

WELSH BULLETIN

Editor: R.D.Pryce

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Avena strigosa Schreber
'Ceirch Plwyd'.
(Inflorance rather 1-sided.)
c.5% impurity in crop of 'Ceirch Du'
(*Avena sativa*, s.220) in 2 fields,
totaling 5 ha., on slight W facing
slope 300m NNW of FRONGOCH,
LLECHRYD, Cardf.
Sown by Mr. H. George, Penlan.
50m.
22/223 440
5.VII.1992
V.S.46
A.O.CHATER.

Photocopy of specimen of *Avena strigosa* at NMW with life-size spikelet showing the two bristles at the apex of each lemma

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EDITORIAL

Firstly an apology to Alan Newton whose joint authorship of the paper "*Rubus* in West Lleyn 1990 and 1991" published in the last Welsh Bulletin (No.54) was not acknowledged. The paper was credited solely to Ann Conolly. Alan's name appeared on the first draft sent by Ann but I am afraid was inadvertently lost from subsequent versions. I hope this note will set the record straight: My apologies again to Alan.

Fond memories of Mrs Vaughan, formerly vice-county recorder for Carmarthenshire, who sadly passed away in January at the age of 103, were recorded in my last editorial. I am very grateful to Stephen Evans, therefore, to be able to reproduce the obituary he wrote, first published by the Dyfed Wildlife Trust. Acknowledgement is also due to the National Museum of Wales for permission to reproduce the photograph.

Another sad loss is that of Bob Fraser whom I met on a number of occasions in recent years. It was only after I read Trevor Evans' appreciation, however, that I discovered Bob's connection with my own Carmarthenshire. I am sure we echo Trevor's sympathies sent to both families and friends.

The major paper in this issue is Arthur Chater's account of Cardiganshire oats and other cereals, which no doubt will stimulate other recorders to look into this subject in more detail.

Likewise Edward Howes' observations on *Parietaria*, I am sure will stimulate discussion. This issue of the Bulletin concludes with reports on Carmarthenshire recording in 1991 which include some corrections to versions which have already been circulated.

Finally let me urge you to make every effort to attend the remaining summer field meetings, and also not to forget to continue to send me articles for inclusion in future Bulletins.

Richard Pryce, Trevethin, School Road, Pwll, Llanelli, Dyfed SA15 4AL

17th July 1993

Mrs Irene Mary Vaughan MBE FLS 1889 - 1993

Irene Vaughan, who died on 27 January at the astonishing age of 103, was at the forefront of natural history in Wales for nearly 40 years. Although dedicated to the wildlife of Carmarthenshire, where she settled in the 1930s, her influence spread throughout Wales. Whilst her husband, Captain H.R.H. Vaughan, was on active duty in the Royal Navy, she was at the centre of efforts to locate and protect the few remaining Red Kite nests in the Upper Tywi above Llandovery. This task they continued with vigour after the war, being awarded the Silver Medal of the RSPB in 1955 and the Gold Medal in 1968, the only husband and wife team so honoured. First at Nantymwyn, Rhandirmwyn and later from Tal Eboilion, Cilycwm, she vigorously pursued all facets of natural history and played a major part in shaping the emerging environmental movement of West Wales.

Although most known for field botany, she was interested in the totality of the plant and animal kingdom and in her fellow human beings. She was always understanding and encouraging to those less able than herself. Her modesty extended to her achievements in the Great War, when her service as an ambulance driver in Serbia and with the WRNS led to her being honoured with the MBE. A graduate of history at Oxford in 1911, before women were awarded with degrees - and at a time when a chaperon was needed at lectures if only men were present - she was pioneering even then. I well remember her talking about the "perils" of botanising from horseback in the Upper Tywi during and after the Second World War. She would chuckle at memories of botanical identification being terminated by the horse devouring the species in question! Her later transport was equally infamous from bubble-car to Mini!

She provided the drive behind the West Wales Field Society's short-lived Plant Committee/Botanical Association from 1951 to 1956. Between 1958 and 1960 she served on the Nature Conservancy's Committee for Wales. During this time she undertook vital botanical surveys for that young organisation at locations in Carmarthen and Pembroke, sharing a particularly memorable stay on Ramsey with her fellow botanist, the late Tommie Warren Davis. In her last autumn days, she was surely delighted to learn of that island's recent acquisition by the RSPB. Involvement with recording for the Botanical Society for the British Isles Atlas culminated in the publication in 1967 of R.F.May's *A list of the Flowering Plants and Ferns of Carmarthenshire* by the West Wales Naturalists' Trust. Apart from the author, she was the main contributor, and became the BSBI recorder for Carmarthenshire until succeeded by Richard Pryce in 1978.

The emergence of the Welsh Region of the BSBI in 1962 must have given Mrs Vaughan much satisfaction, and at its first AGM in Cardiff in 1963, it was entirely fitting that she opened the meeting as Vice-Chairman. Again, in the first Welsh Regional Bulletin of 1964, Mrs Vaughan wrote an article *Carmarthenshire Roses*. Roses, with their difficult taxonomy, were one of her abiding loves; her skills were unrivalled elsewhere in Wales, and were recognised throughout Britain. She served in all the offices of the BSBI in Wales, the last as Editor of the Bulletin, jointly with the late S.G.Harrison of the National Museum, at the wonderful age of 87. Well into her 80s she travelled to London to the rooms of the Linnean Society, to represent Wales on the BSBI Conservation Committee. In 1980, the Society made her an Honorary Member.

Commitment to the work of the West Wales Field Society and later the Trust was equally total, and for years she chaired the Nature Reserves/Conservation Committee for

Carmarthenshire. I recall with fondness those meeting at Tal Ebolion in the early 1970s attended by other leading naturalists such as Dafydd Davies and Dilwyn Roberts when Captain Vaughan would regale committee members with entertaining tales over exquisite refreshments at the end of business so ably conducted by Mrs Vaughan. For several years we visited classic and not so classic sites in Carmarthenshire in efforts to record, evaluate and safeguard the habitats of its plants and animals. Towyn Burrows was a favourite destination, and an expedition to uproot invasive sea buckthorn in November 1976 saw Mrs Vaughan labouring with the rest - we had no idea that she was then in her mid-80s! Her vision and that of the late Noel Tallwin's led to the WWNT Farm Nature Reserve scheme. This innovative idea was in some ways a precursor to the current crop of countrywide schemes - now with financial inducements - to persuade farmers to care voluntarily for the whole environment as stewards of the land. Her encouragement of the Llanelli Naturalists also showed her appreciation of the emerging urban conservation movement.

After the loss of her husband in 1978, it was characteristic that she quickly decided to move to Woodbridge to be near her family roots in Suffolk, although she is not survived by any close family, having lost her son at birth and a daughter on her 15th birthday. Correspondence at Christmas kept us in touch, the last only a few weeks ago, and it continued to reveal the same charm and wisdom. Left behind are many admirers who marvel at all that energy sustained for over a hundred years -truly a remarkable lady.

Stephen Evans, Glan-y-mor, Dinas Cross, Newport, Pembrokeshire



The photo, taken in 1964, shows: R.S.Thomas, P.J.Panting, T.A.Warren Davis, R.H.Bailey, W.M.Condry, Capt H.R.H.Vaughan, Dr C.M.Fenn, Mrs Condry, Col. H.Morrey Salmon, Mrs I.M.Vaughan.

Photo: National Museum of Wales

Bob Fraser, 1924 - 93. An Appreciation.

When Bob Fraser collapsed and died, near his home, on the afternoon of Wednesday 7th April, I lost a very good friend and an enthusiastic and conscientious plant recorder in Monmouthshire.

He had visited 113 tetrads of the 404 that make up the county. Most of these he had visited enough times to ensure a very good coverage. He added over 40 new 10km. square records and 14 new vice county records. Though some of the latter were aliens some were very much native, growing there for thousands of years waiting discovery.

His most noteworthy finds were the large colony of *Crepis paludosa* (Marsh Hawk's-beard), in the shady Afon Cibi, *Impatiens parviflora* (Small Balsam) extending along the edge of a minor road near Glascoed Village; a tiny patch of *Sibthorpia europaea* (Cornish Moneywort) near the bank of Nant-y-Draenog, Cwmfelinfach; a single tussock of the hybrid sedge, *Carex paniculata* x *C. remota* (*C. x boeninghausiana*), in wet woodland in Cwm Merddog; and along the margins of sinuous strips of water in Coed Robert Wood, a species of sedge that has only three Welsh sites and one of those is extinct, namely *Carex elongata* (Elongated Sedge). 93 tussocks of this plant were counted.

Bob really enjoyed his field excursions, especially when he found a remnant of relatively unimproved habitat, rich in species. France, Ireland and his native Scotland drew him to them because there was a greater chance of finding such places and wild scenery also attracted him.

Born in Glasgow, Bob studied in an Edinburgh Agriculture college and a Plant Science Centre. During the War his reserved occupation brought him to Glamorgan, where he met his wife-to-be, Lily. After the War he became a gardening and horticulture lecturer in, first an approved school, and then in Borstal Institutions in Sussex, Huntingdonshire and Warwickshire. After a brief stay, on retirement, in Carmarthenshire he moved to Abergavenny in 1982. Bad health affected both Bob and his wife, and he had a coronary by-pass operation in the Heath Hospital, Cardiff. Bob had, increasingly, to devote his time caring for Lil until her death seven years ago.

His caring work continued. He became chairman of CAIR, the Monmouthshire Disablement Association. He was active in the Bereavement Support Group. He was a member of Gwent Wildlife Trust. He transported mentally handicapped young people to Usk College. These came first and when I wished to do some fieldwork with him, I had to ensure he was free of meetings and did not have to play chess with some disabled person thus freeing a spouse for a time. The fact that Bob lived near the far corner of the county from me was another bonus. A phone call and he would hare off to check up on some query of mine.

The breakdown of the coronary bypass deprived the county of a useful friend, Hugh and Ann of a devoted father, and Elizabeth, a brother and travelling companion. My sympathies go out to them all.

