Left: Several plants of *Solanum physalifolium* were seen during the Glynhir Recording Week on the new embankments of the Morfa-Berwick Link Road, Llanelli and were a new record for Carms.

Right: *Ambrosia artemisiifolia* growing on waste ground in the centre of Carmarthen.

Photos: Richard Pryce.
*(see Welsh Plant Records)*

Front Cover Photo: *Cirsium acaule* at Rhes-y-cae, Flintshire (v.c. 51) (see p. 10) Photo: Goronwy Wynne
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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. 83) - January 2009.
GUEST EDITORIAL

To coincide with his retirement from Amgueddfa Cymru — National Museum Wales (NMW) George Hutchinson has decided to step down as co-editor of the Welsh Bulletin. He has been working on the Bulletin for twenty-four years and actually compiling it since 1996. So that such a mammoth job should not slide entirely onto Richard’s shoulders (which we are sure he is pleased about!), we took on the job of joint editors. It seemed right that the Welsh Bulletin should be kept within NMW as it would be easier to transfer all those boxes that George said the editor needed space for, the short distance up the hall!

As well as dragging boxes down the hall, we are attempting to get our heads around the task, trying not to feel too daunted, whilst being determined that the transition will go smoothly. We would like to thank Richard for having faith in us and agreeing to us taking on the role of joint editors. Good luck to George when he retires, and we are very envious of the amount of botanising he will be able to do.

Based in the Cryptogamic Section, Department of Biodiversity and Systematic Biology in NMW, Sally is Collections Manager and Katherine is Curatorial Assistant. In our roles we are custodians of the cryptogamic herbarium and its archives, dealing with loans of material, curation and databasing of specimen data. As well as this we have research and educational roles. We would be most happy to welcome you as visitors to the Cryptogamic Herbarium and please feel free to contact us with any lower plant related queries.

Working for a national museum, education is always at the forefront of many of our activities. One very enjoyable responsibility is to maintain the Living Plant Table. This is a display of locally collected living native and ornamental plant material. Our principal aim is to inspire new audiences, to help them notice and look at the plants that are growing all around them.

There is an increasing ground-swell of interest in botany at the moment, even if people don’t realise it’s botany that they’re getting into as they are trying to identify Fat Hen from their cabbage plants on the allotment. Remarkably, Taraxacum appeared at Chelsea this year, in a clay pot in an herb display, not your normal formal horticulture, thus proving interest in natives is increasing. Furthermore, TV programmes such as BBC’s Gardener’s World and Springwatch have been encouraging the inclusion of native plants and wild flower meadows in our gardens. It is only a matter of time until there are some ‘garden escapees’ who want to know what those plants are beyond their garden. Just wait for an influx of new BSBI Wales members and nurture their interest, just don’t tell them its botany!

On a final note, please could we appeal now for any articles, ideas, photos, guest editorials, meetings or holiday reports, etc. that you have and we ask you to send these to us or Richard.

Sally Whyman and Katherine Slade, Department of Biodiversity & Systematic Biology, National Museum, Cathays Park, Cardiff CF10 3NP

CORRIGENDUM

BSBI WALES ANNUAL GENERAL MEETING 2008

The 46th Annual General Meeting of the BSBI in Wales, held at Gregynog Hall, Montgomeryshire on Saturday 9th August 2008.

The Chairman, Andy Jones welcomed everyone to Montgomeryshire and the splendid setting of Gregynog Hall.

1. Apologies for Absence: Natasha De-Vere, R.G. Ellis, T.G. Evans, Dr G. Hutchinson, Dr Q. Kay, Marjorie Wainwright and Dr G. Wynne.

2. Minutes of 2007 AGM: (Published in BSBI Welsh Bulletin No.82, pp 5-8). Minutes accepted without amendment.

3. Matters Arising: None.

4. Chairman's Opening Remarks: Andy Jones wanted to emphasise that, overall, botany and BSBI membership must be enjoyable. He went on to thank Kate Thorne for all the work put into organising the weekend, the staff at Gregynog for being so helpful, and to welcome especially George Peterken, our keynote speaker, and Diana Reynolds, Head of Nature Conservation & Biodiversity Policy (Welsh Assembly Government).

5. Diana Reynolds: Diana thanked Andy for the opportunity to say a few words, said she was enjoying meeting the BSBI (despite the weather for the field visits) and wanted to emphasise the following: That BSBI attend the full meetings of the Wales Biodiversity Partnership and fully brief Trevor Dines, who sits on the Steering Group of the Partnership. That she is aware of weaknesses in the Biodiversity Action Plan (BAP) process and a review is currently underway. Her team are helping BAP Co-ordinators to run better meetings, and that Biodiversity Gain is one of her job performance indicators! Finally, that she is planning to find a way of making funds available to Vice-county Recorders towards the purchase of books and other equipment.

6. Hon. Secretary's Report:
   a) Richard Pryce reiterated the Chairman's welcome especially to members from outside Wales, and in particular to Kevin Walker and Bob Ellis from the BSBI.
   b) Richard asked Diana to add increased funding for management of SSSI's to her list.
   c) The Vascular Plant Red Data List for Wales, described at the 2007 AGM, was now complete and launched at the Plantlife AGM in June. Richard thanked the VCRs and other data providers and congratulated Trevor Dines on the achievement.
   d) A very comprehensive Rare Plant Register for Pembrokeshire has been made available as a draft in an electronic format. Also Registers have been completed in paper and spreadsheet format for Caernarfonshire and Flintshire - congratulations to all the compilers and editors.
   e) Delyth Williams has succeeded Jean Green as VCR for Denbigh and Liz Dean and Sue Spencer have taken on Radnor following the retirement of David Humphreys.
   f) A full programme of field meetings is in progress, with thanks to all the leaders.
   g) Recorders are participating in the Threatened Plants Pilot Project, which is a very welcome attempt to collect a range of useful information about selected scarce species, in addition to just compiling lists of taxa.
   h) Our input to most of the above, and to many other matters, would be hugely helped if BSBI could find the matching funds to enable it to take up CCW's offer of finance towards a BSBI Wales Officer.
i) Two issues of the Welsh Bulletin, numbers 81 and 82, have been issued during the year by our indefatigable editor, George Hutchinson, who has given early notice of his retirement in April 2010. However to the delight of the Committee George has recruited two potential successors to share the editorial role, both of whom also work in the National Museum, so keeping the close links between NMW and the BSBI. Thanks are also due to Gwynn Ellis who continues to edit VCR's contributions for Plant Records, published in the Welsh Bulletin. To conclude Richard drew our attention to a new departure for the Bulletin, that of inviting a guest editor to contribute the editorial - a role so ably filled by Kath Pryce that it is certain to be repeated!

j) Finally Richard thanked all those involved in the organisation of the events this weekend, especially Andy Jones, Sarah Stille, Kate Thorne and the staff of Gregynog, also Andy Law for the walk on Friday, John Poland for his workshop and George Peterken for his talk later tonight.

7. Hon. Treasurer’s Report:

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**Totals** 7848.05 4324.42

Excess of receipts over payments 3523.63
Carried forward from 30 June 2007 3748.32
**Balance at 30 July 2008** 7271.95

Note: Once AGM invoices have been received and paid the account will show a modest credit balance.

Sarah Stille, Hon. Treasurer, BSBI Committee for Wales

The accounts were projected onto the screen with paper copies also available. There were no questions and the accounts were accepted unanimously.

8. Welsh Bulletin Editor: Covered in paragraph ‘i’ of the Hon. Secretary’s report.

9. Election of Officers and Committee Members:

The Chairman, Andy Jones, and Vice Chairman, Delyth Williams, were elected to serve four year terms in 2006 and are not due to retire until 2010.

Nominations for Officers were as follows:

Hon. Secretary: Richard Pryce
Hon. Treasurer: Sarah Stille

Committee Members are elected for a period of three years.
Nominations may be received at the meeting if accompanied by the written consent of the nominee. The nominations from the committee are as follows:

New committee member (co-opted during 2007-8): Natasha De-Vere

Existing committee members due to retire in 2008, all eligible to stand for re-election:
Ian Bonner, Wendy McCarthy, Julian Woodman, Goronwy Wynne.

Serving Committee members in mid-term are as follows (with the dates they are due to retire):

CCW Observer: Paul Day
Plantlife Observer: Trevor Dines is a committee member but also Plantlife Observer

There were no further nominations, Ian Bonner had decided not to seek re-election on this occasion.

The officers and committee members were re-elected as set out above. Ian was thanked for his contribution to the work of the committee over the past 10 years.

10. AGM and Exhibition Meeting 2009: No firm decisions had been taken over location or dates; but it is likely to be based in Radnor/Brecknock.
A programme of field meetings was also taking shape.

11. Any Other Business: Trevor Dines thanked VCR’s and other BSBI members for all the help given in the compilation of the Red Data List for Wales, which was already being used by CCW and the Welsh Assembly Government. It was planned to update the List annually, with any changes being published in the BSBI Welsh Bulletin. Trevor hoped that the BSBI would play the major role in monitoring the populations of the species on the list and felt that the joint working between BSBI, CCW and Plantlife was a partnership to be proud of.

Richard Pryce thanked Ian Bonner for his sterling service on the Welsh Committee over the past years. This was echoed by all present.

The AGM was attended by 50 people.
CALENDAR OF MEETINGS 2009

Full details and procedure for booking are available in the BSBI Year Book for 2009 and the BSBI Welsh Bulletin No. 83.

