DYFED INVERTEBRATE GROUP

NEWSLETTER N°. 24 April 1992

ISSN 0952- 5327

Editor-AP Fowles, c/oCCW. Plas Gogerddan, Aberystwyth, Dyfed, SY23 3EE.

This is the sixth consecutive year in which we have devoted a complete issue of the Newsletter to the annual reports from the vice-county recording schemes. We now have a summarised account of the recording highlights for a wide range of invertebrate groups over the period 1986-1991. The advances made in this short period are quite remarkable. Dyfed was not entirely unknown prior to this, some of the popular groups were well recorded and a few of the top sites had attracted visiting specialists, but the breadth of our knowledge has been extended beyond all expectations. This impetus needs to be maintained as pressures on the Dyfed countryside are ever-present and information on the whereabouts of our scarcer invertebrates is needed to ensure that we retain the richness of our fauna. The various recording schemes obviously require details of all relevant species, but it is clearly not possible to include all of this data in the annual DIG reports. There has been no hard-and-fast policy about what is included, but, as a general guide, accounts of the popular groups (butterflies, dragonflies, etc.) have dealt with locally scarce species whilst the more esoteric Orders (beetles, flies, spiders, etc.) have concentrated on species regarded as Red Data Book or Nationally Notable by the Nature Conservancy Council's Invertebrate Site Register. New county records are also reported for those groups covered by a published checklist.

One of the problems caused by increased recording activity and expertise is that there is so much more to report. The 1986 accounts (DIG _4) gave details of 247 species, whilst this had risen to 467 species by 1990 (DIG 20). It would have been necessary to be more selective this year anyway and this has been facilitated by the recent publication of a series of Species Reviews by the Invertebrate Site Register, in which the statuses assigned to species of conservation significance have been reassessed. The following publications are of relevance:

Shirt, DB (1987) - British Red Data Books, 2: Insects. Nature Conservancy Council, Peterborough.

Bratton, JH (1990) - A review of the scarcer Ephemeroptera and Plecoptera of Great Britain. Research and Survey in Nature Conservation, No. 29.

Wallace, ID (1990) - A review of the Trichoptera of Great Britain. Research and Survey in Nature Conservation, No. 32.

Merrett, P (1990) - A review of the Nationally Notable spiders of Great Britain. Contract Surveys, No. 127.

Kirby, P (1991) - A review of the scarcer Neuroptera of Great Britain. Research and Survey in Nature Conservation, No. 34.

Falk, SJ (1991) - A review of the scarce and threatened bees, wasps and ants of Great Britain. Research and Survey in Nature Conservation, No. 35.

Falk, SJ (1991) - A review of the scarce and threatened flies of Great Britain, (Part One). Research and Survey in Nature Conservation, No. 39.

Bratton, JH (1991) - British Red Data Books, 3: Invertebrates other than insects. Joint Nature Conservation Committee, Peterborough.

Kirby, P (1992) - A review of the scarce and threatened Hemiptera of Great Britain. UK Nature Conservation, No. 2.

Hyman, P (In Press) - A review of the scarce and threatened Coleoptera of Great Britain. UK Nature Conservation.

As a result of these reviews, some old favourites, such as the hoverfly Arctophila fulva (the DIG emblem), are now recognised as being more widely distributed than previously thought. They are still interesting and valued members of our fauna, but to make room for more important records they will no longer feature in the annual county reports.

The field meetings for 1992 will be held as follows:
7 June 1992 - Old Cilgwyn, Newcastle Emlyn, Ceredigion. Meet at 11.00 am at the end of the drive to the house (22/314419), the entrance to which is off the B4571 at 22/313420. The estate contains a variety of invertebrate-rich habitats, including unimproved pastures, ancient parkland trees, woodlands and ornamental ponds. It is one of the most important sites for deadwood insects in Dyfed, has a diverse butterfly fauna, and has only been visited on a couple of occasions previously!

12 July 1992 - Esso Oil Refinery, Milford Haven, Pembrokeshire. Meet at 11.00 am at the Esso gate (12/871070) at the end of the approach road to the refinery. The site contains a mixture of pools, grassland and seepage fens on Old Red Sandstone, with low cliffs and bare ground created by earth-moving works. An interesting dragonfly and butterfly fauna is present and other casual records suggest that the site supports a diverse invertebrate fauna. The survey will help with future decisions concerning the landscaping of the refinery as it is dismantled.

1 August 1992 - Talley Lakes (DWT reserve), Carmarthenshire. Meet at 10.30 am on the roadside to the north of the lakes (22/629339). The mineral-rich lakes occupy glacial hollows and have well developed hydroseres ranging from reedswamp through to mature alder carr. Casual recording has revealed a number of scarce invertebrates associated with the marginal fens, but there is considerable potential for many more interesting discoveries.

As always, bring lunch and suitable clothing for fieldwork whatever the weather. The field meetings this year will provide a useful opportunity for us to discuss how the Dyfed Invertebrate Group can develop in future years, so please make every effort to attend at least the meeting in your own county.

These discussions are necessary because the Dyfed Invertebrate Group is entering a period of change. Most of you will be aware that I am shortly leaving for North Wales and hence will have to relinquish my role as Editor of the Newsletter. Unfortunately, there is currently nobody available to take over and hence this will be the last Issue for the foreseeable future. DIG has always been a rather informal affair that has existed largely through the commitment of a few of its members and the Newsletter has been the unifying thread that has held us all together. Until now this has been a relatively successful arrangement, but changes must be made. The onus is now on you, the local membership, to determine how you wish to see things continue in the future. It will be necessary for more people to become involved in the running of the Group and the production of any future Newsletters. It is up to you to decide what direction DIG takes in the future. Hopefully we can resolve any problems during the summer and 'resume normal service as soon as possible'. It all depends on you. Please give some thought as to how you might be able to become more involved with the activities of DIG. The Group could achieve so much if the will was there from its local members. This summer, don't just wait for the next Issue to drop through your letterbox so that you can

feel you are in touch with what's going on. There won't be a next Issue if you don't help to make it happen. Think about your possible contribution to the promotion of invertebrate conservation and come along to one of the field meetings to discuss the options. After six years of establishing something so positive, I'd hate to see DIG fade away through apathy. I hope you feel the same way, too. In the meantime, if any of you have offers of help, or thoughts about DIG's future, then do contact me at CCW Bangor or CCW Aberystwyth (mail will be forwarded). On a more mundane note, those of you who have already paid your subscription for 1992 can rest assured that your subscriptions are duly noted and will be held until such time as the Newsletter reappears. I hope that will be soon.

Finally, I would like to take this opportunity of thanking all of those who have contributed articles to the DIG Newsletter over the past six years and helped to make the Dyfed Invertebrate Group an effective voice for invertebrate conservation. My deepest thanks go to Ian Morgan, who has done so much to ensure our success and who shares my belief that nature conservation as a whole will only be successful when site safeguard and management takes full account of the ecological needs of invertebrates. I am indebted to Arthur Chater and Dave Boyce for their support over the years, and the vice-county recorders and field meeting leaders have all helped to promote our message and bring invertebrate conservation to the notice of a wider audience. My sincere thanks go to Suzanne Edwards, Ros Evans and Jenny Tillotson for their considerable help in the past with typing parts of the Newsletter and for putting up with the seemingly interminable and unintelligible lists of scientific names. I am also extremely grateful to Roger Bray for recognising the contribution DIG could make to nature conservation locally and for supporting the production of the Newsletter at NCC's Regional Office. More recently, Chris Fuller and Ian Frost have continued this support in the Countryside Council for Wales and I thank them for this invaluable help. Together we have built a solid, and enviable, foundation for invertebrate conservation in Dyfed and hopefully the future will see the Dyfed Invertebrate Group going from strength to strength.

ORTHOPTERA

ORTHOPTERA IN CARMARTHENSHIRE, 1991 - I K MORGAN

The distribution of the dark bush-cricket Pholidoptera griseoaptera in Carmarthenshire is essentially coastal, although small colonies are known to penetrate inland along the major river systems, the Tywi and the two Gwendraeths (fawr and fach). No information is available for the Taf. Along the Tywi, populations occur at Nantgaredig (DIG 19: 13) and in the Cilsan area just downriver of Llandeilo, but data is lacking for the intervening sections of the valley or, indeed, for further upstream. In the Gwendraeth fach valley the dark-bush cricket reaches at least as far as Coed Gwempa (22/433116), and along the Gwendraeth fawr it was known to occur as far inland as Pontnewydd and near Tregoch Wood (22/458076). In 1991 this species was additionally discovered around Wenallt farmhouse (22/471109), near Meinciau, where many singing males could be heard on a warm September evening, and also near the fire station at Pontyates (22/469085). Any naturalist with the time and transport could add considerably to our knowledge of this species' inland distribution by driving around the afore-mentioned valleys during the evening in early autumn, as the distinctive calls of this bush-cricket are clearly audible if one drives slowly with the window open.

A second vice-county locality for the lesser earwig Labia minor was a dung heap at the rear of Cwm Coch farm (22/358183) on 22 Sept; several individuals (including early instars) were noted in this typical habitat for what is presumably an overlooked species. The slender groundhopper Tetrix subulata was recorded on 19 June around the margins of Bishop's Pond, Abergwili (22/444209), a known site; this species mostly inhabits coastal fens and marshes in the county but also occurs inland along some of the river valleys, for example at Ynys- uchaf (22/489149) along the Gwendraeth-fach.

PEMBROKESHIRE ORTHOPTERA, 1991 - J B STEER

Despite the fact that fewer records were received in 1991 than the previous year they included several new 10-km square records. The common green grasshopper Omocestus viridulus was found in four new squares - 21/09, 22/00, 22/23 & 12/81 - and now only remains to be found in a number of squares containing short stretches of coastline. The field grasshopper Chorthippus brunneus was found in the last unrecorded squares (12/71 & 22/13), whilst the mottled grasshopper Myrmeleotettix maculatus was found in 22/09 at a number of sites between Freshwater East and Manorbier. This latter species has now been found in most coastal squares but, as noted in last year's report, it is worth looking out for on well drained, sparsely vegetated sites inland.

The great green bush cricket Tettigonia viridissima was found in a new square (22/00) near Lamphey, somewhat further inland than most previous records. The extremely loud song was noticed while driving along with the car window open! The short-winged conehead Conocephalus dorsalis was found in two new squares (22/00 & 12/91) as well as in 22/01. These sites were all around the Cleddau estuary. In two cases they were found on sea clubrush and in the other on sea couchgrass. The song, which is faint and high-pitched, could only be heard at a distance of a few metres. It is worth looking for at other coastal sites as there are few records away from the Cleddau. The speckled bush cricket Leptophyes punctatissima was found at Manorbier (21/09), where a female was noted on Japanese knotweed and was still in the same position two hours later. The only other record for this under-recorded species was from Slebech Woods (22/0414). Dark bush crickets Pholidoptera griseoaptera were found in a new square (21/19) at Penally in a clifftop bramble patch. Its loud 'chirping* makes this an easy species to find and it would be useful to get a clearer picture of its uneven distribution in the county. The grey bush cricket Platycleis albopunctata was found by Jack Donovan at Marloes (12/7807) and at the old Esso refinery, Milford Haven (12/80). This is our least common orthopteran species in the county and one that should be closely monitored.

There are plenty of interesting lines of investigation for 1992 and more than one recorder has promised increased effort so it should be a good year! Thanks to Annie Poole and Jack Donovan for records.

GRASSHOPPERS AND BUSH-CRICKETS IN CEREDIGION, 1991 - A P FOWLES

Dark bush-crickets Pholidoptera griseoaptera provided the most interesting records of the year with their rediscovery in the Llanrhystud area (22/542701) on 2 October. They had been recorded nearby in the Wyre valley in August 1974 but there were no recent observations in the county of this relatively conspicuous bush-cricket north of Llangrannog. Although reported from Ynyshir (22/679963) on 25 August 1977 (Nature in Wales l6: 70), I personally believe this to have been a misidentification of the bog bush-cricket Metrioptera brachyptera, which occurs abundantly nearby. The stronghold for dark bush-crickets in Ceredigion is certainly the lower Teifi valley where there are several colonies established in scrubby grassland. It was a surprise, however, to find the species in abundance amongst sea clubrush on the upper saltmarsh at Brontivy (22/198457) on 13 August. This is more the domain of short-winged coneheads Conocephalus dorsalis or Roesel's bush-crickets Metrioptera roeseli, but unfortunately neither were present and nor have they yet been found anywhere on the Teifi saltmarshes. Both are still only known from the Dyfi in the north, where they are not uncommon. They were reported from a few of their known localities this year and C. dorsalis was also found in two new sites, in the coastal fen which marks the old course of the Afon Leri on Borth golf course (22/607917) and in rank grassland at the south-west corner of Cors Fochno NNR (22/619899), the latter being a new 10-km square record for the species.

Bog bush-crickets were common around the northern edge of Cors Fochno (22/639916) in late August but there were no reports from their other two sites at Hengwrt and Ynyshir. By contrast, our other two bush-crickets were widely recorded in 1991. There were fifteen records of oak bush-crickets Meconema thalassinum this year, compared to a previous total of just 33 county records. This increase was mainly due to considerable effort expended upon beating canopy foliage during the summer, with most observations coming from oak and hazel,

and singletons on hawthorn and willow. Records from Coed Allt Craig Arth (22/49-62-) and Cwm Llyfnant (22/713975) constitute new 10-km squares. Sweeping tall vegetation in dry grassland habitats also considerably extended our knowledge of the status of speckled bush crickets Leptophyes punctatissima in the county, with nineteen records this year compared to just twenty-one previously. It is now known from several sites along the Teifi between Gwbert and Llechryd, along the coast between Aberporth and New Quay, and between Llanrhystud and Clarach. This year's recording has filled in a number of gaps in this distribution but the only new 10-km square record was from floodplain grassland alongside the Afon Rheidol at Pwllhobi (22/602804).

Grasshopper recording in 1991 yielded no surprises and the only groundhopper record of note was a new 10-km square for Tetrix undulata on the cliffs at Gwbert (22/161507). Dave Boyce, Arthur Chater, Lin Gander, Red Liford and John Steer are thanked for supplying records of their observations in Ceredigion during 1991. Arthur Chater has kindly agreed to maintain the county Orthoptera records in future and details should be sent to him at Windover, Penyrangor, Aberystwyth, Dyfed.