T. G. Evans

***Avena strigosa*, Bristle Oat, and other cereals as crops and casuals
in Cardiganshire, V.C. 46**

A. O. Chater

"Most botanists are happy to record oil-seed rape on roadside verges, but few will record cereals" (Rich & Woodruff, 1990). This was certainly true of my own recording, until I became interested in the variety of cereals in v.c. 46 about a year ago and began looking into both the history of their cultivation here and their present occurrence as casuals. Cereals are so intrinsically interesting, so important to man, and so closely connected with local history that they deserve more attention from the field botanist. In v.c. 46 there is the added interest that many of the varieties grown in both the past and the present were developed at the Welsh Plant Breeding Station (W.P.B.S.), now part of the A.F.R.C. Institute of Grassland and Environmental Research at Plas Gogerddan in the vice-county.

Avena strigosa, Bristle Oat

Avena strigosa used to be widely grown on the poorer soils of upland Wales, but in Britain is probably now grown only in parts of north-west Scotland. It is a disappearing species throughout Europe. It is known in English as Bristle Oat, Brown Oat, Sand Oat or Welsh Grey Oat, or more loosely as Black Oat or Small Oat although these last two names are often applied to varieties of Common Oat, *A. sativa*, as is the Gaelic name Coirce Dubh (Black Oat). In Welsh it is commonly known as Ceirch Llwyd (Grey Oat), Blewgeirch and Ceirch Blewog (Hairy Oat), or Ceirch Teifi (Teifi Oat). Ceirch Llwyd is probably a 20th century name, but the others go back at least to the early 19 century (Thomas, 1967); it seems uncertain whether the Welsh names are original or translations of the English ones, and vice versa.

A. strigosa can be distinguished from *A. sativa* by the two long bristles at the apex of the lemma (not to be confused with the awn, always present in *A. strigosa* and sometimes so in *A. sativa*, which arises from the middle of the back of the lemma). Apart from the usual identification books, very helpful comments and drawings of *A. strigosa*, *A. sativa* and *A. fatua* grains can be found in Godwin (1975), especially useful for identifying threshed and stored grain. *A. strigosa* is diploid, while *A. sativa* is hexaploid.

Salter (1935) states that in Cardiganshire *A. strigosa* "is cultivated on upland farms of the hill district", but the four localities he gives are all late 19th century ones of other authors. Two of these are of the plant as a casual: Ley (1887) recorded it "among oat-crop, and on waste ground, Pont Erwyd, 1886-7", and Marshall (1900) said "This is cultivated at Bethania (I saw several fields full of it), and occurs there frequently among the other crops, sometimes associated with *A. fatua* L." in August 1899. The two records by Burkill & Willis (1894) from Pontrhydfendigaid and Castell Fan-grach near Devil's Bridge give no indication of the status of the plants. There are many ancient mentions of the plant in cultivation in the area (eg. Lloyd & Turner, 1794; Davies, 1815), and many references in the agricultural literature of the present century. It was a crop of sufficient importance for the W.P.B.S. to work on its improvement. In 1931 a pure-line selection known as Ceirch Llwyd S.75 was released to local growers (Jones, 1945; Griffiths, 1962), and all or most of the *A. strigosa* grown in Wales after this date was S.75. It was especially popular in north Cardiganshire (and in Merioneth), and was usually grown for fodder rather than for threshing, being cut before it was fully ripe and fed like hay to horses and cattle. S.75 was highly smut-resistant and had a good foliate yield on even the poorest upland soils.

Realising that *A. strigosa* seemed to have disappeared from the Cardiganshire landscape, and wondering whether any traces of such a formerly well-known and important plant might be surviving anywhere, I began to enquire when it was last cultivated here. There seemed to be a general feeling that it had not been grown since the 1950's. Local botanists and agriculturalists had not seen it for several decades except in the trial plots at the W.P.B.S., where among much else of interest Dr John Valentine showed me the stocks of S.75 still grown as part of their cereal breeding and genetic conservation programme. In addition, Mr David Evans of the University College of Wales farm at Frongoch near Aberystwyth keeps a small plot of S.75 going out of interest. Surprisingly there is still a class for Ceirch Llwyd at the Tal-y-bont Agricultural Show, and Mr Evans has occasionally exhibited it there - the only exhibitor for many years.

Many people remembered Ceirch Llwyd being grown as a crop during the 1939-45 war, when it was widely sown in response to subsidies as part of the war effort, for example around Lampeter, on the Mynydd Bach and throughout much of the north of the county. Dr D. Glyn Jones of C.C.W. told me that the former owners of the Rhos Pil-bach Dyfed Wildlife Trust Reserve (SN 369530) remembered Ceirch Llwyd being grown on the eastern enclosure there in the early 1940's; this is now one of the best remnants of sedge-rich and heathy pasture (rhos) in the county.

Dr D.J. Griffiths, former Oat breeder at the W.P.B.S., told me that he last saw a field of *A. strigosa* in the 1950's at Llety-Ifan-hen (SN 685852), a farm with long-standing connections with the W.P.B.S. and U.C.W., and the farmer, Mr. E.W. Davies, told me that it was in fact regularly grown in the fields around the house until about 1967. As it was no longer available commercially at this period, he and other farmers who continued growing it would thresh enough each year to provide seed for the following year. Then, through the good offices of Dafydd Dafis and Cymdeithas Edward Llwyd, I learnt of a number of other recent growers in the Aberystwyth district from Mr Gwyn Jones, formerly of A.D.A.S. The most interesting of these was Mr Gwilym Jenkins of Tan-yr-allt, Tal-y-bont, who grew Ceirch Llwyd both at this farm (SN 652899) and on higher ground at Tyn-y-graig (SN 665901) until about 1975. He had a colour photograph of himself and his children around a stook of it at Tan-yr-allt taken in 1972. It was also grown at Ty-hen, Tal-y-bont (SN 661890) at about the same time. This is the latest date I have for *A. strigosa* being grown as a farm crop in Cardiganshire, and no botanist has recorded it as a casual since Marshall in 1899. (For records of the plant as a casual in Pembrokeshire in 1970 and 1974 see Donovan (1975), and for Merioneth in 1948, 1951 and 1961 see Benoit & Richards (1963).

There the matter rested, and there seemed no chance of finding the plant anywhere other than in experimental plots, until March 1992, when Dr Glyn Jones showed me some "Blach Oats" he had been given by Mr Haydn George of Penlan, Llechryd, in the south-west of the county. This was being grown for feeding the grain to horses, and was S.220, a variety of *A. sativa* developed by the W.P.B.S. and released in 1945; it was especially suitable, like *A. strigosa* S.75 which it largely replaced, for poor upland soils. To my delight, mixed with the S.220 grains were about 5% of *A. strigosa* grains, presumably S.75. Mr George sowed two fields with this grain at Frongoch, Llechryd (SN 223440) and the 5 ha crop, as expected, contained a large amount of *A. strigosa*. S.220, as well as all forms of *A. strigosa*, cannot now be sold for seed, but only for feeding, under E.E.C. regulations, and farmers who grow it have to keep their own seed from year to year or barter it. The Llechryd stock originated from Pembrokeshire.

In September 1992, while botanising at Brongest (SN 320453), also in the south-west of the county, I noticed some S.220 on a roadside verge by a straw and manure heap, and then a few plants of *A. strigosa*. This was close to stables at The Mill, and I learnt from the owner, Mr D.G. Hazelby, that he had been buying Black Oat grain for his horses from Mr A.N.G. Fordham of the nearby farm of Dol-goch. Mr Fordham had for some time been advertising Black and White Oats for sale in the *Tivyside Advertiser*. He showed me his store of grain, which was indeed S.220 and contained almost 10% of *A. strigosa*. *A. strigosa* was growing in several odd corners in the farmyard. I was directed to the 4 ha field (Middle Field), where for the last four years he had been growing the Black Oats. Although it was 5 October, bad weather had prevented combining of parts of the crop. Not only was *A. strigosa* abundant in it, but it was abundant, much more so than the S.220, in the grassy verges of the field. The source of the grain was the same Pembrokeshire one as the Lechrhyd stock. *A. strigosa* is thus still about in Cardiganshire, but in the more fertile areas of the south-west rather than in the uplands of the north.

Past cultivation of *A. strigosa* in mid Wales was determined largely by the poor quality of the agricultural land in the hills, and by the efforts of the crop breeders at the W.P.B.S. to produce varieties adapted to local needs. Originally it was a poor man's Oats, but along with the black varieties of *A. sativa* it became prized as a food for horses, and the final stages of its cultivation in this area were closely connected with the local horse-breeders. Its present persistence in Cardiganshire as a casual and as a crop contaminant is still due to the determination of the local farmers, against the official odds, to feed what they consider to be the best sorts of grain to their horses.

Avena sativa, Common Oat

In 1988 in Cardiganshire the chief cereals grown were Barley 3993.9 ha (comprising 3526.7 ha spring Barley and 457.2 ha winter Barley), Oats 280.8 ha, Wheat 70.2 ha, Rye 26 ha, Maize 5.5 ha, and Mixed Corn 51.8 ha (Anon. 1988). This gives a total of 4428.2 ha, or just 3.0% of the county. Oats is thus a very minor crop compared with Barley. The Common Oat, *A. sativa*, now grown in small quantities more or less throughout the county except in the extreme north and in the uplands, is chiefly represented by recent recommended varieties. Dula, spring-sown, is currently perhaps the most popular, while Solva and Image are widely grown winter varieties. *A. sativa* is a common and conspicuous casual throughout the county, on road verges, waste ground and building sites, and as a weed in other crops.

Oat varieties seem to have stirred the passions of Cardiganshire farmers more than those of any other cereals, doubtless because of their effect on horses. *A. strigosa* S.75 was certainly one of the favourites. Among the varieties of *A. sativa* available here since the 1939-45 war, Maldwyn or S.221 (spring-sown) is still spoken of by many farmers as the best of all, especially for the uplands. It was first released by the W.P.B.S. in 1948, but stopped being sold some time ago. One farmer who used to grow it and thresh seed of it for her own use from year to year, using it for general feeding about the farm, still has several mouldering sacks of it stored in a cist since 1980 as she is so loathe to lose it altogether.

