-rich habitats and, as such, support a very specialized flora and fauna. Peter then went on to describe the various peatland types: blanket bog, raised bog, poor-fen/transition mires, soligenous poor-fen, rich-fen, petrifying springs and tall-herb fen, together with the natural succession from open water through to wet woodland. Only 16% of Welsh peatlands are in a favourable condition with a further 50% extant but in an unfavourable state. The remaining 34% have been converted to semi-improved habitats, improved grassland or planted with conifers. Cardiganshire and Carmarthenshire are particularly rich in peatland sites but no more than 50% of the Welsh resource is protected by SSSIs. It is also worrying that due to drier summers, blanket peat formation is predicted to contract from over c.40% of Wales at present to c.5% by 2080 but it must be remembered that sites may persist even if peat does not continue to be deposited. On the positive side, however, conservation management has increased the amount of peat, although 70% remains in poor condition.

Peatland conservation has received a recent boost since it has been generally realized that peat is important in the management of carbon storage and is a way of mitigating climate change. $1m^3$ of peat stores 0.11 tonne of carbon and actively forming peat attracts CO_2 whilst degraded peat emits CO_2. As an example, Pwllau Cochion in Carmarthenshire has an average peat depth of 2.8m (6m maximum) which holds 8000 tonnes of carbon but the emissions of carbon resulting from parts of it having been converted to improved grassland and arable are considerable. The Centre for Ecology and Hydrology (CEH) has now mapped where emissions are occurring and the Welsh Government has decreed that all peatland sites in Wales must be in favourable condition by 2020. In response, local action is taking place in Anglesey and Carmarthenshire. In answer to a question by Arthur Chater, Peter replied that the Lowland Peatland Survey will result in the detailed description of 400 sites in Wales and will be completed in three years.

On Sunday of the 2015 AGM, a group visited Glaslyn Marshes, a brackish marshland owned by the North Wales Wildlife Trust, and were delighted to find abundant *Carum verticillatum* (Whorled Caraway) and *Baldellia ranunculoides* (Lesser Water-plantain) in fine flower. Sadly, *Limosella australis* (Welsh Mudwort), for which the site is renowned, wasn't re-found on this visit. Notable in the cemetery above the marsh was an amazing blue spread of the delightful *Jasione montana* (Sheep's-bit). Wendy McCarthy led

a visit to Yr Ysgwrn, an historic and typical hill farm which has recently been acquired by the Snowdonia National Park and where the best habitat consists of little marshy fields with a nice range of bog plants. *Achillea ptarmica* (Sneezewort), *Anagallis tenella* (Bog Pimpernel) and many carices including *Carex limosa* (Scarce Bog-sedge) and *C. magellanica* (Tall bog-sedge) as well as *Selaginella selaginoides* (Lesser Clubmoss) and *Vicia orobus* (Wood Bitter-vetch).

Andrew Graham led another group to Cors Coch, the marshes of the Afon Eden headwaters, where a fine suite of plants was recorded for this upland site including *Carex pulicaris* (Flea Sedge) and *C. dioica* (Dioecious Sedge), with the highlight being *Andromeda polifolia* (Bog Rosemary). Another group enjoyed a strenuous walk over blanket bog on the RSPB Reserve Tanrallt, on the Migneint SSSI, high above the Prysor Valley. This site has been well-recorded by the warden, Gethin Elias, but the visitors noted *Dactylorhiza praetermissa* (Southern Marsh-orchid) and *Gymnocarpium dryopteris* (Oak Fern), first records for the hectad, as well as *Galium verum* (Lady's Bedstraw) and *Geum rivale* (Water Avens), scarce in these acid lands and indicative of good habitat.

Plas Tan-y-Bwlch proved to be a better than ever venue. The food and accommodation were excellent, and nothing was too much trouble for the staff. Summerfield Books were provided with an ideal space for their fine display of the latest publications and the conference rooms were well-equipped with cutting-edge visual aids. A return visit will surely not be long away and although numbers were somewhat down on previous years, those members who came enjoyed the usual good botanical company, some very interesting talks and what is more, contributed over 1500 new records to Atlas 2020.

Welsh AGM 2016

Brecknockshire
12th to 15th July 2016
The Barn at Brynich, outside Brecon

The 2016 Welsh AGM (54th BSBI Welsh AGM & Field meeting & 34th Exhibition Meeting) will be held on 12th to 15th July at Brecon.

Accommodation (self-catering) will be available for those who book early from the Monday (11th) through to the Friday (15th) affording an excellent opportunity to explore the Brecon Beacons region or even to help out with Atlas records for the local vice-counties.

Brecknock: Vice-county 42, the old county of Brecknock, has many different habitats, not all easy to access. The field excursions for the AGM will aim to give a good sampling of these, including places that have records from before 2000 that need updating.

The Local Nature Reserve at Vicarage Meadows is remote even for Brecon residents, but will be worth the journey for many BSBI members, I am sure, as a prime site in Wales for *Pseudorchis albida* (Small-white Orchid) and *Vicia orobus* (Wood Bitter-vetch). The naturally unspoilt hill pasture that hosts these has plenty more to offer and several orchid species should be in flower at the meeting time.

We hope to have an excursion for more adventurous members up to the peak of Cribyn in the Beacons with a chance to see (if not touch) the newly named *Hieracium attenboroughianum* (Attenborough's Hawkweed) as well as other unexpected species such as *Silene uniflora* (Sea Campion) which inhabit the steep northern slopes of this range.

Other field excursions will take us to Llangors Lake, which has species not found anywhere else in the region, and the banks of the Wye. It is hoped to have a visit to the nationally important Stanner Rocks National Nature Reserve in neighbouring Radnorshire (v.c.43) as well.

The meeting will be based at 'The Barn at Brynich', on the A40 just outside Brecon.

John Crellin, *Joint BSBI Recorder for Breconshire.*
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AGM 2016: Provisional Programme

Monday 11th July

Optional early arrival (accommodation at the Barn is available after 16.00). A chance to arrive early and explore the Brecon Beacons landscape.

Tuesday 12th July

	Arrive any time. An informal day for settling in.
13.00-17.00	Registration.
14.00	Walk along the canal from The Barn.
Evening	Dinner locally or (self-catered) in accommodation at the Barn. Talk: The Geology of the Beacons and Black Mountains, James Cresswell. Exhibitions. Bar open.

Wednesday 13th July

9.30	BSBI Wales AGM (preceded by a short meeting of the Committee for Wales at 9.00).
10.00	Collect packed lunches.
10.30	Depart by car for excursions.
19.00	Dinner at the Barn, followed by talks.

Thursday 14th July

8.30	Breakfast (residents and non-residents) at the Barn (dependent on sufficient bookings).
10.00	Collect packed lunches.
10.30	Depart by car for excursions.
19.00	Dinner at the Barn, followed by talks.

Friday 15th July

Those staying at The Barn accommodation to leave rooms by 10.30.
Informal excursions.

Anglesey Plants in 2015

IAN BONNER, *Joint BSBI Vice-county Recorder for Anglesey (v.c.52)*
[1]*Cae Trefor, Tynygongl, Anglesey, LL74 8SD. Bonner@caetrefor.co.uk*

Firstly, some unfinished business from 2014 – in April the Flora Group visited Plas Cadnant and the adjacent Dingle SSSI. In the woodland, close to the Afon Cadnant SH55.73 was a tussock of a purplish/red sedge that was not identified. A small shoot was collected and grown on in a pot and taken to the February 2015 Committee for Wales meeting where Elsa Wood identified it as *Uncinia rubra* (Red Hook-sedge). It has subsequently flowered and looks just like the pictures of this taxon on the internet. It is a native of New Zealand and widely used in low maintenance planting schemes and presumably spread to this location by seed.

We were also able to look at the distribution maps of aquatic plants on Malltraeth Marsh prepared by Richard Lansdown, after his 2014 Survey for the RSPB. These show that the shallow scrapes for the benefit of birds like Lapwing also benefit many aquatic plants – indeed he estimates there may be as much as a hectare of *Pilularia globulifera* (Pillwort) scattered over the reserve. Richard also found *Bidens cernua* var. *radiata* (Nodding Bur-marigold), the attractive rayed form reported on in last year's article, to be quite widespread over the Reserve.

The, by now, traditional pre-season meeting took place at Treborth on 24th March when progress in 2014 was briefly reviewed and a mix of field meetings to specific locations and under recorded monads planned for 2015 – Barry Wrightson agreed to continue to co-ordinate the meeting arrangements.

Peter Marren graced Anglesey with a visit on 27th March – to view *Mibora minima* (Early Sand-grass) at Aberffraw in preparation for a book Peter is writing about selected rare plant species from around Britain.

The first recording meeting proper took place on 14th April when seven of us assembled at the now rather derelict Llyn Alaw Visitor Centre to explore blank monads around Llanbabo SH37.86. A testament to the value of several pairs of eyes was that some 125 taxa were noted from this rather unpromising area so early in the season, including a couple of less common garden escapes – *Geranium phaeum* (Dusky Crane's-bill) and *Ruscus aculeatus* (Butcher's-broom).

[1] Although Ian Bonner moved from Anglesey at the end of 2015, he will continue as Vice-county Recorder for Anglesey, being joined by Dr Hugh Knott. Contact details for both will appear in the BSBI Yearbook for 2016.

On 25th April, Peter Jones showed off his recently discovered locality for *Huperzia selago* (Fir Clubmoss) on Yr Arwydd SH473.855 before we divided into two groups to brave a cool and wet morning on Mynydd Bodafon SH46.85 and the monad to the north. The steeply sloping grassland and woodland around the ruins of Nant-y-sebon SH46.86 yielding an impressive list of over 130 species.