ODONATA

DRAGONFLIES IN CARMARTHENSHIRE, 1991 - I K MORGAN

Carmarthenshire is fortunate to have elements of the dragonfly faunas that characterise both upland and lowland Britain. For example, golden-ringed dragonflies Cordulegaster boltoni and black darters Sympetrum danae, although they both occur on southern heathlands, they are perhaps more common in the hills of the north and west of the country, whilst the emperor Anax imperator, the ruddy darter Sympetrum sanguineum, the southern hawker Aeshna mixta and the black-tailed skimmer Orthetrum cancellatum more typically belong to the lowland waters of south and east England. Another lowland species is the hairy dragonfly Brachytron pratense, noted along the Afon Taf near Llanddowror (22/240152) on 29 May, as well as its usual sites south-east of Llanelli. Perhaps our most distinguished lowlander, though, is the club-tailed dragonfly Gomphus vulgatissimus, which was recorded by several observers at a regular breeding site, the banks of the Tywi at Dryslwyn (22/555202), in late May and early June. After a compressed period of emergence, the adults apparently disperse and are rarely seen, so unless one chances upon emerging individuals the species can be easily overlooked, though the seasoned dragonfly enthusiast will search for exuviae (as the empty skins of the nymphs are termed) which provide firm proof of breeding. The present writer suspects that this species may occur on other rivers with good depths of sandy alluvium in their beds, such as the Taf, certain stretches of the Gwendraeth-fach, or even the Loughour, where pollution from urban areas upstream may have made - or still make - this river untenable for this dragonfly.

A fine site, discovered in late summer, was the series of small hillside flushes at Cors Helyg, Cefn Bryn Brain (22/740136) which supported many black darters and a few old and worn keeled skimmers Orthetrum coerulescens (the latter's flight season was, by then, almost over). Sadly, these botanically-rich flushes represent the remnants of a larger bog infilled with domestic rubbish in the 1970's. Black darters were also noted at Allt-y-Garn (22/587155) and on Cors Carmel (22/594156) at the beginning of September. Both sites lie on the acidic Namurian quartzite with areas of bog pools in which S. danae breeds, sharing this habitat with the larger, and more widespread, common hawker Aeshna juncea. Black darters have also colonised the pools formed by the damming of drainage channels at the western end of Cors Goch Llanllwch (22/361186), much of which is a Dyfed Wildlife Trust reserve. Perhaps when these pools have become more overgrown by Sphagna they will also be colonised by the speciality of this fine bog, the dainty small red damselfly Ceriagrion tenellum.

Thanks to Barry Stewart and George Hutchinson for submitting records.

ODONATA RECORDING IN CEREDIGION (VC46) IN 1991 - I S FRANCIS

A total of 161 records, involving 20 dragonfly species, was received in 1991 from Ceredigion. These included two new 10-km square records for Sympetrum striolatum (22/86 & 22/87, both by Arthur Chater), one new 10-km square for Anax imperator (22/69, Mike Bailey) and one new 10-km square for Lestes sponsa (22/46, Adrian Fowles), as well as 46 new 1-km square records for 16 species. Records came from 17 1-km squares which previously had no dragonfly records. Up to the end of 1991, 525 (26.9%) of the 1,951 whole or part 1-km squares constituting Ceredigion have at least one dragonfly record. This coverage varies widely between 10-km squares, from no records (22/36 & 22/84, both peripheral squares with little land in Ceredigion) to 66% (22/69, which includes Cors Fochno). The least-well recorded whole 10-km squares are 22/45 (19%) and 22/75 (20%) and other poorly covered squares are 22/25, 35 & 64. I would be very grateful if observers could try and visit any of these 10-km squares in 1992, in an effort to find additional important sites. Although apparent coverage is also linked to availability of habitat, it is likely that the majority of 1-km squares in the vice-county have some suitable habitat for at least the common species.

Notable species recorded in 1991 included Brachytron pratense, which was seen by Mike Bailey on Cors Fochno (22/69) seven times between 14/5 & 27/6, in several localities in the northwest of the NNR. Copulation and egg-laying were witnessed on 6 June. However, neither Orthetrum cancellatum nor Coenagrion pulchellum was seen at this site, prompting the speculation that both of these species are now extinct in VC46. Orthetrum coerulescens was recorded at Banc-y-mwldan (22/201489), Cors-y-clettwr (22/421495), Rhos Llawr-cwrt (22/410499) and Cors Bwlch-y-baedd (22/709698), all traditional sites. Anax imperator was noted from Cors Fochno (22/618920) and Rhos Llawr-cwrt, and Gomphus vulgatissimus (one exuvium) was found by Stephen and Anne Coker at Coedmore NNR (22/1943), close to the stretches of the Teifi where this species has been found previously. Amongst the damselflies, Ceriagrion tenellum was recorded only from its traditional sites at Rhos Llawr-cwrt and Cors Fochno. A new site was found for Ischnura pumilio at Cefn y Garn (22/619588) in an old pond near Llangeitho. This, the only record of the year, brings the total number of 1-km squares in VC46 for this species to 31.

In 1989 it was reported that Coenagrion mercuriale may once have been recorded in the vice-county (DIG 1_2: 9-11). This record related to a specimen held in the Department of Zoology at the University College of Wales, Aberystwyth. Further enquiries have revealed some more information about this and other records. A series of dragonfly (and other insect) specimens was collected by Claude Morley in the Aberystwyth area between 8 & 22 June 1939. His field diaries, which are now held at Ipswich Museum, show that he took a specimen of C. mercuriale at 'Llanrhystyd' on 9 June 1939. Since the specimen at UCW is certainly of this species, and the diaries unequivocally state the exact date and general area of capture, it seems reasonable to accept this record for the vice-county.

Morley's diaries also contain records of four other species, two of which are of some interest. He recorded Calopteryx virgo and C. splendens at Capel Bangor and Llanrhystyd, also in June 1939. However, Morley sometimes made mistakes with these two species (H. Mendel, in litt.) and no definite record can be extracted from these references. More intriguingly, he recorded Orthetrum cancellatum at Parson's Bridge on 13/6/39 and Coenagrion pulchellum at Capel Bangor on 10/6/39. O. cancellatum was most recently recorded in Ceredigion on the fringes of Cors Fochno, but there is also a report of a single female in 1961 at Llyn Glandwgan (Nature in Wales *8:* 107), not far from Parson's Bridge, and so Morley's record may well be valid. C. pulchellum has only ever been recorded from the Cors Fochno area in Ceredigion and the possibility that it was once near Capel Bangor is fascinating. However, there is a specimen labelled 'Agrion pulchellum - Capel Bangor' in Morley's Collection at UCW which is actually Enallagma cyathigerum. Despite Morley's familiarity with pulchellum in southern England, his diary record cannot be accepted. It is unlikely that more information or specimens will come to light and so, apart from C. mercuriale, Morley's notes will remain as interesting 'possibilities' rather than firm historical records.

I thank Mike Bailey, Arthur Chater, Stephen & Anne Coker, Adrian Fowles, Mrs S.A. Martin, Ian Morgan, Heather Slade, John Steer, Ieuan Williams and David Woolley for providing records. I am also grateful to Adrian Fowles for pursuing the Morley Diaries all the way to Ipswich, and to Howard Mendel for providing further information.

LEPIDOPTERA

CARMARTHENSHIRE BUTTERFLIES AND MOTHS, 1991-I K MORGAN

After two successive summers of sunshine, 1991 was a disappointing year in terms of prolonged warm weather, indeed some weeks in late Spring were decidedly cold and wet. An unfavourable spell, for example, coincided with part of the flight period of the marsh fritillary Eurodryas aurinia; nevertheless, three new sites were located: Pumpsaint (22/634404), where there was one tattered individual on 28 July, Garreglwyd (22/680227) [both Julian Friese, JF], and Gilfach- wen (22/530429), SE of Llanybydder (George Hutchinson). Other records were from, or close to, known colonies on the Coalfield around Capel Hendre (22/58-11- <5c 22/57-12-) [Pippa Whitton, PW].

The site (Cwm Tawel, 22/385257) behind the 'Rock and Fountain', Cynwyl Elfed where possible pearl-bordered fritillaries Boloria euphrosyne were reported last year (DIG 20: 7) was checked, but only a few small pearl-bordereds B. selene were present in an open area surrounded by oak woodland, below the old reservoir. However, firm records of pearl-bordereds were received from Luke Gravett [LG], who saw up to five around the coastal limestone ashwood to the west of Pendine (22/226081) on 26 May. Small pearl-bordereds and both dingy Erynnis tages and grizzled Pyrgus malvae skippers were also recorded here in 1991, on grassland at the mouth of the valley. The grizzled skipper is now a rather rare species of coastal Carmarthenshire, where it inhabits dune grassland, but there are also a very small number of, mostly old, inland records. The dingy skipper has a similar distribution, although it still occurs inland where it characteristically forms discrete colonies in old limestone quarries, etc.

Silver-washed fritillaries Argynnis paphia again had a reasonable year, with a number of scattered records, mostly from known areas such as the heavily wooded valley between Abergorlech (22/58-33-) and Brechfa (22/52-30-), or the Sawdde Gorge (22/72-24- etc.) where up to eight were watched on 25 August [JF]. A strong colony was also present in Pembrey Forest (especially at 22/395007) and it is interesting to note that this colony must be comparatively newly-established (ie. post-1928 when the Forest was initially planted). Coniferisation has been blamed for the destruction of other silver-washed colonies when broad- leaved woods have been planted up with conifers, but here forest establishment has favoured this species (though probably simultaneously depriving the dark green fritillary Argynnis aglaja, an open ground butterfly, of its habitat!). Probably one of the stronger colonies of dark green fritillaries in Carmarthenshire is that on the eastern edge of Tywyn Burrows, particularly the 'bee orchid ride' (22/371035). Here, on 21 July, at least fifteen energetically-flying individuals were counted by the author and PM Pavett.

Another woodland butterfly, the purple hairstreak Quercusia quercus, was reported from three sites: Porthrhyd near Llanwrda (22/717367), Pontynyswen (22/536246) and Trecynllaeth near Glanamman (22/684145) [all JF]. On more open terrain, green hairstreaks Callophrys rubi were noted amongst a favoured habitat, growths of gorse and bilberry on a rough, south- facing slope near Glanamman (22/657146) [JF] and at the marsh fritillary colony near Cencoed- uchaf (22/486032) [LG]. Holly blues Celastrina argiolous had another good year, with a wide distribution of records, including some from urban settings such as Bigyn Hill (21/510998), where a female was observed ovipositing on tangles of ivy on an old school wall on 15 August. The holly blue is regularly observed in gardens, where the alternative foodplant, holly, is often cultivated.

Commas Polygonia c-album continue to do well, with this species providing the earliest butterfly sighting in mid-March and also the latest in October. It genuinely seems, judging by the frequency of records, that the comma is now more numerous than even only a decade ago. At the turn of the century, the comma was a rare (or even extinct) species in many parts of its British range. Certainly nowadays the distinctive comma is a regular member of our woodland edge butterfly fauna, a pleasing example of a species that has increased rather than declined. In the south-east, there were the usual Springtime sightings of brimstones Gonepteryx rhamni, usually the brightly-coloured yellow males, with records from the upper Lliedi Reservoir (22/510049) [JR Ellis], Stradey Woods (22/495014), near Burry Port (22/445006) [JF], and south of Pont Abraham (22/57-06-).

Although known to be strongly established on the coastal dune grasslands, on the Coalfield, and on the Carboniferous Limestone outcrop, the Carmarthenshire distribution of the marbled white Melanargea galathea is not yet fully elucidated, for there are scattered records (sometimes of good numbers of individuals in clearly established colonies) from rough grassland sites away from the main centres of distribution. For example, a solitary individual was seen flying by the writer alongside the rank, grassy verge that borders the commonland heath at Mynydd Ystyfflau-carn (22/470271) on 12 August and, earlier, others were seen by KS Sheridan ovipositing amongst tall grasses on the opposite side (22/470263) of the same common. Marbled whites were also reported from a few new localities (as well as from already recognised sites) on the Coalfield at Capel Hendre, Cefneithin, Penygroes, Cathilas near Ammanford, and also to the south-east of Gelli-uchaf (22/478178) [Alison Cox & PW].

The amount of time spent on moth trapping by the author in 1991 slumped considerably due to other commitments, but again Barry Stewart [BS] provided a host of interesting records. Others, too, were quite active during the season, with significant batches of records received, for example, from Andrew Lucas and Daniel Raynor. One of Barry's regular trapping stations was the back garden of his home in Kidwelly (22/409074), where the surrounding habitat comprises pastoral farmland, scrub, gardens and the small town of Kidwelly with its medieval castle. Noteworthy captures at this site were a dog's tooth Lacanobia suasa, white pinion- spotted Lomographa bimaculata, lesser treble bar Aplocera efformata, Brussels lace Cleorodes lichenaria, and large ranunculus Polymixis flavicincta. Not far away, the deep wooded dingle, wet carr and pastures around Cwm Clydach (22/444075) provided records of the peacock moth Semiothisa notata and a scarlet tiger Callimorpha dominula. Barry also spent a couple of nights trapping further inland in the limestone ashwoods at Coedydd Carmel (22/603165), where a small waved umber Horisme vitalbata was captured. The larvae of this scarce species feed on traveller's joy, which grows hereabouts. Beating this plant also provided several pretty chalk carpets Melanthia procellata on 15 July, a species that is very local in southwest Wales due to the scarcity of its foodplant. Nearby, the bog and acidic quartzite outcrops at Cors Carmel (22/593156) yielded the annulet Gnophos obscurus (which is rather scarce away from the coast), neglected rustics Xestia castanea, and a few bleached pugs Eupithecia exuallidata on 19 August. The caterpillars of the bleached pug feed on golden-rod, which grows commonly on the bare quartzite slopes. Only a few hundred metres away on 2 August, near Garn-big (22/584157) on the same outcrop, the author was fortunate to find the colourful caterpillars of the starwort Cucullia asteris, again feeding on goldenrod which profusely lines the rough pathway at this point. This species, which has only been recorded at a few Welsh sites, also occurs on saltmarshes where the larvae feed on sea aster. Another inland record of interest was the grey mountain carpets Entephria caesiata that were regularly flushed from herbaceous vegetation on the precipitous slopes above Llyn-y-fan fach (22/805215) by the writer and NR Thomas on 1 August.

On the coast, some other noteworthy records by BS were the rosy waves Scopula emutaria and round-winged muslins Thumatha senex disturbed from saltmarsh herbage near Penclacwydd (21/5 30584) on the evening of 17 July. Round-winged muslins were also caught by BS at Pembrey Saltings 21/42-99-), together with a brown-veined wainscot Archanara dissoluta. The surrounding dunes provided excitement on 21 & 30 August when several grass eggars Lasiocampa trifolii trifolii were light-trapped. The grass eggar is a scarce species which occurs on sand dune systems on the coast of southern England, Lancashire and South Wales, as well as on the Dorset heaths.