Black Oats or Ceirch Du are those with a dark brownish grain; those with the more familiar pale grain are often called White Oats. The black variety S.220 has been mentioned above, and other black varieties of *A. sativa* such as Supreme, developed by Gartons of Warrington in 1915, were popular, again especially with horse breeders. Mr Richard Rowlands of

Cwmhwylog, 6 km south-east of Aberystwyth, grew both S.220 and Supreme until about 1985 and was perhaps the last farmer in the north of the county to grow Black Oats. Ceirch-du-bach S.79, another Black Oat, was released by the W.P.B.S. in 1931. Although developed from an old race of this name from the uplands, it soon became popular chiefly in south Cardiganshire and Pembrokeshire. It was withdrawn as a recommended variety in 1945 and replaced by S.220. A great deal of interesting information about the kinds of Oats grown in Wales (including *A. strigosa*), can be found in Jones (1937), and Valentine (1990) gives more recent information. Descriptions and photographs of the older varieties are in Peachey (1951), and the *Botanical Descriptions of Cereal Varieties* regularly issued by the National Institute of Agricultural Botany, Cambridge, give descriptions of the currently available ones.

Ceirch Llwyd Cwta (Short Grey Oat)

Another Oat of particular interest in Cardiganshire was Ceirch Llwyd Cwta S. 171. This variety was derived at the W.P.B.S. from a cross between *A. strigosa* and *A. brevis* (another diploid and predominantly fodder species) made in 1923. It was released to growers in 1936, as a smut-resistant fodder Oat suitable for the same poor upland soils as *A. strigosa*. *A. strigosa*, because of its long awns, had to be sown broadcast, but S. 171 had much shorter awns and had the advantage of being able to be sown by drill. "Cwta", Welsh for "short", referred to this character and not to the height of the plant - it was in fact rather a tall Oat. It was grown into the 1950's at Cwmhwylog and at the neighbouring farm of Bryn-du, and was kept under observation here by the W.P.B.S., but never seems to have been widely grown in Cardiganshire and had more success in north-west Scotland. All trace of it seems now to have gone from the county apart from the stock held by the W.P.B.S.

Naked Oats

Naked Oats refers to varieties in which the lemma and palea are mostly the same delicate texture as the glumes and do not adhere to the ripe grain, which is therefore released naked on threshing. In ordinary Oats the lemma and palea are tough and rigid (commonly known as the husks) and adhere to the grain so that they are not removed on threshing. Naked Oats do, however, generally contain a small proportion of husked grains. Naked Oats also often have more florets in the spikelets, but the character that makes them usually immediately obvious is that the rachilla of each floret is so long that the florets protrude well beyond the glumes (in ordinary Oats they are usually shorter than the glumes). First commercialised in 1989, Naked Oats are becoming an important alternative crop in Britain, chiefly as a result of work at the W.P.B.S. and the development there of two commercial varieties, the spring-sown Rhiannon, and the winter-sown Kynon which makes up about 80% of the British crop of Naked Oats (Valentine, 1990). Another winter variety, Pendragon, has now been released. The taxonomy and nomenclature of Naked Oats is confused, and the character, governed by a single major gene, recessive at diploid level, unknown at tetraploid level, and dominant at hexaploid level, is found in several different species. Pilcorn, variously referred to as Pelcorn, Piley or Pillas Corn, widely grown in the poorer areas of western Britain in the Middle Ages, was undoubtedly a naked diploid. *A. nuda* L., according to Baum (1977) and Rocha Afonso (1980), is a naked diploid, which they maintain as a good species. Plants of unknown provenance grown at the W.P.B.S. and labelled Piley Corn and Nackthafer are probably this. Hexaploid Naked Oats originated somewhere in China, Tibet or the Asiatic parts of the former U.S.S.R. (Stanton, 1955). The Naked Oats currently being cultivated in Britain, including Rhiannon, Kynon and Pendragon, are varieties of *A. sativa* and hexaploid; their nomenclature

is uncertain and at varietal rank they cannot properly be called var. *nuda* as they often have been in the past.

All this may seem of purely academic interest to the field botanist, and none of these new varieties of Naked Oats are yet being grown in Cardiganshire, but these plants do occur as casuals. In 1992 I found several plants of at least two different sorts of naked *A. sativa* (one of them probably Kynon, but they were poorly grown) along with other cereals and aliens in a field near Pontsian (SN 439460). These turned out to have grown from bird-seed dumped by a local aviarist. Dr John Valentine tells me that one firm at least, C.J. Birdseed of Shrewsbury, has recently been using Naked Oats as a constituent of its mixtures.

Miscellaneous notes on other cereals

There is nowadays ten times as much Barley, *Hordeum vulgare*, grown in Cardiganshire as all the other cereals put together. It is all Two-rowed Barley (sometimes separated as *H. distichon*), and is planted throughout though rarely in the extreme north and never now in the uplands. The distribution of spring- and winter-sown varieties are very similar, though the former is nearly eight times as common. Two-rowed Barley is commonly found as a casual on roadsides, in farmyards, on waste ground, and in other crops. Six-rowed Barley seems not to have been cultivated in the county for some time, and I saw it only twice in 1992, as a very sparse weed in the crop of Black Oats at Frongoch, Llechryd, mentioned above, and as a few plants on a recently reconstructed roadside verge at Capel Bangor (SN 657801).

Triticum aestivum, Wheat, was always less often cultivated in Cardiganshire than Barley supposedly for climatic reasons and because the soils do not suit it, but in the early 19th century there were notable Wheat-growing areas in the Teifi and Ystwyth valleys (Parkinson, 1985). In 1988 there were only 70.2 ha, confined to the south-west of the county, south of the Aeron and always within 10 km of the sea (though in 1992 there were surprisingly three fields of Wheat at Bryn-hir 8 km south of Aberystwyth). As a casual, however, it can be found in small quantities throughout the county, being dispersed, like Barley, in straw bales as well as with other cereal grain.

The amount of *Zea mays*, Maize, grown has increased considerably since the 5.5. ha registered in 1988, chiefly in the Cardigan area in the extreme south-west. It is grown here for silage rather than for the cobs or grain. The only casual plants of it I have seen were on the Aberystwyth refuse tip.

Secale cereale, Rye, is nowadays very rarely grown, perhaps not at all in the last year or two, and I have seen neither crops of it nor the plant as a casual. In earlier centuries it was widely grown especially in the uplands (eg. Lhwyd, 1911, referring to c.1697; Lloyd & Turnor, 1794; Davies, 1815).

A new cereal, \times *Triticosecale*, Triticale, a hybrid of Wheat and Rye, is becoming widely grown, but still on a small scale, in Britain. Although a fertile hybrid was first reported a century ago, commercially viable synthetic versions were not widely grown until around 1970, in Canada (Larter, 1976). Several varieties, notably Lasko and Cumulus, have been tested at the W.P.B.S. (which has had an active breeding and trial programme for Triticale since 1989) and at the U.C.W. farm at Morfa Mawr, Llanon. I could find no evidence that it was being commercially grown in Cardiganshire, until in March 1992 Dr Roger Bray, while surveying

National Trust land at Pont-faen (SN 594590) serendipitously found a weather-beaten blue label lying at the edge of a fallow field with the mysterious words "Lasko Triticale" and M.A.F.F. testing details on it. Mr G.O. David, the farmer, told me that he had indeed grown it in 1990/91, winter-sown, but that crows had decimated the crop at the seedling stage and he had not tried it again (the plants that did escape grew well). He was unaware of anyone else growing it in the county. I could find no plants persisting as casuals on the sites.

More deliberate cereal labels can sometimes be seen fastened to field gates, giving the names and testing details of the varieties sown, and these can provide instructive diversion for the passing botanist.

Avena fatua, Wild Oat

Wild Oat is a notorious weed of cereal crops. In spite of immense efforts to get rid of it, it remains a serious problem in most areas where Oats are cultivated. It is a hexaploid, like *A. sativa*, but has a seed dormancy mechanism as well as an effective dispersal mechanism, both of which characters the cultivated hexaploids lack. In *A. sativa* and *A. strigosa* the spikelet breaks up irregularly during threshing so that the grain can be easily dislodged and separated. In *A. fatua*, however, there is a thickened, oblique disarticulation scar at the base of each floret, so that the spikelet breaks neatly into separate awned florets. It is thus able to disperse its seeds without the need for threshing, whereas *A. sativa* and *A. strigosa* have no natural dispersal mechanism and are entirely dependent on man for their survival.

Davis (1972) reports that M.A.F.F. had its first reports of Wild Oat in Wales in 1954, in the border counties, and that it was first reported to them in Pembrokeshire in 1968 (though he had another report of it having been introduced in about 1966). This seems surprising, as there are reports of it from Cardiganshire at Hafod (SN 759732) by J.E. Smith in about 1800 (Turner & Dillwyn, 1805), at Aberystwyth by T.O. Morgan in the 1840's (Morgan, 1849) and as an arable weed at Bethania (SN 575635) by E.S. Marshall in 1899 (Marshall, 1900). Slater himself (1935) says "Usually occurs as a casual; waste ground and rubbish tips". Whether its widespread invasion of crops is really a recent event I do not know, but it certainly seems to be under-recorded in some parts of Wales. Although there were no localised records for this century for Cardiganshire, and no dots for the county in Ellis (1983), I was able to find it at 17 sites in ten 10km squares in 1992. Most of the records were disturbed roadsides. It seems to be as common a weed in both situations as *A. sativa*. (On the other hand, Ray Woods tells me that it has still not been seen in Radnorshire, in spite of having been deliberately searched for there).

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SOME COMMENTS ON THE GENUS *PARIETARIA*

Edward A. Howes

In 1954 I found a plant growing on a wall at the ruined Castleacre Priory in Norfolk. Looking the plant up in my Bentham & Hooker Flora I found it to be *Parietaria officinalis* (Pellitory-of-the-Wall).

Then I asked myself why did it grow there, had the Monks used the plant medicinally? I found they had - not necessarily at Castleacre - for the relief of piles. When I retire, I thought I will look more deeply. In 1986 still living in North Wales, I found the plant growing in my tiny walled garden. From then on I read everything I could find on the subject.

Books told me of all the ills the plant had been used to 'cure'. I listed the diseases. It was an impressive collection. Was the plant still used, I asked? A health-food shop keeper said that it had been until recently, by just two or three clients. But he had stopped stocking the plant as the supplier demanded large quantities be purchased. So it was still grown commercially then?

