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EDITORIAL

Once again, apologies for the lateness of this Newsletter which was due to appear before Christmas. Apologies too for the lack of pagination in the last Newsletter (Spring 1993) - perhaps readers can "pencil in" numbers on that issue, with the cover page being Page 1.

Although short papers from Pembrokeshire and Ceredigion are included in this issue, there is a marked lack of material coming from those counties, which is most disappointing, particularly as it is known that there are invertebrate enthusiasts who have done a great deal of good work on various invertebrate groups in those areas. The continuation of the DIG Newsletter depends on the support of all three of the vice-counties of Dyfed and unless sufficient future material is received by the Editor then the Newsletter, in its present form, will cease to appear after the current stockpile of articles (all referring to Carmarthenshire) is exhausted.

THE ACULEATE HYMENOPTERA OF PEMBREY - TYWYN BURROWS, CARMS VC44 - P.M. Pavett

The recording of this large and important group of insects has been rather neglected in Carmarthenshire and even relatively well-worked localities such as the Pembrey-Tywyn dune system require further attention. As 'the majority of solitary bees and wasps nest in the ground and prefer dry, light, often sandy soils in warm and sunny flowery situations' (Falk, 1991), the area can be anticipated to support a rich fauna. Indeed preliminary survey work since 1985 has indicated a diverse assemblage of aculeates. A review of the general invertebrate interest is given by Morgan (1991) and lists of Hymenoptera collected at this locality (and others in SW and S Wales) have been recently collated (Morgan & Pavett, 1993 - unpublished report).
It is worth noting that the two open dune areas of Tywyn and Pembrey Burrows and the intervening Pembrey Forest (which itself contains many open spaces) is treated as one ecological unit. In the nineteenth century, long before afforestation of the central section, the complete area was principally known as Pembrey Burrows, a name nowadays confined to the eastern extremity. The western part of the site lies in SN30, the rest in SN40, though much of Pembrey Burrows is in SS49.

Much of the information below is based on my own recording but use has also been made by records supplied bv I.K. Morgan and those made by visiting hymenopterists (in 1985, S.J.Falk) and by others in 1988.

To all these individuals, gratitude is expressed.

Aculeata

The floristic nature of the site with its variety of flowering plants would certainly be suitable for many species of bumble bee Apidae. To date, seven species of bumble bee have been recorded: Bombus pascuorum, B. lapidarius. B. terrestris. B. lucorum, B. humilis, B. jonellus and B. ruderarius, the three latter species being local and in decline.

The solitary bees and wasps* recorded are listed below (with initials given for the area of the records: P.B. = Pembrey Burrows, P.F. = Pembrey Forest, T.B. = Tywyn Burrows).

*(Fams: Andrenidae, Megachilidae, Anthophoridae, Colletidae, Melittidae and Halictidae)
Comments are offered for some of the scarcer or rarer species.