SAT 23rd MAY - CRAIG BREIDDDEN, WELSHPOOL, MONTGOMERYSHIRE, (v.c. 47) - A Jones

SAT 6th JUN - CORSERDDEINIOG NNR, ANGLESEY (v.c. 52) – L. Colley

SAT 20th JUN – CAE BLAEN DYFFRYN PLANTLIFE RESERVE, LAMPETER, CARMARTHENSHIRE (v.c. 44) – T. Dines

FRI 26th JUN - SUN 28th JUN - WELSH AGM and EXHIBITION MEETING, ROYAL WELSH SHOWGROUND, RADNORSHIRE (v.c. 43) and associated field meetings

SAT 27th JUN – CAEAU TAN Y BWLCH PLANTLIFE RESERVE, CLYNNOGFAWR, CAERNARVONSHIRE (v.c. 49) – T. Dines

SAT 11th JUL - SAT 18th JUL - GLYNHIR MANSION, LLANDYBIE, CARMARTHENSHIRE (v.c. 44) – K. & R. Pryce

SAT 25th JUL – ALYN WATERS COUNTRY PARK, nr WREXHAM, DENBIGHSHIRE (v.c. 50) – D. Williams & J. Green

SAT 15th AUG – TYWYN, MERIONETH (v.c. 48) – P. Benoit

SAT 5th SEP – BRITHDIR, nr CHURCHSTOKE, MONTGOMERYSHIRE (v.c. 47) – A. Jones
REMINDER - BSBI WALES AGM

47th Welsh AGM & 27th Exhibition Meeting, 2009

Friday 26th – Sunday 28th JUNE 2009

This is just a quick reminder that the BSBI Wales AGM for 2009 is being held at the Royal Welsh Showground, Builth Wells, with a Grassland and Grasses theme. All levels of experience will be catered for and participants are warmly encouraged to bring their own material for determination and discussion. Please plan ahead and collect any plant material for identification in the workshops.

There will be:

- Friday afternoon workshop on the vegetative characters of grasses with John Poland; short talks / demonstrations and an evening walk along the River Wye at Builth Wells with Ray Woods.
- A Saturday excursion to Vicarage Meadow, Abergwesyn, Brecknockshire.
- On Saturday afternoon Summerfield Books will have a display of new and old books of interest.
- Saturday evening lecture on “The Grasslands of Wales” by Tim Blackstock (Head of Terrestrial Science at the Countryside Council for Wales).
- An exhibition of posters and specimens by members.
- A Sunday excursion to the Elan Valley meadows, Radnorshire.

and more...

We have already received several posters and exhibits in but would like to say how much we look forward to contributions of this kind. Any interesting specimens or noteworthy records will be gratefully received (they don’t have to be very polished or ‘scientific’) and all add to the Exhibition atmosphere. If you’re coming to Builth please bring something with you!

Booking forms were circulated with the last edition of BSBI News, to be made by the beginning of May, 2009. However, there are a few places left, although ensuite rooms have long been booked up. Applications should be made as soon as possible to Andy Jones, c/o CCW, Plas Gogerddan, Aberystwyth, Ceredigion SY23 3EE
Tel: 01970 821119 e-mail: a.jones@ccw.gov.uk
Over much of southern England the Stemless Thistle *Cirsium acaule* is a common plant but in most of Wales it is something of a rarity. In Flintshire, we make quite of a fuss about it, because we can claim its most north-westerly locality in Europe (just about!).

In this country we have about a dozen different thistles and some of them can be rather difficult to separate, in fact, the leafy rosettes of the Stemless and Creeping Thistles can be quite similar until you 'get your eye in'. However, once in flower the Stemless Thistle is quite unmistakable, and lives up to its name (the Latin specific epithet *acaule* also means stemless).

**Description**
*Cirsium acaule* (previously *acaulis, acaulon, acaulos ....any more?*)
A perennial with spiny leaves arranged in a rosette and usually pressed on the ground. The horizontal, branched, underground stem produces a group of new rosettes in a loose cluster. In summer, each rosette may produce one sessile flowering head (or sometimes more), reddish purple in colour and about 15mm across.

**Ecology**

**Habitat:** short grassland on limestone (or chalk). It grows best where the grasses are kept short by grazing. If grazing stops, new seedlings are out-competed by tall grasses. It has been shown that the plant responds markedly to light intensity; as the degree of shading increases the growth rate declines.

**pH:** The plant grows mainly on soils with a pH above 5.5 and is absent from soils of pH 4 – 5. As a calcicole it cannot survive even a low concentration of aluminium ions in the soil water, and these increase as the pH falls.

**Soil fertility:** It has also been shown that the Stemless Thistle grows best in soils with low concentrations of nitrogen and phosphorus – in more fertile soils it is out-competed by other plants such as coarse grasses.

**Climate:** The distribution of *Cirsium acaule* seems to be largely determined by summer temperature. It is almost confined to the area where the average daily maximum in August exceeds 20° C. In Britain this corresponds roughly to that area south and east of a line from the Wash to the Severn estuary. The warmer temperature is required for successful seed production. North of the 20°C isotherm the plants may not develop mature fruits and the seeds may not ripen.

There are other factors which tend to reduce the production of mature seeds in the northern plants. Firstly, the plant flowers about a month later at its northern limits than in the south of England, so the temperature will be lower; secondly, the rainfall tends to be higher in the north and the flowers often fail to open; thirdly, in dull, wet weather the stalks below the flower may become infected by the fungus *Botrytis cinerea* which prevents fruit development.

Our Flintshire plants, near the village of Rhes-y-cae, are in a large area of common land, largely grazed by sheep, which forms part of Halkyn Mountain at an altitude of 228m. The soil is mainly a brown earth, with complex patterns of drift over blocked limestone. The pH is around 6.5. The average annual rainfall (1961 – 1991) is 887mm. and the average means of daily maximum temperatures in August is 18°C.
Two final snippets....

1. In parts of southern England the Stemless Thistle belies its name by having a definite aerial stem. Stanley Jermyn in his *Flora of Essex* (1974) mentions that some plants have flowering stems ‘from an inch or two up to a foot’. This form has been given the name *caulescens*.

2. If you are familiar with the Stemless Thistle you might like to answer this question. How does it respond to trampling? Here are two opinions....

J. E. Lousley in *Wild Flowers of Chalk and Limestone* (1950) says that, like the Hoary Plantain, it can withstand much trampling and is a most difficult plant to destroy, and hence can be found on the most frequented parts of the downs and ‘is able to put up with any amount of bad treatment.’ In contrast, C. D. Pigott (1968) says that... ‘it is destroyed by trampling and is absent from heavily trodden pathways’ (*J. of Ecology* 56: 597-612 [specifically p.603]). Is the jury still out?

GORONWY WYNNE, Gwylfa, Lixwm, Holywell, Flintshire CH8 8NQ
Welsh Plant Records are compiled by Gwynn Ellis, 41 Marlborough Road, Roath, Cardiff, CF23 5BU, from reports of BSBI vice-county Recorders to whom records should preferably be sent. Plants are listed for each vice-county in the order of D.H. Kent's List of Vascular Plants of the British Isles (1992) and Supplements 1 & 2 (1996 & 2000), the number in those lists preceding the name, so that names changed since 1996 can be given without giving the former name. Latin names also follow Kent (1992) and Supplements 1, 2 or 3 or, if not in that list, the Vice-county Census Catalogue (2003), the 2nd edition of C.A. Stace's New Flora of the British Isles (1997), E.J. Clement & M.C. Foster's Alien Plants of the British Isles (1994), T.B. Ryves, E.J. Clement & M.C. Foster's Alien Grasses of the British Isles (1996) or Sell & Murrell's Flora of Great Britain and Ireland (1996-2009). Authorities for Latin names are not given unless the name is not in any of these works. English names are those in English Names of Wild Flowers ed. 2 (1986) by Dony et al, or, if not in that list, Stace (1997). Clement & Foster (1994). Ryves, Clement & Foster (1996). or Sell & Murrell (1996-2009). English names enclosed by square brackets do not occur in any of these books but have been used elsewhere. Welsh names are those in Planhigion Blodeuol, Conwydd a Rhedyn, published by Cymdeithas Edward Uwyd (2003).

The following symbols are used:
* to indicate a new v.c. record
+ to indicate a new or updated hectad record
† indicates archaeophyte; ‡ indicates neophyte; © indicates casual
†‡© before the species number: to indicate that the species is regarded as an archaeophyte, neophyte or casual at least somewhere in the British Isles.
†‡© before the record: to indicate a species which although a native, archaeophyte or neophyte at least somewhere in the British Isles, is not so in the locality recorded
[ ] to indicate that the record, previously published in error, should be deleted
¤ to indicate an update to a rare or scarce taxon
Ø to indicate that the taxon is now believed to be extinct in the locality cited
In general, only records which update the Vice-county Census Catalogue (2003) or the New Atlas of the British & Irish Flora (2002) will be listed. Other records are included at the discretion of the vice-county recorder.
The minimum grid reference is to a hectad but, if supplied by the recorder, references to a lkm or even a 100m square may be included. A letter in parentheses following a grid reference indicates a tetrads.

