

WELSH BULLETIN

Editors : R. D. Pryce & G. Hutchinson

No. 81, JANUARY 2008



FE 80-31-12a
HERBARIUM, NATIONAL MUSEUM OF WALES (NMW)
FLORA OF G.L.A.M.
COTONEASTER TRANSENS G. Klotz
[G.C. ? Bailloni's]
Locality Howardian Nature Reserve,
off Ipswich Road, Cardiff. Edge of marshy ground.
SE side of path below A448 road.
Fr. obovate, with white bloom peeling off to
give ± black cherry fruit. Stones 2.
Collector G. HUTCHINSON v.c. 4-1
Map/Grid Ref. ST205791 Date 25.9.2005
Copied J. Fyfe Aug 2007 Reg. No. V. 2007.002.06

Photocopy of *Cotoneaster transiens* (Godalming Cotoneaster) at NMW, new to Wales (see p.12)
(branch: x 0.4; fruit and leaves: life-size)

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Most back issues of the BSBI Welsh Bulletin are still available on request (originals or photocopies). Please enquire before sending cheque (made payable to BSBI Wales), @ £2 per issue, which includes p. & p., to - Dr G. Hutchinson, Department of Biodiversity & Systematic Biology, National Museum, Cathays Park, Cardiff CF10 3NP, specifying the issue number, or year (which would have to include the season or month).

Publication date of last BSBI Welsh Bulletin (No. 80) - June 2007.

EDITORIAL

By the time you read this, I hope you will all have enjoyed Christmas and will be looking forward to the lengthening days and the botanical season which will soon be upon us! I have spent a few evenings recently scanning my old 35mm botanical slides, as I was horrified to find when I went to refer to some recently, that many were aging badly – not just with the dreaded patches of fungus growth but with serious deterioration of the pigments, particularly those on Agfa and Gaf film. Digitizing them to view on the computer and use in reports emphasises how much we are now spoilt by the recent advances in the quality of definition, colour rendition and sophistication of digital cameras. Most of my old slides, many of which I was particularly pleased with at the time, prove to be, at best, of mediocre quality in comparison! However, all these old photos are of immense value as a historic record: mine go back to the mid 1970s with a few earlier ones, and it is startling in some cases to realise how much the countryside has changed, even in this relatively short time. I would urge any of you with a photographic archive to ensure that it is kept safe and conserved: you may not realise now what a valuable resource it could be to future researchers.

Continuing on the theme of change and conservation, Trevor Dines writes in this *Bulletin* about Plantlife's initiative to identify *Important Plant Areas* throughout Wales, indeed throughout Europe, as a means of highlighting sites of international botanical significance to planners and the public at large. These areas, whilst generally focused on existing SSSIs, may also include extensive areas of unprotected land which also needs to be conserved to ensure, for example, that habitat remains for future recolonisation of the rare species for which the IPA is designated. In Carmarthenshire this is particularly pertinent where the main concentration of *rhos* grasslands is in the coalfield valleys of the Amman and Gwendraeth Fawr. They continue to be in decline, for example, by the ineffectiveness of planning controls to prevent their destruction or by the deterioration of past botanically-rich habitats by continuing agricultural neglect or change. This is despite the declaration of a large part of the area as the Mynydd Mawr SAC (primarily on account of the presence of the Marsh Fritillary butterfly, although this species is a good indicator of the botanical quality of the habitat too). These, and similar areas, need all the awareness-raising they can get and the designation of IPAs should be extended after the declaration of this first tranche, to provide another weapon in the armoury aimed at the halting and reversal of this habitat decline.

And so to another Trevor, this time Trevor Evans, who has recently published the culmination of his many years' botanical studies in Monmouthshire. I warmly congratulate him on his very welcome new *Flora* of the county, which conveys his wealth of knowledge, not only of the status and distribution of his local plants but also many tips on their identification – an "added extra" not often included in county floras. I just envy his having completed the task: the time needed for me to complete the Carmarthenshire Flora continues to be a daunting prospect.

Thanks to all those involved in arranging and leading field meetings during 2007, particularly the AGM in Swansea which was very enjoyable, if a bit hectic! I hope you have all put reminders of the 2008 programme in your new diaries, especially the Welsh AGM which is to be held at Gregynog, the first time the BSBI has stayed there for many years!

With best wishes for the New Year, I look forward to seeing you then.

Richard Pryce
19th December 2007

46th WELSH ANNUAL GENERAL MEETING & 26th EXHIBITION MEETING

Friday 8th – Sunday 10th AUGUST 2008

at

GREGYNOG HALL
Montgomeryshire v.c. 47

OUTLINE PROGRAMME

The theme of this meeting will be Woodland plants (including some Wetland and Meadow elements), to reflect the diversity of sites in eastern Montgomeryshire. The AGM extends a warm welcome to members at all levels of experience. Participants are encouraged to bring their own material for determination and discussion.

Friday 8th

- 1.00 pm Main Exhibit room open for setting up.
- 2.00 pm Welcome & registration, Gregynog Hall (nr Welshpool, Powys).
- 3.00 pm Afternoon tea, short talks and ID workshop.
- 6.30 pm Banquet / Conference evening meal in the Dining Room, followed by a guided walk around Gregynog Great Wood, with a talk on parkland and ancient trees in Wales. (Welsh Committee meeting.)

Saturday 9th

- 7.30–9.00 am Breakfast at Gregynog (collect pack-lunch).
- 9.30 am Assemble in car-park for excursions to the Severn Valley wetlands and woodland sites.
- 4.00 pm Return to Gregynog. Afternoon tea, second i.d. workshop / short talks and AGM at Gregynog.
- 6.30 pm Evening meal in the Dining Room, Gregynog.
- 8.00 pm Keynote address by guest lecturer in the Conference Hall.
- 9.00 pm Social time and view Exhibition.

Sunday 10th

- 7.30–9.00 am Breakfast at Gregynog (collect pack-lunch).
- 9.30 am Excursions to woodland and grassland sites (finish at 3 - 4 pm).

Organising Secretary: Andy Jones, Countryside Council for Wales, Plas Gogerddan, Aberystwyth, Ceredigion, SY23 3EE a.jones@ccw.gov.uk. Please mark "Personal" on any post. For details of the venue see www.wales.ac.uk/gregynog

Further details and a booking form will be included with the January mailing of BSBI News. The cost for full board accommodation from Friday evening to Sunday morning is expected to be in the region of £155, which includes Conference fee, Banquet meal, standard single rooms (sharing shower/bathroom between 3 rooms; en suite for a £10 supplement); 3 course evening meals on the Saturday evenings; packed lunch and tea / coffee, Welsh cakes & biscuits in afternoon.

EXHIBITS: Details for booking exhibit space will appear on the main meeting booking form in January. Any material that will be of interest to other members is welcome.

BSBI MEETINGS WALES 2008

Full details and procedure for booking are also available in the BSBI Year Book for 2008.

Saturday 5th April: Conifer Workshop, Allt Dderw, near Aberystwyth, Cardiganshire. (v.c. 46) Leader: Andy Jones. Assemble at 10.30am in the car-park of the Countryside Council for Wales (first right on the road to Bont Goch, Penrhyncoch, off the main A4159, between Bow Street and Capel Dewi SN628 835). We will then move on to the experimental arboretum established by the Forestry Commission before returning to look at established parkland trees in the grounds of Plas Gogerddan, to be followed by an indoor workshop on conifer taxa. Mostly footpaths on moderate to steep gradients but some scrambling through thickets for the more adventurous. Waterproofs and stout walking shoes essential. Recommended reading: "Collins Tree Guide" by Owen Johnson. Numbers limited. Preference will be given to unsuccessful applicants for our 2007 conifer workshop. Bookings with sae please to: Mr. R.A.Jones, CCW, Plas Gogerddan, Bow Street, Aberystwyth, SY23 3EE. Tel. 01970 821119.

Saturday 3rd May: Llangollen, Denbighshire. (v.c. 50) Leader Emily Meilleur. A walk along lanes and hedgebanks and around the castle at Dinas Bran, providing an opportunity to enjoy the spring flowers, including one or two scarce species and with beautiful views of the valley and surrounding hills. Meet at 11am in the car-park at Dinas Bran school at SJ215 424. Please send bookings with sae to: Emily Meilleur, Flat 6, Birmingham House, Goodman Street, Llanberis, Gwynedd LL55 4HL. Tel. 07791951233.