No herb-garden or farm consulted admitted to growing it. Quietly visiting a number of herb gardens I did find it sometimes - but only as a weed. So it would appear suppliers collected it from the wild.

That was interesting for in my travels and searching in Britain, I very rarely found it truly wild. Certainly I found it on ruined castles, monasteries, old villages, isolated mansions and farms, often in profusion.

I had a hunch that here, contrary to what I had read, this was not a native plant but an introduction, that now grows wild. A garden escape? But where had it been introduced from, by whom, and when? I cannot answer that - yet. But the Romans are credited - or cursed - with introducing food plants that are now invasive, persistent weeds, why not *Parietaria*? In my searching of available literature I began to find other labels for the plant but always it appeared that the generic name was *Parietaria*, a member of the family or natural order - Urticaceae. I found *Parietaria judaica*, *P. diffusa* (or *P. diffusus*) *R. ramiflora*, then *P. erecta*.

Specific names, sub-specific names, varietal names, synonyms, enough to keep one academically involved for years to come.

The pursuit of the species became an obsession, with as rewards excitement and a few satisfactions when I found it where I expected to find it.

My one plant in my garden increased by seeding - to my surprise I found I had a wide range of variations that could fool most people into believing that here were eight distinct species. Of course there were not, from one parent. According to various books one parent could produce male, female, and hermaphrodite flowers, or all three and could be annual or perennial. There were so many authorities, but with what authority I asked myself?

Books told me what my experience already knew, that it grew on walls - yes old walls, or chalk or limestone; I agreed. But did it grow elsewhere, was it strictly calcicole or would it grow in other soil types? I would find out. By this time the plant had reached almost weed

proportions, but not yet unwelcome at the time in my garden. I chose one plant, a normal typical plant I believe. I shall go into some detail here. This plant (Clone 1) was growing by the door frame of an outhouse (a defunct outdoor lavatory, I suspect). It was rooted in a fine crack in the concrete footpath. It was healthy and lush in growth.

I took a number of cuttings of the current year's growth of obviously a perennial plant. These numerous nodal cuttings were inserted in an unheated propagator with a transparent lid using John Innes potting compost No 1. This was in 1987 in June. At the same time ten cuttings from Clone 1 were inserted into the garden at the foot of the old red brick wall. In August of 1987 all plants were well rooted with no losses - excepting two by the garden wall - this batch was left undisturbed. All those in the propagator were lifted, a chance was taken when I washed the roots clean of all soil.

These plants were then potted off into identical 3" plastic pots, using the following potting mediums:

1. Very old, weathered coal ash from an ancient tip.
2. Leaf mould.
3. Pure peat.
4. Old mortar rubble.
5. Sea sand.
6. Sea gravel.
7. Mudstone shale.
8. John Innes potting compost No 3.
9. Forest bark.
10. A proprietary brand of soilless compost.
11. Equal parts garden soil, sand and peat.
12. Limestone scree, (rubble).
13. Equal parts garden soil, sand and leaf mould.
14. Equal parts garden soil, sand and leaf mould and old mortar.

Apart from watering, these plants received no treatment and over one year later all were healthy but of different vigour and height, yet all were of upright growth.

One had apparently died during the winter 1987-8 but, put out new growth in Spring 1988

The plants by the wall of the same provenance from Clone 1 survived the year but were all of decumbent or procumbent growth.

The conclusion was that the plant does not necessarily need calcium to grow successfully.

Fourteen mediums have been listed, there was a fifteenth.

One of the batch of rooted cuttings was anchored in washed gravel in a plastic bowl and the gravel kept saturated with a solution of Phostrogen according to the Manufacturers leaflet. This plant did not thrive, a soilless compost was added, the plant improved and was potted off into John Innes compost and grew well.

The conclusion here was that good drainage is necessary for *Pellitory*.

On moving to another district I decided to investigate and remove Clone 1. I managed to trace its roots under the door frame, and follow them and extricate over three metres of main root, but not the ramifications. The plant without soil had grown inside around three sides of the building at the junction of a damp concrete floor and whitewashed brick wall.

The conclusion here is that it is an adaptable plant. It is this adaptable, survival factor that gives rise to so many forms in what I believe is one, single species here in Britain.

Over the period since 1954 I have examined thousands of specimens growing over much of this country plus herbarium specimens by the hundred. In the field, as in my garden, I have found plants that could only arise from the one plant, yet so different as to be apparently, yet not in fact, different species. For example in an isolated limestone cave by the entrance at ground level were several 'normal' plants. Two feet up the cliff face by the entrance, growing in small cracks, tiny woody plants with minute leaves. While one or more metres inside the cave, sappy, large leaved plants with pale, almost transparent leaves.

A species with infinite variety of form. But how did the plant get there, did ancient cave man take it there?

As I see it, size, form and vigour appear to depend upon such factors as soil type and depth, availability of light and water, simple needs that alter the plant's appearance, yet it is a survivor. I looked into the distribution of the plant and found that in most cases it was to be found spreading from old centres of human population in Britain. Its northern limits allegedly being on the southern shores of Moray Firth, I feel sure it has spread further north by now. For in my experience the plant is spreading rapidly, has been since I first took interest in it.

What about elsewhere? I have experienced specimens collected in the following countries: France, Belgium, Holland, Spain, Portugal, Italy, Turkey, Greece, Malta, Romania, Czechoslovakia, Yugoslavia, Channel Isles and so forth. Naming appears to accord with date, country and collector, this does not prevent great variation in named species. I think chromosome counts should be considered before naming. I am aware that the genus grows over much of the planet and includes a number of species - there being a few exceptions, the Pacific, and parts of Malaysia. I would not expect to find it at the Poles. Altitude might well limit it, yet I know it grows in Himalaya, in the Nilgris and the Western Ghats of India. Without doubt, it would grow in many other parts, if introduced, if thought necessary, medicinally.

Now, some uses to which the plant has been put over centuries but I do not necessarily recommend them. As an insecticide, to clean windows and copper vessels. Medicinally from the human head down, it has been said to have been used for: running sores in children's hair, and to prevent falling hair; for earache and toothache; spots, pimples, and sun burn; a gargle for sore throats, a cure for old dry coughs; for kidney and bladder stones, a laxative and diuretic; for fistulas and piles, also urinary problems; dropsy and stricture; for ulcers, external I believe, of the legs.

A wide range of 'cures'; one feels that this little plant should be looked at more closely in the light of modern medical knowledge but is to be avoided by asthmatics and hay-fever sufferers.

Gerard tells us in his Herbal that the plant was used by sufferers of St. Anthony's Fire brought about by eating ergot (*Claviceps purpurea*) infected cereals. Pliny described it as a medicinal plant and Theophrastius a vegetable.

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CARMARTHENSHIRE FLORA PROJECT: THE 1991 SEASON R. D. Pryce

More records were made during 1991 than in the previous few years. Not only did George Hutchinson (GH), as has become usual, provide a pile of record cards nearly two inches thick (not to mention a lever-arch file full of four sheets detailing his, and others' determinations of specimens accumulated in NMW since the inception of the project in 1981) but Ian Morgan (IKM) returned to concentrate on floral recording, a diversion from his beloved invertebrates, at least for this season, and included some important new botanical records and rediscoveries. In fact Ian produced so large a volume of material that he undertook to write his own report which is reproduced below in toto. I will therefore concentrate on the records submitted by George and the other field-workers but inevitably there is some degree of overlap.

NEW VICE-COUNTY RECORDS

Several plants of *Papaver dubium* ssp. *lecoqii* (*P. lecoqii*) (Yellow-juiced Poppy) growing on a disturbed, burnt area of limestone cliff at Dolwen Point, Pendine, SN233078, were discovered by IKM at the end of May growing with *Carduus acanthoides* (Wetted Thistle) whilst *Epilobium ciliatum* x *E. tetragonum* (a hybrid willowherb) was a first Welsh record from below the village bridge at Pentrecwrt, SN390386, (GH det. G.D. Kitchener & B. Wurzell).

Lemna minuta (*minuscula*) (a species of duckweed) was reported from two sites by IKM: the 1st and 2nd vcrs and also the 3rd and 4th Welsh records; in a broad ditch alongside Ffordd-y-Wagen, Pwll, SN462012, in "superabundance" and in flooded areas of a reed swamp east of Burry Port, SN458010, both det. IKM, conf. GH & A. Orange (AO). *Myriophyllum aquaticum* (a species of water-milfoil) was recorded at Dafen Pond, SN531015, (IKM, conf. GH). However, the specimen det. as *Chara connivens* from the same locality later proved to be only *Chara* ****

A specimen of *Pteridium aquilinum* (Bracken) collected by A.E. Wade in 1930 from Ferryside was determined as subsp. *atlanticum* by C.N. Page in March 1991.

P.J.O. Trist (PJOT), one of the referees for Gramineae, has recently determined some critical grasses from Carm. including the following: *Festuca rubra* subsp. *rubra* x *Vulpia myuros* (a hybrid between Red Fescue and Rat's-tail Fescue) collected by GH & RDP from a sandy area adjoining the beach southwest of the Burry Port power station, SN449001, in May 1989; *Bromus hordeaceus* subsp. *feronii* (Least Soft-brome) collected by RDP during a Llanelli Naturalists field meeting from a dry bank below Sir John's Hill, Laugharne, SN299097, on 17 June 1984; *Bromus commutatus* var. *pubens* (Meadow Brome) collected by GH from a road verge 1.5km southeast of Ferryside, SN382094, in June 1986 and *Bromus* x *pseudothominei* (Lesser Soft-brome) collected by RDP from waste ground at the roadside near the Butcher's Arms, Pembrey, SN419021, in c1980.

Other ncr grasses were the fescues *Festuca rubra* subsp. *juncea* collected by GH from the seashore southwest of Llanelli railway station, SS5098, in June 1990 and *Festuca arenaria* from shingle at the foot of a calcareous cliff near Llansteffan (SN30), collected by Mrs I. M. Vaughan in June 1967 (det. L. Al-Bermani & Prof. C.A. Stace). *Echinochloa utilis* (a species of Cockspur grass) was a ncr and only the 2nd vc for Wales, discovered by IKM on river shingle of the Afon Lliedi in Llanelli, SN509006, (det. GH) growing with an abundance of casual species including *Lepidium sativum* (Garden Cress), the 2nd vcr.