The reed marsh and fen pasture at Ffrwd Nature Reserve (22/419024) also gave good results for BS, with double kidney Ipimorpha retusa, southern Mythimna straminea, Webb's Archanara spargani and large Rhizedra lutosa wainscots on 4 Sept, and a Svensson's copper under wing Amphipyra berbera from Coed Marchog (22/423023), an open oakwood that overlooks the reserve. In the 'Butterfly ride' (22/395018) of Pembrey Forest, BS caught a scallop shell Rheumaptera undulata and a scarce burnished brass Diachrysia chryson on 8 August, the latter mow being a very local species found in a few southern English counties and southwest Wales. Its larvae feed on hemp agrimony.

Andrew Lucas embarked on a trapping programme in 1991 to ascertain the potentially rich moth fauna of Gelli Aur Country Park (22/59-19-) and his first season of trapping was rewarded by the capture of an oak hook-tip Drepana binaria on 18 May and a scarce silver lines Bena

prasinana, which was handed in on 17 July by a visitor who had found it resting on his car in the car park! The scarce silver lines is a very local inhabitant of oakwoods and the Gelli Aur individual constitutes a new county record for Carmarthenshire. Another recorder (whose results are awaited) is Robin Howard, who is currently engaged on survey work of British Coal sites near Llandybie. One noteworthy result that is to hand is the Blair's shoulder-knot Lithophane leautieri, trapped near Glyn-glas (22/60-14-) on 15 October. This species, whose larvae feed on various cypresses, has been colonising southern Britain since the first specimen was recorded on the Isle of Wight in 1951. The Glyn-glas individual was a new county record for Carmarthenshire. Finally, there were only two migrant records of note. A convolvulus hawkmoth Agrius convolvuli was watched feeding at tobacco plant flowers in a garden at Rhandirmwyn (22/78-43-) on 18 Sept (reported by Dafydd Davies), and another was caught by pupils of the Graig School, Pwll (22/488009) on 26 September (reported by JRE & K Walters).

Acknowledgements: Thanks are due to the following for submitting records: Alison Cox, Dafydd Davies, JR Ellis, Julian Friese, Lin Gander, Luke Gravett, Eileen Harvey, Robin Howard, George Hutchinson, Andrew Lucas, Richard Pryce, Daniel Raynor, KA Sheridan, Barry Stewart and Pippa Whitton. Particular thanks to Julien Friese, George Hutchinson and Barry Stewart for their regular, unprompted, quality contributions.

Note: This article is a slightly modified version of the report which appeared in the Llanelli Naturalists Newsletter for Winter 1991/1992, pages 23-26.

SILVER-STUDDED BLUES IN PEMBROKESHIRE - J W DONOVAN

Subsequent to the discovery of a single silver-studded blue Plebejus argus on the Castlemartin Tank Range (11/898980) on 17 June 1990, a Dyfed Wildlife Trust visit on 30 June 1991 again located this species in the grey dune areas when about thirty-five individuals were seen. It was a fine sunny day and ideal for our purpose. As to larval foodplants, possibilities seem restricted to bird's-foot trefoil. The habitat is blown sand over Carboniferous Limestone; a mosaic of wet and dry areas exists within the grey dunes and there are new dunes with local blow-outs and gullies.

LEPIDOPTERA RECORDING IN CEREDIGION, 1991 - A P FOWLES

'Marsh frltillaries Eurodryas aurinia figured prominently in this year's recording activity, and rightly so as the Dyfed colonies of this handsome butterfly are of great importance in both a national and European context. The results of the annual transect at Rhos Llawr-cwrt NNR (22/411499) were quite astonishing, with a total of 961 adults recorded for the standardised Index of Abundance (for previous years' figures cf. DIG 20: 11). A rough extrapolation of the counts suggests that perhaps 20,000 adults emerged on Rhos Llawr-cwrt in 1991, confirming that this is indeed one of the largest single colonies in Britain. The substantial population increase witnessed over the past four years (from an Index of 28 in 1988 to 961 in 1991) suggests a 'crash' is likely soon as a result of larval mortality through starvation or parasitism and, as ever, the coming season's events will be eagerly awaited. Indeed, this Autumn several cocoons of the hymenopterous parasite Apanteles bignelli (det. MR Shaw) were seen at Llawr-cwrt. In Autumn, attention turned to larval surveys and breeding was confirmed at ten sites in the county (although not all of the known colonies were visited). This included two newly-discovered sites at Rhos Gellie (22/38-53-) and Cors-y-clettwr (22/421492). On the debit side, at least two colonies (Comins Capel Betws (22/615575) and Rhostie (22/617731)) have recently become extinct through changes in management and one or two others, such as Rhos Fullbrook (22/667627) are perilously close to extinction as a result of management neglect. It is unfortunate that colonies are still threatened by mis-management at a time when the significance of Dyfed's marsh fritillary colonies is becoming widely recognised and when we have a fairly clear idea of management needs. Put simply, sites have to be grazed annually at a regular stocking density which equates to approximately 0.7 livestock units (or one pony/hectare). Cattle are a perfectly suitable alternative and should be stocked at a rate of

two cows per three hectares per year. In practice, cattle are usually only put onto wet pastures between May and October and hence can be stocked at four head per three hectares for this period. It should be stressed that this is a rough guide only and local conditions may dictate alterations either way, the aim is to produce a sward which consists of a mixture of tightly- grazed turf amongst tussocky patches of Molinia which retain their litter layer throughout the winter to provide shelter for the larvae.

It is pleasing to report that a new butterfly transect has been established by the Shared Earth Trust at Denmark Farm (22/58-53-). This will mainly yield additional information on the performance of our commoner grassland butterflies, but there is also a population of small pearl-bordered fritillaries Boloria selene present on an area of Molinia mire and 27 adults were recorded on the transect this year. The national Butterfly Monitoring Scheme transect at Ynyslas NNR (22/60-93-) showed a modest increase in the fortunes of dark green fritillaries Argynnis aglaja and graylings Hipparchia semele. Fifteen specimens of the former is the best Index since 1987 and eighteen of the latter is the highest total since 1984, after which there was an unaccountable 'crash' in numbers (cf. DIG 12). 0n the RSPB Ynyshir BMS transect (22/68-96-) three dark green fritillaries were the first seen since 1985 and the first silver- washed fritillary Argynnis paphia on the transect since 1987 (cf. DIG 12: 5) was also welcome. The other butterfly transect in the county is that for large heaths Coenonympha tullia on Cors Fochno NNR (22/63-91-). The first adults were recorded on 13 June and they continued on the wing until 14 July, yielding an Index of 52. Previous years' totals are as follows: 120.5 (1986), 112.5 (1987), 93 (1988), 72 (1989), 124.5 (1990).

The attempt to re-establish brimstones Gonepteryx rhamni at Ynyshir continued in 1991 with the release of 61 adults reared from East Anglian stock. This should be sufficient to found a colony on the abundance of alder buckthorn that the RSPB have planted around the reserve in recent years. Translocations of this nature have been the subject of much controversy amongst conservationists but it is now generally accepted that they can be beneficial for species with known habitat requirements whose management needs are well catered for. A Code has now been produced by the Joint Committee for the Conservation of British Insects and a recording scheme to monitor the progress of translocations has been established at the Biological Records Centre, Monks Wood. Translocations should only be seen as a 'last gasp' form of conservation and sympathetic management of existing populations should always be the priority. No matter how small they are, sites that support native populations are of far greater importance than sites with healthy introduced populations of the same species. This is not a purists' retort; sites that have lost the desired species in the past will have also lost other invertebrate species with similar management needs, whilst the site with a small, even dwindling, population should still support at least some of the associates. With this caveat in mind there is still scope to enhance the status of some of our scarcer invertebrates by considered translocations. An ideal candidate is the marsh fritillary and there are plans to carry out one such re-establishment during 1992.

With the exception of Llawr-cwrt's super-abundance of marsh fritillaries, 1991 was not a particularly good year for butterflies in Ceredigion and most species seemed to have an average time of it. There was the usual scatter of records of green hairstreaks Callophrys rubi in the uplands and on rhos pastures, of graylings on leadmines and along the coast, of small pearl-bordered fritillaries on marshes and bogs, and of commas Polygonia c-album in hedgerows and wood-edges. There were 41 records of commas during the year, including two seen at Ynyslas in August which were the first examples recorded for the reserve. Holly blues Celastrina argiolus continued to fare well and the 26 records were evenly distributed between the Spring and Autumn broods. There were a few sightings of purple hairstreaks Quercusia quercus in the valley oakwoods and three plump larvae were beaten off oaks in Coed Allt Craig Arth (22/49-62-) on 17 June. Dingy skippers Erynnis tages were recorded from several sites in the Llanafan-Trawscoed area from mid-May until the end of June, although there were no coastal sightings of this local butterfly this year. The only record of pearl-bordered fritillaries Boloria euphrosyne was of three seen in the coastal valley of Allt y Gwrddon (22/234519) on 29 May, a new and typical locality for the species. Finally, there were about 35 painted ladies Cynthia cardui reported during the summer, beginning with two on Pumlumon summit (22/78-86-) on 1 June, then half-a-dozen in the county between 9 & 28 July, and the remainder seen between 28 August and 11 October.

After a comparatively quiet year for moth recording in 1990, this year produced three new additions to the county list (which, for 'macros', now stands at 554). Two of these were captured in the county's Rothamsted Insect Survey light-traps: a seraphim Lobophora halterata at Plas Gogerddan (22/629837) on 2 June and a Freyer's pug Eupithecia intricata at RAE Aberporth (22 249520) on 2 July and also at Ty Coed, Tregaron (22/687618) on 5 July. The seraphim is a local but widely distributed geometrid that feeds on aspen as a larva, whilst Freyer's pug is a garden inhabitant that breeds on cypresses, although it also has two native races that breed on juniper. The third addition to the county fauna is the yellow-legged clearwing Synanthedon vespiformis, a nationally scarce moth that has only been recorded once before in Wales (an old specimen from Glamorgan in NMW Cardiff). All clearwings are elusive species and the adults are only rarely seen so they are probably significantly under-recorded. The Ceredigion record refers to the chance discovery of an empty pupa protruding from the thick bark of an ancient oak at Parc Nanteos (22/619781) on 1 December. Clearwing pupae can be identified by structural characteristics and the determination was confirmed by BR Baker. Another of the clearwings, the lunar hornet moth Sesia bembeciformis, has not been confirmed as a member of Ceredigion's moth fauna but in 1989 there were reports of possible larval burrows in old willows at Cors Caron NNR and RSPB Ynyshir. On 8 September this year numerous burrows were found at the base of the trunk of an ancient willow alongside the disused railway line on Cors Caron (22/708661) and these were also thought to be the work cf lunar hornets. Unfortunately, no empty pupae could be found so the mystery remains but it would be very interesting to confirm the presence of this fine moth in the county.

A less welcome confirmation of a day-flying moth came with the recognition that narrow-bordered five-spot burnets Zygaena lonicerae were established on the roadverge of the A487 at Fagwyr, Talybont (22/643873). About ten adults were seen on 10 & 11 July and one was captured and sent to G. Tremewan for confirmation. Z. lonicerae is very difficult to tell apart from the five-spot burnet Z. trifolii, which is reasonably common on damp grasslands in west Wales. The narrow-bordered five-spot burnet had been reported from Aberystwyth in 1950 Llanbadarn Fawr in the 1960's, but there was always an element of doubt surrounding these records. Now with definite confirmation of the presence of Z. lonicerae in Dyfed it means that recorders must take great care with their burnet identification and previous records of Z. trifolii treated with caution.

As usual, 1991 saw a batch of records for a number of nationally scarce moths that are of regular occurrence in the county, such as the Devon carpet Lampropteryx otregiata, ruddy highflyer Hydriomena ruberata, cloaked carpet Euphyia biangulata, goldenrod pug Eupithecia virgaureata, oak-tree pug E. dodoneata, red-necked footman Atolmis rubricollis, scarlet tiger Callimorpha dominula and pale pinion Lithophane socia. The Rothamsted trap at Ty Coed produced its annual share of notables with grey scalloped bar Dyscia fagaria on 14 June, silver Eustrotia uncula on 10 July, one hundred double-lines Mythimna turca and 126 marsh oblique-barred Hypenodes turfosalis. The Plas Gogerddan RIS trap had a shaded pug Eupithecia subumbrata on 18 July, a buff footman Eilema deplana (the fourth county record) on 21 August, and a beautiful snout Hypena crassalis on 14 July. Notable species in the trap at RAE Aberporth included a hoary footman Eilema caniola on 1 September and a bordered sallow Pvrrhia umbra on 3 July.

Interesting records from Salem (22/669843) this year included oak hook-tips Drepana binaria on 25 & 31 May, the first county records since 1983, and a crescent dart Agrotis trux on 20 July, the second consecutive year that this coastal species has been taken at Salem. Satin lutestrings Tetheella fluctuosa at Maesycoed, Furnace (22/685953) on 31 May & 26 June were the first county records since 1984, a white colon Sideridis albicolon at Ynyslas (22/635915) on 7 June was the first since 1978, southern wainscots Mythimna straminea at the south-western corner of Cors Fochno NNR (22/619899) were the first since 1983, and a scarce silver lines Bena prasinana at Cnwch Coch (22/677750) on 13 July was the first since 1985.

The annual larval transect for rosy marsh moths Eugraphe subrosea on Cors Fochno (22/63- 91-) was carried out on the night of 20/21 May and a total of just ten larvae were recorded. This compares with 24 in 1988, 24 in 1989 and 13 in 1990. Nothing is known of the population dynamics of rosy marsh moths in Britain and at present we cannot suggest a reason for the observed decline. Larval density on the unburnt section of the mire has fallen from 1:4.37m^2

in 1988 to 1:17.5m^2 in 1991. Whether this is part of a natural population cycle or an indication of a worrying trend is unknown and only long-term monitoring will enable us to elucidate some of the queries raised by the study. Whilst crawling across the bog in the middle of the night we also measure the height of the foodplant each larva is found on. The 106 observations to date suggest that Myrica plants between 20 & 30 centimetres tall are favoured, but it may be that the larvae are randomly distributed on Myrica and the histogram merely reflects the pattern of Myrica growth along the transect. Hopefully, botanical survey data of Myrica across the bog will clarify this.