Saturday 28th June: Aran mountains, Llanuwchllyn, Merioneth. (v.c. 48) Leader: Sarah Stille. A meeting to explore a little-botanised montane area, now more accessible following the introduction of the CROW act. This will be a high-level walk of up to 5 miles long and participants must come well equipped. If the weather is inclement, a low-level walk will be substituted. Meet at 10am in the car-park at Llanuwchllyn SH879 297 to arrange car sharing. Bookings with sae please to: Mrs. S.E.Stille, The Quillet, Berwyn Street, Llandrillo, Corwen LL21 0TH. Tel. 01490 440418.

Saturday 5th July: Penybryn, Cardiganshire. (v.c. 46) Leader Arthur Chater. A meeting to explore sea cliffs, sand-dunes, coastal slopes and woodland with a good range of species and of coastal variants. Moderately strenuous, please bring stout footwear and packed lunch. Meet at 11am in the National Trust car-park at Llanborth, Penbryn, SN296 521 (café, toilets, fee for non-members). Bookings with sae please to: Mr. A.O.Chater, Windover, Penyrangor, Aberystwyth SY23 1BJ. (or by email aochater@nildram.co.uk) Tel. 01970 617409.

Saturday 12th July: Rhos Lawr Cwrt, near Llandysul, Cardiganshire. (v.c. 46) Leader David Wheeler (CCW reserves manager). A National Nature Reserve and candidate Special Area of Conservation for its populations of *Drepanocladus vernicosus* (Slender green feather moss) and Marsh Fritillary butterfly, this is one of the best examples of humid Purple moor-grass 'Rhos' pasture in south west Wales. Other habitats include flushes, scrub, wet heath, marshy and dry grasslands. The field visit will include a practical exercise in describing these habitats through the National Vegetation Classification to see how this helps conservation and farm management. Meeting details will be provided on receipt of booking. Bookings with sae please to: Mr. R.A.Jones, CCW, Plas Gogerddan, Bow Street, Aberystwyth SY23 3EE. Tel. 01970 821119.

Saturday 19th July to Saturday 26th July: Glynhir mansion, Llandybie, Carmarthenshire, v.c. 44. Leaders: Kath and Richard Pryce. The annual Carmarthenshire Recording and Monitoring Meeting will include visits to well-botanised sites as well as areas in need of additional

recording within the county. The meeting will cater for both experienced and inexperienced botanists and will provide an opportunity for the informal development of identification skills.

Glynhir is located about 2km east of Llandybie on the western flank of the Black Mountain at SN640151. The River Loughor runs through the estate and at one point plunges over a 10m waterfall into a rocky gorge where *Dryopteris aemula*, *Hymenophyllum tunbrigense* and *Asplenium trichomanes* ssp. *trichomanes* are included among the ferns growing on the cliffs. There will be ample opportunity in the timetable to visit the site. Large parkland trees provide the setting to the mansion, including *Tilia cordata*, and there remains much scope for further discoveries to be made in the vicinity.

The mansion is run by the Jenkins family providing first class facilities including a large common room for the evening. The cost of the week from lunchtime Sat 19th to breakfast on Sat 26th, including full board and packed lunches, will be approximately £400.00 but will be limited to about 20 participants. Accommodation for part of the week will be charged *pro rata*.

Please make initial bookings with the leaders as soon as possible. A £25 deposit will be required by Glynhir followed by full payment six weeks prior to the meeting. Bookings to Mr & Mrs R.D. Pryce, Trevethin, School Road, Pwll, Llanelli, Carmarthenshire, SA15 4AL. Tel. / Fax: 01554 775847; PryceEco@aol.com.

Saturday 2nd August: Llyn Eigiau, Dolgarrog, Caernarvonshire. (v.c. 49) Leader: Wendy McCarthy. Llyn Eigiau is a former reservoir which was the scene of a disaster in 1925 when the dam wall was breached and water flooded downhill into Dolgarrog, resulting in the deaths of 16 people. It was never repaired and this mountain lake in a beautiful setting is now shallow with an interesting muddy shoreline. We will search for *Subularia aquatica*, and then follow the river in to Cwm Eigiau where we will look for interesting old records on the steep cliffs of Craig yr Ysfa. Waterproof footwear strongly advised. Meet at 10.30am at the road end by gate at SH731 663, (turn west from the B5106 in Tal y Bont at SH767 688 and follow the steep road uphill, passing through 2 gates). Bookings with see please to Mrs. W. McCarthy, 5, Ty'n y Coed, Great Orme, Llandudno, Conwy LL30 2QA. Tel.01492 877451.

Friday 8th August to Sunday 10th August: Welsh AGM and Exhibition Meeting and associated field meetings, Gregynog, Montgomeryshire, v.c. 47 [see Outline Programme, p. 4]

ABSTRACTS OF EXHIBITS SHOWN AT THE 25th BSBI WELSH EXHIBITION MEETING, SWANSEA UNIVERSITY, SWANSEA JULY 2007

EXHIBITS:

A GLABROUS VARIETY OF *CERASTIUM DIFFUSUM*

ARTHUR CHATER, Windover, Penyrangor, Aberystwyth, Dyfed SY23 1BJ

[The full text of the note and a coloured photo form a separate article in this Bulletin.]

PLANTLIFE WALES: A series of new information leaflets for species in the Back from the Brink programme have been produced and a selection of them was displayed. These leaflets aim to give succinct information on the biology, ecology and distribution of these species, along with advice on how to identify them, how to survey populations and how to manage them if they are on your land. They are aimed principally at landowners, land managers and other individuals and organisations that have these rare species on their land. The leaflets displayed were for: *Campanula patula*, *Centaurea cyanus*, *Cephalanthera longifolia*, *Chamaemelum nobile*, *Dianthus armeria*, *Galeopsis angustifolia*, *Hypericum linariifolium*,

Lycopodiella inundata, *Pilularia globulifera*, *Ranunculus tripartitus*, *Salvia pratensis*, *Scandix pecten-veneris*, *Silene gallica* and *Valerianella rimosa*.

TREVOR DINES, Plantlife Wales Officer, c/o Countryside Council for Wales, Maes y Ffynnon, Ffordd Penrhos, Bangor, Gwynedd LL57 2LQ

A VASCULAR RED DATA LIST FOR WALES: Preliminary results were presented from an assessment of the levels of threat that face the entire Welsh flora. This analysis will result in the publication of *A Vascular Plant Red List for Wales* to be published in early 2008. The analysis uses the same criteria to assess threat as used in the new GB Red List and so direct comparisons will be drawn between the two, such as the proportion of species that are threatened (fewer in Wales), the proportion in each threat category (more Critically Endangered taxa in Wales for example) and the number of extinct species (higher in Wales).

TREVOR DINES, Plantlife Wales Officer, c/o Countryside Council for Wales, Maes y Ffynnon, Ffordd Penrhos, Bangor, Gwynedd LL57 2LQ

ALLOPOLYPLOID SPECIATION IN *CALLITRICHE*.

RICHARD GORNALL, K. JOHNSON, & T. SCHWARZACHER, Dept of Biology, University of Leicester, University Road, Leicester LE1 7RH

COTONEASTER AROUND SWANSEA BAY: 27 taxa have been named of which 13 have been found in the wild (**); see alphabetical list below. Undoubtedly others await discovery. Some duplicate material was displayed and photocopies of the taxa were also shown. Details of the main sites of interest around Swansea Bay were given, which includes Mumbles Hill; Clyne Gardens, Blackpill; Clyne Valley; Swansea University; Singleton Park Rhododendron Garden; Singleton Park; Singleton Park Gardens (also called Singleton Botanic Gardens); Cwmdonkin Park; Victoria Park and Kilvey Hill.

Check-list: *C. bullatus***, *C. congestus***, *C. dielsianus***, *C. 'Exburyensis'*, *C. frigidus***, *C. frigidus* hybrid**, *C. glaucophyllus*, *C. henryanus* 'Salmon Spray' (*C. x watereri* 'Salmon Spray'), *C. hjelmqvistii***, *C. horizontalis***, *C. 'Hybridus pendulus'* (= *C. dammeri* x *C. salicifolius*), *C. ignotus*, *C. induratus*, *C. integrifolius***, *C. lacteus*, *C. mairei***, *C. rehderi*, *C. salicifolius***, *C. salicifolius* 'Pink Champagne', *C. salicifolius* hybrid**, *C. simonsii***, *C. x suecicus* 'Skogholm', *C. turbinatus*, *C. x watereri*** (= *C. frigidus* x *C. salicifolius*), *C. x watereri* 'Cornubia', *C. x watereri* 'St Monica'

An updated check-list for *Cotoneaster* (NMW) was also displayed [The full list can be found separately in this Bulletin where it has been further updated to Dec 2007].