The Vice-county Recorders from 1/6/2009 are:

MONMOUTH, v.c. 35; Mr T.G. Evans, La Cuesta, Mounton Road, Chepstow, Monmouthshire NP16 5BS
GLAMORGAN, v.c. 41 (West); Dr Q.O.N. Kay, West Cwm Ivy, Llanmadoc, Gowerton, Swansea SA3 1DG
GLAMORGAN, v.c. 41 (East); Mr J. Woodman, c/o CCW, Unit 4, Castleton Court, Fortran Road, Cardiff CF3 0LT (Please mark PERSONAL)
BRECON, v.c. 42; Mr M. Porter, Aberhoywy Farm, Cyffredyn Lane, Llangynidr, nr Crickhowell, Powys NP8 1LR
RADNOR, v.c. 43; Miss E.R. Dean, Enmore House, Croft Lane, Kingsland, Leominster, Herefordshire, HR6 9PP & Mrs S.M. Spencer (all correspondence to Miss Dean)
CARMARTHEN, v.c. 44; Mr R.D. Pryce, Trevethin, School Road, Pwll, Llanelli, Carmarthenshire SA15 4AL
PEMBROKE, v.c. 45; Mr S.B. Evans, Glan-y-Mor, Dinas Cross, Newport, Pembrokeshire SA42 0UQ
CARDIGAN, v.c. 46; Mr A.O. Chater, Windover, Penyrarog, Aberystwyth, Ceredigion SY23 1BJ
MONTGOMERY, v.c. 47; Dr A K Thorne, Chunton House, Church Pulverbatch, Shropshire, SY5 8BZ
MERIONETH, v.c. 48; Mr P.M. Benoit, Pencarreg, Barmouth, Gwynedd LL42 1BL
CAERNARFON, v.c. 49; Mrs W.N. McCarthy, 5 Tyn-y-coed, Great Orme, Llandudno, Conwy LL30 2QA
DENBIGH, v.c. 50; Mrs D. Williams, Bryn Siriol, Graigfechan, Ruthin, Denbighshire, LL15 2HA
FLINT, v.c. 51; Dr G. Wynne, Gwylfa, Lixwm, Holywell, Flintshire CH8 8NQ
ANGLESEY, v.c. 52; Dr N.H. Brown, Treboroth Botanic Garden, University College of North Wales, Bangor, Gwynedd LL57 2RQ and Mr I.R. Bonner (all correspondence to Dr Brown)
MONMOUTH, v.c. 35 (comm. T.G. Evans)


+36/3.1. Soleirola soleirolii (Mind-your-own-business) (Mam Miloedd). In abundance, Trellech Church entrance, SO501.055, also in abundance on roadside wall in Cleddon village, SO52.04, S.J. Tyler, 2008.

46/5.1b. Stellaria nemorum ssp. montana (Welsh Wood Stitchwort) (Serenllys-y-coed Cymreig). Patch, c. 100x3-10m, near Manor Brook, Whitebrook, SO531.063(I). D. Green, 2008. Unfortunately, it had received a cut and much of it was secondary growth. If it was nearly all the montana subspecies it will be the best v.-c. site for it because the Angidy site has deteriorated greatly since the 1950s.

47/1.6. Persicaria bistorta (Common Bistort) (Llwyniau'r Leidr). 3x2m patch persistent for more than 20 years in pasture, Yew Tree Cottage, Lone Lane, Penallt, SO529.092(1). SJ. Tyler, 2008.


64/1.1a. Empetrum nigrum ssp. nigrum (Crowberry) (Creiglusen). Several young plants scattered across spoil, S of Blaen-y-cwm, SO17.07(Y).


74/5.19 Saxifraga tridactylites (Rue-leaved Saxifrage) (Tormaen Tribys). 1000s on corrugated, asbestos roof & garage roof nearby, Pentwyn Farm, SO28.21(V). S.A. Rippin, 2008.

†75/6.1. Filipendula vulgaris (Dropwort) (Y Grogedau). Patch of several plants, graveyard, Penallt Old Church, SO522.107, S.J. Tyler, 2008. An old record thought to be extinct there, a happy refind.


Ononis repens (Creeping Restharrow) (Tagaradr). 2x1m patch, steep pasture, N of Lone Lane, Penallt, SO527.093, S.J.Tyler, 2008.


Stachys arvensis (Field Woundwort) (Briwlys y Tir 11'). Abundant in barley stubble field, Gadr Farm, SO466.066(T). SJ.Tyler, 2007 & 2008. Buzzing with honey bees and a solitary Clouded Yellow, only the 2nd one in v.c. in 2008


Orobanche minor (Common Broomrape) (Gorfanhadlen). About 200 plants on waste ground, Newport Docks, ST31.84, SJ.Tyler, 2008.

Valerianella locusta (Common Cornsalad) (Gwylaeth yr Oen). Frequent on reen bank, Magor to Llanwern, ST399.865; also frequent on waste ground, Newport Docks, ST31.84, S.J.Tyler, 2008. Tetrads Y & C.

Carlina vulgaris (Cat'line Thistle) (Y sgallen Siarl). 4-5 plants in old sand quarry, Trellech Hill, SO504.068, S.J.Tyler, 2008.

Carduus tenuiflorus (Slender Thistle) (Ysgallen Flodfain). 5-6 plants on waste ground near sea wall, Newport Docks, ST31.84(C). S.J.Tyler, 2008.


Bromopsis il1ermis (Hungarian Brome) (Pawrwellt Hwngaria). Large clump, upside of bypass bridge over R. Monnow, Monmouth, SO506.122, D.Green, 2007. Present for at least 3 years. 1st record as a neophyte.


Hordelymus europaeus (Wood Barley) (Heiddwellt y coed). Embankment with scattered trees near Wyndcliff above A466, SO526.973(I), D.Green, 2007. 1st update since 19th century.

Colchicum autumnale (Meadow Saffron) (Saffrwm y Dd6l). 70 flowering stems in c.50m at side of path, St Pierre’s Great Woods, ST506.925, T.G.Evans; encroachment of brambles, nettles,
etc, through lack of walkers is a threat to this long established colony; also one plant in field, Cwmcarvan Hill, SO474.061; S.J.Tyler, both 2008.

+158/24.3. Allium roseum (Rosy Garlic) (Garlleg Rhosliw). One clump under hedge, the Narth, SO522.064, Dave Green & S.J.Tyler. 2008. Only 2nd site in v.c.


+@158/28.1 Tristagma uniflorum (Spring Starflower) (Sêr-floydyn y Gwanw Wyn). Several plants on minor roadside near hedge and Bowleaze Reen and dumped black bags, ST377.855, H.V.Colls, 2006-8; also four patches, waste ground, between South Dock and R. Usk, Newport, ST317.8418, S.J.Tyler, 2008. 1st & 2nd records.

158/33.5a. Narcissus pseudonarcissus (Daffodil) (Cenhinen-Bedr Wyllt). About 2000 flowers in field corner, Chapel Cottage, Llanishen, S0471.036; c.1000 plants W of Trewen House, Llanishen, SO471.036; both S.J.Tyler, 2008. First time good numbers have been given for this tetrad.


162/13.2. Platanthera bifolia (Lesser Butterfly-orchid) (Tegeirian Llydanwyrdd Bach). Nine flowering and four non-flowering plants, deciduous part of Hardwick Plantation, ST453.894, T.G.Evans, 2008. Worthy of inclusion because it is the best recent number in v.c. 35’s only site for the orchid.


162/20.3. Orchis morio (Green-veined Orchid) (Tegeirian y Waun). One flowering plant, on ‘island’ where Usk road exits from A449, SO397.008, J.Branscombe; three plants in field, Cwmcarvan Hill, SO477.058(S). S.J.Tyler & R.Howell (owner); both 2008.


GLAMORGAN, v.c. 41 (comm. J.P.Woodman)


‡28/13.8. Ranunculus arvensis (Corn Buttercup) (Blodyn-ymenyn yr Ìd). Arable field, Flemingston, ST013.694, J.P.Woodman, 2004. c.130 plants in arable field mostly near edge; also seen in the following years up to 2008. 1st recent records.


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‡47/4.6. **Polygonum rurivagum** (Cornfield Knotgrass) (Canc1wm y Tir Ar). Several throughout arable field, Peterston Super Ely, ST076.784, J.P.Woodman, 2006, herb.JPW.


+62/12.3. **Rorippa islandica** (Northern Yellow-cress) (Berwr Melyn Gogleddol). Five plants in disturbed weedy ground near pigeon houses in field, Tonyrefail, STOI93.8817, J.P.Woodman; and two plants on river shingle, River Taff, Cardiff, 8T175.770, T.Rich; both 2003.


*84/6.1x2. **Circaea xintermedia** (Upland Enchanter’s-nightshade) (Lllysiau-8teffan yr Ucheldir). Wood edge on stream bank, Abercanaid, SO0245.0413, J.P.Woodman, 2003. Not listed in VCCC for v.cAl; there is a possible 1987 BRC record but no details have been uncovered.


†107/7.1. **Scandix pecten-veneris** (Shepherd’s-needle) (Nodwydd y Bugail). 1000s of plants in crop edge of arable fields, Flemingston, St Athan, ST010.697; Llanbethery, ST033.702; both, J.P.Woodman. 2004. Also seen in nearby fields in following years.


+124/19.3. **Melampyrum pratense** (Common Cow-wheat) (Gliniogai). Two plants on steep slopes in Woodland Trust’s Goetre Coed Reserve, adjacent to extensive housing, Quakers Yard, ST093.967, J.N.Davies, 2008.
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+135/25.10. *Chamaemelum nobile* (Chamomile) (Carmi). Small patch at edge of car park, cliff top, Nash Point, SS9164.6836, J.P.Woodman, 2007. Has been seen here for a few years but no exact date.


†153/50.7. *Bromus secalinus* (Rye Brome) (Pawrwellt Bach). Frequent in large wheat field near coast, S of Boverton, SS981.669, 2002; Throughout several arable fields, Home Farm, Dyffryn, ST097.716, 2006; both J.P.Woodman. 1st & 2nd extant county records.