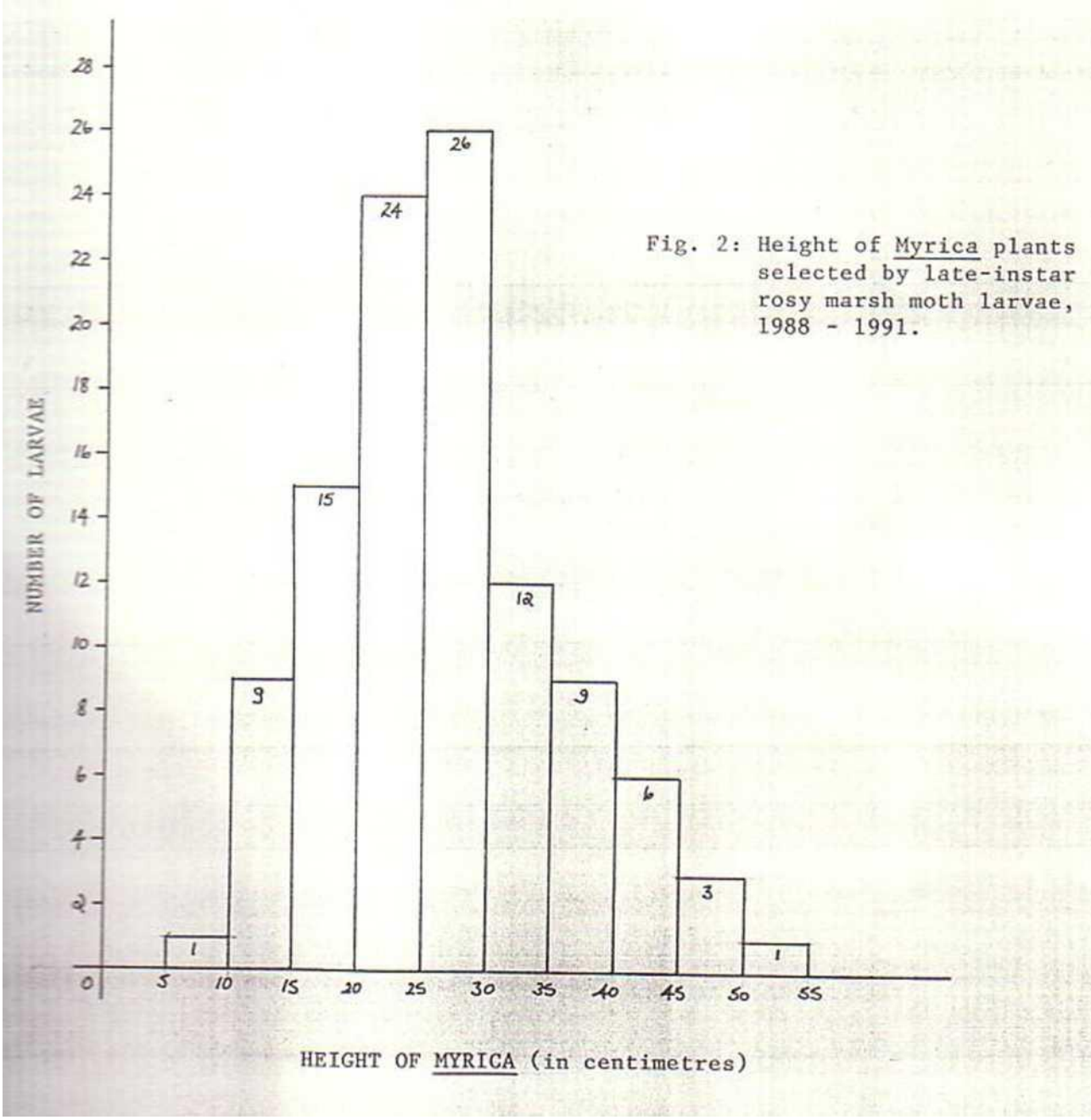

Fig. 2: Height of Myrica plants selected by late-instar rosy marsh moth larvae, 1988 - 1991.

Completing the moth review for 1991, there was just a single record of a hummingbird hawkmoth Macroglossum stellatarum in the county, at New Quay (22/38-59-) in July. A convolvulus hawkmoth Agrius convolvuli, the ninth in the county, was found in a barn at Ynys Edwin (22/678962) on 20 August, but the specimen was long dead and probably resulted from the small immigration in 1990.

ACKNOWLEDGEMENTS: I am grateful to the following for their Lepidoptera records during 1991: MP Bailey, DC Boyce, AO Chater, ME Chater, WM Condry, D Drewett, P Heron, PR Holmes. R Howard, A Keogh, R Liford, SA Martin, PM Miles, N & P Mudie, I Savage, R Squires, JB Steer, N & B Taylor, NR Thomas, IJL Tillotson, MS Warren, I Williams and D Woolley. The assistance of Paul Waring, Brian Baker and G Tremewan with confirmation of specimens is also gratefully acknowledged. Adrian Riley of Rothamsted Experimental Station arranged for access to data from the RIS traps. Several of the recorders listed above supplied substantial amounts of records and this report owes much to their diligence and observation. I am also indebted to Mike Bailey for help with the rosy marsh moth counts and for his large heath data: to Neil Taylor for details of the Denmark Farm transect; and to Nick Thomas, Martin Warren and David Woolley for their marsh fritillary results.

Over the past eleven years that I have been collating Lepidoptera data for Ceredigion there has been a slow but steady increase in the quality and quantity of information and our knowledge of the county fauna (excluding micros) is now very comprehensive. It would be much more sensible if the butterfly and moth recording schemes were taken over by somebody resident in Ceredigion and if anybody feels that they would like to assume responsibility for one or other (or both) of the schemes, then please do get in contact. Access to a computer database would be advantageous, but I've managed with an archaic card index all this time so don't be put off by the volume of information.

ERRATA:
The report of marsh fritillaries at Cwm Cyneiniog (22/699883) in DIG 12: 5 is now known to have been the result of an erroneous identification of small pearl-bordered fritillaries.

COLEOPTERA

CARMARTHENSHIRE COLEOPTERA RECORDS, 1991 - I K MORGAN

A coupe of visits in late March to the wet dune slacks at Tywyn Point (22/36-05-) provided a few noteworthy finds, such as the large weevil Grypus equiseti and, in the driftwood accumulations nearby, the rove-beetle Staphylinus dimidiaticornis. On the beach itself, the pale Phaleria cadaverina was found. Later, on 29 June, the weevil Polydrusus pulchellus was collected on the saltmarsh to the lee of the sandy arm of Tywyn Point. On 10 May, in the adjacent Pembrey Forest (22/30 & 22/40), warm sunshine brought out a memorable abundance of the attractively marked 'ant beetle' Thanasimus formicarius, which actively predates bark beetles. Individuals of Thanasimus were landing on clothing, entering the car and alighting on the windscreen, yet there is only one previous record, of a singleton, for this species in the Forest. Obviously an 'en masse' emergence of adults had just been witnessed. Another, even more spectacular, species that had hitherto escaped detection in the entomologically well-worked Forest is the large longhorn Arhopalus rusticus, one being netted by PM Pavett (at 22/405018) in late August. Arhopalus was formerly regarded as a scarce Scottish speciality, but it has since spread southwards across Britain with the maturation of its planted pinewood habitats. Other local beetles recorded in Pembrey Forest during the 1991 season were Strangalia quadrifasciata (a longhorn associated with old willows and poplars), Phyllobrotica quadrimaculata (regularly swept from skullcap in July), and Dasytes plumbeus (a small dark melyrid which inhabits old wood).

The deposition of vast amounts of driftwood at the easternmost end of Pembrey Burrows ('The Nose', 21/435993) has attracted some species that are more usually associated with old woodland. As with the smaller amounts of driftwood at Tywyn Point, the elaterid Melanotus erythropus is present, along with the bee chafer Trichius fasciatus and, best of all, the lesser stag beetle Dorcus parallelepipedus, new to the vice-county, on 26 July. Mark Pavett informs me that it is established on the opposite shore of the Burry Inlet at Cwm Ivy woods and that Dorcus also breeds in coastal drift at Merthyr Mawr (both sites are in Glamorgan). A smaller accumulation of driftwood at Morfa-uchaf (22/371121), just north of Ferryside, was home to the small weevil Acalles ptinoides on 9 April. The weed flora of wasteground sites around Llanelli also yielded notable weevil records - Microplontus (=Ceutorhynchus) campestris on

ox-eye daisies at Llangennech (22/575075) and Ceutorhvnchus atomus on the small crucifer, thale cress, at Dafen (22/511015).

Mark Pavett reports the re-occurrence of the rare click beetle Negastrius sabulicola or an expanse of sandy shingle on a meander below Dinefwr Castle (22/603220) and the writer unexpectedly beat a five-spot ladybird Coccinella quinquepunctata from herbage in the adjacent Dinefwr Castle Woods (22/609221) on 19 September. This was perhaps an individual seeking hibernation quarters as this very uncommon species is regular on the Tywi's shingle shoals. Mark Pavett collected two notable rove-beetles on the shingle bank (22/601221) below Dinefwr Park- - Philonthus corruscus in early April and P. atratus in June. On the shingle near Llanwrda (*22/*715308) another notable staphylinid, Gauropterus fulgidus, was found in cow dung in early May. Careful examination of a large heap of dung-enriched straw and other debris at Tir Morfa Fawr (21/533983) produced two specimens of Ootypus globosus for the same collector on 22 October.

A markedly local ladybird, the hieroglyphic Coccinella hieroglyphica, was noted commonly on Cors Goch Llanllwch (22/362185) near Carmarthen in late September and the uncommon water beetle Enochrus affinis was found in newly-formed bog pools on this large lowland bog: peripheral willow carr at this locality also had the woodlander Orchesia undulata under bark.

The carabid Chlaenius nigricornis, the weevil Tanysphaerus lemnae and the water beetle Porhydrus lineatus were uncommon beetles found at the Bishop's Pond, Abergwili (22/443209). Other weevils which are perhaps worthy of mention were Sitona cambricus recorded at the Machynys Ponds (21/512980) and Notaris scirpi at the small Typha swamp at Glynea, Bynea (21/553989). Readers may be encouraged to learn that the invertebrate-rich Machynys Ponds are now not to be engulfed by development proposals as they are to be retained as a wildlife reserve.

Thanks to PM Pavett for providing records and to Garth Foster and Adrian Fowles for determining water beetles and weevils respectively.

COLEOPTERA RECORDING IN CEREDIGION DURING 1991 - DC BOYCE

In February 1992 the Ceredigion list of Coleoptera passed the 1,500 mark and currently stands at 1520 species. This compares with the 1390 figure that was stated in last year's report (DIG 20: 15) and shows that records have continued to accrue at a steady rate. Few beetle groups have not now received at least a moderate recording effort and it will be interesting to see how easy it is to continue to add new county records this year. It is certainly still the case that careful scrutiny of particular microhabitats can yield new and surprising records. Perhaps the best example of this in 1991 was the discovery of a suite of beetles associated with deadwood microhabitats in the county's parklands. Ceredigion is not richly endowed with large, old trees and as such it had previously been considered that the saproxylic beetle fauna was likely to be impoverished (DIG 13:15). Whilst, broadly speaking, this still holds true, the discovery during 1991 of species such as Anitys rubens, Dorcatoma chrysomelina, Stenagostus villosus, Ctesias serra and Aderus oculatus demonstrates that, with diligent searching, good saproxylic 'indicator' species can be found in the county.

The ground beetles (Carabidae) are one of the best recorded families in the county and no new Notable or Red Data Book species were discovered in Ceredigion during 1991. However, a number of scarce species were recorded from existing and newly-discovered sites. Pterostichus oblongopunctatus and Calosoma inquisitor both appear to be restricted to ancient sessile oakwoods in the north of the county and both were present in pitfall traps operated by J Davis in Coed Rheidol NNR. A similar programme of pitfall trapping is undertaken on Fochno NNR by MP Bailey and Agonum ericeti, one of the characteristic elements of the beetle fauna of this superb raised mire, was again found to occur in good numbers. The closely related A. nigrum also appears to be a specialist in Ceredigion, occurring in litter and under driftwood in the intertidal stretches of Ceredigion's major rivers. During 1991 it was found at Brontivy, Afon Teifi, and at Tanybwlch at the mouth of the Afon Ystwyth. A

few examples of the diminutive Aepus robini were found in intertidal rock crevices at Carreg-y-ty on 16 February. This internationally scarce beetle, which is largely restricted to the west Atlantic seaboard, is confined to this exacting microhabitat. Staying on the coast, Bembidion pallidipenne was again recorded from its only known Ceredigion locality at Ynyslas Dunes NNR. This attractive yellow and black ground beetle requires bare sand in the vicinity of water and at Ynyslas is confined to a few areas of suitable habitat around foredune slacks. It must be regarded as one of the most threatened members of the county's carabid fauna, as suitable habitat is of very limited extent in Ceredigion. Other scarce carabids recorded in 1991 were Pterostichus aethiops in the Hafod woodlands on 17 November and Lionychus quadrillum on river shingle at Glanrafon in April and August.

River shingle also supports a range of nationally scarce rove beetles (Staphylinidae). On 1 July 1990 J. Cooter found Stenus incanus at Ty'n-yr-helyg on the Ystywth. This is a nationally rare species found in only a few sites in northern Britain and this is the first record for Wales. Philanthus rubripennis is another riparian specialist, though the coarse substrates of Ceredigion's northern river systems do not seem to support it. Rather, it occurs on the finer shingles and sands of the lower Teifi and it was found on this river at Henllan in July.

Moving away from rivers to woodlands, the small aleocharine Leptusa pulchella was found in Coed Gwenffrwd on 21 April and its rarer relative Silusa rubiginosa was present in a rotting bracket fungus, Polyporus squamosus, on an old sycamore at Hafod in August. The latter does not appear to have been previously recorded from Wales. Another new Welsh record came from two female Atheta strandiella taken in pitfall traps on the raised mire of Cors Fochno NNR in August. Tachyporus atriceps is supposedly a scarce beetle nationally, but in Ceredigion it is regularly encountered in a range of habitats. During 1991 it was found in coastal grassland at Carreg-y-ty and in moss placed in the runs of the ant Lasius fuliginosus at Plas Gogerddan. This latter site also produced further records of Zyras laticollis which, unlike T. atriceps, is a specialist inhabitant of L. fuliginosus nests. Another rove beetle that shows no clear habitat preferences at present is Staphylinus dimidiaticornis, a singleton of which was found in unimproved pasture at Old Cilgwyn on 25 August. A final 'staph' of note is the handsome, brick-red Deleaster dichrous, which was found at Banc-y-warren, Tresaith, and in a moth- trap on Cors Fochno NNR on 20 May.