A late April visit to the New Red Sandstone outcrops SW of Brynrefail in SH47.86 found one or two elderly *Euonymus europaeus* (Spindle) bushes surviving the cattle and sheep grazing on the now improved grassland. Higher up there is still a small area of wet heath, part of which is un-grazed with locally scarce *Viola palustris* (Marsh Violet). A follow-up visit in mid-August found further heathland relics with plentiful *Anagallis tenella* (Bog Pimpernel) and *Scutellaria minor* (Lesser Skullcap), also a single clump of *Oreopteris limbosperma* (Mountain Fern) which has become a scarce fern on Anglesey.

Encouraged by this latter find, a visit to the seepages on the N side of Yr Arwydd, SH47.85, found seven clumps of Mountain Fern at the junction of *Molinia* (Purple Moor-grass) mire and adjacent *Ulex* (Gorse) and *Pteridium* (Bracken) – it had not been recorded from here since 1960. The whole area is un-grazed and quite a struggle to negotiate, but we were rewarded with good views of basking Adders.

A May visit to Tywyn Trewan Common with the North Wales Wildlife Trust found *Moenchia erecta* (Upright Chickweed) to still be locally plentiful at this its only Anglesey location, on the golf course fairway and adjacent tracks at SH321.755.

Quite a few visits this summer have been to lane-sides where the earth and stone banks, or cloddiau, support a flora that might have been typical of adjacent land before enclosure and subsequent agricultural improvement. Characteristic plants include *Lepidium heterophyllum* (Smith's Pepperwort), *Senecio sylvaticus* (Heath Groundsel) and *Jasione montana* (Sheeps-bit Scabious), the last listed as Near Threatened (NT) in the Red Data List for Wales (a >20% decline at the hectad level). Anglesey is an important stronghold for *Jasione*, which was noted in 26 additional monads this summer and since 2000, has been recorded from about 200 of the 800 monads that cover Anglesey.

A July visit to Bodorgan Station found *Blackstonia perfoliata* (Yellow-wort) around the Station Yard SH38.70. Of the five other post-2000 records of Yellow-wort four are also from disturbed ground associated with disused quarries. On nearby verges was a sizeable patch of *Geranium columbinum* (Long-stalked Crane's-bill) – very local away from the limestone along the

east coast. *Hypericum* x *desetangsii,* the hybrid between *H. maculatum* and *H. perforatum* was confirmed by Norman Robson, who commented that it appeared to be nothosubsp. *carinthiacum* – meaning that it was derived from *H. maculatum* subsp. *maculatum* which has not been recorded from Wales!

At South Stack the RSPB sowed a crop of barley in one of their fields for a second year and in late July the Flora Group listed all the non-crop plants – some 55 species – though the number of typical arable 'weeds' was low. *Anagallis arvensis* (Scarlet Pimpernel) was very abundant, including the occasional plant with blue flowers, as was *Euphorbia helioscopia* (Sun Spurge). *Spergula arvensis* (Corn Spurrey) and *Stachys arvensis* (Field Woundwort) were abundant and three fumitory species were noted, *Fumaria bastardii* (Tall Ramping-fumitory), *F. muralis* (Common Ramping-fumitory) and *F. officinalis* (Common Fumitory).

A second visit to a former waste disposal site near Gwalchmai produced a list of over 250 taxa and a second vice-county record for *Verbena officinalis* (Vervain) growing along the laneside by the former entrance, SH37.76. Vervain has been known since 1997 from around the car-park to the local Nature Reserve by Wylfa Power Station.

A late July walk west of Gadfa (SH44.89), towards Parys Mountain, passed through two fields recently cultivated and sown with grass seed, which showed an impressive display of *Viola arvensis* (Field Pansy) - the fields looked quite white from a distance. Amongst a good range of other arable species was a single flowering plant of *Misopates orontium* (Weasel's-snout) at SH4468.8998 (see image 2 on inside front cover). This is one of only five post-2000 records and two of the others are from gardens. On disturbed soil on the edge of Parys Mountain SH44.89, were a few plants of *Aethusa cynapium* (Fool's Parsley), a surprisingly uncommon plant on Anglesey and the first record for SH48.

Continuing the arable weed theme a very interesting re-find by Sue Wilkinson was of two plants of *Galeopsis speciosa* (Large-flowered Hemp-nettle) in Llangristiolus SH43.73, one on spoil excavated for a pond and one on soil disturbed by tree planting. It was last recorded from here in 1986 when the area was regularly cultivated and there are no other post 2000 localities.

RSPB continue to monitor rare plant species on their reserves, including *Tuberaria guttata* (Spotted Rock-rose) at South Stack. Of the twelve known locations only six held any plants and of these only four held 25 or more plants – giving a total of 2313 plants, which compares with only 1120 plants in 2014. Counts started in 1994 and the annual totals have varied from 1044 (2013) to 5957 (2002).

First records of garden escapes include *Anemone apennina* (Blue Anemone) from Coed Marquis, Menai Bridge SH55.71 in April (see image 4, page 6); *Pratia pedunculata* (Matted Pratia) from verges in Rhosneigr SH31.72 and a lawn in Llanfair Pwll SH52.71 in June and *Campanula persicifolia* (Peach-leaved Bellflower) beside a track on Parys Mountain SH449.902 in July.

Another new species in 2015 was *Crassula tillaea* (Mossy Stonecrop) spotted by Martyn Stead on a rather scruffy car-park in Rhosneigr SH320.735, again not native to Anglesey, though is considered so on sandy/gravelly ground in East Anglia. Mossy Stonecrop has been spreading north and west and is now found on a number of caravan and car-park sites across Wales.

Nik Aspey visited Llyn Coron in August and provided a welcome update on *Persicaria minor* (Small Water-pepper), counting 40+ plants from the muddy shoreline in SH38.70. Small Water-pepper has been known from Llyn Coron since 1813 and is its only Anglesey locality.

Also in August Sam Bosanquet of National Resources Wales mapped Rhoscolyn Reedbed SSSI. Amongst a number of interesting finds noted a small, 1 x 1m clump of *Carex pseudocyperus* (Cyperus Sedge) in the reed bed at SH27.75 to add to the well known sites around the Valley Lakes and the 2010 discovery of the sedge in a wetland beside the new A55 at Malltraeth.

Hugh Knott and I were pleased to count over 50 flower spikes of *Gentiana pneumonanthe* (Marsh Gentian) (see front cover image) in a shallow depression on the plateau of Tre Wilmot, SH23.81. It was rather struggling through *Molinia caerulea* (Purple Moor-grass and *Erica tetralix* (Cross-leaved Heath) on this currently un-grazed site, but noted that in 1999 the count was over 1,100 from a similar area!

An early September visit to Newborough Warren found the recently created slack area to be very dry and mainly being colonised by fragments of *Rubus caesius* (Dewberry) and *Salix repens* (Creeping Willow), but established slacks further inland were a mass of *Parnassia palustris* (Grass-of-Parnassus). A few other less common species noted included *Clinopodium vulgare* (Wild Basil) at a couple of sites in SH41.63; *Geranium sanguineum* (Bloody Crane's-bill) a single flowering plant on the track used by the dune management machinery and *Lithospermum officinale* (Common Gromwell) which has been regularly recorded from around SH411.630 but apparently nowhere else in the dunes or forest.

Hosting the BSBI *Atriplex* Workshop (see image 1 on inside front cover) was the highlight of September when a dozen or so members lead by John Akeroyd, the *Atriplex* referee, examined Oraches from the shore of the Menai

Strait, Red Wharf Bay and the estuaries of the Afon Crigyll and Afon Ffraw. Altogether, some six species and four hybrids were determined, including the rather elusive *Atriplex longipes* (Long-stalked Orache). A more comprehensive note about the Workshop has been prepared for the 2016 Year Book.

Another specialist making a welcome holiday visit to the Island in September was Geoffrey Kitchener who just happened to notice a couple of dock hybrids, which turn out to be new vice-county records! *Rumex crispus* x *R. conglomeratus* = *R.* x *schulzei* from damp grassland at the edge of the dunes, Glan Halen, Llanddona, SH56.80 and *Rumex crispus* x *R. sanguineus* = *R.* x *sagorskii* from a hedgerow near Traeth Bychan, SH515.853. In both cases, the hybrids were growing with both sets of parents.

The final meeting in early October was to Cors Goch NWWT Reserve, walking from the Castell car-park towards the heath at Caban, a few Marsh Gentians (*Gentiana pneumonanthe*) were still in flower. The Trust's August count totalled only 188 flowering plants across the Caban and Craig Wen heaths, compared to 432 in 2014.

Along the lane-side, Martyn Stead spotted a small clump of a helleborine, which appeared to be *Epipactis dunensis* (Dune Helleborine) at SH495.804. Dune Helleborine had also been recorded from a trackside, well away from coastal dunes, at Glan Morfa SH43.67, in July. Our destination was the limestone outcrop on Rhuddlan Fawr where we found half a dozen or so plants of *Spiranthes spiralis* (Autumn Lady's–tresses) in flower along the scarp edge, despite the worrying lack of grazing.

Thanks are due as always to members of the Flora Group and all those who have submitted records or helped with determinations and confirmations.

References

Dines, T.D. (2008) *A Vascular Plant Red Data List for Wales*. Plantlife International, Salisbury.

Lansdown, R.V. (2014) *Survey of Aquatic and Wetland Plants on parts of Malltraeth Marsh, Anglesey.* Unpublished Report for the Royal Society for the Protection of Birds.

Interesting plant finds in Monmouthshire, 2014 and 2015

STEPH TYLER & ELSA WOOD, *Joint BSBI Vice-county Recorders for Monmouthshire (v.c.35)*

We have been out surveying most weeks throughout the year in 2015 visiting tetrads not well recorded since 2000. There have been many interesting finds but a few of the highlights are given below, as well as some excellent records by other botanists.