Several determinations by either GH or the respective referees resulted in ncrs from material of more non-native species repositied in NMW. *Aconitum x cammarum* (a monkshood) was a garden escape along Llangunnor Road, Carmarthen, SN422196, (GH, 3rd Welsh record) and *Oenothera missouriensis* (a species of evening primrose) was a weed in Mrs Annie-Mary Pell's garden (AP, det. GH). *Tropaeolum majus* (Nasturtium), another escape, was growing by rubble tipped at St. John's Hill, Laugharne, SN302104, (GH) and also at Laugharne, *Hebe x franciscana* was recorded during the BSBI meeting growing rampantly on the cliff above Dylan Thomas' Boathouse, SN306110 but was also apparently self-sown on nearby walls (Pryce, 1992). *Erigeron glaucus*, a garden throw-out on a road embankment at Pwll was recorded by GH & RDP in August (det. GH, conf. E.J. Clement). *Pseudofumaria alba* (= *Corydalis ochroleuca*) was determined by D. McClintock from a specimen collected at Gelli Aur, SN5920, by Denys Smith (DS) in April 1988 and *Cymbalaria pallida* (Greater Ivy-leaved Toadflax) was collected by RDP in July 1982 at Pontyberem Churchyard, SN497104, and determined by GH, 1991.

SECOND AND THIRD VICE-COUNTY RECORDS

Carex punctata (Dotted Sedge) was discovered at both its second and third vc sites in 1991. One plant at SN301073 and several at SN291077 were seen growing in dune slacks amongst *Salix repens* (Creeping Willow) at the Proof and Experimental Establishment, Pendine, during the Conservation Group meeting on 2nd July (John Rees (JR), GH & RDP, conf. A.O. Chater (AOC)). At the same site, SN3007, the *Carex* sp. collected by JR & RDP in June 1989 was determined by AOC as *C. acuta* (Slender Tufted-sedge), the third vcr. Still at Pendine Burrows, *Bidens frondosa* (Beggarticks) was determined by GH in 1991 from material collected in 1956 by Vera Gordon at the Witchett Pool, SN2807. This is the 2nd vcr although predating the first record (from Bynea, Morgan (1987)) by thirty years.

The 2nd native site in the vc. of *Helianthemum nummularium* (Common Rockrose) was recorded in 1989 by Dawn Grey who found it growing amongst limestone outcrops and grassland at Dan-y-Cincoed, Llandyfan, SN647176. *Koeleria gracilis* (Crested Hair-grass) was also growing nearby, the 2nd extant record (comm. IKM, 1991).

A clump of *Coronilla varia* (Crown Vetch) in full flower recorded by GH on a railway-side wall east of Llanelli Station SS508993, was the 2nd vcr and first since 1969. IKM recorded the 2nd record of *Valerianella carinata* (Keel-fruited Cornsalad) at Furnace, Llanelli, SN503012, where a few plants were growing as weeds in a lane.

The 2nd record of the whitebeam *Sorbus croceocarpa* was determined by P.J. Nethercott from material collected by IKM from the four trees in open oak woodland near Lllety-yr-Ychen Fawr, Burry Port, SN455015.

The 2nd and 3rd vcrs of the hybrid shield-fern, *Polystichum x bicknellii* (*P. aculeatum* x *setiferum*) were determined by GH, his material now in NMW: from a hedgebank at Tavernspite SN179123, collected in 1987 and from a hedgebank near Trapp, SN654183, collected in 1988.

Azolla filiculoides (Water-fern) has been recorded by Trevor Crosby (TSC) in varying amounts in recent years in the pond at Gelli-deg, SN423105 (2nd vcr and the species was also recorded in 1991 in the inflowing stream to the new lake in Sandy Water Park, SN492006,

(3rd vcr) (GH) . It is remarkable how quickly new water bodies can be colonised: in addition to the *Azolla* at this site, GH & IKM recorded *Ceratophyllum demersum* (Rigid Hornwort) (another 2nd vcr), *Zannichellia palustris* (Horned Pondweed) , *Elodea nuttallii* (Nuttall's Waterweed) (first record substantiated by referee), *Potamogeton crispus* (Curled Pondweed) and *P. obtusifolius* (Blunt-leaved Pondweed) (2nd vcr) (the last three det. C.D.Preston). CDP also determined *Potamogeton perfoliatus* (Perfoliate Pondweed) collected by GH from Dafen Pond (3rd vcr) which also held populations of *P. crispus* and *P. natans* (Broad-leaved Pondweed) (GH). The new pond near Kidwelly Ouay, SN401061, also held *P. crispus* together with *Nymphaea alba* (White Water-lily) and the stonewort *Chara vulgaris* var. *longibracteata* (det .AO) (ncr) . *P. crispus* was also reported by John Savidge in another very recently constructed pond on restored opencast land at Bryngwyn Farm, Penygroes, SN588143. Other *P. crispus* records were in ponds at Pengay Farm, SN373085; Glantaf Farm, SN368088, (with *Ranunculus peltatus* (Pond Water-crowfoot)) (both GH) and Pistyll Quary Pond, Llandybie, SN624167, where it was growing with *Elodea nuttallii* (AOC) .

2nd and 3rd vcrs of the Soft-brome, *Bromus hordeaceus* subsp. *thominei* were determined by PJOT from material collected in 1982 at Laugharne Burrows, SN20T, and in 1989 from dunes near the Undercliff Hotel, Ferryside, SN368108 (both GH).

Other 2nd vcrs attributed to GH were: *Hordeum jubatum* (Foxtail Barley) , recorded near Kidwelly Ouay, SN397061, during a session primarily searching for *Salicornia* (Glasswort), *Limnanthes douglasii* (Poached-egg Plant) recorded spreading away from a garden at Nant Farm, Llangunor, SN436196; *Lycnis coronaria* (Rose Campion) and *Salvia verticillata* (Whorled Clary) found growing on the former railway sidings at Morfa, Llanelli, SS516991, and *Lobelia erinus* (Garden Lobelia) on a shingle bank in the River Teifi near Pentrecwrt, SN392395, which was also only the third Welsh record. From material he collected in 1990 at Aberglasney, SN580221, GH also determined *Cirsium eriophorum* (Woolly Thistle), the 2nd vcr and first since the mid 1850s, which was growing with *Carduus acanthoides*.

REDISCOVERIES

There were several records of species not seen for many years. Probably most notable was Barry Stewart's *Sison amomum* (Stone Parsley) growing beside a path at Penclacwydd SS530986, the first record since Motley's of c1850. Also new at Penclacwydd was Barry's *Myosoton aquaticum* (Water Chickweed) (comm. IKM). *Lemna gibba* (Fat Duckweed) was found growing abundantly in a ditch at Glanrhyd Farm, Pembrey, SN406043, by IKM the first sighting since Motley's unlocalised record of c1840. IKM also discovered the species at three other sites in the vc. *Misopates orontium* (Lesser Snapdragon) was discovered as a weed in the Bigyn Hill allotments, Llanelli, SS509998, by IKM, last recorded in the vc by Webb in 1944. *Rubus saxatilis* (Stone Bramble) was also rediscovered by IKM above Pont Clydach on Mynydd Du on a wet, rocky streamside at SN743189, the first record since D.P.M. Guile's of 1951 at the same location and another upland species, *Carex montana* (Soft-leaved Sedge), was refound, again by IKM at Carreg-yr-Ogof, last seen in 1976 by S.B. Evans and M.E. Massey. Another IKM record was that of *Polygonum minus* (Small Water-pepper) at the Bishop's Pond, Abergwili, SN443209, which was also the 2nd vcr (det. GH & R.G. Ellis).

CRITICAL TAXA

Nine *Hieracium* (hawkweed) specimens in NMW were provisionally determined in 1991 by Jim Bevan as *H. strumosum*, all from the northeast of the vc. GH now has the self-taught expertise to identify the microspecies of *E. officinalis* agg. (eyebright) and has provisionally determined 96 Carms. specimens accumulated in NMW. 24 additional specimens have been with the referee, Alan Silverside, for some time and their identifications are awaited.

CARUM and SALICORNIA

There were eleven new tetrad records for *Carum verticillatum* (Whorled Caraway) and, with one exception, all were from the north-eastern quarter of the vc. The species remains undiscovered in several partial 10km squares on the periphery of the vc, these being SN02, SN10, SN11, SN24, SN30, SN34, SS49, SS59, SN65, SN75 and SN82. Suitable habitats are probably absent from most of these squares but it is likely that the plant occurs in the northeastern parts of SN11 and maybe in SN30. It should also be present in SN82.

GH has added several new *Salicornia* (glasswort) records in 1991 whilst, from material collected in 1990, D.H.Dalby has confirmed or determined *S. europaea* from Cwmcelyn, SN318118, (GH & RDP); near Yspitty, SS558980, (GH & RDP); near Tir Morfa, SS532978, (IKM) and Llangennech, SN565010, (IKM); and *S. fragilis* from Morfa Uchaf, SN368112, (GH); near Penallt, SN386068, (GH) and near Pant-yr-athro, SN371132, (GH & RDP). For distribution maps of other *Salicornia* records see Hutchinson (1991). *S. pusilla* has proved to be far more widespread in the vc than previously thought. It is now known from nine tetrads.

OTHER NOTABLE RECORDS

Orobanche rapum-genistae (Greater Broomrape) was recorded at a new site in 1990 and monitored in 1991 by Dai Stacey who reported c30 plants growing on *Cytisus scoparius* (Broom) in scrubby, cliff grassland at Wharley Point, SN339094. He also noted c20 plants growing on *Ulex* (gorse) at the Cwmcelyn colony, SN316125, in 1990 and 1991. James and Mary Illiff (J&MI) re-found *O. rapum-genistae* opposite the entrance to Maescadog Farm, SN688394 and Dorothy Brookman and Mike Smith (DB&MS) reported that the previously known extensive colony east of Llandovery, SN779344, extended onto the neighbouring tetrad at SN780344. A colony of *Orobanche minor* (Common Broomrape) was discovered by GH in SN30T in May and from the same tetrad he also recorded *Geranium columbinum* (Long-stalked Crane's-bill), *G. pyrenaicum* (Hedgerow Crane's-bill), *Nasturtium microphyllum* (Narrow-fruited Water-cress) and the planted hybrid willow, *Salix x sepulcralis* nothovar. *chrysocoma*.