GEORGE HUTCHINSON, Dept of Biodiversity & Systematic Biology, National Museum Wales, Cathays Park, Cardiff CF10 3NP

SWANSEA BAY, GOWER GUIDES AND TOURIST INFORMATION: The latest publication about the area: *Swansea Bay... The Coastal Route*, launched only the previous weekend, was displayed, together with some of the editions of *A Guide to Gower*. Also shown were prints of photos taken locally, but in the 1850s, included in the publication *John Dillwyn Llewellyn - pioneer photographer*; one showing his eldest daughter Thereza looking down the microscope. Current tourist information literature for the area was also displayed. 4Site Education, Swansea Museum Service (2001). *John Dillwyn Llewellyn - pioneer photographer*. City and County of Swansea.

Strawbridge, D. (2007). *Swansea Bay... The Coastal Route*. The Gower Society, Swansea.

Strawbridge, D. & Thomas, P.J. (1999, etc.). *A Guide to Gower*. The Gower Society, Swansea.

GEORGE HUTCHINSON, Dept of Biodiversity & Systematic Biology, National Museum Wales, Cathays Park, Cardiff CF10 3NP

**BSBI SCOTTISH OFFICER 2005/6 ANNUAL REPORT.
BSBI SCOTLAND VICE-COUNTY RECORDER WORKSHOP.
BSBI SCOTTISH NEWSLETTER, 2007. NO. 29.
BEN LUI SSSI SITE CONDITION MONITORING: VASCULAR PLANTS.**

All: JIM W. McINTOSH, BSBI Scottish Officer, c/o Royal Botanic garden, Edinburgh EH3 5LR. [For further information see BSBI website (BSBI.org.uk/Scotland)]

GLYNHIR MEETING HIGHLIGHTS 2007 (poster): A poster of photographs with brief captions reporting the most memorable events of the 2007 Glynhir week which included the re-finding of *Carex montana* at Castell Du SSSI near Ammanford, new discoveries of *Euphorbia serrulata* and *Juncus ambiguus* on shingle by the River Tywi at Llanwrda and Dryslwyn respectively, *Carex punctata* and *Scleranthus annuus* near Amroth and *Hymenophyllum tunbrigense* and *Dryopteris aemula* in the Eastern Cleddau valley near Efailwen. The moodiness of the photographs reflected the often heavy, ominous grey cloudscapes and rain characteristic of the week!

RICHARD D. PRYCE, Trevethin, School Road, Pwll, Llanelli Carmarthenshire SA15 4AL

THE GLYNHIR FRINGE, 2007 (photographic exhibit): A series of photographs showing the 'fringe' activities held during the evenings of the 2007 Glynhir week. These included two recitals by Chris Cheffings, Graeme Kay, Mary and James Iliff of works for bassoon and double-bass by Iliff and Telemann and for piano by Iliff and Scarlatti. Other events depicted included the bat-recording evening led by Rob Colley and the hand-held computer, data capture demonstration by Steve Rhodes.

RICHARD D. PRYCE, Trevethin, School Road, Pwll, Llanelli Carmarthenshire SA15 4AL

Other exhibitor: Summerfield Books.

WORKSHOPS:

Arthur Chater: *Polygonum aviculare* group in Wales.

Arthur Chater: Identification of Cereal Crops.

John Poland: Vegetative Identification: *Chenopodium* / *Atriplex* (CHAT) Key.

A GLABROUS VARIETY OF *CERASTIUM DIFFUSUM*

Cerastium diffusum Pers. (Sea Mouse-ear) is an extremely variable plant. It can be dwarf to very robust; the stems can be prostrate, ascending or erect, and simple or branched; and plants can be eglandular to densely glandular, and the amount of glandulosity can vary on different parts of the plant. The leaves vary in shape, and can sometimes be very thick and fleshy. The flowers can be 4-merous or 5-merous. Much of this variation is clearly genetic, and for example one often finds whole populations with either 4-merous or 5-merous flowers, but some of it, for example the fleshiness of the leaves, may well not be. Several infraspecific taxa have been described, but the characters used to define most of them seem not to be well enough correlated for the taxa to be confidently identified.

In May 1960, Peter Benoit found a small colony of completely glabrous plants in dry, sandy dune grassland by the Borth promenade in north Cardiganshire (v.c. 46). He took seed and grew it on, depositing two of the resulting specimens in NMW the following year. I have often searched for this colony in recent years, but without success. In April 2007 however I found a colony of glabrous plants in the Ynys-las dunes SN60509359, some 3km further north (see photo); this colony was c.20 x 5m, consisted of both 4-merous and 5-merous

plants, and was mixed with normal pubescent plants, with no sign of any intermediates. As can be seen in the photo, the glabrous plants have a very distinctive appearance, usually rather shiny and reddish-tinged. Three more colonies were later found elsewhere in the dunes, and then another at what was almost certainly Benoit's original site at Borth SN60789097, as well as another one further south in Borth.

There seems to be no other record of glabrous plants in Britain, and it certainly seems conspicuously absent from the rest of Cardiganshire where *C. diffusum* is very common all along the coast. The only record of it elsewhere seems to be from Châtelailion, Charente Maritime, in south-west France where it was found on shingle by the sea by J. Foucaud in 1889 (*Comptes-rendus. Société botanique rochelaise* 10: 26 (1889)), and was described by G. C. Rouy as *Cerastium tetrandrum* var. *glabrum* Rouy in Rouy & Foucaud, *Flore de France* 3: 218 (1896). The epithet has not to date been transferred to *C. diffusum*, but the required new combination will probably be made in due course in Sell & Murrell's Flora.

Whether this plant is worth recognising as a variety is debatable, but it would be interesting to know if other colonies do exist. Its frequency over three tetrads in Cardiganshire makes it at least of local interest.

ARTHUR CHATER, Windover, Penyrangor, Aberystwyth SY23 1BJ

ANGLESEY PLANTS IN 2007

In April visits were made with Plantlife to assess the population of *Ranunculus tripartitus* (Three-lobed Crowfoot) at three of its Anglesey localities – a cold and wet task; but with some plants found at each locality. There was no lack of water, but a shortage of open mud - it is difficult to achieve the right level of grazing and trampling to suit this plant.

Also in April a visit to the seemingly natural looking woodland by the Menai Strait, near Llanfair Pwll, revealed new records of clearly well established introductions beneath the canopy, including the bamboos *Sasa palmata* (Broad-leaved Bamboo), *Phyllostachys bambusoides* & *Phyllostachys viridiglaucescens*, also several patches of *Pulmonaria officinalis* (Lungwort) and *Rodgersia podophylla* (Rodgersia).

A number of visits were made to assess the flora of Rhuddlan Fawr, under consideration by the North Wales WT as a 17ha extension to the west of their Cors Goch reserve. In addition to further areas of fen are areas of limestone grassland and rock, with new populations of *Orchis morio* (Green-winged Orchid), *Ophioglossum vulgatum* (Adder's-tongue) and *Polypodium cambricum* (Southern Polypody). Fortunately the Trust has successfully completed the purchase and is now planning the future management requirements.

An evening visit to the fen at Rhos y Gad saw Jane Rees find *Catabrosa aquatica* (Whorlgrass), a plant with few recent Anglesey records. It was growing quite extensively along the line of a former ditch.

Summer visits to look at the aquatic flora of the RSPB's Malltraeth Marsh reserve were hampered by high water levels, but useful populations of *Oenanthe fistulosa* (Tubular Water-dropwort) and *Stellaria palustris* (Marsh Stitchwort) were re-confirmed, together with plentiful *Elatine hydropiper* (Eight-stamened Waterwort) in one of the pools.

The wet summer seemed to suit other species, with flower-spikes of *Spiranthes spiralis* (Autumn Lady's-tresses) being much more plentiful than usual in its sand dune locations at Aberffraw and Rhosneigr, and over 1200 plants of *Tuberaria guttata* (Spotted Rock-rose) at Porth Diana, the highest count for eighteen years.