In Welsh Bulletin 93, we noted nine species that were among 72 thought to be extinct in Monmouthshire v.c.35 (Evans 2007) that had subsequently been re-found (Tyler & Wood 2014). Three other species have been added to the 'not extinct' list. Andy Karran found and photographed a flowering spike of *Orobanche rapum-genistae* (Great Broomrape) whose host plant is *Cytisius scoparius* (Broom), near Cefn Garw in SO41G in June 2015. Heather Colls found flowering *Trifolium incarnatum* subsp. *incarnatum* (Crimson Clover) at Troy near Monmouth in SO5111 in May 2014, the first record in v.c.35 since 2003. Paul Green and then Elsa & Adrian Wood found *Fumaria purpurea* (Purple Ramping Fumitory) at Chepstow and Machen respectively in 2014 (Green, 2014).

Osmunda regalis (Royal Fern) was mentioned in our Welsh Bulletin article as re-found at two sites. To add to these sites a single small plant was found last year in a wet area on an old coal tip near Llanhilleth in SO20F, northeast of Crumlin and another small specimen was found in September 2015 in a bog at Twyn Abertysswg, south of Tredegar in SO10I. This bog also provided *Hypericum elodes* (Marsh St John's Wort) and *Drosera rotundifolia* (Round-leaved Sundew). Then EW and her husband Adrian found six fine plants of Royal Fern on 4th October in a dry reservoir bed at Cwm Lickey near Pontypool. This fern is widely planted in gardens but these three sites are well away from likely planted sources.

We were surprised to find abundant *Rorippa amphibia* (Great Yellow-cress) at the edge of the Sirhowey River south of Tredegar, the first record in the west of the vice-county. Heather Colls also had an exciting find of another yellow-cress *Rorippa austriaca* (Austrian Yellow-cress) at Troy Station near Monmouth. She also found *Anisantha diandra* (Great Brome) by the River Wye below the old aqueduct on 1st November.

Coal tips are also rewarding habitats for botanists and at many old tips in the western valleys we have found large populations of *Filago minima* (Lesser

Cudweed) and occasionally *Filago vulgaris (*Common Cudweed) too as near Mynydd Varteg. The best place for the last species though is within the MOD property at Caerwent where it occurs in abundance along roadsides and on the disused railway line there.

A visiting botanist, John Hodgson, alerted us to a patch of grass by the coastal path in Bulwark, Chepstow with *Parentucellia viscosa* (Yellow Bartsia) and the alien *Polypogon montspelliensis (*Annual Beard-grass). When we visited this site, we noted the Yellow Bartsia, a rare plant in the vice-county, and also found the alien *Polypogon viridis* (Water Bent) which is turning up everywhere.

Halophytes continue to turn up inland and in June 2015 on a slip road off the dual carriageway at Raglan, Paul Green found *Catapodium marinum* (Sea Fern Grass), *Puccinellia distans* (Reflexed Saltmarsh-grass) and *Lepidium ruderale* (Narrow-leaved Pepperwort). Other excitements included abundant *Chenopodium glaucum* (Oak-leaved Goosefoot) on drying lagoons at Goldcliff, Newport Wetland Reserve and at inland sites in 2014 and in 2015, *Eleocharis quinqueflora* (Few-flowered Spike-rush) in a wet field near St Brides Netherwent in ST4288 in June 2015 and *Eleocharis multicaulis* (Many-stalked Spike-rush) at Cefn Garw in SO41G in June 2014. The latter species was previously known from only one site, in SO2626.

Saxifraga granulata (Meadow Saxifrage) was found in two new hectads – in Chepstow in ST5293 by Alistair Jacks and near Far Hill Llanishen in SO4604 by Stuart Hedley.

References

Evans, T.G. (2007) *Flora of Monmouthshire*. Chepstow Society

Green, P. (2014) Recent sightings of *Fumaria purpurea* (Purple Ramping Fumitory) in Wales. *BSBI Welsh Bulletin* 94: 13-14

Tyler, S.J. & Wood, E. (2014) Extinct species in Monmouthshire (v.c.35) – When can a species really be considered extinct? *BSBI Welsh Bulletin* 93: 31-32

The status of *Matthiola sinuata* (L.) W.T. Aiton (Sea Stock) in South Wales

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INTRODUCTION

Matthiola sinuata is a nationally rare, native species of coastal sand dunes, cliffs and shingle (Rich, 1991) – see image 7 on inside back cover. It is a UK Biodiversity Action Plan (BAP) species, a vulnerable Red Data Book species and is also included in the Schedule 42 list of vascular plants (Welsh Assembly Government, 2008); i.e. plants prioritised for biodiversity action in Wales. Surprisingly, it wasn't included in the Schedule 8 list of protected species in the Wildlife and Countryside Act 1981.

The *New Atlas of the British and Irish Flora* (Preston et al., 2002) records the occurrence of *M. sinuata* in 12 hectads, 6 of which are in Glamorgan (v.c.41). Elsewhere in Wales it was recorded new for Carmarthenshire (v.c.44) at Ginst Point, Laugharne in 2005 (see communication by R.D. Pryce in BSBI Welsh Bulletin, No. 77, p.31 (2006) and No. 80, p.18 (2007)) and 4 plants were noted on Pendine Sands in 2007 (R.D. Pryce and K. Pryce, personal communication). There are also recent records of *M. sinuata* in Pembrokeshire (v.c.45) where plants have been noted on Penally/Tenby dune front (2004), Caldy Island (2008 – 2014) and Freshwater East dunes (2009 – 2013) (S.B. Evans personal communication and see communication by S. B. Evans (2010) in BSBI Welsh Bulletin, No. 86, p. 37). Outside Wales, extant populations of *M. sinuata* are known in Devon, Cornwall and the Channel Islands.

The map on page 26 (figure 2), is a summary of the current, known distribution of *M. sinuata* in South Wales.

Matthiola sinuata has undergone a significant, southward contraction in its native distribution range in the last 100 years. Watson (1883) recorded its occurrence in north Devon (v.c.4), Glamorgan (v.c.41), Pembroke (v.c.45), Merioneth (v.c.48), Caernarvon (v.c.49), Flint (v.c.51) and Anglesey (v.c.52) and noted that it had also been recorded in Cornwall, Dorset and Sussex at remoter dates. The *New Atlas* reports pre-1970 occurrences in 13 GB hectads and 8 Irish hectads. It seems to have disappeared from Ireland.

Matthiola sinuata is a Mediterranean-Atlantic species which is endemic to the south and west coast of Europe (including islands). The survival of this species in South Wales is of considerable interest since its occurrence there represents the northern limit of its native, global distribution. Consequently,

populations in South Wales are important not only in terms of national biodiversity but also because of their biogeographical and ecological significance.

HABITAT AND COMMUNITY RELATIONSHIPS

In South Wales, *M. sinuata* is exclusively a plant of coastal dunes where it grows in early successional mobile sand or strand line shingle communities. It is commonly associated with the Marram Grass mobile sand dune community (SD6) where it grows with species such as *Ammophila arenaria*, *Elytrigia juncea*, *Eryngium maritimum*, *Carex arenaria*, *Calystegia soldanella*, *Euphorbia paralias*, *Vulpia fasciculata*, *Phleum arenarium*, *Viola tricolor* ssp. *curtisii*, *Hypochaeris radicata*, *Oenothera cambrica/* x *fallax* and *Senecio jacobaea*.

LIFE FORM AND REPRODUCTION

Although *M. sinuata* has often been described as biennial and semelparous (and will conform to this life form in cultivation), plants *in situ* often live for more than two years and are sometimes iteroparous. After germination, which usually occurs between October and April, seedlings develop into rosettes which invest significant resources into forming deep root systems. This serves not only to improve absorption of water and minerals, but also the crucial role of anchoring plants in a very (sometimes violently) mobile substratum. High densities of seedlings are often found in the vicinity of parent plants (image 8, inside back cover), but few survive to produce productive rosettes; mature plants are not particularly gregarious. Normally a population consists of non-flowering rosettes (of different ages) and flowering/fruiting plants. Populations may exhibit a large range in non-flowering rosette sizes (from

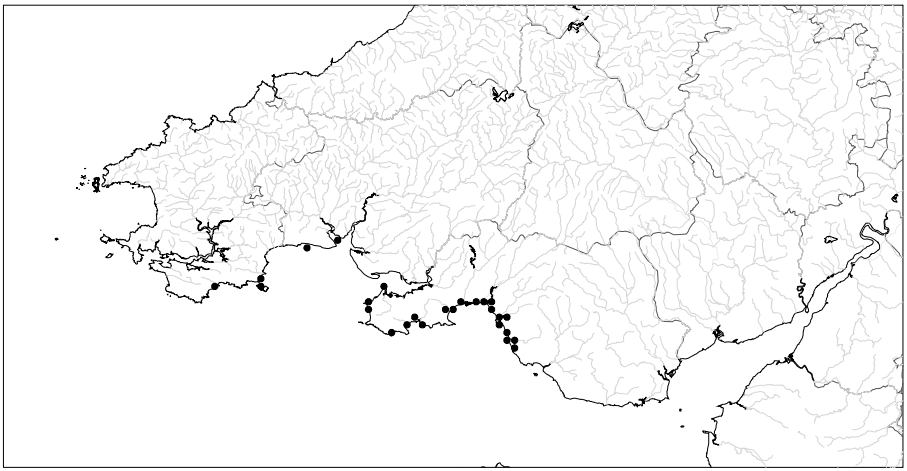

Figure 2: Current known distribution of *Matthiola sinuata* in South Wales

<5cm to >50cm; see figure 5, page 32). Some non-flowering rosettes continue to grow vegetatively for more than 1 year, but the precise dynamics of this life trait are not fully understood. Populations often contain a mixture of simple plants, with one rosette, and complex plants consisting of several rosettes arising from the rootstock. All rosettes can give rise to a single reproductive shoot, which may produce flowers and fruits. Seed production is usually good and large floriferous plants may produce >300 seed pods with an average of 30-40 seeds per pod. Consequently, the reproductive output of some populations in South Wales can exceed 250,000 seeds per annum. Seeds are easy to germinate under laboratory or room temperature conditions, where 100% germination success is often achieved; seeds seem to exhibit little innate dormancy.