There were several records of *Epipactis helleborine* (Broad-leaved Helleborine) during the year: at Newfoundland Farm, SN6228; Rhandirmwyn, SN74W; near Cefn Rickett, SN73T; Cwm Clyd, Myddfai, SN73V; a rough field near Cwm-Rhuddan, SN766327 (all J&MI); one plant by the entrance to the upper track to Esgair-isaf, SN379232 (TSC) and three spikes on the roadside near Llanfihangel Cilfagen Church, SN575243, (DS).

Twelve spikes of *Platanthera chlorantha* (Greater Butterfly Orchid) were reported in 1991 by Peter Wilde from the previously known site near Gwernogle in SN53N. IKM reports, however, that an unimproved pasture found in 1991 supporting *P. chlorantha* together with abundant *Dactylorhiza maculata* subsp. *ericetorum* (Heath Spotted-orchid) and *Sanguisorba*

officinalis (Great Burnet) near Felindre, SN696306, has been completely destroyed by ploughing and re-seeding after he wrote to the farmer telling him of its floral interest.

Two plants of *Listera ovata* (Common Twayblade) were found by GH growing on top of a laneside bank north of Pendine, SN239103. His records also included: *Ornithopus perpusillus* (Bird's-foot) from Wharley Point, SN339094; *Myrrhis odorata* (Sweet Cicely) in Cwmduad village, SN376310; *Fumaria capreolata* (White Ramping-fumitory) in a hedge at Draenog Farm, Graig, Burry Port, SN439018 and *Coronopus squamatus* (Swine-cress) from south of St. John's Hill, Laugharne, SN304096 (IKM also found this species on a footpath at Bryn, SN556005). Also, GH determined the hybrid avens, *Geum* x *intermedium*, from material he collected at Ffairfach, SN613192, in 1987 and from woodland on the Carms. bank of the River Eastern Cleddau, west of Clynderwen, SN085187.

A substantial population of *Parentucellia viscosa* (Yellow Bartsia) was found by RDP growing in damp disturbed ground at Garnant opencast site, SN683131, the first vcr away from the coast. *Hyocyamus niger* (Henbane) was recorded for the first time since 1977 by Jane Kelsall growing very near to its old site in an open area at the edge of Pembrey Forest, SN392033, (Pryce, 1991: note revised grid ref. for *Hyocyamus*).

The polypody fern, *Polypodium cambricum*, was recorded by members of the BSBI party who visited Laugharne Castle, SN301107, in June (Pryce, 1992). The hybrid buckler-fern, *Dryopteris x deweveri* (*D. carthusiana* x *D. dilatata*), was recorded in 1991 to the northeast of Ffynnon-newydd, SN428276, (IKM, field record) and material collected near Llanddewi-Velfrey, SN141179, by GH in 1986 also proved to be this hybrid (det. C.R. Fraser-Jenkins). The form of Hard Shield-fern *Polystichum aculeatum* forma *cambricum*, was determined by GH from material collected by RDP in 1979 on limestone waste at Blaen-y-Van Quarry, SN454115 and one plant of the clubmoss *Huperzia selago* was found growing on the face of an old limestone quarry at Clogau Bach, Mynydd-Du, SN718193, out of reach of even the most agile sheep (IKM & RDP).

Trisetum flavescens (Yellow Oat-grass) was recorded from four new sites, namely Mynydd Llanybydder, SN526397, (DB & MS); on the edge of a forestry plantation at Aberhenwen, SN834290, (H.J. Killick (HJK)); around a memorial seat at Scott's Bay, Llansteffan, SN349099 (GH) and on a roadside verge at Mynydd Figyn, SN603303, (TSC). TSC also visited an abandoned chapelyard at Capel Iwan, SN294362, which had *Lilium pyrenaicum* (Pyrenean Lily) and *Polygonatum multiflorum* (Solomon's-seal) whilst he also recorded *Primula veris* (Cowslip) growing abundantly in Pengwern Bica Chapelyard, SN23T, together with *Rhinanthus minor* (Yellow-rattle).

Montia sibirica (Pink Purslane) continues its relentless spread down the Tywi valley with IKM's record from broad-leaved woodland on the river cliff below Pont-ar-Ffynnant picnic site, SN507201. How long will it take to reach SN42?

HJK's records included *Vicia orobus* (Wood Bitter-vetch) from a rocky slope near Waun Ddu Mire SSSI, SN818297; *Myriophyllum alterniflorum* (Alternate Water-milfoil) from a flush at Tomen-y-Rhos, SN807297; *Genista tinctoria* (Dyer's Greenweed), SN825296, and *Equisetum sylvaticum* (Wood Horsetail) SN827293, from north of the Usk Reservoir and *Eleocharis quinqueflora* (Few-flowered Spike-rush) by the Usk Reservoir at SN810280

Whitehill Down was the venue for a BSBI Field meeting in June. Those eminent botanists in attendance made several new records at this very rich and diverse grassland site. Included were *Carex pallescens* (Pale Sedge) and *Lysimachia vulgaris* (Common Loosestrife) (both det. AOC) and two *Euphrasia* (eyebright) species provisionally determined by GH (Pryce, 1992).

J&MI rediscovered *Verbascum lychmitis* (White Mullein) from an old mine site in Rhandirmwyn, SN781435, last seen by Mrs Vaughan in the late 1960s. From the same tetrad they also recorded abundant *Ornithopus perpusillus* (SN798427), *Primula veris*, *Campanula trachelium* (Nettle-leaved Bellflower), *Wahlenbergia hederacea* (Ivy-leaved Bellflower) and *Silene vulgaris* subsp. *maritima* (Sea Campion). The latter was also present in SN74X and growing nearby was *Cirsium dissectum* (Meadow Thistle).

A hedgebank 2 km south-southwest of Cwmann, SN576455, supported *Filipendula vulgaris* (Dropwort), normally a plant associated with graveyards in Carmarthen and only the 2nd var away from such (TSC). *Veronica agrestis* (Green Field-speedwell) was recorded at two sites by HJK & Pauline Goodhind (PG): in Llansawel, SN619362, (with *Lepidium heterophyllum* (Smith's Pepperwort), the hybrid ragwort *Senecio x ostenfeldii* and *Vulpia bromoides* (Squirreltail Fescue) in the vicinity) and at Pystyllgwyn, north of Llansawel. SN620379. *Conium maculatum* (Hemlock) was discovered on a roadside near Bolahaul, Talley, SN6532, by David Humphreys & PG whilst Kate Medcalf noted *Poa compressa* (Flattened Meadow-grass) in restored opencast land near Penygroes, SN585140. Frank Webb reported frequent plants of *Sanguisorba minor* subsp. *muricata* (= *S. polygamum*) (Fodder Burnet) growing on hedgebanks constructed about five years ago on the former Lamberts Colliery opencast site at Carway, SN455067: this species was a constituent of the seed-mix used at that time (together with *Medicago sativa* (Lucerne)) and has also been seen in similar situations at Capel Hendre, SN598116; Saron, SN607129 and Llandybie, SN610145 (all RDP).

NEWLY DISCOVERED "GOOD SITES"

Drosera intermedia (Oblong-leaved Sundew) was discovered by IKM at its fourth site in the vc, at Cors Helyg, Rhosaman, SN740136, a very species-rich series of flushes covering a very small area, possibly under threat of future opencast mining.

A superb valley mire at the head of the Nant-y-Garth east of Garth Farm, Ffarmers, SN676451 to SN680451, was stumbled upon by RDP during the Lampeter meeting. Locally very abundant on the stream-sides was *Wahlenbergia hederacea* together with *Hypericum elodes* (Bog St John's-wort) growing amongst dominant Sphagnum carpets in the flushed valley bottom. *Carum* was locally abundant and Marsh Fritillary butterflies were present. *Viola lutea* (Mountain Pansy) was present in several fine populations at the summit of Garth Crag. SN679458 & SN680458 and was also found at Bryn-Nicol: locally frequent in sheep-cropped acid grassland at SN821443. A few plants were also seen on a laneside bank at SN819427 (RDP & GH).

At Maudsland, SN335344, in an area of acid grassland remaining where forestry plantings had failed, GH & RDP recorded two plants of *Osmunda regalis* (Royal Fern) and three plants of *Dryopteris carthusiana* (Narrow-leaved Buckler-fern) growing amongst dominant, tussocky *Molinia caerulea* (Purple Moor-grass) with encroaching willow scrub. At SN330343 one

plant of *Dryopteris affinis* ssp. *cambrensis* (a subspecies of Scaly Male-fern) was found by RDP (det. GH) growing in Calluna-Erica (heather) dwarf-shrub heath by an old quarry.

Species-rich moorland and upland flushed sites were noted by several recorders, for instance near Blue Well Farm, Llanfihangel Rhos-y-Corn. SN506347, (*Isolepis setacea* (Bristle Club-rush), *Scutellaria minor* (Lesser Scullcap), *Serratula tinctoria* (Saw-wort)), at Mynydd Llanllwni, eg SN511375, and at Mynydd Llanybydder, SN526397, (*Hypericum elodes*, *Drosera rotundifolia* (Round-leaved Sundew), *Potamogeton polygonifolius* (Bog Pondweed), *Wahlenbergia hederacea*) (all HJK, DB & MS) and Mynydd Figyn, SN6330, (*Carex hostiana* (Tawny Sedge), *Nartheicum ossifragum* (Bog Asphodel) and *Eleocharis quinqueflora*) (TSC).