Probably the most interesting record of a native species was the discovery by Ivor and Jane Rees of *Ruppia cirrhosa* (Spiral Tasselweed) from the Inland Sea (see below).

IAN BONNER, Cae Trefor, Tyn y Gongl, Anglesey LL74 8SD

***RUPPIA CIRRHOSA* (SPIRAL TASSELWEED) ON ANGLESEY (V.C. 52)**

There are currently about five locations for *Ruppia maritima* (Beaked Tasselweed) around the Anglesey coast and it was first recorded by Hugh Davies (1813); but no mention of the related *Ruppia cirrhosa*. The first reference was in the report of a survey of the Cefni saltmarsh, carried out in 1966-67 by Packham & Liddle (1970), *Ruppia cirrhosa* was recorded "in streams running through the marsh from the Rock Ridge" compared to *R. maritima* in saltpans near the sea. However this record seems to have been ignored or overlooked by botanists at that time and was not picked up, for example, by R. H. Roberts in his *Flowering Plants and Ferns of Anglesey* (1982).

Indeed Ellis (1983) lists only three records: Swansea (v.c. 41) pre1900, Dwyrdd Estuary (v.c. 48) 1971 and Afon-wen (v.c. 49) 1897. These are repeated in the New Atlas, Preston *et al.* (2002), which shows the nearest post-1987 records to be from Strangford Loch in Northern Ireland and from Lady's Island Lake & Tacumshin brackish lagoons behind a shingle ridge in Co. Wexford.

This September I accompanied Jane and Ivor Rees at low tide to the Inland Sea where, just north of Four Mile Bridge, *Ruppia* was locally quite frequent in an extensive bed of *Zostera* (Eelgrass). The water was about 30cm deep and the *Ruppia* plants were discharging pollen onto the water surface, so even at this stage the peduncles were quite long. We collected specimens in an advanced stage of fruiting as we could find and these were confirmed as *R. cirrhosa* by C.D. Preston. One specimen has been deposited at the National Museum of Wales and a second specimen (see photo), has been retained by IRB.

In fact this was not the first confirmed record, as discussions between Ivor Rees and the CCW Marine Survey team (Robert Cook, Tom Stringell & Bill Saunderson) indicated that in August 2006 they had collected and retained a specimen of a tasselweed from the lagoon at Cemlyn, which on examination was also clearly *Ruppia cirrhosa*.

Also with re-kindled enthusiasm I have looked again at specimens collected from the Inland Sea in 2001, and labelled as *R. maritima*; but which on fresh examination also include probable *R. cirrhosa*, although the fruits are slightly too immature to be certain.

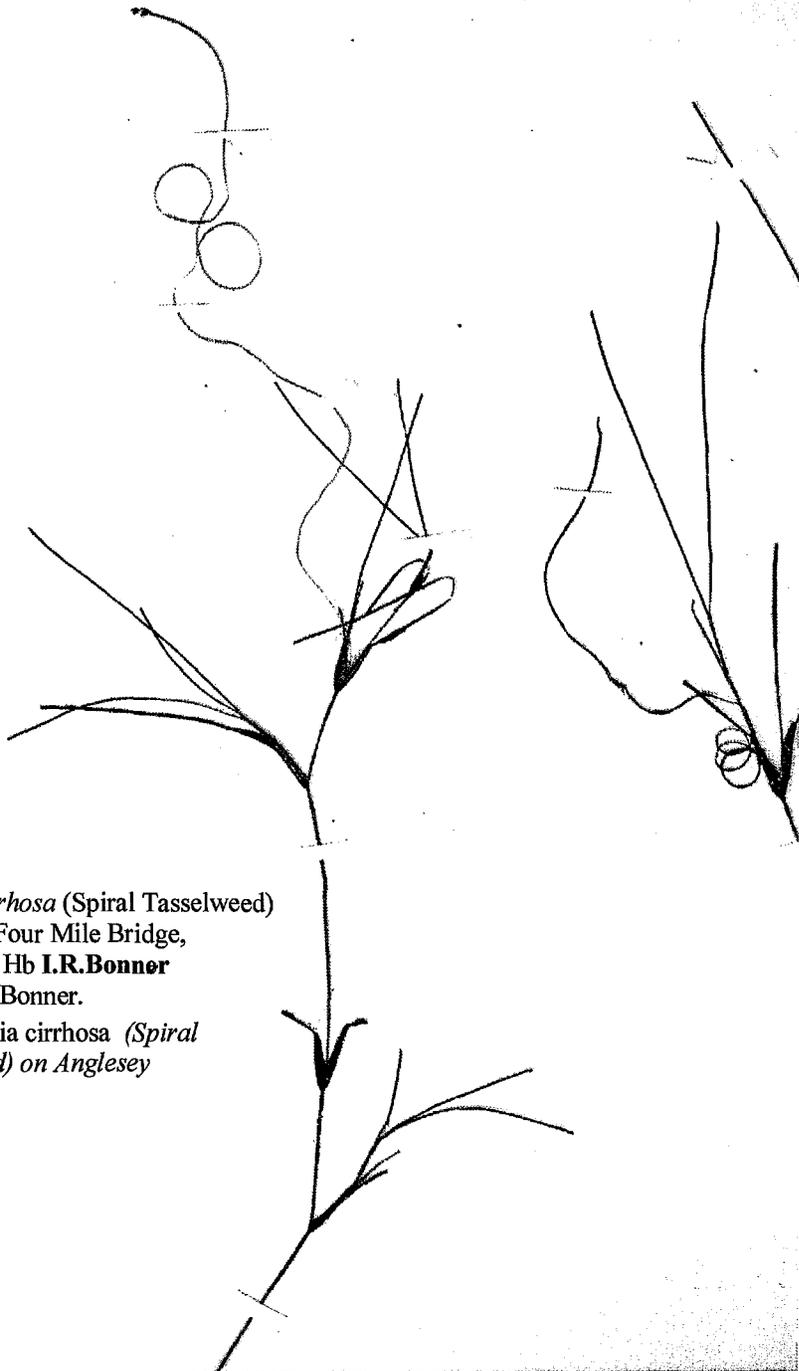
Further searches around the Inland Sea found plenty of *Ruppia maritima*, usually in shallow water, or on muddy sand irrigated by water draining from the adjacent shore; but there were other plants from slightly deeper channels that could not clearly be assigned to either taxon, because although they had long peduncles, the fruits were not fully mature, so the fruit stalks might elongate further.



A glabrous variety of *Cerastium diffusum* Pers. (Sea Mouse-ear) from Ynys-las dunes, V.C. 46, Cardiganshire.

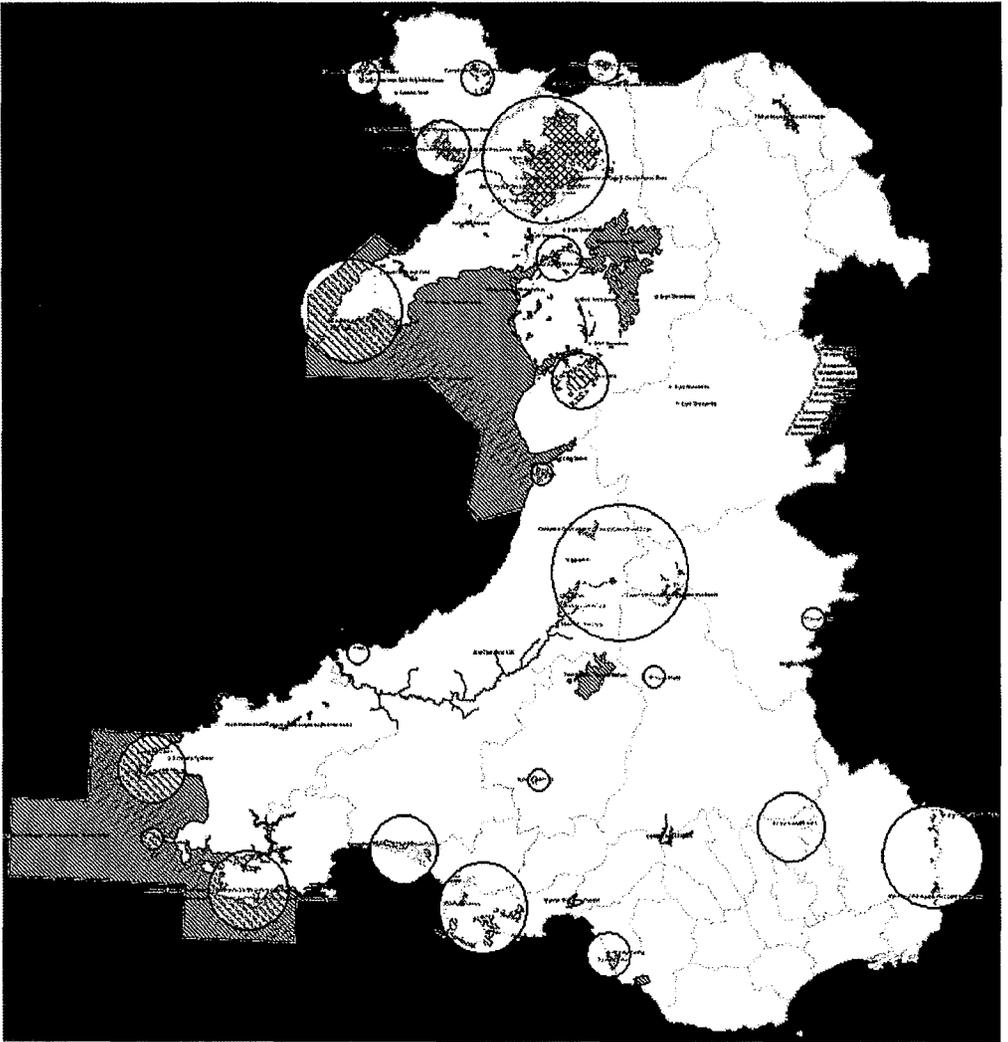
Photo: Arthur Chater.