Some plants in a population die after one round of seed production while others continue to perennate, often as complex plants with several well-formed basal rosettes which flower and fruit again in the following year (image 5 below). Adventitious rosettes may also arise on reproductive shoots and these can also function as perennating structures as long as vascular contact with the parent rootstock is maintained; e.g. adventitious rosettes that occur near the base of the plant on the parent rootstock (image 6, page 28). Alternatively,

Image 5: A 'complex' Sea Stock plant with 5 basal rosettes, Baglan Dunes. This plant has flowered and set seed but each remaining adventitious rosette may produce a reproductive shoot again in the following year.

adventitious rosettes may become established as independent ramets under favourable conditions. This may happen after shoots break off, or are bent over to the soil surface, enabling rosettes to root independently. Although the exact details of these strategies are not understood fully, they are similar to life history traits exhibited by other crucifers such as *Coincya monensis* (Hipkin and Facey, 2009).

Very little is known about reproductive strategies and genetic variation in *Matthiola sinuata* populations in South Wales. However, observations with isolated founders *in situ* and cultivated plants in garden experiments indicate that *M. sinuata* is self-compatible (Quentin Kay, unpublished observations; Charles Hipkin, unpublished observations). Information on the long-term viability of buried seed and soil seed bank dynamics is lacking, but desirable.

HISTORY OF SEA STOCK IN SOUTH WALES

George Bowles' record of *Matthiola sinuata* 'on the rocks' in Aberdovey, Merionethshire, in 1632 is probably the first record for Wales (Raven, 2010). It was also noted by John Ray near Abermenai, Anglesey, in 1662 and again by S. Brewer in 1727 (Roberts, 1982). Later, *M. sinuata* was recorded by John Lightfoot near Briton Ferry (probably on Baglan Burrows) in 1773, which is the first known record for Glamorgan and among the first for South Wales (Carter, 1952). Lightfoot's diary, which chronicled his '*Tour in Wales in 1773'* also includes records of *M. sinuata* from Freshwater East,

Image 6: Adventitious rosettes on stems of Sea Stock plants that flowered in the previous year, Baglan Dunes.

Pembrokeshire. Evidently, *M. sinuata* was widespread along the south and west coasts of Wales (and England) at that time, occurring in actively accreting sand dune systems which were larger, more abundant and more connected along the Welsh coast than today, and perhaps on sea cliffs. Dillwyn (1848) commented on the one-time abundance of *M. sinuata* in Swansea Bay but added that it had become rare there by 1840; plants were also known from Freshwater East and elsewhere in Pembrokeshire between 1805 and 1863 (Turner and Dillwyn, 1805; Babington, 1897; Warren-Davis, 1970). Gutch (1844) described its occurrence in the vicinity of Swansea as: '*Present on the sand hills between Swansea and Mumbles, nearly opposite Singleton; and also on the sea side of Crymlyn Burrows, but now much less plentiful than formerly*'. Subsequently, Joseph Woods found some plants in Swansea Bay in 1850, but The Flora of Glamorgan (Wade *et al*., 1994) draws attention to the absence of records for *M. sinuata* in Glamorgan between 1850 and 1964. Trow (1906) commented that there were no recent records for it in Glamorgan and Riddelsdell (1907) believed that it was extinct in the county by the beginning of the 20th century. Later, Webb (1929) included it in his *catalogue raisonné* of presumably extinct plants of West Glamorgan and Vachell (1936), in her list of Glamorgan flowering plants and ferns, also suggested that *M. sinuata* was extinct '*on the shore near Briton Ferry and Swansea Bay*'. However, the discovery of populations on Baglan Bay and Crymlyn Burrows in 1964 suggested that it may have survived throughout the first half of the 20th century in small or variable numbers in coastal areas that were rarely visited by field botanists (Kay, 1974). In contrast, sand dune systems along the Gower coast (e.g. Oxwich, Port Eynon, Horton, Llangennith, Whiteford) and mid Glamorgan (e.g. Kenfig, Merthyr Mawr) were visited regularly during the first half of the 20th century by very active local botanists such as Eleanor Vachell and John Arthur Webb, but they did not record *M. sinuata* in any of these places. By the 1970s, *M. sinuata* was well known on Crymlyn Burrows (and to a lesser extent on Baglan Burrows) where hundreds of plants were seen by numerous recorders. By the 1980s, *M. sinuata* was established on Kenfig Dunes, and was recorded in Swansea Bay (Swansea Sands), in the vicinity of Swansea University, and in several dune systems along the south Gower coast. The extent to which seeds collected from the Crymlyn Burrows population were introduced to areas outside Crymlyn Burrows and Baglan Dunes (i.e. Swansea Sands, Kenfig and Gower) in the 1970s and 1980s is a matter of conjecture. Gillham (1982) comments on the recovery of *M. sinuata* at Aberdovey in the 1960s but the species was not included by Benoit and Richards (1963) in their preliminary flora of Merioneth nor was it recorded as extant in Merioneth by Ellis (1983) in his compendium of Welsh flowering plants.

POPULATION SIZES AND RECENT TRENDS IN GLAMORGAN

The current distribution of *Matthiola sinuata* in Glamorgan is shown in figure 3 below. Each dot on the map represents an occurrence in a monad (1km square) and a record (or records) in the MapMate database.

Sites where *M. sinuata* has been recorded in the last 10 years include: (*in Neath Port Talbot*) Baglan Dunes, Crymlyn Burrows, Little Warren (Aberavon), Margam Sands, Port Talbot Docks; (*in Swansea/Gower*) Llangennith/Broughton, Oxwich/Nicholston, Port Eynon/Horton, Tor Bay, Whiteford; (*in Bridgend*) Kenfig Burrows. There have been occasional records for Aberthaw but these records are not included currently in the local Mapmate database and are not indicated in figure 3. It was recorded on Whiteford Dunes by Inigo Jones in 1975 and more recently (2015) by Veronica Shenston who noted a single flowering plant there. I am not aware of any current records for Three Cliffs Bay or Pennard which nevertheless provide suitable habitat for it.

Casual estimates of population sizes on Crymlyn Burrows in the 1970s and 1980s suggested that hundreds of plants were distributed across the site from the semi-fixed dunes and shingle near to Swansea Docks in the west to the mobile sand and strandline of dunes in the east near the River Neath. In the 1990s, the population became concentrated more in the eastern part of the

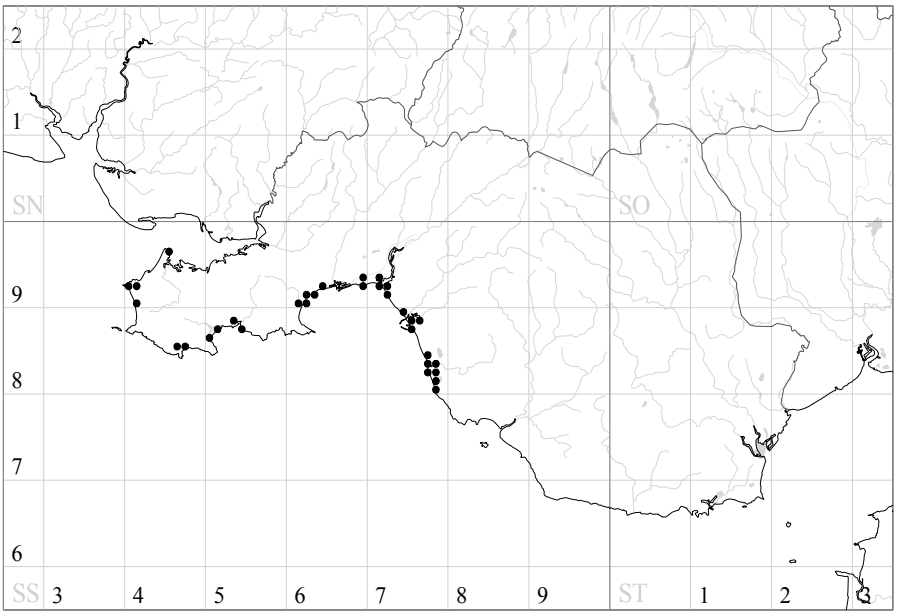

Figure 3: The distribution of *Matthiola sinuata* in Glamorgan (records from MapMate Database). (NB Plants seen in Aberthaw are not recorded in this database).

dune system. In 1993, 100 non-flowering rosettes and 120 flowering plants were counted in the fore dunes near the river mouth by Charles Hipkin (CRH) and Hilary Hipkin (HH); in 1995, the numbers there were 150 non-flowering rosettes and 70 flowering plants. The population decreased significantly after 2000. A count of 6 flowering plants and 28 non-flowering rosettes was made by CRH and HH in 2003. By 2008, the entire Crymlyn Burrows population (a few individuals) was confined to a small area in the eastern part of the site near the mouth of the River Neath. An extensive survey of Crymlyn Burrows by CRH, HH, Megan Woodhouse (MW) and Rebecca Mead (RM) in 2011 failed to record any plants (Mead, 2011; Woodhouse, 2011). However, in 2014 a single plant was located in dunes near the river mouth (Julian Woodman, personal communication).

The extensive surveys carried out in 2011 by CRH, HH, MW and RM in Swansea/Gower, Neath Port Talbot and Bridgend, provide a more detailed picture of the status of *Matthiola sinuata* in South Wales. A summary of the data is given in figure 4, below). A recent record of *M. sinuata* plant at Aberthaw, which was photographed (Julian Woodman, personal communication), is significant and represents the current, southern extension

Figure 4: Distribution of flowering plants and non-flowering rosettes in Glamorgan populations in 2011

Site	*Non-flowering rosettes*	*Flowering plants*	*TOTAL*
Neath Port Talbot			
Baglan Dunes	118	17	135
Crymlyn Burrows	0	0	0
Little Warren (Aberavon)	487	27	514
Margam Sands	553	31	584
Port Talbot Docks	ND	ND	ND
Swansea/Gower			
Llangennith	872	23	895
Oxwich/Nicholston	612	63	675
Port Eynon/Horton	383	44	427
Swansea Bay	269	15	284
Tor Bay	23	6	29
Bridgend			
Kenfig Burrows	2132	30	2162
TOTAL	5449	256	5705

of the species in Glamorgan.