RADNOR, v.c. 43 (comm. Miss E.R. Dean & Mrs S.M. Spencer)


CARMARTHEN, v.c. 44 (comm. R.D. Pryce)


‡19/1.1. Azolla filiculoides (Water Fern) (Rhedynden y Dŵr). Fairly recently established wildlife pond, Craig-y-Dyfor Tafarnspite, SN1823.1424, R.D.&K.A.Pryce, 2008, NMW, BM. Subsequently checked for fertility by F.Rumsey at BM, who found it to be sterile.


‡20A/TAX.dis. Taxodium distichum (Swamp Cypress). Plantation of mixed exotic conifers including a few later planted Taxodium, Court Wood, Pembrey, SN4212.0199, A.Stevens, 2008. 2nd record.


+33/1.2. Ulmus procera (English Elm) (Llwyfen Lloegr). Garreg Wen, Trelech, SN2.3(V), A.Jones, 2008, 1st record for the v.c for the hectad.


+45/2.2. Claytonia sibirica (Pink Purslane) (Porpin Pinc). 5×3m patch in flower on bank of River Gwendaeth Fawr, Pont Newydd, SN448.074, A.Stevens, 2008. 1st record for hectad and first in the wild away from the Tywi.


Welsh Plant Records – 2008 – Carmarthen


+51/1.4. **Hypericum hircinum** (Stinking Tutsan) (Dail-y-Beiblau Drewllyd). Escaped from garden on roadside bank, Tri pen had Road, Ferryside, SN3684.1035, R.D.&K.A.Pryce, 2008.


+75/32.10. **Cotoneaster salicifolius** (Willow-leaved Cotoneaster) (Cotoneaster Dail Helyg). On vegetated slope of spoil mound north of quarry entrance, Coygen Quarry, Laugharne, SN2869.0935; well naturalized from original landscape plantings and self sown on nearby rubble piles by retaining walls confining River Lliedi, Buckleys Brewery Site, Llanelli, SN5077.0053, del. G.Hutchinson, NMW; both R.D.Pryce, 2008.


+84/1.3x8. **Epilobium xinterjectum** (**E. montanum x E. ciliatum**). Weeds on new verge of Welsh Wildfowl Centre approach road, Welsh Wildfowl Centre, Pencacwydd, Llanelli, SS5326.9862, BSBI Glynhir Meeting, 2008, NMW.

+84/1.5. **Epilobium tetragonum** (Square-stalked Willowherb) (Helyglys Pedronglog). Farmyard, Craig-y-Dyfor Tafarnspite, SN1812.1418, R.D.&K.A.Pryce, 2008. WWBIC Recorders Day, 1st record for v.c.44 part of hectad.


+92/2.1. **Frangula alnus** (Alder Buckthorn) (Breuwydden). Several plants seen on lane sides, Llyn Llech Owain, SN5658.1502, BSBI Glynhir Meeting, 2008. 1st recent record.

19/1.3. **Acer campestre** (Field Maple) (Masarnen Fach). Mature tree in hedge of minor lane opposite Bethel Chapel (not on main road), Cilycwm, SN7524.4000, M.&J.Iliff, 2008. 1st recent record for hecatd.
Welsh Plant Records – 2008 – Carmarthen


+103/2.2. Erodium moschatum (Musk Stork’s-bill) (Pig-y-crêwy Fwsg). One small plant in flower and fruit in recently disturbed ground (construction site), Cross Hands Business Park, SN5711.1243, R.D.Pryce, 2008.


+©110/PE.T.axixint. Petunia x hybrida (P. axillaris x P. integrifolia) (Petunia) (Petwniau). One flowering plant with lawn cuttings and other garden waste on old tree-lined hedgerow on bank of field behind 222a Waterloo Road, Penygroes, SN5891.1229, R.D.Pryce, 2008. 3rd record.


+124/20.7. Euphrasia nemorosa (Effros). In vicinity of chimney and kilns, Cwm Twrch, SN7623.1370, BSBI Glynhir Meeting, 2008. Also nearby in dry acid grassland at SN7682.1467. 1st record for v.c.44 part of hectad.


+131/6.1. Lonicera pileata (Box-leaved Honeysuckle) (Gwyddfid Llorweddol). Tall hedge of Holly, oak, Beech and Ash on laneside bank, Abergwili, SN4403.2134, R.D.&K.A.Pryce; +Naturalised
on roadside hedge on bank, Pentrepoeth, Llanelli, SN510.0169, R.D.Pryce; +By old stone mine ruin on old colliery tip, Cefneithin, SN5622.1323, A.Stevens; all 2008.

Welsh Plant Records - 2008 - Carmarthen 21
Butomus umbellatus (Flowering-rush) (Brwynen Fodlenog). One clump apparently naturalized and well established at edge of ornamental lake, National Botanic Garden of Wales, Middleton Hall, Llanarthne, SN5226.1789, BSBI Glynhir Meeting, 2008. 2nd record.


Lagarosiphon major (Curly Waterweed) (Ffugalaw Crych). Fairly recently established wildlife pond, Craig-y-Dyfor Tafarnspite, SNI828.1409, R.D.&K.A.Pryce, 1st record for v.c.44 part of hectad; + Farm pond, Garreg Wen, Trelech, SN287.315, A.Jones; +Probably introduced in recently constructed pond, Penywaun, Ailtwalis, SN438.303, S.D.S.Bosanquet; + Abundant, requiring regular removal from very eutrophic small lake, Maesquarre Bethlehem, SN6534.2335, R.D.&K.A.Pryce & G.D.V.& M.Williams; all 2008.


Potamogeton natans (Broad-leaved Pondweed) (Dyfrllys Llydanddail). Garreg Wen, Trelech, SN2.3(V), A.Jones, 2008.


Carex x pseudoaullaris (C. otrubae x C. remotae) (a hybrid sedge). One big clump on bank on south side of lane, three-quarters of the way from Waun-y-gwiall-fach farm to first corner on road to Four Roads, Kidwelly, SN4509.0883, A.Stevens, 2008, conf. A.O.Chater, NMW. 1st v.c. record, c.10th Welsh record.

**Welsh Plant Records - 2008 - Carmarthen**


**153/1. Alopecurus bulbosus** (Bulbous Foxtail) (Cynffonwellt Oddfog). Extending over area c.10mx3m in brackish marsh, NW corner of Pond-y-Pelicant, adjacent to Banc-y-Lord, Kidwelly, SN4097.0496, BSBI Glynhir meeting, 2008. 1st record for v.c.44 part of hectad.


+©160/3.1. *Cordyline australis* (Cabbage-palm) (Palwynydden Fresych). Plant c.2ft high, bird sown into edge of foundation of small building near ‘Pavilion Café’, Pwll, SN476.008; +Seedling below mature plants in a small park at corner of road junction in urban park, Barn Road, Carmarthen, SN412.203; both I.K. Morgan, 2008.


PEMBROKE (v.c. 45) (comm. S.B.Evans)


++19/1.1. *Azolla filiculoides* (Water Fern) (Rhedynen y Dwr). Shallow pools, northern edge of Marloes Mere, SM776.083, S.&A.Coker; ©Pool, northern edge of Corsydd Llangloffan, SM905.319, R.J.Haycock; both 2008. The latter pool was colonised by dense mat of *Azolla* in 2008; not seen before and a suspected aquaria emptying as location is the nearest pool to the road along the boardwalk.


*HO/2.3. *Alnus cordata* (Italian Alder) (Gwernen yr Eidal). Several saplings or young trees had regenerated on wet waste ground derived from amenity planting on a bank nearby, West Llanion Pill, Pembroke Dock, SM967.039, S.B.Evans, 2008.


*46/18.1. *Lychnis coronaria* (Rose Campion) (Lluglys Gwridog). Green waste paving slabs, St. David’s Recycling Centre, SM785.267, S.B.&A.E.Evans, 2008. A host of casuals had seeded into the crevices between the paving in a little used part of the green waste temporary storage area (see below).

+47/1.2. *Persicaria cananunlata* (Lesser Knotweed) (Y Ganwraidd Fach). Two flowering stands in streamside fen, Orchard Lea, Amroth, SN160.073, S.B.&A.E.Evans, 2008. Not introduced by the owners but the location was downstream of the National Trust Colby Lodge Gardens.


Welsh Plant Records – 2008 – Pembroke


*103/1.pro. Geranium procurrens (Trailing Geranium). Well established garden escape on roadside hedgebank, Pen-y-bont, Cilgwyn, Newport, SN074.362, C.Stace, 2008. Probably the first British record. Owner had introduced it to her garden from a Hampshire nursery about 15 years ago and now spreading along a few yards of roadside hedgebank.


+118/6.5. **Galeopsis bifida** (Bifid Hemp-nettle) (Y Benboeth Hollt). In a green fodder, bird seed and bird cover crop in field, Camrose Home Farm, SM937.200, S.B.Evans & J.Hudson; both 2008.

+120/1.4. **Callitrichae platycarpa** (Various-leaved Water-starwort) (Brigwlydd y Gwanwyn), River, Western Cleddau below St. Catherine’s Bridge, SM945.198, R.Lansdown, 2008.

*124/1.9x5. **Verbuscum xbrockmuelleri** (V. nigrum x V. phlomoides) (a hybrid mullein). Limestone quarry, Black Rock Quarry, Tenby, SNI2.00, F.L.Rees, 1942, NMW, det. V.Johnstone. In July 2008 the Referee, V.Johnstone, determined the 1942 NMW specimen as this hybrid as titled on the original label. He said ‘I am fairly certain that this is V. nigrum x phlomoides as it was originally labelled’. Fl. Pl. Wales includes the record as erroneous.


+129/1.10. **Campanula poscharskyana** (Trailing Bellflower) (Clychlys Ymlusgol). Wall, S side of entrance to main car park, Narbeth, SN108.147, S.B.Evans, 2008.