See: *A glabrous variety of Cerastium diffusum*



Ruppia cirrhosa (Spiral Tasselweed)
from near Four Mile Bridge,
Anglesey. Hb **I.R. Bonner**
Photo: Ian Bonner.

See: *Ruppia cirrhosa* (*Spiral
Tasselweed*) on Anglesey



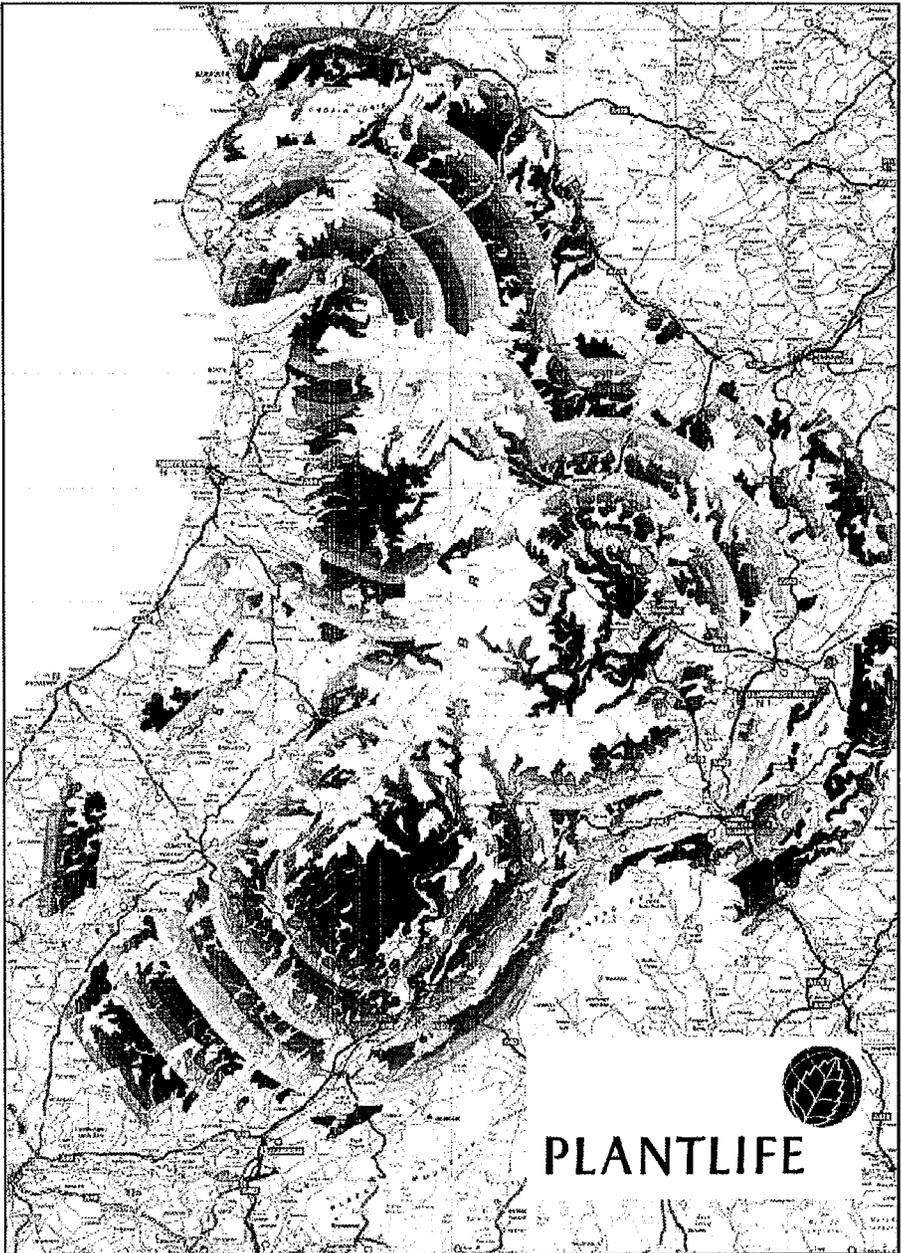
Map 1

Yellow circles indicate the size and location of the 24 Important Plant Areas in Wales. Note that these are not the IPA boundaries, which are being drawn up now.

See: *Plantlife Wales Newsletter* – 6



PLANTLIFE



Map 2 Four SSSIs (in dark blue) form the core of the IPA. These are linked by buffers that are restricted to those areas where restoration of oak woodland (the principal habitat of the IPA) could potentially take place (defined in this case by the occurrence of brown podsol soils).

See: *Plantlife - Wales Newsletter - 6*

The differences between the two species do not seem very clear cut. Although Preston (1995) listed several vegetative differences, he concluded that all the features were insufficiently marked to be relied upon for identification. The only sure way is to look at material with mature fruits: in *R. maritima* the peduncles are usually 8-26mm long and 0.5-1.8 times as long as the longest fruit stalk, and in *R. cirrhosa* the peduncles are usually 40-300mm long and 2-10 times as long as the longest fruit stalk.

In compiling his vegetative flora John Poland (verbal communication) also agrees that he was not able to differentiate the taxa using vegetative characters.

Although pure speculation it appears that pedicel length may be linked to water depth and the characteristic coiling of the pedicel an adjustment to varying water depths over the flowering period. It would be interesting to hear from others with more knowledge and experience about tasselweeds, or perhaps for this to be tested by someone looking for a project using molecular and morphological methods!

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PARENTUCELLIA VISCOSA

Little did I think that I would write a note for the *Welsh Bulletin* but Stephen Evans (County Recorder for Pembrokeshire) thought I should, so after having a chat with Dr. Charles Hipkin of Swansea University, I thought I'd have a go:

A few years ago, Tony was botanising in Charles Hipkin's square looking for *Filago vulgaris* (Common Cudweed) and found *Parentucellia viscosa* (Yellow Bartsia) on a brownfield site: the old railway sidings at Jersey Marine, Swansea, a site which Tony and Charles were both monitoring. This site is now partly developed with new houses.

At some time or other the car wheel must have picked up some seed because this year (2007) one plant has germinated where the rear nearside wheel would have come to rest on our driveway at Cannisland Park. The car hasn't been there for twelve months so the plant has had a chance to grow without constantly being run-over. The upshot is — don't park your car in exactly the same place all the time! I've had instructions from Stephen Evans on how to keep it growing.

VIV LEWIS, Cannisland Park, Parkmill, Gower

COTONEASTER TRANSENS (GODALMING COTONEASTER) NEW TO WALES

The full record can be read on the herbarium label (*see front cover of this Bulletin*).

The main shrub became conspicuous from the footpath in Sept 2005 with its plentiful dark fruit, some with a whitish bloom. Away from the path at the rear of this 3.5m high *Cotoneaster* there was clear evidence of self-seeding with a few stems scattered amongst the dense *Juncus* and with some already managing to fruit (seen 2007).