J&MI produced an impressive species list from Carn Nant-yr-Ast, SN74J, principally an extensive area of *Molinia* dominated moorland, which included *Dryopteris carthusiana* (from both SN735487 and SN731493), *Carex curta* (White Sedge), *C. hostiana*, *C. rostrata* (Bottle Sedge), *Pinguicula vulgaris* (Common Butterwort) and *Rhinanthus minor* together with putative hybrid sedges *C. x involuta* (*C. rostrata* x *vesicaria*) and *C. x fulva* (*C. demissa* x *C. hostiana*). Another upland site investigated by J&MI was the Ochry-Fforest ridge, cSN763377, where *Geranium pusillum* (Small-flowered Crane's-bill), *Veronica agrestis* and *Ornithopus perpusillus* were seen. Further searching of this and similar well drained, gravelly hill-tops may be rewarded in early season by such species as *Moenchia erecta* (Upright Chickweed).

A wet pasture at Banc Pystyllgwyn, SN622386, had for example, *Carum*, *Alchemilla glabra* (a Lady's Mantle), *Anagallis tenella* (Bog Pimpernel) and *Nartheicum* (HJK & PG) and a marshy field at Ael-y-Bryn, Brechfa, SN533303, was seen by TSC to have *Genista anglica* (Petty Whin) present with *Carum*, *Calluna* (Heather), *Erica tetralix* (Cross-leaved Heath), *Succisa pratensis* (Devil's-bit), *Nartheicum* etc. J&MI recorded *Carum*, *Cirsium dissectum* and *Potentilla palustris* (Marsh Cinquefoil) at Felin Newydd, SN63U and at Llwyn-y-Berllan, SN758374. They found *Carum* and *Cirsium dissectum* accompanied by *Veronica scutellata* (Marsh Speedwell) and *Scutellaria minor*.

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As always, I am very grateful to all recorders who have submitted records, most of whom have been credited above. Special mention must be made to James and Mary Iliff who continue not only just to "tick-off" those species seen but also meticulously describe all their excursions giving details of habitats encountered, routes taken and any other relevant information. George Hutchinson and Ian Morgan also provide a wealth of extra detail for notable records including population forms and "further information". George has also been responsible for a great many laboratory determinations of material accumulated over the years at NMW and several critical records are the result of his labours. Thanks also to the referees who have also been consulted during the year. Finally I must thank Stephen Coker, the author of the Biorecs computer software which I am now using, whom I have put under some pressure to get everything up and running in readiness to be able to produce this report.

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PLANT RECORDS OF INTEREST IN 1991

I.K. Morgan

The remaining semi-derelict or waste areas that still occur in and around Llanelli are rich hunting-grounds for the botanist, providing transient or semi-permanent habitats that are colonised by species of early successional stages or disturbed ground - plants often referred to as "weeds". Due to the increased pressures on such plants in the modern townscape, gardens or wider countryside (herbicides, crop hygiene, urban reclamation programmes) many weed species have declined in recent years.

One such plant is *Mercurialis annua* (Annual Mercury), which is nowadays, in Carmarthenshire, a rather rare species of disturbed situations on friable soils on the coastal belt, though, at best, it was never common in our area. In 1991, it was found at several localities - such as in the raised ornamental beds outside the entrance to Kidwelly Castle SN409069 and elsewhere in the same town SN407068; in the Seaside area of Llanelli SS503989 (growing on soil where pipework had been laid) and with a rather distinguished weed flora around the "Neptune Hotel", Burry Port SN446007, where it was accompanied by *Urtica urens* (Small Nettle), *Aethusa cynapium* (Fool's Parsley), *Viola arvensis* (Field Pansy), *Papaver dubium* (Long-headed Poppy), *P. rhoeas* (Common Poppy), *Fallopia convolvulus* (Black Bindweed), *Verbena officinalis* (Vervain), *Coronopus didymus* (Lesser Swine-cress), and *Foeniculum vulgare* (Fennel) and many others.

Another rich site, discovered in 1991, were the vegetable allotments on the NW side of Bigyn Hill SS509998, restricted of access as the gardening enthusiasts have suffered theft of their produce in the past. Undoubtedly, the most noteworthy species present was *Misopates orontium* (Weasel-snout), last recorded in the county in 1944 (J.A. Webb at Cilymaenllwyd, Pwll). *Misopates* was frequent, together with abundant *Stachys arvensis* (Field Woundwort), and also *Fallopia convolvulus* (Black-bindweed), *Viola arvensis* (Field pansy), *Erysimum cheiranthoides* (Treacle-mustard) and the bulbous sub-species of *Arrhenatherum elatius* (False Oat-grass). A splendid patch of *Sambucus ebulus* (Danewort) grows outside on the north-eastern side of the allotments.

The disturbed ground surrounding Parc Trostre SS527997 (an area of current extensive redevelopment) also has a diverse weed flora including a relative abundance of *Artemisia absinthium* (Wormwood), but also occasional plants of the uncommon *Geranium pusillum* (Small-flowered Cranesbill) (exhibiting - amongst other features - the short-haired stem, which helps distinguish it from the commoner *G. molle* (Dovesfoot Cranesbill)). Not far away, on the roadside bank SS516001 at the edge of the Coedcae School playing field, a large patch of *Cardaria draba* (Hoary Cress) thrives, though the hybrid ragwort *Senecio bicolor* subsp. *cineraria* x *S. jacobaea* that once grew here has died out. *Cardaria*, a rather rampant crucifer, can also be seen on the banks of the R. Gwendraeth-fach at Kidwelly SN407068 and also between Pembrey and Burry Port SN439014. Its first British record is said (Rich, 1991) to have been at Swansea in 1802.

Mercurialis annua (Annual Mercury) was also recorded near the eastern end of the now thankfully-doomed road across Pembrey Saltings SN436003, where it grew with *Erysimum cheiranthoides* (Treacle-mustard), *Anchusa arvensis* (Bugloss) and the handsome *Carduus nutans* (Nodding Thistle). *Atriplex laciniata* (Frosted Orache) with its silver-scaly leaves was growing on the strandline nearby SN436001 and a healthy population of this rather scarce and sporadic sandy-shore *Atriplex* was also found on the rapidly-accreting "Nose" of

Pembrey Burrows SS43-99- as well as one plant at Tywyn Point SN35-06-. Further up the estuary, at Cefn Padrig (=Tywyn bach) SN462003, *Glaucium flavum* (Yellow Horned-poppay) continues to thrive on the slaggy shingle, but this year less plants were noted on the shingle beach at Penrhwyngwyn, Machynys SS517975 though *Trifolium striatum* (Knotted Clover), *Vicia tetrasperma* (Smooth Tare) and *Lamium hybridum* (Cut-leaved Deadnettle) were present. Smooth Tare was also recorded at the old Ty-isaf rubbish tip, Penyfan SS513995, with *Aethusa cynapium* (Fool's Parsley) and a fine flowering clump also grows at Llandeilo Junction, S of Trostre SS527991. *Valerianella carinata* (Keeled-fruited Cornsalad) was a noteworthy spring record from New Road, Furnace SN503012, several plants were growing in the lane and on the pavement just before the mineral line. The diagnostic seed shape was microscopically checked.

Another productive weed site was the rough ground lying to the north of the artificial lake at Sandy Water Park SN495005, on the site of the former Duport Steelworks. Here, amongst a range of commoner species, *Matricaria recutita* (Wild Chamomile) was perhaps the most noteworthy; whilst the diminutive *Sagina apetala* (Annual Pearlwort) was abundant - if carefully looked for, on dry, clinkery soil here and at many other similar sites - urban wasteground, railway lines and also forestry rides inland. Forest and other rather acidic upland trackways also supported *Aphanes inexpectata* (= *microcarpa*) (Slender Parsley-piert); another probably somewhat overlooked species. Also inland were populations of *Cicerbita macrophylla* (Blue Sow-thistle), at the edge of a F.C. plantation near Pentwyn SN754276 and a roadside NNW of Bont-fawr SN713265; it also occurs abundantly at Llannon churchyard SN540085 despite the depredations of a goat! Another blue-flowered and robust colonist is *Cichorium intybus* (Chicory), found with frequency on the small former tip at the end of Belle-Vue Road, Bynea SS544994, where the individual plant reached 6 feet or so. What was thought to be *Viola tricolor* ssp. *tricolor* (Heartsease) grew on the edge of pub car-park nearby (SS545994), though confirmation is required.

Some garden escapes are of interest - the hybrid geranium, *Geranium x oxonianum*, at Cwm-Morgan SN294349 and *Arum italicum* (Italian Lords-and-Ladies) in a hedge opposite Drefach-Felindre Post Office SN355386 (this species also occurs with some frequency along Dylan's Walk, Laugharne SN308112) whilst *Gaultheria shallon*, an ericaceous North American sub-shrub, was firmly established at the edge of a plantation at Gelli Aur SN597197 *Polygonum polystachyum* (Himalayan Knotweed) was noted at two roadside sites in the north of the county, at Tanyralt SN547457 and NE of Gwaralt SN484389 near Llanybydder. This (like other rampant relatives) was once cultivated as a decorative garden plant but it has now spread from outcast rhizomes.

Back on the coast, *Sison amomum* (Stone Parsley), a smallish umbellifer (whose leaves are - accurately - said to smell of a mixture of petrol and nutmeg), was found by Barry Stewart at Penclacwydd SS530986, the first vice-county record since the mid-nineteenth century. *Bromus racemosus* (det P J O Trist) was found growing nearby in a hayfield just east of Tir Morfa-fawr SS540977; it is regarded as an uncommon grass of lowland Britain. Other coastal records of significance were the nationally declining *Lepidium latifolium* (Dittander) on the shoreline NE of Llansteffan SN359111, and the coastal species of Toadrush - *Juncus ambiguus* - near Ffos-fach, Bynea SS555992 and NW of Cwm Celyn SN318122. Right in the west of the county, a single plant of *Thlaspi arvense* (Field Penny-cress) was noted on the roadside near Telpyn Farm SN181075.

Inspection of the urban shingle of the Afon Lledi between Bryntirion Hospital SN513009 and Buckley's Brewery SN509005 led to the discovery of an unusual flora, that included many casuals that probably owed their origin to bird seed - *Phalaris canariensis* (Canary-grass), *Lepidium sativum* (Garden Cress), *Echinochloa utilis* (Japanese Millet), (a first record for Carm.), *Linum usitatissimum* (Flax), *Lobularia maritima* (Sweet Alison) and presumed *Triticum aestivum* (Bread Wheat) amongst a more normal river shingle flora (such as frequent *Bidens tripartita* (Trifid Bur-marigold)). Some other species remain unidentified as workmen cleared this stretch of river before many plants could be collected in a suitably mature state. Most of the above species were recorded on the stretch of river between the Brewery and the small foot-bridge (SN509006).