+129/7.2. **Lobelia erinus** (Garden Lobelia) (Bidoglys yr Ardd). Green waste paving slabs, St. David’s Recycling Centre, SM785.267; +Several plants in between small paving bricks, Castle Square, Tenby, SN136.005; both S.B.&A.E.Evans, 2008. 2nd & 3rd records.

+133/1.2. **Valerianella carinata** (Keeled-fruited Cornsalad) (Gwylaeth-yr-oen Ffrwythau Rhychog). Abundant outside churchyard wall alongside track edge, Monkton Priory, Pembroke, SM979.014, S.B.&A.E.Evans, 2008. Track edge sprayed with herbicide and all taxa except V. carinata impacted. This appeared to be unaffected and had seed. Perhaps increased herbicide use in urban areas has favoured early flowering V. carinata?

+135/5.1. **Cardus tenuiflorus** (Slender Thistle) (Ysgallen Flodfain). Sandy pasture, by toilet block, Abereiddy, SM798.314, S.B.Evans, 2008. Close to earlier record of *Hyoscyamus niger* and extant population of *Malva neglecta*.

+135/43.4. **Erigeron karvinskianus** (Mexican Fleabane) (Amrhydlywyd yr Cerrig). Old garden wall, St. David's, SM75.25, I.K.Morgan, 1997, IKM found E. karvinskianus on old garden wall, ‘as yet scarcely naturalised, but - believe me - it will be!’ Although this was the first record it was not published as such because he used the words ‘scarcely naturalised’. Record is still of interest.

+Growing on edge of turf by a petrol outlet, Retail complex, Haverfordwest, SM957.167,
Welsh Plant Records – 2008 – Pembroke

S.B.&A.E.Evans; +Cracks in concrete by pavement, Upper St. Marys Street, Newport, SN058.391, S.B.&A.E.Evans; +Basement steps and railing/pavement edge, South Cliff Gardens Road, Tenby, SN133.002, S.B.Evans; +Inner edge of paving slabs by house front, Church Street, St. Dogmaels, SN164.459, S.B.&A.E.Evans. Growing with Lobelia erinus in the gap between the front wall of Maes y felin and the paving slabs of the pavement; all 2008.


+142/1.9. Potamogeton perfoliatus (Pelfoliate Pondweed) (Dyfrllys Trydwll). River about 200 metres downstream of the bridge, Western Cleddau below St Catherine’s Bridge, SM944.197, C.Hurford, 2008.


+146/1.1. Zostera marina (Eelgrass) (Gwellt y Gamlas). Several patches, the largest was 50cm along the shore by 6m down the shore at extreme low shore level, Hakin Point, Milford Haven, SM900.053, M.Camplin, 2007.


+153/23.1. Parapholis strigosata (Hard-grass) (Caledwellt y Morfa). Upper saltmarsh on W side of the slipway near the sign at the upper tide level, Slipway, St Dogmaels, SN166.460, S.B.&A.E.Evans, 2008. Also at Poppit saltmarsh at SN1578.4811. First hectad records for v.c.45. It is known in SN14 in v.c.46.


+†153/28.3. Avena fatua (Wild-oat) (Ceirchen Wyllt). In a green fodder, bird seed and bird cover crop, Camrose Home Farm, SM936.200, S.B.Evans & J.Hudson, 2008.


**Leymus arenarius** (Lyme-grass) (Clymwellt). A small patch growing with a larger stand of *Juncus maritimus* amongst boulders at the foot of a sheltered Old Red Sandstone sea-cliff, Gravel Bay, N end of Freshwater West beach, SM879.006, S.B.Evans, 2008. There is an earlier, but unlocalised, tetrad record.; Sand dunes, South Beach, Tenby, SN131.008, S.B.Evans, 2008. Also seen here by SBE in 2002; it could, however, have been planted prior to 2002 to help stabilise the dunes. First recorded in SN10 in 1900 by Miss E.H.Edwards at Coppet Hall dunes, Saundersfoot at SN139.053.

**Triticum aestivum** (Bread Wheat) (Gwenith). ©Green waste paving slabs, St. David's Recycling Centre, SM785.267; +©Road scheme verges, A487 west of Velindre, SN092.389; both S.B.&A.E.Evans, 2008.


**Sparganium emersum** (Unbranched Bur-reed) (Cleddlys Di-gainc). River, Western Cleddau below St. Catherine's Bridge, SM944.197, S.Clarke, 2008.


**Asparagus officinalis** ssp. *prostratus* (Wild Asparagus) (Merllys Gwyllt). A clump of 82x65cm with about 75 stems, probably a single ancient clone in crevice zone of sea-cliff, on W side of Saddle Point, Stackpole, SR980.940; A scattered clump (14 stems counted) spread over 150x1622 cm plus an outlier, probably a single ancient clone with an outlier, in sea-cliff crevice/maritime grassland, E of Sandy Pit, Stackpole Warren, SR984.942; both, S.B.&A.E.Evans, 2008.


**Cystopteris fragilis** (Brittle Bladder-fern) (Ffiolredynen Frau). In alcove of roadside well (presumably spread from nearby gardens). Llanbadarn Road, Aberystwyth, SN5952.4999, M.Podsiedlik, 2008.


**Thalictrum flavum** (Common Meadow-rue) (Arianllys). Colony 10m long on overgrown disused railway embankment, Teifi Marshes Wildlife Trust Reserve, Cardigan, SN188.454, H.Williams, 2007.

**Thalictrum minus** (Lesser Meadow-rue) (Arianllys Bach). Sandy roadside verge, Penyrergyd, Gwbert, SN163.490, A.O.Chater & J.P.Poland; +§Roadside hedgebank, Blaen Park, 3km SE of Mydroilyn, SN4770.5320, A.O.Chater; both 2008; the commonly naturalised segregate *T. flexuosum*.

**Berberis ×stenophylla** (B. darwinii × B. empetrifolia) (Hedge Barberry) (Pren Melyn Culddail). Hedgebank, 2.3km W of Trefenter, SN5870.6762, A.O.Chater, 2008.
Welsh Plant Records – 2008 – Cardigan


+62/42.1b. Raphanus raphanistrum ssp. maritimus (Sea Radish) (RhuddyglArfor). Sandy shingle, shore 350m N of Station Road, Borth, SN607.9052, A.O.Chater & J.P.Poland, 2008.


*73/1.1. Crassula tiliacea (Mossy Stonecrop) (Corchwyn Mwsoglog). Tŷnys-las, SN6.9, W.Williams, 1947, annotation in copy of Salter’s Flora then belonging to Watkin Williams, UCW Aberystwyth, later Professor of Agricultural Botany at University of Reading, per G. Hutchinson. The earliest record from Wales, and doubtless introduced here by the military vehicles that used the dunes during the Second World War.


+75/32.35. Cotoneaster rehderi (Bullate Cotoneaster) (Cotoneaster Deilgrych Rehder). Roadside hedge, 1.5km NW of Trefilan, SN53.583, A.O.Chater, 2008.


+77/19.20. Trifolium striatum (Knotted Clover) (Meillionen Rychog). Road verge, 500m SW of Llyn Eiddwen at 310m altitude, SN6000.6645, A.O.Chater & M.D.Sutton, 2008.


*84/1.2x6. Epilobium xdecium (E. parviflorum x E. obscurum) (a hybrid willowherb). Rough track by new houses, Cefn-Ilan, Llanbadarn Fawr, SN599.815, S.P.Chambers, 2006, det. T.D.Pennington. The existing record for the v.c. in Wade (1952) and in the VCCC, and
provisionally given in Ellis (1968) was based on a 1937 Salter specimen in NMW which is in fact *E. xpalatinum* (see above).


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Osteospermum jucundum (Osteospermum). Well-naturalised in hedgebank around churchyard, Llandysiliogogo, SN3630.5745, A.O.Chater, 2008, NMW.


Secale cereale (Rye) (Rhyg). New road verge, A486, 1.2km SSE of Croes-Ian, SN363.4338, A.O.Chater, 2008. 1st record as a casual although it has been grown as a crop in the past.

Hyacinthus orientalis (Hyacinth) (Hiasinth). White-flowered plants established from throw-outs in rough grass on cliff-top above sea, S end of Borth, SN605.972, A.O.Chater, 2008.


Platanthera xhybrida (P. chlorantha x P. bifolia) (a hybrid butterfly-orchid). Riverside pasture, S end of Cors Caron NNR, SN674.616, A.O.Chater, 2008. 1st record in the population of c.30 P. chlorantha or the hybrid; P. bifolia grows nearby.


+62/12.3. Rorippa islandica (Northern Yellow-cress) (Berwr Melyn Gogleddol). 12 or so plants at pool edge with more scattered around same pool (by west hide), Dolydd Hafran, SJ205.003, A.O.Chater, 2008.


*119/1.1. Hippuris vulgaris (Mare’s-tail) (Rhawn y Gaseg). ?*One sq. m. stand in canal near habitation may be introduced), Montgomery Canal, Arddleen, SJ261.159, A.K.Thorne, 2008.


129/1.1. Campanula patula (Spreading Bellflower) (Clychlys Ymledol). Steep bank along track and edges of fields near Comdon Farm, SO30.94, BSBI & CCW, 2008. Approximate update of old site but with three separate sites clearly identified, total of six plants.

+129/7.2. Lobelia erinus (Garden Lobelia) (Bidoglys yr Ardd). River shingle, Dolydd Hafren, SJ20.00, M Rand, 2008.

+130/3.1. Sherardia arvensis (Field Madder) (Mandon Las yr Ŷd). Two plants at base of old wall, Newtown Hospital, SO10.92, C.A.Small, 2008.