Identification of the plant was undertaken by first producing a lateral key of the 'black-fruited' *Cotoneaster* from keys, descriptions and illustrations that were readily at hand (e.g. Stace, 1997 & Fryer & Hylmö, 1995). Field note details were compared regarding growth habit, fruit shape and colour (noting the time of year) and stone number and shape; also leaf vein indentation and overall colour to the upper and underside of mature leaves. One could measure later the shape and size of typical leaves, and check under the microscope for pubescence primarily on the underside of the leaves again bearing in mind the time of year collected and whether examining young or mature leaves. Flowers were not present on this occasion (25 Sep).

On the main plant one of the key features was the younger leaf underside being pubescent, including the midrib and margin, but the mature leaves becoming glabrous indicative of *C. transens* (hairs persisting on leaf surface in *C. affinis*, and hairs only on the midrib and sparse in *C. bacillaris*). This also appeared to be so when NMW material of the three species was examined under the microscope. A more subtle feature was the whitish bloom on some of the fruit which rubbed off to give an almost black-fruited *Cotoneaster*. The bloom is reported for *C. transens* and *C. bacillaris* but sparser in the former. Evidence of the bloom remained on drying.

In detail: mature leaf undersides were glabrous on leaves below the fruiting areas of branches. However, the underside of young leaves above the fruiting area of the branch, and on non-fruiting branches had clearly pubescent midribs and margins with some hairs on the surface underside. Whitish lateral venation to the underside of the younger leaves showed up prominently under the microscope but had turned quite dark on older leaves. Refereeing was then sought from Jeanette Fryer to whom one is extremely grateful.

The localities where the species has previously been recorded in the British Isles are confined to the south-eastern part of England. In the vice-counties listed by C. A. Stace (1997), namely S. Hants, Beds, W. Kent and Surrey, habitats were: 'edge of ride in conifer plantation', 'waste ground', 'in chalk quarry' and 'on bank at sand pit' resp. (J. Fryer, pers. comm.). Although somewhat diverse they are typical of where birds are likely to shelter or feed, or where any introduced plants would have time to self-seed. Bearing this in mind, in Cardiff, the marshy ground into which it is spreading is sheltered by the high embankment of the A48 road and the raised embankment of the A4161 link road to it from Newport Road, with tree-lined and wooded surrounds. Also it is close to a tidal area of the River Rhymney.

To the south-west of the population is dense *Rubus* and elsewhere rank *Juncus effusus* (Soft-rush) and *J. articulatus* (Jointed Rush) containing some *Filipendula ulmaria* (Meadowsweet) and *Lythrum salicaria* (Purple-loosestrife), with *Phragmites australis* (Common Reed) nearby. One plant of *Spartium junceum* (Spanish Broom) grows in close proximity, and diagonally across the footpath is a small shallow pond created for wildlife.

The only other specimen of the species at NMW is cultivated material from C. G. Hanson, Ware, Herts. coll. 1.6.2001 (in flower) and 3.10.2001 (in fruit) from seed Strasbourg Botanic Gardens via J. Fryer (originally as *C. wattii*), redet. J. Fryer 2.2002. The species is native to the Yunnan province of south-western China, one of the richest areas for the genus in the World, and was first described in 1968 (G. Klotz). Its systematic position in the genus *Cotoneaster* has changed from Series Insignes to Series Hebephylli as botanists have acquired increasing knowledge of the genus. Genetic work like that of Bartish, Hylmö and Nybom (2001 & 2006) may shed more light.

'Black-fruited' *Cotoneaster* are rarely found in Wales, the only other well reported species being *C. affinis* (Purpleberry) from near Plwmp, (Cards., v.c. 46) SN35 'Dominant in hedges on both sides of road, including many self-sown bushes' coll. initially by M. Evans Nov 1978 det. J. Fryer 1993 NMW (A. O. Chater, 1995). A specimen collected by Mrs A. M. Pell earlier in the autumn of 1978 is probably from this population.

Similarly, in a survey (by GH) of planted *Cotoneaster* across most of the parks and gardens open to the public in industrial South Wales in the early 1990s, from Llanelli in the west to Pontypool and Cwmbran in the east and Merthyr Tydfil in the north, only one *Cotoneaster* with 'black-fruit' present was encountered, planted in the border shrubbery adjoining the SW corner of Roath Park Lake, Cardiff and remaining unidentified; but young non-fruiting plants of *C. ignotus* (Black-grape *Cotoneaster*) were found planted in the 'Rhododendron Garden', Singleton Park, Swansea (det. J. Fryer).

For info: The Howardian Nature Reserve, Cardiff was one of the first examples of a statutory nature reserve established on a former domestic refuse site. Established in 1973 and associated with the former Howardian High School it was declared a local nature reserve in 1991. Some of the relict estuarine vegetation survives but is decreasing. Initially there was much growth of *Salix cinerea* x *S. viminalis* and *S. caprea* x *S. viminalis* (conf. R. D. Meikle, NMW) which has since been cleared. An enthusiastic group of local residents formed a Friends' Group in 1989 who work with the Council to further improve the reserve and it is now more known in June for its abundant population of *Ophrys apifera* (Bee Orchid) and mixed populations of *Dactylorhiza* (Marsh-orchid). A good network of paths weave between the great variety of habitats, packed with interesting flora and fauna as I have discovered over the years.

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CHECK-LIST OF *COTONEASTER* AT NMW (DEC 2007)

** Recorded from the wild in Wales. **new** new to NMW since last list (2002).

- C. acutifolius* var. *villosulus* (see *C. villosulus*)
C. adpressus
*C. affinis***
C. ambiguus (*C. laetivirens*)
C. amoenus
C. antoninae
C. apiculatus
C. assamensis **new**
C. astrophoros
C. atropurpureus
C. atropurpureus 'Variegatus'
C. atrovirens
C. auranticus **new**
C. bacillaris
C. boisianus
C. bradyi
*C. bullatus***
C. bullatus 'Bergianum' **new**
C. bullatus 'Firebird' (see *C. ignescens*)
C. buxifolius [needs conf.]
C. calocarpus 'Elegans' **new**
C. cambricus (*C. intergerrimus*)**
C. cashmiriensis
C. cinerascens **new**
C. cochleatus
*C. congestus***
C. congestus 'Seattle' (*C. 'Seattle'*) **new**
*C. conspicuus***
C. conspicuus 'Highlight'
 (probably *C. pluriflorus*)
C. cooperi (*C. griffithii*; *C. obtusus*) **new**
C. 'Cornubia' (see *C. x watereri* 'Cornubia')
C. x crispii **new**
C. cuspidatus
C. dammeri
C. dammeri 'Major'
*C. dielsianus***
C. distichus (see *C. nitidus*)
C. divaricatus
C. 'Eastleigh' (see *C. schlechtendalii*)
C. elegans **new**
C. ellipticus (see *C. insignis*)
C. 'Exburyensis' **new**
C. fangianus
C. 'Firebird' (see *C. ignescens*)
C. flinkii **new**
C. floccosus (*C. salicifolius* var. *floccosa*)
C. forrestii **new**
C. foveolatus
*C. franchetii***
C. series Franchetioides **new**
*C. frigidus***
C. frigidus f. *fructuluteo* **new**
C. frigidus hybrid**
C. froebelii **new**
C. glaucophyllus
C. giralduii **new**
C. glabratus **new**
C. glacialis (*C. nivalis*) **new**
C. griffithii (see *C. cooperi*)
C. harrovianus
C. harrismithii
C. henryanus
C. henryanus 'Salmon Spray'
 (see *C. x watereri* 'Salmon Spray')
C. henryanus hybrid
C. hersianus **new**
C. hissaricus
*C. hjelmqvistii***
*C. horizontalis***
C. horizontalis 'Variegatus'
 (see *C. atropurpureus* 'Variegatus')
C. hsingshangensis (redet. of *C. ichangensis*
 specimen) **new**
C. hummellii
C. hupehensis **new**
*C. 'Hybridus pendulus'***
 (= *C. dammeri* x *C. salicifolius*)
C. hylmoei
C. ichangensis (see *C. hsingshangensis*)
C. ignavus **new**
C. ignescens (*C. bullatus* 'Firebird'; *C. 'Firebird'*)
new
C. ignotus
C. induratus
C. insculptus
C. insignis (*C. ellipticus*; *C. lindleyi*) **new**
*C. integrifolius***
C. intergerrimus (*C. vulgaris*)
C. juranus **new**
C. kingdonii **new**
C. kitaibelii **new**
C. kweitschoviensis
*C. lacteus***
C. laetivirens (see *C. ambiguus*)
C. langei **new**
C. lidjiangensis
C. lindleyi (see *C. insignis*)
C. lomahuensis (*C. poluninii* aff. = Yu 10391) **new**
C. lucidus
C. ludlowii **new**
*C. mairei***
C. marginatus
C. marquandii
C. marroninus **new**
C. megalocarpus **new**