Tbe histerids are small, shiny and stocky beetles, many of which feed on dung and carrion. Such food sources are utilised by Baeckmanniolus dimidiatus, a sand dune specialist, which was recorded again from Ynyslas Dunes this Spring. Similar food sources are also favoured by the carrion beetles (Silphidae), but an exception to this rule is Dendroxena quadrimaculata, a most attractive yellow beetle with four black spots on the elytra and a black head and centre to the thorax. Like the carabid Calosoma mentioned above, this species is an arboreal predator, hunting caterpillars in the canopy of oak woodlands. A singleton was found by AO Chater at Coed Simdde-lwyd in the Rheidol valley on 10 June. Members of the genus Leiodes are small, rotund. shiny beetles about which very little is known. They are probably partly subterranean where they feed on underground fungi, which would help to explain their apparent scarcity. Given this, it was pleasing to find two notable species in VC46 during the year. L. litura was found on a log lying in the river at Coed Allt Craig Arth on 8 November, and L. lucens taken by sweeping around the margins of Pond Llywernog, next to a larch plantation, on 6 September. The latter is a very scarce beetle nationally and has not been recorded in Wales before. The small beetles of the family Pselaphidae are closely related to the rove beetles, sharing with them the characteristic short wing cases that leave part of the abdomen exposed. One notable pselaphid, Bryaxis curtisi, was found this year at Cwm Drvwi in a coastal flush.

Despite being well-worked, river shingle continues to produce unusual beetles. An example of this is the scirtid Hydrocyphon deflexicollis which was recorded for the first time in the county when one was swept from saltmarsh vegetation alongside brackish shingle on the Ystywth at Tanybwlch on 9 July. Another scarce scirtid, Cyphon pubescens, was found in the superb calcareous flushes at Banc-y-mwldan on 7 July. With it was an even rarer beetle, Eubria palustris, the only British representative of the family Psephenidae. This small, round, black insect appears to be restricted to calcareous flush systems and is a national rarity. A particularly pleasing aspect of the discovery of C. pubescens and E. palustris was that both were being specifically searched for at the time - a rare example of the entomologist

successfully finding what he/she had set out to record.

The small soldier beetle (Cantharidae) Malthodes maurus was found at two woodland sites in Ceredigion during 1991; at Alltybwla on 23 May and Coedmore Mansion Woods on 9 June, both in the lower Teifi valley. Malthinus balteatus was also beaten off hawthorn blossom in the Mansion Woods of Coedmore NNR, whilst a specimen of Rhagonycha translucida was captured in a Rothamsted moth trap in the oakwood at Ty Coed, Tregaron on 4 July. The Dermestidae are most familiar to us as pests that can cause serious damage to carpets, animal skins. etc. There are, however, a number of species that occupy more natural habitats. An example of this is Ctesias serra, which is a specialised beetle whose larvae live underneath the bark of large, old trees where they scavenge insect remains from spiders' webs. A pupa was found under the bark of an old oak at Old Cilgwyn in June and two larval skins of this beetle were found on the same tree in August. Although reasonably common in suitable habitats in Ireland and the eastern counties of Wales, this is the first record of the species in Ceredigion. The woodworm beetles (Anobiidae) are again primarily notorious as pests, but they also include a suite of important deadwood specialists. A red-rotten oak at Lluest provided the first county record for the very scarce Anitys rubens, which is considered to be restricted in Britain to the best woodland and parkland sites where saproxylic habitats still occur in abundance. The Ceredigion record relates to the emergence of two adults from oak redrot collected in May. This same tree also produced examples of other redrot specialists during the course of the year - Dorcatoma chrysomelina, Stenagostus villosus, Cis fagi and Mycetophagus piceus.

The ‘Clavicornia’ comprise a mixed bag of generally small and inconspicuous beetles, sometimes referred to as ’small fry’. None meets the description better than the tiny beetles of the family Corylophidae, of which one notable species, Orthoperus nigrescens, is known from Ceredigion. This beetle was recorded from grass tussocks on the coast at Llanon limekilns in March and was also recorded in some abundance at Old Cilgwyn on 25 August, where it was beaten from oak branches and sieved from oak redrot. Other clavicorns recorded in 1991 included the nitidulid Epuraea distincta, which was found at three woodland sites in association with the bracket fungus Daedaleopsis confragosa, its specialist food source. The rhizophagid Rhizophagus nitidulus is most usually found under the bark of fungoid beech trees and so its occurrence under rowan bark at Coed Cnwch-yr-arian on 17 May is of note.

As previously stated, deadwood beetles provided some excellent records this year. In addition to those already discussed, the click beetle (Elateridae) Selatosomus bipustulatus was beaten from oak at Old Cilgwyn on 11 June and the same site also yielded a first county record for Aderus oculatus on 25 August, a single dead specimen being found on the trunk of an ancicnt oak. Old Cilgwyn is the best site for saproxylic beetles that we are currently aware of in Ceredigion (and is probably only second in Dyfed to Dinefwr Deer Park). Recording at Old Cilgwyn has so far produced an 'Alexander Index' of 13 points, which is not outstanding nationally but is quite remarkable considering that there are only some thirty parkland oaks over 150 years old. Another oak redrot specialist present here on 11 June was the fungus beetle Mycetophagus piceus, which appears to be reasonably common in the county's parklands and was also found at Lluest, Parc Nanteos and Llanaeron in 1991. The full list of saproxylic indicator beetles recorded from Old Cilgwyn to date is as follows: Stenichnus bicolor, Stenagostus villosus, Selatosomus bipustulatus, Aderus oculatus, Pediacus dermestoides, Dorcotoma chrysomelina, Mycetophagus piceus, Ctesias serra, Triplax aenea, Melandrya caraboides, Orchesia undulata, and Platypus cylindrus.

The melandryids are a family of attractive beetles that, for the most part, inhabit deadwood habitats where they feed on fungi. Abdera flexuosa appears to be largely dependent on the alder bracket fungus Inonotus radiatus and adults emerged from larvae collected in this fungus at Parc Nanteos on 22 December. Adults of A. flexuosa were also found running over alder trunks infested with I. radiatus at Coed Allt Craig Arth (Monachty Bach) in June. The same food source is utilised by Orchesia micans, which was also found at Monachty Bach in early summer. The handsome, metallic blue Melandrya caraboides is one of the saproxylic 'indicators' recorded from Old Cilgwyn, several specimens having been found under the bark of a large fallen oak on 11 June. This species was also beaten from hawthorn blossom at Hafod Wen on 9 June.

Two notable darkling beetles (Tenebrionidae) were recorded in the county this year. Opatrum

sabulosum is a coastal species of dry grasslands and it was found (for only the second time in Ceredigion) on the south-facing, shaley slopes of Penglais Quarry on 23 March. The second member of this family, Scaphidema metallicum, was found on the coastal cliffs of Creigiau Ffos-las where three individuals were found in a rotten gorse branch on 30 June. The ladybirds also produced two species of note during 1991. The five-spot ladybird Coccinella quinquepunctata is a well-known denizen of Ceredigion's river shingle bars and was recorded in several localities during the year on the Rheidol, Ystwyth and Teifi. The little-known ladybird Hyperaspis pseudopustulatus was encountered for the first time in the county on coastal grassland at Cwm Drywi on 12 May.

Longhorn beetles (Cerambycidae) were well recorded during the year but, somewhat surprisingly, only one record of the notable Judolia cerambyciformis was reported. This being a number of specimens at Oenanthe blossom in Cwm Llyfnant on 27 June. Somewhat neglected were the water beetles, with the only noteworthy record being of Ochthebius auriculatus at Ynyslas Dunes NNR on 2 May.

Leaf beetles (Chrysomelidae) are one of the larger British beetle families and have still to be thoroughly worked in Ceredigion. Nevertheless, a few notable species were found in 1991. Tbe beautiful Donacia thalassina was swept from Eleocharis palustris at Pwllhobi and Rheidol Gravel Pits in late summer and, also on the Afon Rheidol, the scarce flea beetle Mantura chrysanthemi was swept off its foodplant, Rumex acetosella, on stabilised river shingle at Glanrafon. A specimen of the attractively marked tortoise beetle Cassida nobilis was collected on sandy grassland at Pen-yr-ergyd on 19 May. The peatland basin of Rhos Rydd was one of the sites sampled by the Welsh Peatland Invertebrate Survey and it was thus surprising to note the presence of a very abundant population of Luperus flavipes here on 16 June. L. flavipes was not found by WPIS at this site, nor, for that matter, elsewhere in Wales, and it seems to be a genuinely localised beetle in this part of its range.

About half of the scarce beetles recorded from Ceredigion in 1991 were members of the Curculionoidea (bark beetles and weevils) and an account of their occurrence is presented separately in the following report.

Grid references of sites mentioned in the text (prefix SN(22))

Alltybwla	256422	Llanaeron	478601
Banc-y-mwldan	20-48-	Llanon limekilns	518683
banc-y-warren	201483	Lluest	633813
Brontivy, Afon Teifi	198457	Monachty Bach	49-62-
Carreg-y-ty	301535	Old Cilgwyn	31-41-
Coed Allt Craig Arth	500630	Parc Nanteos	621782
Coed Cnwch-yr-arian	698792	Penglais Quarry	587822
Coed Gwenffrwd	59-59- & 59-60-	Pen-yr-ergyd	164484
Coed Rheidol NNR	741778	Plas Gogerddan	630838
Coed Simdde-lwyd	716785	Pond Llwyernog	741788
Coedmore Mansion Woods	191438	Pwllhobi	60-80-
Cors Fochno NNR	63-91-	Rheidol Gravel Pits	667787
Creigiau Ffos-las	556749	Rhos Rydd	574734
Cwm Drwyi	426606	Tanybwlch	581803
Cwm Llyfnant	734974	Tresaith	275515
Glanyrafon	615804	Ty Coed, Tregaron	687618
Hafod	77-72-	Ty'n-yr-helyg	595765
Hafod Wen	20-43-	Ynyslas Dunes NNR	60-93-
Henllan	35-40-		

Errata:

Myrmetes piceus reported in DIG 20*:* 16 from Llangynfelyn (22/652923) is Dendrophilus pygmaeus.
Mantura obtusata reported from Cwmsymlog (22/699837) in DIG 20: 18 is M. chrysanthemi.
Malthodes fiavoguttatus reported from Henllan (22/353405) in DIG 20: 17 is M. maurus.

In last year's report, DIG 20: 16, line 44, the text should read "latter" rather than "former", ie- referring to P.aethiops rather than P. oblongopunctatus.

Acknowledgements:
Many thanks to Adrian Fowles who has provided the majority of the records that make up this report. Gratitude is also due to MP Bailey, AO Chater, J Cooter, JE Davis, R Liford, IK Morgan. JB Steer and IJL Tillotson for contributing records and/or specimens. Dr KNA Alexander, S Bowstead, J Cooter, M Darby, H Mendel and Prof. JA Owen kindly helped with the determination of specimens.

A SUMMARY OF WEEVIL AND BARK BEETLE (Col., Curculionoidea) RECORDING IN CEREDIGION DURING 1991 - A P FOWLES

Weevils have been the subject of considerable recording activity in Ceredigion over the past three years and, since 1989, sixty-three species have been reported in the county for the first time. There are now over 4000 individual records relating to the 228 species on the county list and knowledge of the present day fauna is probably better than for any other Welsh vice-county. Indeed, of these 228 species, only twelve have not been seen in Ceredigion in the last five years. Considering that they are such distinctive, attractive and anatomically curious insects it is rather surprising that they are such a comparatively neglected group in terms of natural history recording and ecological study. This must stem, at least in part, from the admitted difficulties of identification that confront the novice. Many of the early keys relied heavily on comparative characters which demanded either a broad knowledge of the fauna or access to a major reference collection. Things are improving, however, with the recent publication of a Royal Ent. Soc. Handbook to Orthocerous weevils and work in hand on keys to other sub-families. Hopefully this will encourage other local naturalists to take an interest in weevils they are both a fascinating object of study and also of considerable significance to nature conservation. It has been said that a survey of phytophagous insects reveals little more about site quality than would result from a botanical survey. This is really just a re-working of the old myth that "if we look after the plants then the animals will look after themselves". We are now aware, for example, that microhabitat conditions are of vital importance to the well-being of many of our rarer butterflies. If this handful of conspicuous phytophages can tell us so much about habitats then the 550 or so British species of weevils may well revolutionise our approach to site management when they have been given their due attention from ecologists.

Recording effort was stepped up during 1991 and a total of 41 species regarded as nationally scarce was found during the year. As usual, coastal habitats were extremely productive for weevils and supplied a high proportion of the more interesting records. Most of these came from coastal grasslands, particularly on free-draining soils where an extremely diverse fauna occurs on botanically-rich sites. The best example of this is the sandy estuarine cliffs either side of The Pitch at Gwbert (22/164484), where 64 species have been recorded in the last two years. This impressive total includes Ceutorhynchus hirtulus, Sirocalodes (=Ceutorhynchus) mixtus, S. quercicola, Mecinus circulatus and Apion gyllenhali, all of which are extremely scarce in the county. None of them feed on foodplants which are restricted to the coast but here they find environmental conditions which are particularly favourable. The most interesting species here is S. quercicola, which feeds on fumitory spp. growing on disturbed soils. It was formerly widespread in Britain but there are relatively few modern records and no other recent

ones from Wales.

Further north, on the hard cliffs at the mouth of the Teifi (22/161507), there were records this year of Otiorhynchus desertus, Trichosirocalus (=Ceutorhynchidius) dawsoni and T. thalhamneri. Both of the Trichosirocalus species feed on sea plantain and are probably widespread on Dyfed's coastal cliffs. However, T. thalhammeri has only recently been recognised as a British species as it closely resembles the common T. troglodytes which is ubiquitous on narrow-leaved plantain. There are few records of thalhammeri so far in Wales, and it does seem to be genuinely uncommon, but only further recording will ascertain whether or not it has been widely overlooked. Other scarce weevils recorded from hard seacliffs in 1991 were Trachyphloeus aristatus at Clogfryn (22/445622) and Barynotus squamosus at the mouth of Cwm Soden (22/362582). The latter species is regarded as characteristically northern and upland in distribution in Britain, though it has been found on Dartmoor; its occurrence more or less at sea level in Ceredigion is most surprising. Another extraordinary discovery is the record of Trachyphloeus laticollis on the barren, stony grassland of Foel-y-mwnt (22/193520). A single specimen that was collected on 8 July 1989 has recently been identified by Dr MG Morris and constitutes the first record of this nationally scarce species in Wales. It has traditionally been regarded as a speciality of south-west England but there are also unconfirmed reports from the coasts of Cumbria and Northumberland. The adjacent sandy cliffs of Traeth-y-mwnt (22/193519) produced specimens of Otiorhynchus desertus and Alophus triguttattus in 1991.