138/1.1. Hydrocharis morsus-ranae (Frogbit) (Pfugalaw Bach). Extensive stands along canal margins extending across three monads, Montgomery Canal, Arddleen, SJ25.15, A.K.Thorne, 2008. 1st record for 30 years, was thought to have become extinct.
*152/11.1. **Cyperus longus** (Galingale) (Ysnoden Fair).  1st record, non-native site. Refound at SJ201.001 and a second clump located at Dolydd Hafren, SJ207.003 both by BSBI, 2008.


162/2.2. **Cephalanthera longifolia** (Narrow-leaved Helleborine) (Y Galdrist Gulddail). Two flowering plants and seven very young plants with Pteridium aquilinum in oak woodland near Kerry, SO150.880, M.Jannink, 2008. Found close to the original and only site, not seen for 30 years.

**MERIONETH, v.c. 48 (comm. P.M.Benoit)**


162/2.2. **Cephalanthera longifolia** (Narrow-leaved Helleborine) (Y Galdrist Gulddail). Two flowering plants and seven very young plants with Pteridium aquilinum in oak woodland near Kerry, SO150.880, M.Jannink, 2008. Found close to the original and only site, not seen for 30 years.
**24/1.1. **Laurus nobilis (Bay) (Llawrwydden). Several young plants flourishing amongst gorse and bramble, Dinas Oleu, Barmouth, SH6.1, P.M.Benoit, 2008.

**32/1.0ccxcori. Phalanus xhispanica (P. occidentalis x P. orientalis) (London Plane) (Planwydden Llundain). A number of young trees planted in wet ground near Pandyrodyn, Dolgellau, SH7.1, P.M.Benoit, 2007.

**37/1.1. **Juglans regia (Walnut) (Coeden Cnau Ffrengig). One large old tree at Arthog Hall Farm, SH6.1, was declining in the 1950s and is now (2009) gone; One small tree by the old lifeboat station, Porthkirk, Barmouth, SH6.1, was destroyed during railway work in the 1990s. Any other records of Walnut in v.c.48, in the ‘wild’ or not, would be welcome. P.M.Benoit.

**39/3.1. **Castanea sativa (Sweet Chestnut) (Castanwydden Ber). A fine large tree on the roadside at the Old Lodge, Arthog, SH6.1, P.M.Benoit, when felled in 1955, showed c.150 growth rings, dating it probably to 1805 – hence inevitably referred to as the Trafalgar tree.


**99/1.3. Acer campestre (Field Maple) (Masarnen Fach). A number of small trees (planted not natural), part of the ‘landscaping’ of the bypass near Bont Fawr, Dolgellau, SH7.1, P.M.Benoit, 2008.

**109/1.1. Vinca minor (Lesser Periwinkle) (Perfagl Fach). The record from Mallwyd, SH8.1, in BSBI Welsh Bulletin No. 82, p.32 (2008) is the first recent record for the hectad, not for the vice-county. P.M.Benoit.]


[135/11.1. Centaurea scabiosa (Greater Knapweed) (Y Bengaled Fawr). Mapped as native in the New Atlas, the plants at Aberdyfi, SN6.9, form a single colony (the only C. scabiosa known in v.c.48) on a railway embankment and are surely an accidental introduction with ballast.]


[152/16.1. Carex paniculata (Greater Tussock-sedge) (Hesgen Rafunog Fawr). The plants at Dolgoch, SH6.0, recorded in BSBI Welsh Bulletin 82: 32 (2008) were the first recent record for the hectar, not for the vice-county. (There are recent records from other sites in v.c. 48.)]


[160/1.1. Yucca recurvifolia (Curved-leaved Spanish-dagger) (Iwca). Before this is reported as a 'wild' Merioneth plant it should be recorded that the species was widely planted in the spring of 2008 at the car-park and bus station at Barmouth as part of a project to beautify the town in anticipation of a tropical summer - but that, alas, did not happen. P.M.Benoit.]

CAERNARFON, v.c. 49 (comm. Mrs W. McCarthy)


++70/1.2. Pittosporum tenuifolium (Kohhubu) (Llwyn Cohlhw). Established on steep wooded slope, Bangor, SH58.73, S.P.Chambers, 2005. 1st record.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.

Lythrum hyssopifolia (Grass-poly) (Gwyarllys Dail Isop). Hedgebank, Maenan, SH81.65, W.McCarthy, 2008.


Genista hispanica (Spanish Gorse) (Eithinen Sbaen). Two bushes on bank at path side, Caernarfon, SH45.60, W.McCarthy, 2008.
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DENBIGH, v.c. 50 (comm. Mrs D. Williams)


+5/2.1. **Botrychium lunaria** (Moonwort) (Lloer-redynen). Several plants, Minera, SJ201.585; +Maeshafn, SJ204.614; both P. Day, 2008.

+5/2.1. **Osmunda regalis** (Royal Fern) (Rhedynen Gyfrdwy). Mynydd Hiraethog, Llangernyw, SH896.600, T. Knight, 2007.


+17/3.3. **Dryopteris affinis** (Scaly Male-fern) (Marchredynen Em·aid). Bryneglwys, SJ1.4; +Ruthin, SJ1.5; both J. A. Green, 2007;

+17/3.3c. **Dryopteris affinis** ssp. borreri (Scaly Male-fern) (Marchredynen Euraid). Llandynan, SJ1.4(X), D. Williams, 2008. 3rd record.

+20/1.1. **Abies grandis** (Giant Fir) (Ffynidwydden Fawr). Bryneglwys, SJ1.4; +Ruthin, SJ1.5; both J. A. Green, 2007. 2nd & 3rd records.

+*20/1.3. Pallescens menziesii** (Douglas Fir) (Ffynidwydden Douglas). ©Bryneglwys, SJ1.4.

+*20/2.1. Pi'us sylvestris ssp. scotica** (Scots Pine) (Pinwydden yr Alban). ©Pont Petryal, SJ0.5(F), D. Williams, 2007.


+21/3.1. **Thuja plicata** (Western Red-cedar) (Cedrwydden Goch). Ruthin, SJ1.5, 2007; +Clocaenog, SJ0.5, 2008; both J. A. Green. 1st recent records.


+40/1.1. **Betula pendula** (Silver Birch) (Bedwen Arian). Ruthin, SJ1.5, J. A. Green, 2007.


+51/1.4. *Hypericum hircinum* (Stinking Tutsan) (Dail-y-Beiblau Drewllyd). Denbigh, SJ0.6, J.A.Green, 2007.


+65/1. **Rhododendron ponticum** (Rhododendron) (Rhododendron). Clocaenog, SJ0.5, J.A.Green, 2008.


+74/5.15. **Saxifraga granulata** (Meadow Saxifrage) (Tormaen y Gweunydd). Llangollen, SJ224.432, J.A.Green, 2008.

+75/6.1. **Filipendula vulgaris** (Dropwort) (Y Grogedau). In bare chippings at edge of old railway line near peat milling works at Whixall Moss, Bettisfield, SJ478.367, D.J.Evans, 2008.


†+75/1.19. **Rosa micrantha** (Small-flowered Sweet-briar) (Dryslen Ber Fiin-flodeuog). Quarry, Clocaenog near Llangollen, SJ038.521, J.A.Green, 2008.

+75/22.3. **Prunus cerasifera** (Plum) (Coeden Goeg-geirios). Denbigh, SK0.6, J.A.Green, 2007.

+‡75/22.14. **Prunus laurocerasus** (Cherry Laurel) (Coeden Lawrgeirios). Denbigh, SK0.6, J.A.Green, 2007.

*75/35.4. **Crataegus crus-galli** (Cockspurthorn) (Draenen Wen Sbardunog). Denbigh, SK0.6, J.A.Green, 2007. 1st record.

+75/35.8. **Crataegus laevigata** (Midland Hawthorn) (Draenen Wen Lefn). By River Conwy, SH7.5; +Rhos on Sea, SH8.8; +Holt, SJ4.5; all J.A.Green, 2007.


†+77/1.1. **Anthyllis vulneraria** (Kidney Vetch) (Plllcen Felen). Minera Quarry, SJ2.5(L), D.Williams, 2008.


†77/26.1x2. **Ulex europaeus** x **U. gallii** (a hybrid gorse). Llanefydd, SH972.718(Q), J.A.Green, 2008. 1st or ??nd record.


+88/1.1. **Euonymus europaeus** (Spindle) (Piswydden). Bryneglwys, SJ1.4, J.A.Green, 2007.
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[Text content as per the original image]
+118/6.5. Galeopsis bifida (Bifid Hemp-nettle) (Y Benboeth Hollt). Llanefydd, SH973.715(Q), J.A.Green, 2008. 5th record.


+118/23.6. Mentha requienii (Corsican Mint) (Mintys Corsica). Denbigh, SJ0.6, J.A.Green, 2007.

+121/1.4. Plantago media (Hoary Plantain) (Llyriad Llwyd). N of Graianrhyd, SH971.571, D.Williams, 2008.


+124/1.7. Verbascum thapsus (Great Mullein) (Pannog Felen). Llandynan, SJ1.4(X), D.Williams, 2008.


+135/3.1. Arctium lappa (Greater Burdock) (Cyngaf Mawr). Rhyd y Foel, SH9.7(C), D.Williams; +Near Rossett, SJ3.5(U), J.Shanklin; both 2008.


+135/22.1. Lactuca serriola (Prickly Lettuce) (Letusen Bigog). Llandynan, SJ1.4(X); +Nant Mill, SJ2.5(V); both D.Williams, 2008.

+135/27.2. Pilosella officinarum (Mouse-ear-hawkweed) (Clust-y-llygoden). Rhyd y Foel, SH9.7(C), D.Williams, 2008.