In 2011, 5705 plants were counted in Glamorgan; 38% of the Glamorgan population was on Kenfig Dunes in Bridgend County, 40% was in Swansea County and 22% was in Neath Port Talbot. The number of non-flowering individuals accounts for more than 80% of all populations during the flowering period and in most populations flowering plants account for <10% of all individuals. This suggests that most individuals live for more than 2 years and this is supported by the unequal numerical proportions of non-flowering rosette classes at each site (figure 5, below).

Based on data obtained between 2011 and 2014, the size of the South Wales population is estimated to be approximately 6,000 plants. The entire UK populations is probably <8,000 plants.

POSSIBLE IMPACTS ON SOUTH WALES POPULATIONS

Populations of species at the edges of their natural biogeographic ranges are susceptible to significant fluctuations in their local distribution and abundance, which appears to be true for *M. sinuata* in South Wales. There may be multiple reasons for the population decreases that occurred in Swansea Bay (and elsewhere) in the 100 years after 1850 and the current, spectacular decrease in the Crymlyn Burrows population which has occurred more recently. The following is tentative and offered for discussion purposes only:

1. The long term maintenance of viable populations of *M. sinuata* is dependent ultimately on adequate seed production, germination and seedling survival. Reproductive output by most plants is high and seed production by large populations is impressive. It is unlikely that low seed production *per se* has been the primary factor that has driven historic and current population variations. Seed germination occurs frequently during late winter periods and may be prolific under mild, wet conditions. In mild

Figure 5: Distribution of rosette size categories (diameters in cm) in 8 sub populations on Kenfig Dunes (calculated from data in Mead, 2011)

Population	*Rosette Diameter Class (cm)*					
	1-10	**11-20**	**21-30**	**31-40**	**41-50**	**51-65**
1	54	5	1	0	0	0
2	6	11	1	0	0	0
3	2	0	0	0	0	0
4	62	132	66	15	2	0
5	35	37	16	4	0	2
6	8	16	0	0	0	0
7	257	355	143	58	5	2
8	273	265	182	90	22	5

winters, large cohorts of seedlings can appear in February and March in the vicinity of mother plants. Under these conditions, seedlings are prone to high mortalities during periods of severe frost which may occur in early spring.

2. Rosettes are often buried by translocated sand after violent autumn and winter storms, which have occurred frequently in the past and in recent years. *M. sinuata* has no obvious strategy for dealing with this. Severe storms may also remove large amounts of dune structure and any plants established there.
3. Young rosettes are eaten by rabbits (also suggested by McClintock, 1955) and recent decreases in the Crymlyn Burrows population seem to correspond with significant increases in the rabbit population there. Rabbit populations on sites where *M. sinuata* is doing well currently (e.g. Kenfig Dunes) appear to be much smaller. During the 1970s, when *M. sinuata* was abundant on Crymlyn Burrows, local rabbit populations had decreased markedly as a result of myxomatosis.
4. Climate warming may be expected to result in a range expansion of *M. sinuata* in Wales. The extent to which this may be limited by the current broken connectivity in coastal systems is an interesting question. The recent appearance of plants in Carmarthenshire and Pembrokeshire suggest that dispersal over relatively long distances (perhaps in sea water) is possible.
5. Broken connectivity and habitat loss, resulting from coastal development, pose significant threats to the long term survival of *M. sinuata* (and other species of mobile sand dune systems) in Wales. Losses of mobile sand habitats by sand dune fixation and/or erosion, which are occurring along the South Wales coast, are also relevant here. The long term viability of *M. sinuata* seed in coastal soil reservoirs is unknown. However, the reappearance of plants after long absence in Glamorgan during the 1960s, and more recently in Pembrokeshire, may have resulted from the germination of long-lived, buried (dormant) seeds.

ACKOWLEDGEMENTS: We would like to thank Barry Stewart, Richard and Kath Pryce and Stephen Evans for their help in the preparation of this account.

References

Babington, C.C. (1897) Memorials journal and botanical correspondence of Charles Cardale Babington. (Edited by A.M. Babington). Cambridge

Benoit, P & Richards, M (1963) *A contribution to a flora of Merioneth* (2nd Edition). West Wales Naturalists' Trust

Carter, P.W. (1955) *Trans. Cardiff Nat. Soc.* 82:5-31

Dillwyn, L.W. (1802) *Materials for a fauna and flora of Swansea and the neighbourhood*. Swansea

Ellis, R.G. (1983) *Flowering plants of Wales*. National Museum of Wales

Gillham, M.E. (1982) *Swansea Bay's green mantle*. D. Brown & Sons Ltd. Cowbridge

Gutch, J.W.G. (1844) *Phytologist*. 1

Hipkin, C.R. & Facey, P.D. (2009) *J. Ecol.* 97:1101-1116

Kay, Q.O.N. (1974) *Trans. Cardiff Nat. Soc.* 96:23-28

McClintock, D. (1955) *Proc. Bot. Soc. Br. Isles.* 1:320

Mead, R. (2011) *Distribution and ecology of the Red data Book plant, Matthiola sinuata (Sea Stock) in Neath Port Talbot and Bridgend*. MSc Thesis, Swansea Uni

Preston, C.D, Pearman, D.A. & Dines, T.D. (2002) *New atlas of the British & Irish flora*. Oxford University Press

Raven, C.E. (2010) *English naturalists from Neckam to Ray*. Cambridge University Press. (First published in 1947)

Rich, T.C.G. (1991) *Crucifers of Great Britain and Ireland* (BSBI Handbook No.6). BSBI, London

Riddelsdell, H.J. (1907) A flora of Glamorganshire. Supplement to *J. Bot.* 45

Roberts, R.H. (1982) *The flowering plants and ferns of Anglesey*. National Museum of Wales

Trow, A.H. (1906) *Trans. Cardiff Nat. Soc.* 39. Appendix p1-43

Vachell, E. (1936) Flowering plants and ferns. In '*Glamorgan County History'* (Ed. W.M. Tattersall), p123-178. Glamorgan County History Committee, Cardiff

Wade, A.E, Kay, Q.O.N. & Ellis, R.G. (1994) *Flora of Glamorgan*. HMSO

Warren-Davis, T.A. (1970) *Plants of Pembrokeshire*. The West Wales Naturalists' Trust

Watson, H.C. (1883) *Topographical Botany.* Bernard Quaritch, London

Webb, J.A. (1929) *Proc. Swansea Science and Field Naturalists' Society*. 1:70-75

Welsh Assembly Government (2008) Wildlife Sites Guidance Wales (S6 Vascular Plants).

Woodhouse, M.A. (2011) *Distribution and ecology of the Red data Book plant,* Matthiola sinuata *(Sea Stock) in Neath Port Talbot and Swansea*. MSc Thesis, Swansea University.

Notable plants recorded in 2015 in vice-county 42, Breconshire

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Buck's-horn Plantain *(Plantago coronopus*) has finally made it into the county – being listed in all surrounding vice-counties in the Vice-County Census Catalogue. It was spotted in a layby on a forest road in the Sennybridge Training area.

Glabrous Whitlowgrass *(Erophila glabrescens)* turned up where the botany group often meet to share cars in Brecon, suggesting it might be in other places in which we don't park so often. This is the first record since 1972 when it was collected by Mike Porter in a different part of the county and determined later from a herbarium specimen by Tim Rich. See image 12 on back cover.

St Dabeoc's Heath *(Daboecia cantabrica)* (image 9 on inside back cover) was spotted near a roundabout in Brynmawr by Barry Stewart. I went to the site in the autumn to catch it in flower. Brynmawr is outside the boundary of the modern Brecknock division of Powys but does lie within the vice-county boundary.

Mountain Pansy (*Viola lutea*) did not make it into the County Rare Plant Register but it is good to report that we saw much more of it than we have been used to in recent years – thanks to spending some time in 2015 on MOD-managed land.

The stem apex in *Trichophorum* and *Eleocharis*

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The purpose of this note is simply to draw attention to the surprising variation in the morphology of the stem apex in *Trichophorum* (Deergrasses) and *Eleocharis* (Spike-rushes).

Normally in *Trichophorum* and *Eleocharis* one expects the stems to terminate in an inflorescence (the stems of flowering plants almost always terminate in an inflorescence, a bud or a spine or some other organ). In normal inflorescences the rachis in both these genera appears as a series of distinct terraces on which the glumes and fruits are borne, and from which they ultimately drop off cleanly (Figure 6, page 37).

Often in *Eleocharis* the inflorescence, a spikelet, is abortive or vestigial, and the glumes and floral parts remain minute and withered until the stem decays (Figure 7, page 38). This does not seem to occur in *Trichophorum*.

In *Trichophorum* one can usually find in most tussocks a few stems that appear to have no inflorescence at the apex, but on closer inspection it can be seen that just below the tip there is a flattened, oblong, shorter blade enfolded at the base by two flaps (figure 8, page 39). Both this blade, and the tip of the stem, are firm, distinctive structures, in no way abortive. Under the blade, there are usually one or a few minute further blades or scales. The whole structure is quite unlike a normal inflorescence, there is no rachis, no abscission of the parts, and no clear demarcation of where the inflorescence starts. The tip, with its sheath, appears rather to be a modified leaf than a glume. The shorter enclosed blade may be interpreted as the lowest glume of a modified inflorescence.