- C. microphyllus*
C. microphyllus aff.
C. monopyrenus
C. moupinensis
C. mucronatus
C. multiflorus
C. nanshan
C. nebrodensis (probably *C. tomentosus*)
C. niger
C. nitens
C. nitidus
C. nivalis (see *C. glacialis*)
C. noheli
C. obscurus
C. obscurus var. *cornifolius* **new**
C. obtusus (see *C. cooperi*)
C. oliganthus **new**
C. otto-schwarzii **new**
C. ovatus **new**
C. series Pannosi
C. pannosus
C. parkeri (*C. x parkeri*) **new**
C. pekinensis
C. pe-tsen **new**
C. plurifolius (incl. *C. permutatus*) **new**
C. poluninii aff. (*Yu10391*)
 (see *C. lomahuensis*)
C. prostratus
C. prostratus 'Eastleigh'
C. przewalskii **new**
C. pseudoambiguus
*C. rehderi***
C. roseus **new**
C. reticulatus
C. rotundifolius
C. rubens
C. rugosus **new**
*C. salicifolius***
C. salicifolius angustifolius **new**
C. salicifolius 'Autumn Fire'
 (see *C. salicifolius* 'Herbstfeuer')
C. salicifolius var. *floccosa*
 (see *C. floccosus*) **new**
C. salicifolius f. *fructuluteo*
C. salicifolius 'Gnom'
C. salicifolius 'Gracia'
C. salicifolius 'Herbstfeuer'
 (*C. sal.* 'Autumn Fire')
- C. salicifolius* 'Parkteppich'
C. salicifolius 'Pink Champagne'
C. salicifolius 'Repens'
C. salicifolius - small-berried var.
C. salicifolius - small-leaved var.
C. salicifolius - yellow-berried var.
C. salicifolius cvs
C. salicifolius hybrid** **new**
C. salwinensis
C. schantungensis **new**
C. schlectendalii (*C.* 'Eastleigh') **new**
C. 'Seattle' (see *C. congestus* 'Seattle')
C. serotinus **new**
C. shannanensis **new**
C. shansiensis **new**
C. sherriffii
C. sikangensis **new**
*C. simonsii***
C. splendens
*C. sternianus***
C. x suecicus (= ?*C. dammeri* x *C. conspicuus*)
C. x suecicus 'Coral Beauty'
C. x suecicus ?'Jurgl'
C. x suecicus 'Skogholm'**
C. taofuensis **new**
C. tengyuehensis
*C. thymifolius*** **new**
C. tomentosus **new** (see also *nebrodensis*)
*C. transens*** **new**
C. turbinatus
C. 'Valkenburg' [Series Sanguinei]
C. vandelaarrii **new**
C. veitchii
C. verna **new**
C. vestitus (*C. glaucophyllus* var. *vestita*)
*C. villosulus*** (*C. acutifolius* var. *villosulus*)
C. vilmorinianus **new**
C. wardii
*C. x watereri*** (= *C. frigidus* x *C. salicifolius*)
C. x watereri 'Cornubia'
C. x watereri 'Exburyensis'
C. x watereri 'Salmon Spray'
C. x watereri cvs**
C. wilsonii **new**
C. yui
C. zabelii
C. with RBGE numbers (several) **new**

Acknowledgements:

Jeanette Fryer for updating nomenclature.

Gordon Hanson for donation of *Cotoneaster* specimens (confirmed J. Fryer) to NMW.

All others who have sent in material for identification.



Important Plant Areas

Where are the best places for plants in the UK? This apparently simple question has taken nearly seven years to answer, but a list of Important Plant Areas in the UK was finally published in July 2007. The Important Plant Areas (IPA) concept identifies the most valuable sites for plant diversity across the world. Projects to identify and conserve IPAs are underway in 21 countries, including Cameroon, China, Costa Rica, Finland, Hungary, the Himalayas, Italy, Madagascar, Morocco, New Zealand, Spain, Russia and Turkey. This programme of work contributes to Target 5 of the Global Strategy for Plant Conservation, which asks for protection of 50% of the world's most important areas for plant diversity to be assured by 2010. Identifying IPAs in a standardised way allows us to measure what proportion of these areas are being protected.

In the UK, a partnership of organisations has been hard at work to select and identify IPAs. Representatives of the BSBI and other specialist societies (bryophytes, lichens and algae, for example) have been joined by the countryside agencies (CCW, Natural England and Scottish Natural Heritage), along with the Joint Nature Conservation Committee and other major partners such as BRC, the National Trust and the Wildlife Trusts. Given the number of stakeholders and the fact that IPAs cover all plant groups, it's not surprising the list has taken so long to produce.

IPAs are not legal site designations but are a framework for identifying and highlighting the very best sites for plants, which can then be used to support conservation actions and initiatives. IPAs also provide a unique opportunity to consider the best sites for plants in a broader context, and facilitate the development of landscape scale approaches to conservation that buffer the 'core' of the IPA and address habitat fragmentation.

Site Selection

So how are Important Plant Areas defined? There are three criteria by which a site may qualify. The first of these (criterion A), requires a site to support a population of one or more species that are of international conservation concern. Secondly, criterion B asks for sites to have an exceptionally rich flora in a European context in relation to their biogeographic zone. Finally, for criterion C, the site needs to be an outstanding example of a habitat type of international plant conservation or botanical importance. In each case, the top five sites are selected for the country in question.

These criteria may sound complicated but in fact are relatively straightforward to interpret. For criterion A (internationally threatened species), for example, sites with populations of species listed on the IUCN Global Red List or on Annex II of the European Union Habitats Directive have been considered. In Wales, these are *Euphrasia cambrica*, *Euphrasia rivularis*, *Gentianella anglica*, *Liparis loeselii*, *Luronium natans*, *Rumex rupestris*, *Sorbus leptophylla*,

Sorbus leyana, *Sorbus minima* and *Trichomanes speciosum*. The best five populations of these in the UK have been selected, although not all occur in Wales of course.

Selection of sites for criterion B (species richness) and criterion C (internationally threatened habitats) have been more problematic. For species richness, threatened species listed in the new GB Red List were mapped according to habitat type, and hotspots of species richness identified. These hotspots were then matched to actual sites on the ground. For criterion C (internationally threatened habitats), it was decided to adopt the threatened habitats listed on Annex I of the European Union Habitats Directive. These habitats have already been used to select SACs (Special Areas for Conservation) in the UK and all SACs where botanically rich habitats are cited as qualifying features have been selected as IPAs.

The IPA list

A great many sites qualified as candidate IPAs in the UK, and rationalising the list was a major task. Some sites qualified for more than one species group (vascular plants and bryophytes, for example) and such duplications were usually bought together in one IPA. Other IPAs were scattered across several sites and again these sometimes needed to be combined into one. Deciding on the “best” five sites for each species and habitat in each criterion also caused many problems.

It was therefore agreed to publish a list of those sites for which we were most confident that they definitely qualified as IPAs, and to leave other candidate sites for future consideration as more data is received or more information about them can be gathered. The list of 150 definite IPAs in the UK has now been published (see www.plantlife.org.uk for the complete list) and these will not change, although it’s likely that other sites will be added to the list in the future. This list of definite IPAs represents the apex of our botanical diversity in an international context. In most cases the sites qualify on more than one criterion, often across different species groups, and the list for Wales is as interesting as it is varied.

IPAs in Wales

The table below describes IPAs in Wales and the criteria on which they have been selected. The map (see *Map of IPAs in Wales*) shows their distribution in Wales.