Pond and wetland sites also received much attention during the year, resulting in several noteworthy discoveries. The aforementioned Sandy Water Park SN495005 held *Azolla filiculoides* (Water Fern) (a third county record) and *Ceratophyllum demersum* (Rigid Hornwort) (both first found by George Hutchinson), while Dafen Pond SN531015, which has been cleared out and deepened in the last couple of years, supported the South American Water-milfoil *Myriophyllum aquaticum*, a NCR. *M. aquaticum* is often known in horticultural circles as "parrot's feathers" and is naturalized in a few stations in the milder parts of SW Britain (Chicken, 1977) - including Glamorgan. It is quite distinctive in the field as it has aerial, glaucous vegetative shoots unlike the other (commoner) water-milfoils. *Lemna gibba* (Gibbous Duckweed) was recorded for the first time since Motley's unlocalized record of c. 1840. It was recorded, in quantity, in the ditch N. of Glanrhyd SN405041, on the edge of Pembrey Airfield as well as at other localities. It does not always achieve the gibbous (fattened) appearance as portrayed in books and in some ways it is a very unsatisfactory taxon as intermediates are known (with *Lemna minor*) elsewhere in the world. A more satisfactory record was *Lemna minuta* (*L. minuscula*) (NCR and 3rd Welsh record) found in prodigious abundance in the man-made channel SN463013 that lies parallel with Ffordd-y-Wagen, Pwll.

Elodea nuttallii (Nuttall's Waterweed) was noted at three sites - Pistyll Pond, Llandybie SN624167 (A.O. Chater); the Afon Llwhwr below Llanedi SN598065 and in the Tywi SW of Glantowy from SN533208 though the last two records require confirmation. Another local riparian plant was *Myosoton aquaticum* (Water Chickweed), found with some frequency in early autumn along the Gwendraeth Fawr below Pont Spwdwr SN433057 and also near Parc-y-llog SN437064; possibly this plant is partly overlooked because of its late flowering. Perhaps a more surprising occurrence of this species was Barry Stewart's record from the Penclacwydd Wildfowl Centre SS530986. A variety of Almond Willow, *Salix triandra* var. *hoffmanniana* (det. G. Hutchinson, conf. R. D. Meikle), also occurred near Pont Spwdwr (1st VCR of variety). *Polygonum minus* is another quite easily missed species, the plants found at the Bishop' Pond, Abergwili SN443209, being the first record of this species since that of Dr. H. Jones below The Parade, Carmarthen at the end of the last century. *Saxifraga granulata* (Meadow Saxifrage) was noted at two sites - beside the Llwhwr at Glyn-hir SN643156 and the Afon Gwydderig SN805345 near Llandoverly. The pink-flowered *Montia sibirica* (Water Blinks) continues to spread down the Tywi (it used to be mostly found on the middle and upper sections of the river), with a new colony being discovered in riverside woodland near Ffynnant SN507201. The vigorous hybrid Enchanter's Nightshade *Circaea x intermedia* (well-known in the NE of Carmarthenshire) also continues to be found outside its main area of distribution with plants noted on stable river shingle at Llangadog SN705278. Nearby (SN706278), a strong plant of *Agrimonia procera* (= *odorata*) (Fragrant Agrimony) was

growing, this species being much scarcer in the county than the closely-related *Agrimonia eupatoria* (Agrimony).

Rubus saxatilis (Stone Bramble) was rediscovered in the upper reaches SN743189 of Cwm Clydach on the northern flank of Mynydd Du, where it was last noted by D.P.M. Guile in 1951. A substantial patch was growing on wet rocks under a partial canopy of *Fraxinus excelsior* (Ash) and *Sorbus aucuparia* (Rowan); associates were: *Filipendula ulmaria* (Meadowsweet), *Succisa pratensis* (Devil's-bit Scabious), *Valerianella dioica* (Marsh Valerian), *Primula vulgaris* (Primrose), *Cirsium palustre* (Marsh Thistle), *Athyrium filix-femina* (Lady Fern) and more uncommon species such as *Sanguisorba officinalis* (Great Burnet), *Alchemilla* sp. (Lady's-mantle) and *Phegopteris connectilis* (Beech Fern). Presumably this community would once have been more frequent on other upland base-rich sites from where they have been eradicated by the removal of tree cover an intensive grazing pressures. There is another, less exactly-localised record by H.H. Knight (c1908) from near Gwynfe. Other noteworthy upland records were *Utricularia minor* (Bladderwort) at Waun ddu bog SN820305 - only one small plant- where Knight recorded it as "abundant" in c.1910, suggesting that there was more open water (in the form of bog-pools) in those days. In the spring, a long haul up to the limestone pavement at Carreg-yr-ogof SN777215 was rewarded by the rediscovery of *Carex montana* (Soft-leaved Sedge), not seen here for some years (1976). Just two plants were seen on a rock-ledge (on the NW side) where they were safe from the rapacious sheep, though small plants of *C. caryophyllea* (Spring Sedge) were frequent in the tightly-shorn sward elsewhere at this site. The Limestone Polypody (*Gymnocarpium robertianum*) was found (again only a few plants) in blocky limestone scree on the northern slopes SN778216 of Carreg-yr-ogof.

The limestone ridge just east of Llandyfan SN647176 was also surveyed in 1991 and a nice community of limestone grassland species were present - *Saxifraga tridactylites* (Rue-leaved Saxifrage), *Carlina vulgaris* (Carlina Thistle), *Erophila verna* (Common Whitlow-grass), *Erodium cicutarium* (Storksbill), *Thymus praecox* (Thyme) and, best of all, *Helianthemum mummularium* (Common Rock-rose) which is decidedly rare in Carmarthenshire. *Helianthemum* was independently recorded the previous year (at exactly the same place) by Dawn Grey who also noted *Koeleria cristata* (Crested Hair-grass).

Surprisingly, a coastal flora was found in the nearby old quarry SN642173 which is being used as a shooting range. Here, on sand dumped around the target areas, were plants normally associated with the coast - *Carex arenaria* (Sand Sedge), *Anthyllis vulneraria* (Kidney-vetch), *Diplotaxis tenuifolia* (Perennial Wall-rocket), *Ononis repens* (Restharrow) and (Fern-grass) *Desmazeria rigida*. Not too far away, again on limestone very near the source of the Llwhchw, *Genista tinctoria* (Dyer's Greenweed) was found on an old quarry face, SN668178.

The coastal limestone cliffs at Dolwen Point, Pendine likewise hold uncommon plants, such as *Papaver dubium* ssp. *lecoqii* (*P. lecoqii*) (Yellow-juiced or Babington's Poppy) (with its yellow sap which distinguishes it from the similar *Papaver dubium* (Long-headed Poppy)), about thirty plants were found (new to the vice-county) growing on a burnt and disturbed area of the cliff-slope; *Carduus acanthoides* (Wetted Thistle) (first noted here last year) has increased in this same area. Further east, *Monotropa hypopitys* (Yellow Bird's- nest) was found amongst thick *Salix repens* (Creeping Willow) in the "bee-orchid ride" SN368039 of Tywyn Burrows, and *Calamagrostis epigejos* (Wood Small-reed) (one small clump) was

found in one of the rapidly vegetating old ash-lagoons SN460005 near Cefn Padrig. A type of whitebeam, *Sorbus croceocarpa*, was rediscovered in an oakwood WSW of Llety-yr-ychen fawr SN455015, Burry Port; it having been initially found here by the author on 15 June 1975, and unsuccessfully searched for in the early 1980's. Four different-sized trees are present in a natural oakwood perhaps suggesting that they are native (or just not planted) at this site. Sell (1989) cites only one other locality (Menai Strait, Anglesey) where *S. croceocarpa* grows in an apparently non-planted state. These trees near Burry Port comprise a 2nd VCR, as a hedgerow tree of this species also occurs near Trapp.

A fruitless search was mounted in the late summer/early autumn to look for *Mentha pulegium* (Pennyroyal), a diminutive mint of bare, often rather acidic, saturated sites. There are old records, by the Swansea botanist J.A. Webb (in 1944) from the Upper Brynmanan - Cwmllynfell area. A likely-looking area (on the map) - Cors helyg SN740136 - has now unfortunately been filled in as a rubbish dump in the 1970's, but below the road on the northern periphery, a fine bog/flush flora survives, albeit in a narrow strip of land. Amongst the species recorded were both Round-leaved and Intermediate Sundew (*Drosera rotundifolia* and *D. intermedia*) (a dozen plants), *Rhynchospora alba* (White Beak-sedge), *Cirsium dissectum* (Meadow Thistle), *Triglochin palustris* (Marsh Arrowgrass) and - unusually for an inland site - *Phragmites communis* (Reed); *Equisetum telmateia* (Great Horsetail) had a thriving colony on the roadside bank.

Another mire, NE of Ffynnon-newydd SN428276 near Llanpumpsaint, was also of conservation importance, being an extensive area of unimproved rush pasture, "rhos" and bog (habitats that are now rather rare in Carmarthen District). Here, local plants include *Dryopteris carthusiana* (Narrow Buckler-fern), its hybrid with *D. dilatata* (Broad Buckler-fern) (= *D. x deweveri*), *Carex curta* (a few plants only), and - not far to the east - (near Blaenygors SN436273) a thriving colony of *Vaccinium oxycoccos* (Cranberry). *Myrrhis odorata* (Sweet Cicely) was well-established beside the farmhouse at Ffynnon-newydd itself SN424273. A few plants of *Dryopteris carthusiana* were also seen on a remnant mire on the Llŵchwr flood plain below Llanedi SN593065; the river banks nearby supported the robust *Rorippa austriaca* (Austrian Yellow-cress). Finally, some late survey work by the author and R.D. Pryce in October was rewarded by the finding of a single plant of *Huperzia selago* (Fir Clubmoss) in an old limestone quarry at Clogau-bach, Mynydd Du SN718193; chronic overgrazing has eradicated it elsewhere on the Black Mountain.

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