Solidago virgaurea (Goldenrod) (Eurwiaen). Llandynan, SJ1.4(X), D.Williams, 2008.

Solidago canadensis (Canadian Goldenrod) (Eurwiaen Canada). Denbigh, SJ0.6; +Llangollen, SJ2.4; both J.A.Green, 2007.


Luzula sylvatica (Great Wood-rush) (Coedfrwynen Fawr). Nant Mill, SJ2.5(V), D.Williams, 2008.


Carex ovalis (Oval Sedge) (Hesgen Hirgron). Pont Petreyal, SJ0.5(F), D.Williams, 2008.

Carex echinata (Star Sedge) (Sër-hesgen). Pont Petreyal, SJ0.5(F), D.Williams, 2008.


Festuca gigalltea (Giant Fescue) (Peiswellt Mawr). Pont Petreyal, SJ0.5(F); +Llandynan, SJ1.4(X); both D.Williams, 2008.

Phl'agmites austl'8lis (Common Reed) (COl·sen). Near Burton Green, SJ3.5(P), J.Shanklin, 2008.

Tussilago farfara (Colt's-foot) (Cam yr Ebol), Llandynan, SJ1.4(X), D.Williams, 2008.


Juncus tenuis (Slender Rush) (Brwynen Fain). Pont Petreyal, SJ0.5(F), D.Williams, 2008.

Luzula sylvatica (Great Wood-rush) (Coedfrwynen Fawr). Nant Mill, SJ2.5(V), D.Williams, 2008.

Glyceria fluitans (Floating Sweet-grass) (Melyswellt Arnofiol). Pont Petreyal, SJ0.5(F), D.Williams, 2008.


Typha latifolia (Bulrush) (Cynffon y Gath). Llandynan, SJ1.4(X), D.Williams, 2008.
Welsh Plant Records – 2008 — Denbigh / Flint / Anglesey


+162/3.4. Epipactis helleborine (Broad-leaved Helleborine) (Y Galdrist Lydanddail). In chippings at edge of old railway line by old peat milling works at Whixall Moss, Bettisfield, SJ478.367, A.Hazlehurst, 2008.


FLINT, v.c. 51 (comm. G. Wynne)


ANGLESEY, v.c. 52 (comm. N.H. Brown & I.R. Bonner)


+†130/1. *Cruciata laevipes* (Crosswort) (Llysiau'r Groes). Footpath edge, Llanerchymedd, SH41.85, D.Evans, 2008. Only the 3rd record for v.c. 52.


*‡159/5.1. *Iris germanica* (Bearded Iris) (Gellesgen Farfog). ©Old heap, Lleiniog marsh, SH619.793, E.Phenna, 2008. 1st record but only as a casual?
The link between the intensification of agriculture and the resulting loss of wildlife over the last 40 years has been demonstrated many times, including the dramatic decline of arable plants shown in the New Atlas and reductions in populations of species as diverse as water voles, lapwings, pipistrelle bats and high brown fritillaries. In Wales, such losses of plants from agricultural habitats are well known, especially arable species such as Galeopsis segetum (Downy Hemp-nettle, last recorded in 1975 from near Bangor), Silene gallica (Small-flowered Catchfly, lost from 93% of historical sites) and Scandix pecten-veneris (Shepherd’s-needle, lost from 25 of 30 sites). Agricultural intensification applies just as much to non-arable habitats of course though, and many grassland and heathland species have suffered similar fates, such as Trollius europaeus (Globeflower, lost from nearly 40% of sites in Carmarthenshire and Ceredigion), Gentianella campestris (Field Gentian, lost from 72% of hectads) and Dactylorhiza viridis (Ceologlossum viride) (Frog Orchid, lost from 69% of hectads), all of which have now been added to the Section 42 list of priorities for conservation in Wales.

In response to such species declines in Britain and across Europe, the Common Agricultural Policy (CAP) was reformed in 1992 to reduce agricultural production and protect and enhance the environment. One outcome of this reform is the various agri-environment schemes (AES) that aim to improve conditions for wildlife on farms by encouraging farmers to undertake sympathetic management, such as leaving margins of arable fields unsprayed and reducing livestock levels on heaths, in return for a payment to cover the resultant economic losses.

In Wales, the development of a dedicated all-Wales AES began in 1992, with the introduction of Tir Cymen in three pilot areas (Meirionnydd, Dinefwr and Swansea). Although there was no strong evidence of benefits to wildlife, Tir Cymen was considered successful from a socioeconomic viewpoint and led to the introduction of the Wales-wide Tir Gofal Scheme in 1999. This whole-farm scheme aims to encourage agricultural practices that will protect and enhance the landscapes of Wales, their cultural features and associated wildlife. There are currently 332,643 ha of land in Tir Gofal through 2969 farm agreements.

In order for payments to be made, farmers enter into agreements whereby various management packages, called prescriptions, are undertaken for a period of between 5 and 10 years. Each prescription is tailored towards benefiting a particular habitat type (such as lowland coastal heath, unimproved neutral grassland and broadleaved woodland) and therefore hopefully the species they support as well. Prescriptions include a range of management actions, such as using low livestock rates and certain grazing dates and not using fertilizer or pesticides, as well as payments for capital work such as blocking drainage ditches, restoring hedgerows and controlling rhododendron. Some of the prescriptions are mandatory (if the habitat is present on the farm, it has to be undertaken), while others are optional (at the discretion of the farmer and project officer).

Many AES Schemes across Europe suffer from a lack of monitoring. Ten years after the launch of Tir Gofal, and despite some monitoring of basic habitat quality, there has been no assessment of whether it is actually benefiting the priority species it's meant to help protect. Such monitoring would demonstrate that the prescriptions are appropriate (i.e., they have the potential to benefit priority species, or that they need modifying), that the right prescriptions are being taken up in the right areas (so that, for example, prescriptions benefiting arable plants are being implemented in areas rich in arable species), and that populations of priority species are actually stable or increasing on farms implementing the prescriptions. Plantlife
Wales has long been lobbying for monitoring of species on Tir Gofal farms, and a consortium of NGOs (led by RSPB and including Plantlife Wales, Butterfly Conservation, the Welsh Wildlife Trusts and the Bat Conservation Trust) has now been funded by the Welsh Assembly Government (who administer Tir Gofal) to undertake monitoring of priority species.

The monitoring project is in two stages and we are about to embark on the second stage. The first stage was a desk-study and asked the question, “What proportion of current Tir Gofal agreements provide all (or some) of the management needs of priority species?” In other words, are the prescriptions appropriate and do they have the potential to deliver the habitat requirements of priority species? If so, what proportion of agreements are undertaking these prescriptions and (critically) are they being undertaken in the right areas? The second stage of the study is field-based and monitors the performance of priority species on Tir Gofal farms as opposed to those on non-Tir Gofal farms. This three-year monitoring programme started this spring and we await results with interest, as the first part has thrown up some fascinating results.

Scoring prescriptions

We decided to examine four groups for which Tir Gofal is often described as benefiting: arable plant species (including *Scandix pecten-veneris*, *Silene gallica* and *Scleranthus annuus*), lowland heathland species (*Pilularia globulifera*, *Chamaemelum nobile*, *Lycopodiella inundata* and *Ranunculus tripartitus*), Juniper (in the uplands) and Pink Waxcap fungi. I’ll describe the first three in detail here.

Within Tir Gofal there are 130 prescriptions (and their variations) and capital works. For each of these, each species in the study was scored according to whether the prescription could provide all the needs of the species (score 3), some of the needs of the species (score 1), none of the needs (score 0), or if it could be potentially damaging to the species (score -1). For example, the ”Uncropped fallow margins” prescription provides all the needs of arable plants (no competition from crop, an unsprayed and unfertilized headland, and annual cultivation in either spring or autumn) so this scored 3. The ”Unsprayed cereal, rape & linseed crops” prescription, however, scored 1 as the arable plants would have to compete with the crop, fertilizer is allowed and spring cultivation is preferred. By contrast, the ”Rough grass margins” prescription scored -1 (potentially damaging) for arable plants as it can put uncultivated permanent grass in the sites where arable species occur.

Key areas

Next, it was important to be able to ask whether the prescriptions were being taken up in the most important areas for the species in question - it would be of little benefit to priority heathland species if heathland prescriptions were mostly being taken up in the Brecon Beacons, where there is much heathland but very few of the priority heathland species in the study. Key area maps were therefore constructed around clusters of sites where the priority species occurred.

Can Tir Gofal deliver the needs of priority arable species?

Throughout Wales, 90.3% of Tir Gofal agreements include prescriptions that are of at least some benefit to arable plants. This sounds incredibly encouraging, and a potential basis for a massive recovery of these species. However, arable species are highly localised within the farming landscape (they are largely confined to field edges and gateways with appropriate soil conditions) and dispersal is limited, so it is much more appropriate to examine the area of land and the number of fields that are under arable prescriptions. The area of land under management beneficial to arable plants within Tir Gofal throughout Wales is very small, just 3033 ha (2.2% of Tir Gofal land). In other words, a large number of farms have very small...
bits of land under these prescriptions. The vast majority of this area is covered by prescriptions that only deliver some of the needs of arable plants (mainly through the "Unsprayed cereal, rape and linseed crops" prescription); only 84 ha (0.1%) of Tir Gofal land under prescriptions that deliver all the needs of arable plants (through the "Uncropped fallow margins" prescription).