Sandy grassland is a potentially rich habitat for weevils, probably for two main reasons. Firstly, the friable soils are favoured by the, so-called, short-nosed weevils that feed as larvae on the roots of a variety of plants, and, secondly, the open nature of most sandy grasslands promotes a diverse flora of low herbs, many of which thrive best in areas that are subjected to periods of disturbance. One of our richest sites for weevils is the active sand quarry of Banc-y-warren at Penparc (22/201483). This site featured prominently in last year's report (DIG 20: 15-20) and visits there this year on 14 April and 6 July were equally rewarding. Records of O. desertus, Grypus equiseti, Orthochaetes setiger, Ceutorhynchus atomus, Glocianus (=Ceutorhynchus) punctiger and Apion pubescens demonstrate the importance of such habitats. There is a conservation dilemma in that the quarry needs to be worked so that new areas of bare sand are continually being created and colonised by sparse vegetation. If excavation ceased then the site would soon become dominated by rank grasses or scrub and much of its interest would be lost. However, if worked, eventually all of the sand deposits will have been removed and the site lost forever. There seems to be no easy solution to this problem, short of purchasing the quarry for nature conservation and annually disturbing patches of sand on rotation. I am not aware of any sand quarries in Britain that are currently managed in this way as the cost of purchase would be astronomical. They are of such immense value for invertebrates (particularly bees, wasps and beetles) that we must surely find a way of conserving the best examples, perhaps towards the end of a quarry's life when there is still sufficient sand left to manage and before it becomes a prime candidate for landfill. Several potentially important sand quarries in north-east Wales have disappeared under tons of rubble and we should try and survey the few examples in Dyfed before this fate also befalls them.

Of course, sand dunes can provide similar habitats to the quarries as long as pockets of disturbance are permitted. Rabbit scrapes are a useful source of localised erosion and the edges of footpaths can also be of value. Dunes usually lack vertical faces of firm sand so the range of bees and wasps present will be different in quarries, but most of the weevils can be found in dune grassland if their foodplants occur in sparse or low turf. Glocianus punctiger, which feeds on dandelions, was recorded at Ynyslas (22/605935) this year and also in sandy grassland at Pen-yr-ergyd (22/164484), Tanybwlch (22/580798), and the mouth of Cwm Soden (22/362582). Orthochaetes setiger, whose foodplant is not definitely known, was found at Ynyslas in April and May.

The small strip of saltmarsh on the Ystwyth at Tanybwlch (22/580804) provided a new county record with Mecinus collaris amongst sea plantain on 4 May. The top edge of this saltmarsh has a rich weedy flora and during the summer there were records of Sirocalodes mixtus and five species of Gymnetron, including G. collinum and G. linariae. These latter two species feed or toadflax and were taken on Linaria vulgaris and L. repens, respectively. G. linariae was also found on the road verge at Glanrafon (22/612804), although here it was feeding on

L. vulgaris. Other dry grassland weevils recorded during 1991 were Microplontus =Ceutorhynchus) campestris on ox-eye daisy at Penyrangor (22/581807) and Llanrhystud 22/547708): Ceutorhynchus atomus at Llanilar (22/628752) and Cei Bach (22/419601); Apion gyllenhali and A. pubescens on the railway embankment at Glandyfi (22/696973); and the latter species also on the road verge at Chancery (22/582768). These records call for little comment except that C. atomus is usually associated with thale cress yet at Cei Bach two specimens were beaten off hairy bittercress on a brackeny cliff slope about a mile from any habitat likely to support thale cress. Apion rubiginosum (=sanguineum) is a rare weevil that inhabits dry, acidic grassland where it feeds on sheep's sorrel. It has been found in typical habitat on two occasions recently in Ceredigion but this year it was taken by sweeping its foodplant on the shingle heath of Dolcniw (22/646802) alongside the Afon Rheidol on 14 July. It bears a superficial resemblance to A. haematodes (=frumentarium), which is a much commoner species on sheep's sorrel, and is probably overlooked to some extent, but there have been very few recent British records.

Wetland habitats also produced their fair share of interesting records in 1991. Most important was probably the discovery of a healthy population of Pelenomus (=Phytobius) olssoni amongst water purslane on the edge of an ornamental pond at Old Cilgwyn (22/314416) on 25 August. A single male had been found at Rhos Pilbach in 1989 (DIG 16: 20) but otherwise the only known British locality is a heathland site in West Sussex where it inhabits shallow pools in old vehicle ruts. Five other scarce ceutorhynchine weevils were recorded on Ceredigion's wetlands this year. Datonychus (=Ceutorhynchus) angulosus was swept from hemp nettle on the margins of Crosswood Pool (22/660725) in June and Thamiocolus (=Ceutorhynchus) viduatus was found on marsh woundwort at Rhos Rydd (22/ 574734), Henllan (22/351405), Glanrafon (22/615804) and Cors-y-clettwr (22/421495). T. viduatus was only previously represented in Wales by a specimen in the Salter Collection at NMW Cardiff, which was taken in his greenhouse at Llanbadarn in 1926! Pelenomus comari was swept from marsh cinquefoil at Cors Blaencanog-fach (22/485583) and Dolau-Hafod (22/577579), whilst P. waltoni was found at four sites, associated with waterpepper, and Drupenatus nasturtii occurred at three sites on watercress. An addition to the county list was Hydronomus alismatis, which was common on water plantain in the ditch that marks the old course of the Afon Leri through Borth golf course (22/607917). Gymnetron veronicae was found on brooklime in the flushes at Banc-y-mwldan (22/197483) and, rather oddly, was also swept from a hay meadow at Henllan (22/353402), although there is probably brooklime alongside the nearby Afon Teifi. The closely-related G. beccabungae appears to be associated with marsh speedwell in Ceredigion and was taken on this plant on a couple of occasions in the ditch alongside the basin mire at Banc-y-mor (22/557742). It was mentioned above that Grypus equiseti occurred on sandy grassland at Banc-y-warren, where it is frequent amongst Equisetum arvense and E. telemateia. In flushed grassland on the adjacent Banc-y-mwldan pastures it was found in litter amongst E. telmateia and E. palustre. Another weevil that feeds on horsetails is Abagous lutulentus and this species was swept from E. palustre at Rhos Rydd (22/574734) and Cors Blanecanog-fach (22/485583).

The most exciting discoveries of the year came from wooded habitats with records of two extremely rare species being found for the first time in Wales. The first of these was Anthonomus humeralis, three specimens of which (two males and a female) were beaten from apple tress in the small orchard at Plas Gogerddan (22/630838) on 21 & 23 March. On the Continent A. humeralis is chiefly associated with cherry trees Prunus spp. but in Britain it found on apple Malus spp. It used to be reasonably common in southern England but has not been seen there for at least thirty years and the last British record was from crab apple on Cumwhitton Moss, Cumberland, in 1965. Presumably the increasing use of pesticides after the Second World War put paid to the species in the orchards of southern England and it is probably significant that the orchard at Plas Gogerddan is completely unmanaged.

The discovery of Procas granulicollis in Ceredigion was accidental and completely unexpected. On 28 April I visited the RSPB reserve of Allt-ddu in Cwm Llyfnant (22/71-97) to search for Anthonomus conspersus on rowan, as I had found it the day before in Merioneth as an addition to the Welsh fauna. However, my efforts were fruitless and as I trudged somewhat despondently up the valley sides I casually tapped a luxuriant plant of climbing corydalis in the hope that it might have Sirocalodes mixtus. Instead a totally unfamiliar weevil fell onto my beating tray

and it was only when I got home that I realised it was Procas. Procas has been a mystery genus for entomologists for a very long time and the situation is not entirely clear today. In the latter half of the last century four specimens were collected in woods on the Cumberland side of the Solway Firth. These were declared to be a species new to science and given the name P. granulicollis. There is one other species in the genus, P. armillatus, a rare beetle throughout Europe that seems to be associated with sandy soils, usually in coastal localities. P. armillatus was recorded at a wide scatter of sites in England up until the 1950's, but there have been no British records since. The status of P. granulicollis as a distinct species has been frequently questioned, particularly as it has never been found outside Britain. In 1968 another specimen was found on the Scottish side of the Solway and the question was re-opened with a detailed taxonomic study of the five specimens known to science compared with the more extensive material available for P. armillatus (EMM 126; 21-25). It was concluded that granulicollis was indeed a good species and hence endemic to Great Britain. In 1989 three specimens were found in a wood much further south in Cumberland than the previous localities (Coleopterist's Newsletter 35: 7). Thus, prior to 1991, a mere eight examples of P. granulicollis were known to science.

Recognising the importance of the Allt-ddu discovery, I returned on 14 May and spent $1^{1/2}$ hours sieving bracken litter on the valley slopes. Four specimens of granulicollis were found and each was in association with Corydalis, although this is not a particularly common plant in the immediate area. The foodplant of granulicollis is unknown and its discovery will provide a major advancement in our knowledge of the species. It does appear as if Corydalis is a likely candidate but it seems to be a rather frail plant to support such a comparatively large weevil. However, armed with this knowledge, I visited Coed Cnwch-yr-arian (22/698792) on 17 May and almost immediately found five granulicollis in association with Corydalis amongst bracken in a woodland clearing. Another specimen was taken at this site on 4 July but none could be found on 31 July. It is possible that bracken is the foodplant but if this were so granulicollis might be expected to have been more frequently recorded. Unfortunately, specimens kept in captivity gave no indication of feeding so the question remains for further research.

Other records pale by comparison, although confirmation of the continued presence of Anthonomus rufus in Wales was also of great interest. The Salter Collection has three specimens taken in the 1930's on the Rheidol floodplain; other British records are from Essex, Sussex, Cumbria, Dorset and Cornwall, although only the latter two counties have provided records since 1970. It is chiefly active in early Spring and is found by beating blackthorn thickets. This is a tiring and frequently unproductive exercise and hence not a regular activity of coleopterists, which may account for its apparent rarity. However, a great deal of effort was expended in search for the species in Ceredigion during March and it was only found in two of about twenty sites investigated. I suspect it is probably quite widespread in coastal districts in Dyfed but very local and requires a good deal of patience to find it. At both of the Ceredigion localities, Cilfforch (22/440615) and Llanaeron (22/477603), it was very common in old, dense thickets in rather sheltered situations. A surprising, and often frustrating, observation was that Anthonomus bituberculatus was also frequent, though usually in small numbers, on blackthorn. It was recorded on blackthorn at thirteen sites but it is usually associated with hawthorn. Perhaps adult bituberculatus feed on the earlier flower buds of blackthorn before moving onto hawthorn to breed. Another species of Anthonomus, A. ulmi, was taken by beating wych elm in Coed Nant Llolwyn (22/587769) in early summer. This is a new county record and possibly also a new Welsh record, but it has been confused with bituberculatus in the past and old records of the species are unreliable.

Beating hawthorn blossom in Coed Nant Llolwyn yielded a specimen of Sirocalodes mixtus in May. This weevil breeds on fumitory and corydalis, neither of which occur in Coed Nant Llolwyn, so it is presumably a vagrant here. Acalles ptinoides was beaten from a hedgerow at Blaenguefordd (22/649803) whilst A. roboris was found on coastal scrub at Cei Bach (22/415598) and on oak at Coed Cwmere (22/698963). Other notable weevils on oak were Coeliodes erythroleucos and C. ruber, both of which were found widely in ancient oakwoods, usually as singletons amongst a shower of C. dryados beaten from wood edge trees. A single Rhynchites cavifrons was beaten from ancient oaks in the valley woodland of Cwm Llyfnant (22/715973) on 27 June. Finally, R. longiceps was recorded from Rhos Rydd (22/574734) and R. tomentosus from the dune slack at Ynyslas (22/610939), both on willow carr in June.

Bark beetles were almost entirely neglected in Ceredigion before this year and thirteen species were added to bring the county list of Scolytidae and Platypodidae up to 23 species. It was very pleasing to find Platypus cylindrus breeding in fallen oaks in three of our parklands, Old Cilgwyn (22/314416), Parc Nanteos (22/619781) and Lovesgrove (22/628815). This rare beetle was recorded for the first time in Ceredigion in 1990 when a singleton was caught in flight (DIG 20: 19). There is some evidence that it has increased in Britain in recent years as a result of the profusion of trees blown down by the much-publicised gales. Xyloterus signatus may also have benefitted from the supply of fallen oaks but only a single dead specimen was found in 1991, at Parc Nanteos in December. Also at Nanteos, underneath the bark of a young wych elm that appeared to have been completely killed by bark beetles, were the remains of a single adult Scolytus laevis. This is a little-known species in Britain that was probably introduced here from Europe after the Second World War. There are no previous Welsh records. A few larvae were still occupying burrows in the elm bark but it is not certain that these were also S. laevis. Another surprise this year was the discovery of Dryocoetinus alni breeding abundantly in the sappy bark of an old grey willow on the dark, humid floor of the Gwenffrwd valley (22/596601). This scarce beetle is usually found on alder or hazel and there do not appear to be any previous records of it breeding on willow anywhere in Europe. Dead specimens were more typically found in alder bark in the valley woodland of Coed Allt Craig Arth (22/498623). Six of the new additions to the county list this year were of conifer- feeding bark beetles. Generally speaking, conifer species are not awarded conservation status by the Invertebrate Site Register except for specialities of the Caledonian pine forests. Presumably this is why Pityogenes trepanatus is classed as nationally scarce, although it has been taken on several occasions in southern England. A dead female was found under the bark of a Corsican pine at Rhydyfelin (22/593792) and a live female in a nursery gallery on Norway spruce in Coed Penglanowen (22/611786). These are the first records of the species in Wales.

Despite the frenzy of recording that took place in 1991 there is still much to be learnt about the weevil and bark beetle fauna of Ceredigion. Certainly there will be many more species of both groups to add to the county list (a combined total of 300 is feasible) and knowledge of status and distribution is still scant. There is much fascinating information to be gained from studies of the life history and habitat requirements of most of our species and, as indicated in the introduction to this report, this could be of great value to the management of sites of nature conservation interest. I do hope that some readers will be encouraged to take a closer look at weevils, even if it's only Cionus scrophulariae shredding the leaves of your garden buddleia!

Thanks are due to Dave Boyce and Arthur Chater for supplying records and specimens during the year. I am extremely grateful to Dr Mike Morris of the Institute of Terrestrial Ecology at Furzebrook and Dr Tim Winter of the Forestry Commission at Alice Holt for their invaluable help with identification and their generous provision of advice and information on weevils and bark beetles respectively.