In *Eleocharis parvula* (Dwarf Spike-rush) but not in *E. quinqueflora* (Few-flowered Spike-rush), *E. multicaulis* (Many-stalked Spike-rush), *E. uniglumis* (Slender Spike-rush) and *E. palustris* (Common Spike-rush) some stems terminate in a superficially similar but more extreme way (figure 8, page 39). The tip encloses a 3-dimensional, ovoid projection that appears to be the true apex of the stem, and the apparent apex of the stem can be interpreted as a modified leaf, similar to the arrangement described above in *Trichophorum*, but much simpler and with no trace of an inflorescence at all.

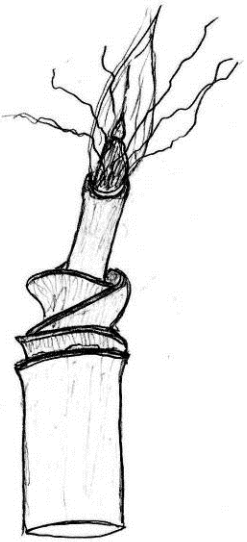
In *Eleocharis acicularis* (Needle Spike-rush) however, the non-flowering stems just terminate in a simple, rounded, slightly erose apex, with no sign at all of any vestigial leaf or glumes (figure 8, page 39). Such a simple, unmodified, determinate stem apex must be rare, if not unique, in the *Cyperaceae*.

Curiously these very distinctive structures in both *Trichophorum* and *Eleocharis parvula* seem not to have been noted in any of the literature I have seen.

I am grateful to Andy Jones for material of *Eleocharis parvula* and *E. acicularis*.

Figure 6 Spikelet rachises after shedding of glumes, nuts and flower remains

All figures x20



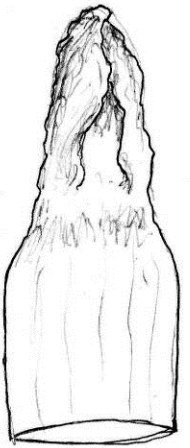
Trichophorum x *foersteri*

Trichophorum germanicum

Eleocharis parvula

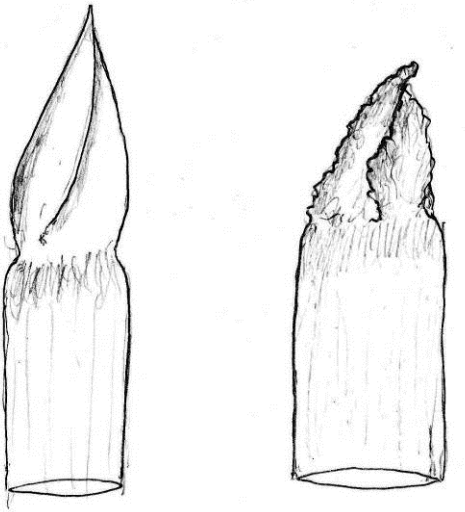
Figure 7 Vestigial or abortive spikelets

All figures x20



Eleocharis uniglumis

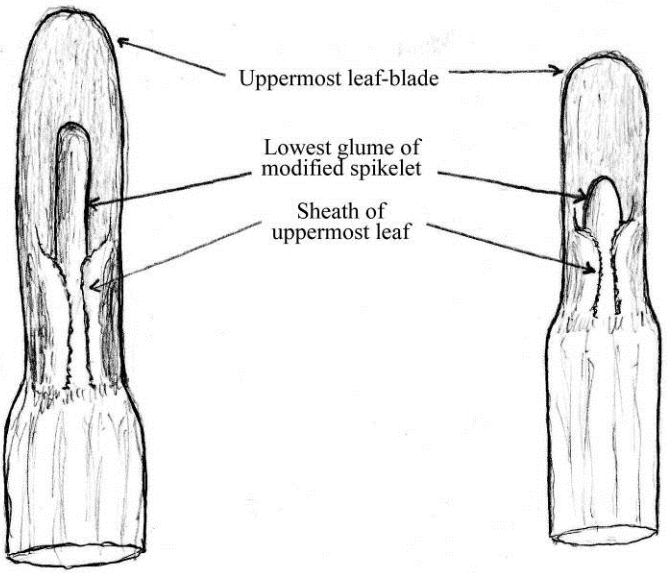
Eleocharis quinqueflora



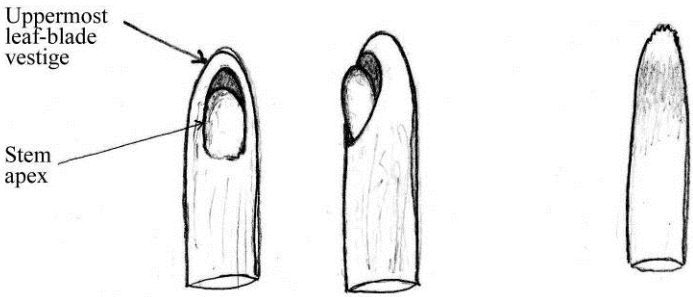
Eleocharis palustris

Figure 8 Modifications at stem apex

All figures x20



Trichophorum x *foersteri* *Trichophorum germanicum*



Eleocharis parvula *Eleocharis acicularis*

The status of Oak-leaved Goosefoot *Chenopodium glaucum* in v.c.35 Monmouthshire

STEPH TYLER & ELSA WOOD, *Joint BSBI Vice-county Recorders for Monmouthshire (v.c.35)*

Nationally *Chenopodium glaucum* (Oak-leaved Goosefoot) is a scarce archaeophyte (Preston *et al*. 2002) which has declined since 1962. It favours nutrient-rich waste ground, manure heaps and damp ground near the sea.

In Wales, it is virtually unknown except in the southeast along the coast. In Monmouthshire it occurred in only five tetrads in a few industrial areas of Newport east of the River Usk and nearby coast (Evans 2007a); there were historic records in two tetrads in Newport west of the Usk. In the County Rare Plant Register (Evans 1997b), the listed records were all pre-2000 except for two 2003 records from a cliff top and wet path at Uskmouth.

Since then several plants were found at Newport Docks by SJT and Trevor Evans in the summer of 2010; these were growing inland of the seawall at the edge of some sparsely grassed old coal waste (in ST3284). Recently about 100 plants were re-found by Heather Colls at a manure heap near Nash, just 200m from the Newport Wetland Reserve (NWR) in August 2014 at ST33548349. This was a known pre-2000 site. In August 2015 SJT, EW and Adrian Wood found many hundreds of small plants growing on the drying mud in coastal saline lagoons at the Goldcliff end of the NWR in ST3682 where Julian Woodman had also seen plants.

No inland sites were known in v.c.35 but in the summer of 2014 EW found two plants at the edge of a manure heap in a *Brassica* field near Hygga, Trellech (SO489043). This was the first inland record for Monmouthshire. On 8th September 2015, another inland location was discovered by SJT. She found up to 20 small plants in a gateway at Chapel Farm, Lydart (SO497084) with *Polygonum aviculare* (Knotgrass) and *Matricaria discoidea* (Pineappleweed). What other inland sites remain to be found?

Evans, T.G. (2007a) *The Flora of Monmouthshire*. Chepstow Society.

Evans, T.G. (2007b) *Monmouthshire County Rare Plant Register.* BSBI.

Preston, C.D., Pearman, D.A. & Dines, T.D. (2002) *New Atlas of the British and Irish Flora.* Oxford University Press.

The status of Glas yr Yd / Cornflower (*Centaurea cyanus*) as an arable weed in Pembrokeshire -

A Critically Endangered Red Data List plant in Wales

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There are now an increasing number of sightings of the Glas yr Yd or Cornflower (*Centaurea cyanus)* in Pembrokeshire. The fashion for sowing colourful wildflower seed mixes in gardens, municipal flower beds and elsewhere has become a widespread phenomenon in Pembrokeshire. Many of these mixes include *C. cyanus* and arable weeds such as Corn Marigold (*Glebionis segetum)*. As a result, in future it will become much more difficult to distinguish whether any sporadic occurrences have arisen from the seed bank in cultivated land or from deliberate introductions and their subsequent progeny. It is, perhaps, timely to summarise what is currently known about this attractive archaeophyte as an arable weed in the county.

This year a single plant of *C. cyanus* flowered in a barley field near St. Brides, west of Haverfordwest, where it was growing with *G. segetum*. It was just within the crop, by a gateway from the highway, in an unsprayed corner. This is the sort of location where there are often relict patches of arable weeds. Cultivation and rutting can bring buried seeds to the surface and gateways at field corners are the most likely places to be missed during herbicide application. There had been earlier records about 2.5km away from this find, between 1954 and 1972, with species such as Small-flowered Catchfly (*Silene gallica),* Weasel's-snout (*Misopates orontium),* Sharp-leaved Fluellen (*Kickxia elatine), G. segetum* and Field Woundwort (*Stachys arvensis)* on land owned by Tommie Warren Davis (TAWD). His 1954 record was of a single plant in oat stubble laid down to clover.

Another 2015 record of *C. cyanus* was of two plants growing out of the side of the quay wall in Lower Town Harbour, Fishguard. These were obviously self-sown and a likely source for the seed would have been a small municipal flower bed that had *C. cyanus*, and other wildflower seed mix species in 2014. This flower bed was located some 140m away. Closer still were large hanging baskets on the quay wall lamp-posts but did these have flowering *C. cyanus* in 2014?

It is not that difficult to guess the likely source of the seed for these two 2015 records and to categorise the first as probably an isolated arable weed relict

derived from buried seed and the second as a casual arising from a deliberate introduction. Other situations, such as the following examples, can be more challenging to unravel!

In 2013, Clive Hurford found a single *C. cyanus* at Rhoscrowther, west of Pembroke, in the entrance to an arable field. It was not far from five flowering plants of Crimson Clover *(Trifolium incarnatum)* which is a rare plant in Pembrokeshire. The farmer told Clive that stony spoil had been brought to this field entrance in 2012. The spoil had come from road improvements, which had led to the demolition, and rebuilding of an old wall at Orielton. Was the *C. cyanus* from in situ buried seed or did it arrive the previous year with the material from the Orielton road scheme?