More worryingly, an almost identical area (3072 ha or 2.2%) of land is under management that is detrimental to arable species (mainly through the "Spring-sown cereals undersown with grasses and legumes" prescription). When looking at the number of individual fields, though, many more are under beneficial prescriptions than detrimental ones (57700 fields compared to 6700). However, this means that the fields with beneficial prescriptions are much smaller than those with detrimental ones. It appears that it's the smaller fields that hold our remaining arable flora, while larger fields are being managed unsympathetically; a conclusion that will surely ring true for anyone with experience of surveying arable fields.

There is considerable variation in the number of fields with Tir Gofal arable prescriptions between vice-counties (see Figure 1). Encouragingly, Pembrokeshire, a classic area for arable plants, has the greatest proportion of fields delivering beneficial options (66.5% of Tir Gofal fields within the county), with Carmarthenshire (47.9%), Ceredigion (43.8%) and Breconshire (41.3%) following closely behind. Given the work undertaken in Pembrokeshire to improve the uptake of arable Tir Gofal options this is encouraging. Unfortunately however, Glamorgan, another county rich in arable plant species, has just 37.3% of Tir Gofal fields with beneficial arable options. The county with the lowest proportion of prescriptions beneficial to arable plants is Caernarfonshire (8.1%); although the Lleyn peninsula is rich in arable plant species, it is only a small proportion of a large, mostly pastoral county.

When looking at the "Uncropped fallow margin" prescription (the only one delivering all the needs of arable plants), all counties have a tiny proportion; Monmouthshire has the highest at 1.3% of fields, but Caernarfonshire, Ceredigion, Meirionnydd and Radnorshire have none.

There is very little difference in the uptake of beneficial Tir Gofal arable prescriptions within or outside the arable plant Key Areas, although there is a marginally greater proportion of land area inside the Key Area, perhaps indicating that larger fields are being taken into prescriptions inside Key Areas. The need for the adoption of arable options has been widely publicised and encouraged through training courses, lectures and circulation of literature. Either these are having little effect or, perhaps more likely given the high level of agreement take-up, only a few land parcels are being placed under these options, and these are generally tiny fragments of land.

**Can Tir Gofal deliver the needs of priority heathland species?**

Heathland is a very distinct and well-understood habitat type; there are specific Tir Gofal prescriptions designed to improve heathland management and the habitat is readily identifiable in the field, so appropriate prescriptions can be recommended and allocated by project officers accordingly. For these reasons, the uptake of options potentially beneficial to heathland priority plant species is very good throughout Wales. Overall, 45.5% of Tir Gofal agreements include prescriptions that deliver some of the needs of heathland plants, while an encouraging 30.7% deliver all of their needs.

Since heathland does not usually occur in "fields", it is more sensible to examine the area of land under agreements. The area of Tir Gofal land delivering all the needs of heathland priority plants throughout Wales is very high, 29259 ha (21.0% of the total Tir Gofal area), while that delivering some of their needs is also excellent, at 19775 ha (14.2% of the total).
The large area delivering detrimental management (12380 ha or 8.9%), however, must also be noted, and this comes mostly from the "Bog" and "Reedbeds, swamps and fens" prescriptions, which encourage a raising and stabilisation of water levels and discourage gazing, practices that do not encourage priority heathland species (such as *Pilularia globulifera* and *Ranunculus tripartitus*) when found in these habitats.

Not surprisingly for a habitat that is unequally distributed throughout Wales, there is considerable variation between the uptake of Tir Gofal options beneficial to heathland priority plant species amongst vice-counties (see Figure 2). Highest overall delivery is achieved in Radnorshire (22.8% of the Tir Gofal area in the county delivering some needs of heathland plant species, 30.6% delivering all of their needs), followed by Caernarfonshire (12.0% some, 31.3% all), Breconshire (19.8% some, 18.5% all), Denbighshire (15.1% some, 22.9% all) and Ceredigion (21.0% some, 16.7% all). All these counties are rich in heathland. In eastern Wales, Monmouthshire and Flintshire have very little heathland and consequently very much lower proportions of appropriate prescriptions. However, a startling exception to this good news is Pembrokeshire (15.2% of TG area delivering some needs, and 2.4% delivering all needs). With its high proportion of lowland coastal heath and its density of heathland priority species, it's difficult to account for this, especially given the focus on the conservation of these habitats there has been in this county. It may be that most surviving heaths are in formally protected areas (such as SSSIs) and there is little benefit from including them in the Tir Gofal scheme. These arguments may also apply to Glamorgan, which also has a relatively low delivery of Tir Gofal options for heathland plants (17.4% some and 13.2% all), but, in this case, the heathland interest is mainly confined to the Gower peninsula, a relatively small area compared to the rest of the county.

It is also interesting to note the high proportion of prescriptions detrimental to heathland plants in some counties. Meirionnydd is the worst of these (14.7%) followed by Montgomeryshire and Radnorshire (both 13.5%), Denbighshire (11.9%) and Ceredigion (11.1%).

As with arable species, there is little preferential uptake of heathland prescriptions within the heathland plant Key Areas, maybe because heathland is such a widespread habitat in Wales. Again, the uptake of heathland options within Key Areas must be addressed, especially in Pembrokeshire.

**Can Tir Gofal deliver the needs of upland Juniper?**

Very few Tir Gofal prescriptions deliver the needs of upland Juniper. However, because the principle prescription that does so ("Upland heath"), applies to a widespread habitat that is abundant in some areas, quite a large proportion of Tir Gofal agreements in Wales (13.8%) include prescriptions that deliver the needs of upland juniper. The other main prescription delivering at least some of the needs of Juniper ("Unimproved acid grassland") is even more widespread (45.5% of Tir Gofal agreements).

As with heathland, it's more appropriate to look at the area of land under these agreements, as the uplands are not comprised of fields as such. A very large area of land is under prescriptions that meet all or some of the needs of upland Juniper (56724 ha of land or 40.6% of the Tir Gofal area throughout Wales). Encouragingly, prescriptions that have a detrimental effect on upland Juniper make up only a very small area (1461 ha), which come mainly through capital works allowing the burning of heather.

Tir Gofal prescriptions that benefit upland Juniper are clearly distributed in Vice-counties with a large proportion of upland heathland. In Caernarfonshire, 31.6% and 32.8% of the area
of land in Tir Gofal deliver some and all of the requirements of Juniper respectively, and in Merionnydd the figures are 27.3% and 36.3%. Other counties with large upland areas, such as parts of Denbighshire, Montgomeryshire, Breconshire and Radnorshire, all have large proportions of land delivering at least some of the needs of Juniper, while lowland southern counties (Pembrokeshire, Glamorgan and Monmouthshire) have very little.

Of all plant species in this study, Juniper shows the greatest uptake of beneficial Tir Gofal options within its Key Area, partly because the Key Area is very small and precisely defined (based on the remaining fragmentary populations in Snowdonia), and is dominated by upland heath and unimproved acid grassland. The Key Area includes just 48 Tir Gofal agreements covering 2187 ha of land. All these agreements include prescriptions that deliver at least some needs of juniper, and a remarkable 93.8% deliver all its needs. This is reflected in the wild, where regeneration of Juniper is being reported in upland Snowdonia where grazing levels are being reduced through Tir Gofal.

Conclusions and next steps
This study has shown that, while Tir Gofal has the potential to deliver the needs of some priority plant species (especially upland Juniper), there are problems with the poor uptake of the most beneficial prescriptions for other species (particularly in areas where priority species occur) and with the conflicting uptake of detrimental prescriptions. For plants, the area of land under beneficial prescriptions (rather than simply the number of agreements) is crucial. While for heathland species and upland Juniper, a significant area of land is under appropriate management, for arable plants the area is so small and fragmented that a national or regional recovery of species is highly unlikely under Tir Gofal.

Plants are, of course, largely sedentary (at least compared to animals that can more readily move around a landscape) and it is therefore essential that their management needs are provided in situ. This normally means within the farm or field in which they grow. While animals can move around a landscape, making use of, for example, seed from an arable area and nest material from a woodland, plants do not have this adaptability and if correct management is not delivered to the sites where they grow, they are in trouble. For this reason, the targeting and uptake of prescriptions in appropriate areas (both Key Areas and to specific farms and fields) is crucial if Tir Gofal is to make a significant contribution to plant conservation.

Most importantly, though, is the need to "ground-truth" these findings, so that the theoretical benefits of Tir Gofal can be tested in the field. Do populations of priority species "do better" on Tir Gofal farms as opposed to those non-Tir Gofal farms? In order to answer this, the next stage of the study is now underway and we are surveying populations of both priority heathland and arable species on 20 Tir Gofal farms and 20 non-Tir Gofal farms over the next three years. If anyone would like to be involved in this monitoring, please do get in touch.

The findings of this study have already contributed to the ongoing review of Agri-environment Schemes. Ironically, however, it has just been announced that all schemes in Wales are to be amalgamated into one new scheme Glastir, and we do not as yet know how current Tir Gofal prescriptions will be translated into the new scheme. What we do know is that other considerations, such as carbon sequestration and water management, will be as equally (if not more) important than biodiversity, and that can only be a cause for concern if agri-environment schemes have any hope of addressing the environmental degradation they were intended to address.

TREVOR DINES, Plantlife Wales Conservation Manager.
trevor.dines@plantlife.org.uk (tel: 01248 387396)
Figure 1. Percentage of fields in each vice-county that deliver Tir Gofal prescriptions affecting arable plant species. Prescriptions may be detrimental to arable plants, have no affect on them, deliver some of their needs, or deliver all of their needs.
Figure 2. Percentage of Tir Gofal land area within each vice-county that deliver Tir Gofal prescriptions affecting heathland plant priority species. Prescriptions may be detrimental to heathland plants, have no affect on them, deliver some of their needs, or deliver all of their needs.