Andrena scotica (P.S.)	-	IKM
A. bicolor (P.F.)	-	IKM
A. bucephala (P.B.)		IKM
A. barbilabris (P.B.,T.B.)	-	MEA,IKM
A. thoracica (P.B.,T.B.)	-	IKM
A. clarkella (T.B.)	-	IKM
A. cineraria (Banc-y-lord)	-	IKM
Osmia aurulenta (P.F.)	-	IKM
Megachile maritima (P.F.)	-	IKM
M. willughbiella (P.F.)	-	IKM
M. ligniseca (P.F.)	-	PMP
M. versicolor (P.F.)	-	SJC
Coelioxys vectis (P-F-)	-	IKM,PMP
C. elongata (P.B.)	-	IKM,PMP
C. mandibularis (P.F.)	-	IKM
Hoplites spinulosa (P.B.,P.F.,T.B.)	-	MEA,IKM, PMP
Nomada goodeniana (Banc-y-lord)	-	IKM
N. ruficornis (P.F.)	-	PMP
N. fabriciana (P.F.)	-	IKM
Epeolus variegatus Nb (P.F.)	-	IKM,PMP
E. cruciger (P.F.)	-	IKM,PMP
Eucera longicornis (Banc-y-lord)	-	IKM
Anthophora furcata (P.F.)	-	PMP
Colletes fodiens (P.F.,T.B.)	-	MEA,SJF, IKM
C. marginatus Nb (T.B.)	-	MEA, SJF
Hylaeus communis (P.B.)	-	IKM
H. hyalinatus (P.F.)	-	IKM
Dasypoda altercator Nb (P.B.,P.F.)	-	IKM,PMP
Halictus tumbilorum (P.F.)	-	IKM
Lasioglossum calceatum (P.F.)	-	IKM
L. zonulus (P.F.,T.B.)	-	SJF,IKM, PMP
L. punctatissimum (P.B.)	-	IKM
L. fratellum (P.F.)	-	JTB
L. leucozonium (P.F.,T.3.)	-	SJF,IKM
L. villosulus (T.B.)	-	SJF
Sphecodes ephippius (P.F.)	-	IKM

Colletes marginatus is a very local mining bee (c30 post-1970 sites) of southern coastal dunes where it forms nesting aggregations, utilising flower- rich areas for foraging (Falk, 1991). Coelioxys mandibularis, a Red Data Book 3 cuckoo bee, has also been recorded from a clearing within Pembrey Forest (at 22/391024, 5.8.1985). Falk (loc.cit,) gives its British distributiion as "three discontinuous (coastal) areas" (Lancs/Cheshire, S.Wales and W.Sussex/E.Kent). It is a cleptoparasite of Megachile spp.

The very attractive Nb mining bee Dasypoda altercator (the females have gorgeous tufts of golden-yellow hairs on their hind legs), has only been recorded from two areas, with colonies at 22/391010 and 22/397007.

Just two of the Chrysididae or ruby-tailed wasps have been recorded, though others undoubtedly occur within the area. Trichrysis cyanea, a common species which is parasitic on the Sphecid wasps Trypoxylon sp and Pemphredon sp, can often be found investigating holes and cavities in dead wood whilst Hedychridium ardens can regularly be observed running over sandy spaces and embankments searching for their host - the sphecid wasp, Tachysphex pompiliformis.

Of the forty species of the family Pompilidae, (the "spider hunting wasps"), only six species have been recorded, and again it is likely that others will be found to occur in the area. Episyron rufipes is a locally frequent species of open, sandy areas, preying upon the spiders of the Araneidae and less so on the Lycosidae. The commonest species to be found is Pompilius cinereus which is often encountered in large groups running furiously over expanses of bare sand where it principally hunts spiders of the Lycosidae. Two species of the genus Anoplius are to be found with Anoplius infuscatus being the commonest, preying upon spiders of the Lycosidae, Agelenidae and Thomisidae: it is said to prefer areas of damp sand. Anoplius viaticus is a local and easily identified species, usually found in fairly large aggregations on sandy soil with sparse vegetation (such as trackways) where it hunts spiders of the families Lycosidae, Gnaphosidae, Agelenidae and sometimes Thomisidae. Priocnemis exaltata is the commonest member of its difficult genus, and is to be found in a variety of situations where it preys upon a range of spider species of the Lycosidae, Salticidae and Pisauridae. The last species, Arachnospila anceps, whilst a common wasp, has only been taken twice, being found on the sandhills of the burrows; numerous spider species are said to be taken as prey.

Three species: Symmorphus gracilis, S. mutinensis and Ancistrocerus gazella of the family Eumenidae have been recorded. S. gracilis is a common species which frequents the flowers of figwort Scrophularia sp. and which nests in wood, provisioning the nests with the larvae of the beetles Chrysomela populi, Cionus scrophularia and C. hortulanus. S. mutinensis is again a common species, nesting in cut plant stems, stocking them with the beetle larvae of Phyllodecta vulgatissima. A. gazella, another common species, utilises various cavities especially cut stems, this time stocking them with lepidopterous larvae.