By chance, in 2012, a single *C. cyanus* plant had also been found on another farm at Rhoscrowther, less than one km from the 2013 record. It had been spotted by Cath Shellswell, of Plantlife, in a field of organic oats and barley during her arable weed survey work in Pembrokeshire. During systematic surveys of many arable farms in Pembrokeshire over several years, Cath only found this one new site. It was growing with eighteen associates including Bugloss (*Anchusa arvensis),* Common Poppy (*Papaver rhoeas),* Black-bindweed (*Fallopia convolvulus)* and Field Pansy (*Viola arvensis).* Great Brome (*Anisantha diandra)* was elsewhere in the field and it is possible that both this species and the *C. cyanus* arose as seed contaminants. Alternatively, the *C. cyanus*, which was at the toe of the sloping sandy field, could have germinated from buried seed. There was no *C. cyanus* elsewhere on the organic farm and the species had never been included in any seed mixes for arable silage or wild bird seed cover. The farm did grow a lot of flax 10-15 years earlier and seeds of *C. cyanus* were once believed to be frequent contaminants of flax crops.

C. cyanus was also found, about five kilometres west of these two farms, at Angle in 2009 in a field of rye-grass and clover that had been under-sown into a 2008 barley crop. A single flowering plant (image 11, back cover) was at the edge of the field alongside the coast path. *F. convolvulus, S. arvenis* and *V. arvenis* were amongst the nine associated plants. The field had other good arable weed species including thousands of *S. gallica* - a Vulnerable Red Data List Plant in Wales and Endangered in GB, *G. segetum*, *M. orontium* and Field Penny-cress (*Thlaspi arvense*) as well as the more widespread Pembrokeshire arable weeds, *K. elatine* and Corn Spurrey (*Spergula arvensis).* This *C. cyanus* plant should presumably be viewed as a true arable weed relict derived from buried seed.

An organic farm at Lawrenny has had stands of *C. cyanus* in one field between 2003 and 2012 (image 10, on the back cover). It was first noticed by the farmer in spring-sown organic wheat surrounded by a crop of peas. The field had carried an organic wheat crop in 2002. There were many flowering plants of *C. cyanus* and some appeared to be on the line of rows but others were not. The seed could have been accidentally introduced with the wheat but it could equally well have been derived from buried seed, as the field had been arable in the past. Cath Shellswell found Narrow-fruited Cornsalad (*Valerianella dentate*) nearby, in the same field, in 2010 and it was still there in 2011 and 2012. This discovery of another Endangered (Red Lists for Wales, England and GB) arable weed species along with the presence of other typical arable weeds does, suggest perhaps that the *C. cyanus* arose from buried seed.

Another arable weed record, almost certainly from buried seed, was of a single plant in an early potato field on the Ridgeway, near Penally, Tenby, in 1999. Other arable weeds in the field included *Anchusa arvensis, G. segetum, S. arvensis* and *V. arvensis*. More uncertainty surrounds the origins of the discovery, by Ewan and Mollie Thomas, of two patches of abundant *C. cyanus,* on their farm at Croesgoch, in 1987. The plants were in a rape field and the rape seed had come from Sweden – where *C. cyanus* grows - but another field sown with the same rape seed had no *C. cyanus*. It had not been seen on the farm in the previous 35 years and has not been seen since 1987.

This last case at Croesgoch gives much food for thought. Could it be that some of the occurrences of *C. cynanus* that I have categorised as having probably germinated from the seed bank following cultivation have actually been sown with the crop as a seed contaminant? Perhaps seed quality standards are now more variable than in the recent past? Are more seeds arriving from the far corners of Europe?

There are only eight records of the plant in Pembrokeshire prior to 1987 and all are almost certainly arable weed records, rather than deliberate introductions. Mary James remembers *C. cyanus* as being abundant in the cornfields at Targate, Freystrop, south of Haverfordwest, during the 1950's. This is the only farm where it has been described as abundant as none of the other seven records are for more than a few plants. One by Jack Donovan (JWD) on the edge of a barley field, at Mathry, in 1963 mentions several clumps, another from cornfield stubble at Walwyn's Castle by E.T.Taylor notes five clumps whilst TAWD described it as scattered sparsely in a root crop at Cuffern Mountain, Roch, in 1960. In that year, it was also found in an arable field near Eglwyswrw by JWD but there were no details.

TAWD refers to it as ‘Arable fields, formerly frequent, now rare’ in his 1970 ‘Plants of Pembrokeshire’ but it is not mentioned at all in the 1950 ‘A List of Pembrokeshire Plants’ by F. Lillian Rees of Tenby. There is, however, a herbarium specimen collected by Edwin Bernard Benson in July 1892 from ‘near Tenby’ in the Shrewsbury School Herbarium.

This information on *C. cyanus* as an arable weed, an archaeophyte colonist, in Pembrokeshire therefore indicates that over the last half century or so there have been scattered isolated plants throughout the county. Aside from at Lawrenny and at Targate, Freystrop there has not been a persistent population at any other location. Whether the sporadic isolated records of plants have originated from deeply buried seed, or have arisen as crop seed contaminants is impossible to determine. You could, however, take the view that the sporadic finds on arable land point to it once being much more common. The recent expansion of organic arable farming in the county might lead to an increase in records in the future as the seed they use may receive less screening and the crops will not be subject to chemical herbicides. It is well understood that these two factors are the main reasons why *C. cyanus* declined as an arable weed in Britain.

With one exception the author has not, so far, unearthed information about the extent of the plant in Pembrokeshire before 1954. The only exception is TAWD’s note against the species, ‘arable fields, formerly frequent’, in his 1970 Plant List. If only I had asked him to expand on this! As it is, we just have this single tantalizing glimpse into a past where Pembrokeshire fields were shimmering with Glas yr Yd.

References

Davis, T.A.W. (1970) *Plants of Pembrokeshire* West Wales Naturalists’ Trust, Haverfordwest

Rees,F.L. (1950) *List of Pembrokeshire Plants* Tenby Museum and West Wales Field Society, Tenby

Shellswell, C.H. (2015) Wales’ Important Arable Plants. Plantlife, Salisbury

Wilson, P. J. February (2007) *The Status of Centaurea cyanus in Britain* Draft report to Natural England, Plantlife, Salisbury

Wilson, P.J. in (1999) *British Red Data Books 1 Vascular Plants 3rd edition*. Compiled and edited by M.J.Wiggington, Joint Nature Conservation Committee, Peterborough

Looking carefully at roadside Ash?

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For a few years I have noticed in autumn trees that appear to be Ash, turning deep red in autumn (A55 nr Rhuallt, Flintshire, poss. SJ0674, and by a roundabout outside Mold, SJ2462). Ash, *Fraxinus excelsior* typically turns from green to pure yellow, with some browning leaves as they fall. Unfortunately, roadside trees are not always easy to inspect, and I have missed my chance for several years. Last year I was determined to look more closely and visited the Mold site on 28th October 2015. Unfortunately, I was already too late, as every leaf had dropped. However, I picked up a distinctive red leaf with very narrow leaflets and also found some buds on the putative tree of origin for the leaf, which were brown, rather than black (see image 3 on inside front cover).

I believe that these trees may be the appropriately-named Claret Ash, a form of the Narrow-leaved Ash, which is native to southern Europe, northwest Africa and southwest Asia, *F. angustifolia* subsp. *oxycarpa* 'Raywood'. This might be expected in urban landscaping, but is probably planted in error as part of a 'native trees' mix along rural trunk roads (at the site in Mold it is accompanied by Sycamore (*Acer pseudoplatanus*), Rowan (*Sorbus aucuparia*) and Ash).

I have no idea if Claret Ash trees set seed in Britain as easily as Ash (*F. excelsior*), in which case they might become naturalised in time. However, when botanising our roadsides in summer (I am not advocating this without some risk assessment!) it may be worth considering whether every ash is what it seems. Or, next autumn, keep your eyes open when travelling as a passenger and see how many sites we can find for this planted species. There are only four records of *Fraxinus angustifolia* (not 'Raywood') in the DDB for Wales (all in Glamorgan, and in or close to built-up areas), although I note in the Flora of Cardiganshire (Chater, 2010) two additional (urban) sites are listed for 'Raywood'.

Merioneth (v.c.48) report for 2015

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This has been my second year as an 'absentee' vice-county recorder, one in which three members of National Resources Wales have offered to run our local group, Meirionnydd Nats. They have already held three successful and interesting meetings and I am very grateful to Rhiannon Cottrell, Heather Garrett and Jo Clark for organising these. In December 2015, we met for a social lunch and planning meeting generously hosted again by David and Elin Elias. In spite of my no longer living locally and being able to go out whenever I want, over 7000 new records have already been input this year, with more still to come.

Some highlights have been the refinding of Northern Bedstraw, *Galium boreale* and Heath Fragrant-orchid, *Gymnadenia borealis* both for the first time this millennium and a whole raft of species found by Clive Lovatt and Liz McDonnell as they ferreted around some of the less-scenic parts of the county, on the shore, in caravan parks, wasteland etc. These included Sharp-leaved Fluellen, *Kickxia elatine*, a rare alien only ever recorded once previously, and Dune Fescue, *Vulpia fasciculata*, a scarce native fescue found at Aberdyfi for the first time for 24 years. Paul Green, found *Imperatoria ostruthium*, Masterwort, beside the new road near Llyn Celyn; Gethin Elias found a new site for *Andromeda polifolia*, Bog Rosemary on the Migneint and Andrew and Janet Graham updated the only county site record of *Arabidopsis petraea,* Northern rock-cress, since well before this new century

A highlight of 2015 was the AGM held at Plas Tan-y-Bwlch. It was an exhausting [for me] but thoroughly successful [for VC records] event and I am very grateful to all those who contributed by leading walks, giving talks or helping otherwise with the planning. Heather Garrett spent a whole day driving me around seeking access permissions for the several field trips which were planned – it can be one of the hardest parts of the job and I was really grateful for her support.