Corrigenda:

- Anthonomus brunnipennis recorded from Rhos Gellie (22/382531) on 7 July 1990 (DIG 20*:* 19 is A. rubi.
- Last year's record of Polydrusus pulchellus (DIG 20: 19) at Tanybwlch on sea beet should be amended to hemlock water dropwort.

DIPTERA

DIPTERA RECORDING IN CARMARTHENSHIRE, 1991 - I K MORGAN

There are no really exciting discoveries to report for the 1991 season, partly reflecting the reduced effort given to this group during the year. As is now almost customary, the bumble-mimic Criorhina ranunculi provided the first vernal record of note, typically feeding at the yellow male flowers of sallow in Capel Dyddgen quarry (22/467128) on 28 March. This early Spring period also yielded a noteworthy capture for John Ellis, the probably overlooked but attractive Cheilosia albipila at Ffrwd Fen N. R. (22/420028). Portevinia maculata was noted in mid-late May around its larval foodplant, wild garlic, at two new localities: below Craig Cennen Castle (22/642186) by EA Howe, and in the deep dingle just west of Penygraig, Cynwyl Elfyd (22/385269). On 23 May a female Brachypalpus laphriformis was watched as she slowly oviposited in bark crevices of a damaged oak tree in Dinefwr Park, Llandeilo(22/609224). This species was also recorded during the DIG field meeting to the RSPB Gwenffrwd reserve (22/751460) in late July, providing a third vice-county site for this old timber syrphid. A second vice-county record was that of Xylota xanthocnema at the same locality (DIG 23:18-19).

The most satisfying larger brachyceran record was that of Atherix ibis, an uncommon rhagionid, which is said to prefer sandy sections of rivers with a moderate flow of water. It was found on 21 May in the linear zone of marginal vegetation along the length of the Tywi below Dryslwyn Castle (22/555202). The writer was checking this regular locality for the dragonfly Gomphus vulgatissimus, which seems to favour similar riparian features to Atherix. This occurrence of A. ibis was a first county record but readers should be aware of the possibility of the rarer A. marginata being found in Carmarthenshire as it has been recorded elsewhere in southwest Wales (it is believed to favour faster rivers). Further upstream along the Tywi, on the shingle beds below Llanwrda railway station (22/715307), Thereva lunulata was observed, for the third consecutive year, on 21 May - its earliest date yet. Elsewhere there were the usual springtime records of the bee-fly Bombylius major and also three hitherto unknown sites for the smaller, and nationally scarcer, B. canescens. In Carmarthenshire this latter species is surprisingly frequent, in small numbers, on dry, unimproved grassland sites with exposed soil areas containing the nests of its hosts, smallish solitary bees of the genus Halictus and perhaps also Lasioglossum.

Several magnificent individuals of the cranefly Ctenophora atra were at Coed Tir Hen (22/781375) on 6 June, flying around, and engaged in courtship around, a fallen oak, with the males 'circling' (in a vertical plane) the females whilst both were in flight. Later, a female was observed inserting her long ovipositor into crevices of an old, powder-dry, oak trunk, after "testing" the crevices with her front (left) tarsus. Towards the end of the season (in early September), the small, blackish conopid Thecophora atra was frequent around sunny, disturbed areas of limestone grassland in Carmel Woods (22/590163), and also in similar habitat at Dolwen Point (22/233078). This species was additionally recorded on dune grassland at Morfa-uchaf, Ferryside (22/367107) by P Kirby in early August.

DIPTERA RECORDING IN CEREDIGION, 1991 - A P FOWLES

Diptera were grossly neglected during 1991 and there are comparatively few records of interest to report. This is graphically demonstrated by the fact that there were only two notable hoverflies seen this year, a female Anasimyia contracta in the lake fen at Tanygraig (22/588758) and a male Platycheirus immarginatus on the Teifi saltmarsh at Brontivy (22/198457). Robberflies produced slightly better results. The magnificent hornet robberfly Asilus crabroniformis was active at Old Cilgwyn (22/314416) on 25 August, with two or three specimens seen on the unimproved pastures, one of which had a field grasshopper Chorthippus brunneus as prey. Sadly, the best field for Asilus at Old Cilgwyn was ploughed up during the summer and it is most likely that it has also become extinct on its other known Ceredigion site at Hafod Wen (22/202431) as this has not been grazed for several years and has become very rank. Asilus now seems to be confined to three small pockets of suitable grassland at

Old Cilgwyn and must be regarded as living a precarious existence in the county. Epitriptus cingulatus was confirmed on the county list with specimens captured on the cliff grassland at Gwbert (22/161507) and on the pastures at Old Cilgwyn. A definite addition to the fauna was Dioctria linearis, a rare species in Wales, which was swept from rough grassland in the orchard at Plas Gogerddan (22/630838) on 19 & 25 June.

There were two other Diptera species of note recorded new to the county in 1991. The conopid Thecophora atra, swept from dry heath on the abandoned leadmine at Cwmsymlog (22/701837), was a long expected addition, but the discovery of Thereva lunulata, a stilleto fly, was more surprising. This is a rare species nationally, occurring on sand or fine shingle banks alongside large rivers in northern and western Britain. Most records are from Scotland, although it is also reliably known from Herefordshire and Carmarthenshire. Three females were swept from sparse, grassy vegetation on the shingle bank at Dolcniw (22/646802), Afon Rheidol on 14 July.

Shingle grassland also produced a specimen of the scarce, western beefly Bombylius canescens at Glanrfon (22/614804) on 10 June, but the rest of the notable Diptera recorded in 1991 were wetland species. The dungfly Scatophaga scybalaria was seen on five sites during the summer and this is probably a reasonably common species in Wales. A visit to Banc-y-mwldan (22/201488) on 6 July resulted in sightings of Oxycera pygmaea and two Odontomyia hydroleon. The latter species is, of course, Ceredigion's most celebrated fly. Just two individuals seen during a full day's fieldwork is not encouraging but it is possible that this was the beginning of the flight period. Virtually nothing is known of the phenology of this species in Britain but in Europe it is said to be on the wing in June and July.

The one Dipteran family that did receive some attention in 1991 was the Sciomyzidae, or snail-killing flies. They were actively sought for five or six weeks in August and September when thirty-six sites were visited to provide information for the county review (DIG 22*:* 14-22). Despite this saturation recording, only two notable species were recorded, probably because of the rather late stage of the season. Psacadina verbekei was present on seven sites, chiefly flushes in rhos pasture but also on the marginal fen of an upland lake and in brackish marsh at the edge of the Dyfi, and four specimens of Pherbellia griseola were swept on backwaters of the Teifi at Maespwll (22/568471) on 24 August.

I am grateful to Dave Boyce, Arthur Chater, Steve & Anne Coker, and Ian Morgan for their Diptera records, and to Alan Stubbs for confirming the identification of Thereva lunulata.

Errata:
Chrysogaster virescens recorded from Llwyn-gwyn (22/680941) in 1986 (DIG 4: 9) has been re-identified as C. solstitialis.

MOLLUSCA

SNAILS AND SLUGS IN CARMARTHENSHIRE, 1991 - IK MORGAN

Freshwater species provided the few noteworthy records of 1991 with the large bivalved Anodonta anatina reported from the Dinefwr oxbows (22/605222) by Julien Friese (a second vice-county site, later confirmed by the author) and the moss bladder snail Aplexa hypnorum recorded at the Machynys Ponds (21/517977) by Peter Kirby in August. The writer collected Acroloxus lacustris from the Bishop's Pond, Abergwili (22/450209) and Planorbis carinatus from Dafen Pond (22/531015), both new county records. Mike Kerney, who determined these latter two, remarked that "both species are moderate calciphiles and stragglers from the lowland zone".

LAND MOLLUSC RECORDING IN CEREDIGION, 1991 - A O CHATER

An attempt was made during the year to fill in some of the main gaps in tetrad recording. For example, Discus rotundatus is now recorded from 284 tetrads (54% of the total), Arion ater from 251 (47%), Punctum pygmaeum from 171 (32%) and Vertigo substriata from 114 (22%). Punctum seems well-distributed throughout the county and is often the only small land mollusc to be found in upland acidic marshes. V. substriata is similarly widespread, though usually confined to rather richer sites. It is, however, along with V. antivertigo, apparently absent from the lower 25 km or so of the Teifi valley, which is surprising as other marsh species such as Succinea putris and Oxyloma pfeifferi are there in a number of sites. Leiostyla anglica, apart from one site at Coedmore, has not been recorded from anywhere in the Teifi valley although it is widely scattered elsewhere in the county, in a total of 35 tetrads. Oxychilus helveticus is frequent all up the Teifi valley as far as Lampeter, but is absent from most of the higher ground between this valley and the coast, thus reversing the distribution of V substriata. Zenobiella subrufescens is another species that is especially common in this part of the Teifi valley, and occurs chiefly in damper, less acidic sites than O. helveticus can tolerate. In Ceredigion it is usually in damp places in woodland and in rank, rich vegetation on the coast and in the major river valleys. It was a surprise to find it common in quite acidic flushes alongside the Tywi between the Doethie confluence and the Llyn Brianne dam, an area very upland in character. V. substriata was also in several of these flushes, but V. antivertigo was restricted to areas of alder carr on the slopes.

The most surprising record of the year was the discovery by AD Hale of a fresh shell of Candidula intersecta on an inhospitable, stoney, heavily sheep-grazed, acidic, south-facing slope at 300m by the Cwmystwyth leadmine (22/803747) on 30 December. Further searches failed to discover more specimens. Although there are ancient mortared walls and ruins in the vicinity, the mollusc fauna is almost nil and it is difficult to envisage an established colony here. It is the only leadmine record for the species in the county.

Spermodes lamellata, now known from 19 tetrads, normally occurs in distinctly damp or wet woodland litter, usually associated with flushes and often among opposite-leaved golden saxifrage and in alder carr. In the Coed Allt Craig Arth SSSI (22/497625) it occurs in several such sites, but on 16 April AOC and AP Fowles found it here in abundance over an area of at least 30 x 25m in deep, dry leaf litter on a very dry, steep, north-facing slope under a mature stand of beech trees. They had also found it in 1985 in the Gwenffrwd valley (22/598601) in abundance in oak litter in an almost dry gulley. Whether Spermodea can exist permanently in such dry sites, or whether it needs adjacent wet areas from which it can recolonise, is unknown, but it did occur in unusual density in both these dry areas.

Zonitoides excavatus (80 tetrads) is normally a species of dry, acidic woodland, but was found on 29 March by AOC and DC Boyce under stones on the steep, dry, rocky, south-facing, heathy slope of Foel Fawr, Furnace (22/692950), 200m from woodland and in an area that has been unwooded for at least 170 years (and probably much longer). Another unusual site for the species was an obviously somewhat calcareous ash/sycamore wood at Neuadd Parc, Cwm Rheidol (22/685794) where it was frequent, and in several cases was under the same pieces of rotting ash wood as Clausilia bidentata, a species it is not normally found in even the same sites as.

MYRIAPODA

MILLIPEDES AND CENTIPEDES IN CARMARTHENSHIRE, 1991 - I K MORGAN

Due to lack of time, extremely little recording of myriapods was undertaken in 1991. Cryptops parisi, a centipede that is normally associated with human habitations, wasteground, etc.,was found around the graveyard at Gelli-wen (22/275236) in early August, whilst a visit to the upland valley of Cwm Pedol (22/69-15-) in early April produced two species that typify such acidic upland grazings, the dark Lithobius calcaratus and Geophilus carpophagus, together with L. variegatus which is also regular in woodland.

The small, whitish blaniulid millipede Nopiulus kochi was again abundant under bricks and rubble on derelict 'made ground' behind the Chemical Works at Bynea (21/557988) in March, and the attractive Leptoiulus belgicus was found under debris at Penrhyngwyn, Machynys (21/516973) from mid-August.

ISOPODA

WOODLICE IN CARMARTHENSHIRE, 1991 - I K MORGAN

The occurrence of Armadillidium pulchellum in nests of wood ants has been mentioned previously in this Newsletter (DIG 20: 27), but it was a little surprising to find, in April, about twenty juveniles in a nest of Formica rufa near Abergorlech (22/583345). Whether these young woodlice were finding food in the nest or whether they were utilising the protection afforded by these pugnacious ants is not known. A. album, the 'white pillbug', has strong populations all along the sandy coasts of Carmarthenshire where it can be found under drift material, seaweed and the like, but its presence some 10m up amongst drift debris on the stone breakwater at Pembrey (22/437000) is worthy of mention. The related A. nasatum seemingly occupies two habitat types in the vice-county; dry coastal grassland and wasteground associated with urban areas. It was in one of the latter sites that it was found in 1991 - a derelict colliery yard at Dyffryn (22/623130) near Ammanford. A few examples of Porcellionides pruinosus in the dung heaps by the pig-sties at Kidwelly Quay (22/398064) in late September provided a third county record. Repeated visits are often required to dung/compost heaps to locate tthis species as some searches may prove fruitless.

The small Haplopthalmus mengei occurs quite frequently under embedded stones in the 'rendzina' soils of the Carboniferous Limestone outcrop, though, as with other subterranean invertebrates, damp or wet weather normally provides the conditions when it is most easily found. H. mengei was found, for example, around the old quarry just east of Llandyfan (22/642273) where another, less expected, species, Porcellionides cingendus, was also noted. The latter is frequent around much of the Welsh coastline, particularly in deep Festuca litter on cliffsides. This inland record could perhaps be the result of an introduction as the shooting range which occupies the quarry floor has various coastal plants growing in the imported sand around the shooting butts. The attractive, pinky-orange Androniscus dentiger, which is most frequently encountered in synanthropic situations, is considered to be native on thelimestone outcrop of the county, as, for example, it occurs on the rather remote and isolated upland (585m) limestone pavement of Carreg-yr-ogof (22/77-21-).

WOODLOUSE RECORDING IN CEREDIGION, 1991 - AO CHATER

There was a significant extension to the known range of Porcellionides cingendus when it was found at Ynys Edwin, Eglwys Fach (22/678962) in Dactylis tussocks on a south-facing, rocky slope in a garden. It had previously not been recorded north of Borth and seems strangely absent from most of North Wales. The only records in Britain north of the Dyfi are from the shore of the Menai Straits and on the Isle of Man.