IPA name	Vice-county(s)	Criteria for selection as IPA
Abermenai to Aberffraw Dunes	Anglesey	Significant populations of internationally threatened species (Shore Dock); Hotspot for flowering plants and stoneworts of dunes and coastal habitats; Internationally threatened habitats (embryonic dunes, mobile dunes, dunes with creeping willow, fixed dunes, humid dune slacks)
Anglesey Fens	Anglesey	Hotspot for stonewort species of base-rich fens; Internationally threatened habitat (calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>)
Cadair Idris	Merioneth	Threatened endemic Eyebright (<i>Euphrasia cambrica</i>); Hotspot for woodland mosses; Hotspot for freshwater algae; Internationally threatened habitats (calcareous & acids rocks with crack & fissure vegetation; nutrient-poor lakes; montane acidic scree)

Cambrian Mountains Orefield	Carms / Cards / Brecs / Caerns	Hotspots for threatened lichens of old metalliferous mine workings
Cambrian Mountains Woodland	Cards / Brecs / Rads / Monts / Merioneth	Significant population of an internationally threatened fern; Hotspot for woodland lichens & bryophytes; Internationally threatened habitats (old sessile oak woods with Holly, floodplain forests with Alder and Ash, dry heaths)
Carmarthen Bay Dunes	Carms	Significant populations of internationally threatened species (Fen Orchid, Petalwort); Internationally threatened habitats (embryonic dunes, mobile dunes, dunes with creeping willow, fixed dunes, humid dune slacks)
Ceredigion Bogs	Cards	Hotspot for bryophytes of lowland raised bogs; Internationally threatened habitats (active raised bogs)
Dinefwr Deer Park	Carms	Hotspot for lichens of broadleaved deciduous woodland
Gower	Glam	Significant populations of internationally threatened species (Fen Orchid); Hotspots for calcareous grassland, heathland and arable flowering plants; Internationally threatened habitats (ashwoods of slopes, screes and ravines; dry heaths; Purple moor-grass meadows; wet heaths)
Great Orme's Head	Caerns	Hotspot for calcareous grassland flowering plants; Internationally threatened habitats (semi-natural dry grasslands and scrubland on limestone; dry heaths)
Kenfig	Glam	Significant populations of internationally threatened species (Fen Orchid, Petalwort); Internationally threatened habitats (dunes with creeping willow; fixed dunes; calcareous nutrient-poor lakes with stoneworts; humid dune slacks)
Limestone Cliffs of the Brecon Beacons	Brecs	Hotspot for 3 threatened endemic Whitebeams; Internationally threatened habitats (calcareous and acidic rocky faces with crack & fissure vegetation, beech forests)
Limestone Coast of South West Wales	Pembs / Carms / Glam	Significant population of internationally threatened species (Early Gentian); Hotspot for lichens of rock cliffs, shores, shrub heath, dunes and deciduous woodland; Internationally threatened habitats (fixed dunes; Atlantic sea cliffs; calcareous nutrient-poor lakes with stoneworts)
Llansaint Woodlands	Carms	Significant population of internationally threatened species
Lleyn Sea Cliffs	Anglesey	Significant population of internationally threatened lichen (Golden Hair Lichen); Internationally threatened habitat (vegetated Atlantic sea cliffs)
Merionnydd Oakwoods	Merioneth	Hotspot for bryophytes and lichens of broadleaved deciduous woodland
Mwnt Arable Fields	Cards	Hotspot for threatened flowering plants, mosses and liverworts of arable fields
North West Anglesey Heaths	Anglesey	Significant population of internationally threatened endemic species (South Stack Fleawort); Hotspot for threatened flowering plants of lowland heaths; Internationally threatened habitats (dry heaths; Atlantic sea cliffs; Purple moor-grass meadows)

Wye Valley	Mons / Brecs / Rads	Significant population of an internationally threatened endemic Whitebeam; Internationally threatened habitats (Beech forests, Yew forests, Lime & maple forests of slopes, screes and ravines, Water-crowfoot rivers)
Skomer Island	Pembs	Hotspot for marine algae
Snowdon	Caerns / Merioneth	Significant populations of internationally threatened species (Floating Water-plantain and two endemic Eyebrights); Hotspot for ferns; Hotspot for montane lichens; Hotspot for flowering plants of mountains and inland rock; Internationally threatened habitats (calcareous & acidic rocks with crack and fissure vegetation; nutrient-poor mountain lakes and their fringes; acidic alpine grasslands; acidic montane scree)
St David's Coast and Heaths	Pembs	Significant populations of internationally threatened species (Floating Water-plantain); Hotspot for flowering plants of heathland and coastal cliffs; Hotspot for lichens of rock cliffs and shores including the supralittoral; Internationally threatened habitats (dry heaths; Atlantic sea cliffs; transition mires and quaking bogs)
Stanner Rocks	Rads	Hotspot for threatened flowering plants of inland rock outcrops
Waun Rhydd	Carms	Significant population of an internationally threatened bryophyte (Veilwort)

As you'll see from the list and map, some sites are very small (such as Stanner Rocks) while others are enormous – the Cambrian Mountains Woodland covers parts of 5 vice-counties. A wide range of habitats is represented, from woodland to dunes to acidic uplands and limestone pavements, and almost all of what we would consider to be our “best” and “classic” botanical sites are included (remember, though, that this is a sample of the UK list, which is in itself a list of internationally important sites, so not every good site in Wales is listed!).

What next for IPAs?

Now that the list has been published, there are three main areas in which we will be working over the next few months. Firstly, we are trying to improve the data and information for criterion B (species rich sites). We have consulted with BSBI Vice-county Recorders over other potential sites in their counties that may qualify, but the results need more analysis and more responses from VC Recorders are being sought. This piece of work is important because it is this criterion in particular that may reveal sites that are currently unprotected – an odd fragment of exceptionally species rich habitat, for example, that might have slipped through the site protection network. Capturing such sites is an important part of the IPA project.

Secondly, we are beginning to put boundaries around the IPAs on the published list. It is only once this has been done that IPAs will begin to be meaningful entities on the ground. There are no rules for such boundaries, so this setting of them has been an opportunity for us to get a bit creative. In essence, we are identifying the “core” of each IPA – the part that contains the qualifying features and absolutely must be protected. In many cases, these cores match existing SSSIs, SACs or NNRs and so their boundaries can be adopted as the IPA boundary. In other cases, however, IPA features lie just outside existing protected area boundaries; the IPA boundary can therefore be modified to incorporate them. Outside the IPA cores, it is possible to put other types of boundary in place. In some cases, similar but separate IPA cores (such as a series of small fen SSSIs) would benefit from being joined up into larger, single IPAs. This can be done either with a simple boundary drawing them all together, or by a buffer zone that may afford the cores additional protection from external factors such as nitrate pollution. Such buffers are often put in place around SSSIs, but they are rarely integral features of the site and they are often not implemented on the ground.

Incorporating them as essential features of an IPA boundary should improve their implementation. As well as buffer zones, IPAs can be connected together on a map by showing areas where it would be best to direct habitat restoration to physically connect cores together on the ground. These “zones of opportunity” show exactly where habitat restoration can take place based on the detailed ecological, geographical and physical requirements of the habitat(s) in question. An example of this is shown in the illustration of the Cambrian Mountains Woodland IPA. In this case four SSSIs (shown in blue) form the core of the IPA. From each of these extend a series of colourful buffers, linking the cores together. On the map these buffers are, however, shown only where there is potential for restoration of oak woodland (the principle habitat of the IPA), defined in this case by the occurrence of brown podsol soils (to which the oak woodlands that characterise the IPA are restricted). This “zone of opportunity” therefore forms a framework for habitat restoration and connection of woodland fragments. On the ground this will work by directing woodland restoration projects into the zone of opportunity rather than outside. In this way, IPAs are turned into practical tools for conservation, directing efforts to where they’ll have the biggest effect in protecting and enhancing our richest botanical sites. Each IPA will have a different boundary and each will be considered on a case-by-case basis.

Our final aim over the next few months is to raise awareness about Important Plant Areas and to celebrate them. IPAs are very much the “jewels in the crown” of our botanical heritage and their importance as such, on an international scale, needs to be recognised. We would like to see the term “IPA” become as well known, and as widely adopted, as “SSSI” or “NNR”, and recognised by the general public as the very best places in which to enjoy and appreciate the richness of plant life in Britain. There are lots of ideas for how we could raise the profile of our IPAs; signboards for wildlife reserves within IPAs could perhaps carry an IPA symbol, so people visiting the site will know they are in one, we are also hoping that Botanic Gardens will adopt and celebrate their local IPAs, and we could produce a guide to the IPAs of Wales. If anyone has any other ideas or would like to champion their own local IPA then please do get in touch.

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