We held the third Caerdeon Residential a couple of weeks later and that too went well – we had our usual good weather – except for the last day when it poured! – and even then we made over 600 records. This year we combined one of the days with a local group meeting so we had more people than usual. Caerdeon is becoming a favourite event for adequate, cheap, no-frills

accommodation, wonderful scenery and botany and three or four days spent in great company with like-minded people.

The 2016 programme is gestating but I would like it to include meetings attractive to young or non-committed people who might be persuaded to come out with us: perhaps we could run some sessions beforehand to introduce some of the plants and habitats we might expect to see. Square-bashing can be off-putting for beginners – as I well remember myself – but we do try to make it less daunting. Details will be posted on the Meirionnydd page of the BSBI website soon after the New Year so we hope to see some new faces in 2016.

My thanks as ever to all helpers, recorders, Merionnydd Nats members, landowners and the staff of Plas Tan-y-Bwlch and Caerdeon - and everyone who has made this another successful recording year.

Highlights of Botanical Recording in Carmarthenshire in 2015

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Sam Thomas led a BSBI meeting at the National Botanic Garden of Wales (NBGW) on 30th May when he took us behind the scenes to see some of the 'weeds' he'd discovered during his post-graduate research. These included *Gnaphalium luteoalbum* (Jersey Cudweed), *Filago vulgaris* (Common Cudweed), *Lactuca virosa* (Great Lettuce), *Veronica peregrina* (American Speedwell) and *Polypogon viridis* (Water Bent) but we couldn't find any x *Agropogon robinsonii* (the hybrid between *Polypogon viridis* and *Agrostis stolonifera*), a single plant of which he'd found in 2014. He also showed us *Cardamine corymbosa* (New Zealand Bitter-cress), a species which is now established in the Great Glasshouse and in some of the propagating houses but has yet to be recorded outside, in the Garden.

2015 was a good year for orchids with thousands of *Platanthera chlorantha* (Greater Butterfly-orchid) at NBGW, populations of which have been significantly increasing there over the past few years. Also at NBGW, a single *Ophrys apifera* (Bee Orchid) was recorded by Bruce Langridge by Waun-las Pond (SN524180) and Kath Pryce (KAP) recorded four on a car-park verge at Prince Phillip Hospital, Llanelli (SN524014). About 100 were by Turbine Hall Pond, Burry Port (SN451002), reported by Philip Jones, forty at Llwyn-y-piod

near Trapp (SN6419), reported by the owners, Ingaret and Alan Ellison, and at least nine were on the grass verges by Leekes, Cross Hands (SN570126) noted by Sam Bosanquet. Members of the annual BSBI Glynhir Recording Week found *Platanthera bifolia* (Lesser Butterfly Orchid) to be in good numbers at Pen-y-graig Goch (SN7422) whilst sixteen (four in bud) *Epipactis palustris* (Marsh Hellebirine) plants were also seen in the small NVC M10 flush. Previously, participants had recorded over 100 *E. palustris* at nearby Maesyffynnon (SN7423), these two being the only inland sites for the species in Carmarthenshire.

The Glynhir week was as productive as usual with about fifty *Botrichium vulgatum* (Moonwort) plants being recorded by the mansion at Gelli Aur (SN5919) and about twenty at the MOD Ranges, Pendine Burrows (SN3007). Also at Pendine (SN2907) *Bromus* x *pseudothominii* (Lesser Soft-brome), *Bromopsis erecta* (Upright Brome) (both determined by Arthur Copping), *Elymus caninus* (Bearded Couch), *Juncus foliosus* (Leafy Rush) and *J. ranarius* (Frog Rush) were all first records for SN20. Most remarkable, however, was the discovery of a well-established population of *Muscari comosum* (Tassel Hyacinth) well away from any habitation in cattle-grazed dune grassland (SN3007), the second vice-county record. Other Glynhir highlights were the discovery of more sites for *Carex dioica* (Dioecious Sedge) on Mynydd Du (SN7219 & SN7319) where *Equisetum variegatum* (Variegated Horsetail) was also found, *Valeriana dioica* (Marsh Valerian) was unexpectedly abundant and the second vice-county record of *Trichophorum cespitosum* nothossubsp. *foersteri* (Hybrid Deergrass) was made by Arthur Chater. Also during the week, *Carex punctata* (Dotted Sedge) was found at a new site near Ragwen Point (SN2107) and *Orobanche rapum-genistae* (Greater Broomrape) was re-found at Marros (SN2007) and Llandovery (SN7734), both first post-2000 hectad records. A full report of the Glynhir meeting is printed in the BSBI Yearbook for 2016 (Pryce, in press).

Other notable discoveries included the two populations of *Orobanche rapum-genistae* recorded at a new site near Llansaint (SN3707) and Ian Morgan's *Lepidium latifolium* (Dittander) at Pwll (SN4800), the fifth post 2000 vice-county record. *Ornithopus perpusillus* (Bird's-foot) found during a recording meeting arranged by the West Wales Biodiversity Information Centre (WWBIC) at Nant-y-Gareg, near Rhos (SN3636), was the first record for SN33 and it was also abundant on a steep bank at Cwm Crychan (SN8239) (the first post 2000 hectad record). In the far north of the county, Matt Sutton recorded *Utricularia minor* (Lesser Bladderwort) at Cors Bryn Mawr near Llyn-y-Gwaith (SN6650) which was the first record for the Carmarthenshire

part of the SN65 hectad and he also found it nearby at Banc Ty-hen (SN6649), the first post 2000 record for SN64.

Records of non-native species included two plants of *Cyrtomium falcatum* (House Holly-fern) self-established in the stone wall of the Double Walled Garden at NBGW, the first vice-county record, and *Amsinckia micrantha* (Fiddleneck) discovered by Helen & Andrew Martin at a small hay-meadow near Broadoak, Llandeilo (SN5722) which was the second vice-county record.

Prior to visiting Carms in late September, Jo Parmenter from Norfolk, contacted us to ask if there were any under-worked tetrads in the east of the county where she could combine a walking holiday with botanical recording. Despite the late-season timing, Jo recorded a total of 265 species in six tetrads including *Carum verticillatum* (Whorled Caraway), a species she had not seen previously. Using the customized Carms Recording Cards, she conscientiously followed the instruction to record all species highlighted in colour preferably to 10m precision giving estimates of population size, etc. By so doing, she collected important details of all species of significance which would not have been possible by just ticking-off species on the card. Such commitment deserves special mention.

Also in September, a notice appeared in the local paper announcing that a planning application to reopen Crwbin Quarry (SN4713) was about to be submitted. Knowing that Stephen and Ann Coker had recorded *Gentianella amarella* (Autumn Gentian) there in 2009 and 2010 at one of just a handful of inland sites in the county, Kath and I visited to determine the extent of the population. We found the gentian to have extensively colonised large areas of the disused workings and estimated that the total number of plants must be between 20,000 and 25,000 (Pryce & Pryce, 2015). There can be no doubt that the developer is aware of the existence and significance of the plants and can only hope that the planning authority will insist on mitigating their disturbance. This emphasises how important it can be to deposit records with your Local Environmental Records Centre (LERC) to ensure they are accessible to those who need to know.

The final highlight of the year was a *Salicornia* (Glasswort) hunt with Rob Shaw of West Wales Biodiversity Information Centre (WWBIC) whose recording efforts during the year have resulted in many additions to numerous tetrad species-totals. *Salicornia europaea* subsp. *disarticulata* (formerly *S. pusilla*) (One-flowered Glasswort), except for individual records made in 2004 and 2007 at Llangennech (SN5600) and Bynea (SS2198) respectively, had not been recorded in Carms since George Hutchinson's attention to the genus in the 1980s. We started the search at Kidwelly Quay (SN3906) where the plant

was found to be quite frequent, then went on to Pembrey Burrows LNR where, after a long walk across the dunes and out over the saltmarsh, we again found it to be relatively frequent (SS4199 and SS4299). What we hadn't expected, however, was to find its hybrid with *S. europaea* subsp. *ramosissima* (Purple Glasswort), *S.* x *marshallii,* in both monads, these being the first records of the hybrid from Wales. Encouraged, and now knowing the saltmarsh habitat in which to find it, Kath and I revisited the Kidwelly area the following week and found the hybrid in both SN3906 and SN4005, thus recording the hybrid in a total of three hectads!

The above account covers only a fraction of the days spent in the field in 2015, so many of which yielded interesting records that it was difficult to decide what to omit. For the annals, so far this year, we have input 29,847 individual species records from 2196 locations comprising 1038 different species - and there is still a pile of field notes about 2 inches thick waiting to be input!

References

Pryce, R.D. & Pryce, K.A. (2015) Gentians at Crwbin. *West Wales Biodiversity Information Centre Bulletin*, **24**: 5-6. W.W.B.I.C., Whitland.

Pryce, K.A. (in press) BSBI Carmarthenshire Recording Week, Glynhir (v.c.44), 20th - 27th June 2015. *BSBI Yearbook 2016*.

Images on inside back cover:

7: Sea Stock (*Matthiola sinuata*) in flower. Image: C. Hipkin (see article page 25).

8: Sea Stock seedlings, Little Warren. Image: C. Hipkin (see article page 25).

9: St Dabeoc's Heath (*Daboecia cantabrica*) in Breconshire. Image: J. Crellin (see article, page 35).

Images on back cover:

10: Stands of Cornflower (*Centaurea cyanus*) have been found at Lawrenny, Pembrokeshire between 2003 and 2012. Image: S.B. Evans (see article, page 41)

11: Single flower of Cornflower in Angle, Pembrokeshire in 2009. Image: S.B. Evans (see article, page 41)

12: First record of Glabrous Whitlowgrass (*Erophila glabrescens*) in Breconshire (v.c.42) since 1972. Image: J. Crellin (see article, page 35).


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