Armadillidium pulchellum was found on 29 March by DC Boyce and AOC to be frequent under stones and in moss on the dry, south-facing, heathy and rocky slope of Foel Fawr, Furnace (22/682951). In three cases individuals were found in nests of the ant Lasius flavus. On 8 April AOC beat eight specimens from a small bush of gorse Ulex europaeus on a heathy roadside bank between conifer forest and unimproved pasture on the north slope of Pen garn-wen, Plwmp (22/374504). There had been rain daily for the previous week (with a total of 54mm at Aberystwyth) and the animals had doubtless ascended the bush to escape super-saturation (as another species, A. pictum, is regularly said to do in wet weather on the continent).

ARACHNIDA

SPIDERS AND HARVESTMEN IN CARMARTHENSHIRE, 1991 - I K MORGAN

A little collecting of spiders was carried out in 1991, with a small number of new county records being made. Those from the earlier part of 1991 are included in the recent review of the spider fauna of Dyfed (DIG 21: 1-16). Eight species have been added to the county list since then and these are listed below:

Dictyna laens	Tywyn Burrows	22/36-05- 29/6/91
Drassodes lapidosus	Near Wharley Point	22/342093 14/6/91
Xysticus luctuosus	Tywyn Burrows	22/36-05- 29/6/91
Cryphoeca silvicola	Bannau Sir Gar	22/805215 1/8/91
Hypomma comutum	Ffarm-y-Felin	22/423297 28/6/91
Baryphyma pratense	Bishop's Pond, Abergwili	22/445269 22/7/91
Silometopus ruessi	Tir-Morfa fawr	21/533983 26/7/91
Araeoncus humilis	RSPB Gwenffrwd	22/751461 20/7/91

Xysticus luctuosus is an uncommon dark brown crab spider which was beaten from rank herbage and bushes from both Tywyn Burrows and in the adjacent Pembrey Forest; whilst the linyphiid Silometopus ruessi was collected from an established grass/compost pile at Tir-Morfa fawr. Both are new to Dyfed and S. ruessi is also apparently new to Wales. Enoplognatha latimana is a therevid that has only been recognised of late to occur in coastal areas of southern Britain, Pembrokeshire included. It was inadvertently omitted from the vice-county list in DIG 21 but it is known from a few coastal (and one inland) Carmarthenshire sites. The first county record was actually at Penybedd Wood (22/418016) on 17/6/90.

The rare harvestman Sabacon viscayanum (it is seemingly confined to South Wales) was found at two new sites - young instars under moss-clad, natural, blocky, limestone rubble in an old ashwood at Capel Dyddgen near Crwbin (22/468125) on 17 May, and a large egg-bound female, again under loose stones in a flushed ashwood, besides the Afon Duad, southeast of Cynwyl Elfed (22/387262) on 21 October. In the Spring (16 May), juveniles were seen in ash woodland at the known site by Pistyll Quarry (22/623167) near Llandybie. Dicranocephalus ramosus was regularly encountered in the late summer, sometimes in abundance, e.g. on amenity plantings around the Bishop's Palace, Abergwili (22/442209), and on willows beside the Dafen Pond, Llanelli (22/531015). It is also well established further up the Tywi valley (per NR Matthew) and it was recorded for the first time in the northwest of the county at Gelli-wen (22/275336). The ground-living harvestman Lopophilio palpinalis is only rarely recorded in the county, perhaps because to find it one has to sift woodland litter in the Autumn. One was thus collected at Cwm-morgan (22/293353) on 22 October; presumably it is more widespread than the two single Carmarthenshire records suggest.

SPIDER RECORDING IN PEMBROKESHIRE (VC45) IN 1991 - S DOBSON

There are no reports of great rarities this year; it is more a period of consolidation with only one new species being added to the county list. Records have been supplied from three sources: the spider course at Orielton Field Centre, casual records supplied by Alan Scott of Cheshire who spent some time on holiday in the north of the county, and the results of one day's observations at Marloes during the DIG field meeting (DIG 23: 19-20).

The Orielton course confirmed the presence of a thriving population of the water spider Argyroneta aquatica in the main pool at Dowrog Common (12/77-27-), with additional records from an isolated pool. Other confirmations were Meta menardi at Hoyle's Mouth Cave at Tenby (22/112003) and Scotophaeus blackwalli, Misumena vatia and Nesticus cellulanus at Orielton, still the only known site in the county for these species. A new site was found for Pirata piscatorius at Tre-rhos Common (12/92-27-). Pardosa purbeckensis and Milleriana inerrans have again been recorded from the sites where they were originally discovered (DIG 19: 1-6).

Quite a number of species which were unrecorded a few years ago are turning up at other sites. These include Dictyna arundinacea, Drassodes lapidosus, Agroeca proxima, Ero cambridgei. Hypsosinga pygmaea, Maso sundevalli, Pocadicnemis juncea, Aphileta misera, Porrhomma pygmaeum, Lepthyphantes alacris, L. obscurus and L. mengei. These are all common or widespread spiders which have been overlooked in the past and which will be recorded more and more frequently in the future.

The spider of the year must be Atypus affinis. The colony at Whitesands Bay (DIG 10: 16) was checked and appeared stable. Atypus was re-discovered at a site on Marloes Cliffs, which had been found in 1978, and was also found at a second site on the same cliffs (DIG 23: 19- 20). Bob Haycock watched a family of choughs apparently pulling out large worms from the turf on the cliffs at Stackpole NNR (11/992942), but later found that they had devastated a hitherto unknown Atypus colony and the future of this particular colony is very much in doubt. However, all the indications are that the species is probably much more widespread in the county than previously suspected.

In the provisional checklist of Pembrokeshire spiders (DIG 21: 1-16), Pardosa agricola was included, referring to an old mention of P. arenicola by Bristowe (1939). There is still some doubt as to the status of these two species; the county checklist merged them because the most up-to-date checklist at that time was that of Roberts (1987), who considered them conspecific, but the latest national checklist revision (Merrett & Millidge, 1992) retains them as separate species. This would have required the county checklist entry to be changed to *P. arenicola* except that, fortuitously, P. agricola was found in 1991 at Poppit Sands (22/153488) by Alan Scott, so they should now both appear.

REFERENCES:

BRISTOWE, WS (1939) - The Comity of Spiders. Vol 1. Ray Society.
MERRETT, P. & MILLIDGE, AF (1992) - Amendments to the checklist of British spiders. Bull. Br. arachnol. Soc. 9: 4-9.
ROBERTS, MJ (1987) - The spiders of Great Britain and Ireland. Vol 2. Harley Books

SPIDER AND HARVESTMAN RECORDING IN CEREDIGION IN 1991 - A P FOWLES

Following last year's excitement, with a spider new to Britain, 1991 might have been something of an anti-climax - but the surprises continue! Pitfall traps operated in the dunes at Ynyslas NNR (22/605935) during October 1989 captured over 1500 spiders and this material had been curated until a specialist could be persuaded to take on the daunting task of identification. In a mad moment of generosity and foolhardiness, Stan Dobson agreed and steadily worked his way through the endless specimens of Oedothorax fuscus, Erigone dentipalpis and Agroeca proxima. The final total of thirty-two species was composed largely of common grassland spiders, but there was also a single specimen of the scarce dune linyphiid Ceratinopsis romana. However, the extraordinary record came from painstaking attention to the 101 Agroeca specimens. One hundred of these were A. proxima but there was also a single female A. lusatica. This is a Red Data Book (Endangered) liocranid spider which was previously only known from Sandwich Dunes in Kent, where it was first discovered in 1938. It has been recorded since on a number of occasions at Sandwich, and presumably there is a substantial population present, but at Ynyslas it is obviously 'masked' by the abundance of A. proxima, which is a very similar spider. If this is the case on other dune systems it may be that lusatica is widespread but grossly under-recorded and will only be discovered by patient examination of extensive samples.

With the exception of Arctosa cinerea (five river shingle sites on the Rheidol and Ystwyth) and Marpissa nivoyi (four seen at Ynyslas on 23 April), all of the remaining notable spiders seen in the county during 1991 were on Cors Fochno NNR (22/63-91-). The most interesting

of these was the discovery of a male Evarcha arcuata taken by sweeping heather at the edge of the mire on 29 August. This is the first record of this handsome jumping spider in Wales and all previous British records are from southern England where it is a characteristic, but scarce, inhabitant of humid heaths. On the same day at Cors Fochno sweeping also produced a female Marpissa nivoyi and several immature male Hypsosinga albovittata, the latter at its only known Dyfed locality. The annual pitfall trapping survey on Cors Fochno yielded 25 specimens of Agroeca striata and five specimens of Zelotes lutetianus. Mike Bailey added further records of Dipoena prona (a male on 20 June) and Maso gallicus (a male on 16 June), both of which have been recorded previously from the bog.

A total of 300 species were listed for Ceredigion in the review of Dyfed's spider fauna (DIG 21: 1-16) and there are another eight additions to report, including A. lusatica and E. arcuata. Ian Morgan captured Lathys humilis at Coedmore (22/193437) during the DIG field meeting on 9 June (DIG 23: 17-18) and Alan Scott found Xysticus audax on gorse at Penbryn (22/301535) on 24 May. Clubiona neglecta was found amongst the pitfall material from Ynyslas collected in October 1989 and Mike Bailey checked Ynyslas material collected by Evan Jones in 1977 and confirmed Cheirocanthium virescens and Pardosa monticola as new to the county. Finally, Meta menardi was mistakenly omitted from the county checklist, having been found on Cardigan Island (22/160515) in June 1989 by Kefyn Catley (DIG 15: 3-7). There is also one deletion to report: Philodromus praedatus recorded from Eglwysfach (22/699964) has since been confirmed as the common P. aureolus. The county fauna therefore stands at 307 species. One other error cleared up during the year saw the withdrawal of the record of Ceratinopsis romana from Cors Llyn Fach (22/595635), as anticipated (DIG 21: 12).

The harvestman Dicranopalpus ramosus was found in three sites during late August/early September and was particularly common on oak foliage at Cilgwyn (22/314416). Anelasmocephalus cambridgei was recorded from four sites during the year, including the kitchen garden at Crugiau (22/591793). Both species are probably widely distributed in Ceredigion but are still infrequently recorded and worthy of comment.

I am grateful to Mike Bailey, Dave Boyce, Arthur Chater, Stan Dobson, Peter Holmes, Ian Morgan and Alan Scott for their records of spiders and harvestmen in the county during 1991. Particular thanks go to Stan Dobson and Peter Merrett for identifying and confirming specimens. Mike Bailey will now take over as the Area Organiser for the Spider Recording Scheme and records should be sent to him at CCW, Plas Gogerddan, Aberystwyth.

MISCELLANEOUS INVERTEBRATE RECORDS, CEREDIGION 1991 - A P FOWLES

Hymenoptera - Larvae of the sawfly Phymatocera aterrima were abundant on Solomon's Seal Polygonatum sp. in Bill Condry's garden at Ynys Edwin (22/678962) on 13 July 1991 (det. AO Chater). This species has been spreading in Britain in recent years and is possibly widespread in gardens in Dyfed; its blue-grey caterpillars characteristically shred the leaves of Polygonatum and are easily identified.

Hemiptera: Heteroptera - Following on from the county checklist (DIG 17: 1-9) and a subsequent update (DIG 20: 30), a further six species were recorded for the first time in Ceredigion during 1991. All specimens were collected by APF and identified/confirmed by Pete Kirby.

Campylosteira verna	- Penglais Quarry (22/587822) - 23/3/91
Deraeocoris lutescens	- Lovesgrove (22/628815) - 27/12/91
Elasmostethus tristriatus	- Plas Gogerddan (22/630838) - 21/3/91
Legnotus limbatus	- Gwbert (22/164484) - 19/5/91
Orthops atomarius	- Llanaeron (22/481600) - 13/1/91
Sthenarus rotermundi	- Pwll Simon (22/594803) - 1/7/91

In addition, two species new to the county (det. P Kirby) were taken in water traps operated by NR Thomas in 1990 at Coedmore NNR.

Metatropis rufescens	- Coedmore Mansion Woods (22/195436) - 2/8/90
Polymeris nigritus	- Hafod Wen (22/203429) - 2/8/90

This brings the county total to 214 species. None of the species listed here is of particular significance and merely reflect the fact that there is plenty of recording still to be done in the county. Orthops atomarius, a single specimen of which was found underneath the bark of an old silver fir, probably represents the first record of this species in Wales, but it is entirely confined to exotic conifers and of no conservation interest.

HYMENOPTERA: Formicidae

THE REDISCOVERY OF THE BOG ANT Formica transkaucasica IN WALES - A P FOWLES

Invertebrates rarely attract the attention of the national Press, unless they provide an opportunity to shock (Tarantulas are a favourite) or else allow journalists to display their rapier wit. The 'ants in the pants' story from Carmarthenshire this summer was just too good to resist and Formica transkaucasica, the 'Bog Ant', found its way onto the pages of several of the Dailies - even the Dyfed Wildlife Trust Bulletin had a go at headline journalese!

The simple facts behind the story are that Lin Gander collected specimens of a large black ant nesting in a Molinia tussock on the DWT reserve at Cors Goch Llanllwch (22/38-16-) in early September 1991. These were subsequently identified by Arthur Chater as F. transkaucasica and this determination was later confirmed by Simon Hoy, the national coordinator for the ant recording scheme. The bog ant is classed as an Endangered Red Data Book species in Britain and it is also threatened in several other European countries. In Britain it has generally been considered to be confined to the valley mires of the New Forest and the Dorset heaths, where it constructs small nests out of fragments of Molinia and Sphagnum in tussocks on the wetter parts of the bogs. Drainage, eutrophication, scrub encroachment and heathland reclamation have been the cause of a general decline in the number of British localities which sustain populations. Colonies are thought to wane in years of drought and this may become an increasing problem in the future if the recent run of low rainfall in southern England continues.

F. transkaucasica was reported from a boggy flush on Rhossili Down, Gower in 1913, but this was so far removed from the species' strongholds that the record has always been regarded with suspicion. Of course, it is still not possible to say whether this record was correct, although confirmation of the species in Carmarthenshire does lend credibility to its presence on the Gower. Cors Goch Llanllwch is, admittedly, a rather unique site, but if transkaucasica did occur on Rhossili Down then there is no reason why it should not be more widespread in Wales. The wetter parts of undisturbed acid fens such as Crymlyn Bog in Glamorgan, Cors Llannon in Carmarthenshire, Esgyrn Bottom and the St. David's peninsula heaths in Pembrokeshire, or even Rhos Rydd in Ceredigion, would all be worthy of investigation. At present we have no idea how strong the bog ant population is on Cors Goch Llanllwch and research is proposed this summer to determine the number and extent of nests across the bog. This will not be entirely straightforward as the nests are generally inconspicuous. However, once a picture is gained of the favoured habitat it would certainly be worthwhile surveying other lowland acid mires in southern Wales.