Of the social wasps, the Vespidae, only the four commonest species have been recorded: Paravespula vulgaris. P. germanica, Vespula rufa and Polichovespula sylvestris, these being found throughout the wooded areas.

The small family Tiphidae consists of only four species of which only Tiphia femorata has been found. A locally common species of sandy areas, it preys upon larvae of the family Scarabaeidae. It is a common wasp at Pembrey and is often to be seen running on the sand at the base of marram grass on the forest/dune boundary. Sapyga quinquepunctatus (fam: Sapygidae) has been recorded once - on Pembrey Burrows (21/41-99-, 20.5.1990, IKM). At this site it is probably a parasite of Hoplites spinulosa.

The family Sphecidae make up the bulk of records for the area with no less than twenty three species, many of them being common but rather elusive insects. On the northern edge of Pembrey Burrows, the local Astata pinguis has been noted on a number of occasions. Tachysphex pompiliformis is a common and widespread species on sandy soils where it preys upon the nymphs of grasshoppers (Acrididae) and is a numerous species on the burrows and in the sandy clearings of Pembrey Forest. Crabro cribrarius is another common species which predates various dipterans (flies) and is most often encountered upon the flowerheads of the Umbelliferae. Equally frequent is the smaller Crabro peltarius which again preys upon various dipterans and is often seen, sometimes in large numbers, running over the leaves of sallow, birch etc or else at their nest burrows in vertical sand faces. Another species with similar habits is the common Ectemnius continuus which is regularly encountered on Umbel flowers or around dead, rotten wood. Ectemnius cavifrons is another species with similar requirements and is equally as ubiquitous as E. continuus throughout the wooded areas of the dune system. The rare Ectemnius sexcinctus (Nb) has been taken once in the forest amongst a large stand of umbells, a situation it is said to prefer. This species however, is very similar to the last two preceding species and may well be overlooked.

Of the large and more difficult genus Crossocerus, only three species have been recorded. C. wesmaeli is very common on the dunes where it nests in the sand and preys upon small dipterans, and probably this is the most numerous wasp of the area. The common C. megacephalus nests in beetle-bored wood, stocking the nest with dipteran prey and again this is a fairly frequent species of the woodlands. C. quadrimaculatus also hunts various dipterans and can be very numerous, excavating its nests in the ground, with the entrances to old rabbit burrows being especially favoured. The common Rhopalum clavipes nests mostly in stems but also in wood, old mortar and sand, usually stocking these nests with Psocoptera. Only once this species has been taken. Oxybelus uniglumis can be found on almost any bare sand area, both within the Forest and more especially on the dunes, where it excavates a nest stocked with dipterans especially Cyclorrapha. The much rarer O. argentatus (Na) is not uncommon on the South Wales dunes and it is frequent at Pembrey Burrows where it hunts flies of the genus Thereva. Adults can often be seen on umbell flowers and spurges Euphorbia spp.

Three species of Psen have been recorded. P. littoralis is a rare species (RDB3) which occurs on dunes and has been taken twice in Pembrey Forest. Little is known of its ecology, but it is believed that it possibly nests in marram stems- Falk (1991) gives its British distribution as "dune systems of the western seaboard". P. equestris is similar but is far more common, nesting in sandy soils and stocking the nests with homopterans; it is most often encountered along the dune/forest boundary on the flowers of Pastinacea and Euphorbia. P. dahlbomi has different habits to the two preceding species, preferring to nest in dead wood and has been taken only once in the Forest. Ammophila sabulosa is commonly seen along sandy pathways and embankments and also on the more established dunes, nesting in sand and preying upon lepidopterous larvae, whilst on birch and sallow, numbers of the very common Mellinus arvensis may be noted where they prey upon various dipterans. Also in the woodlands the common Trypoxylon figulus has been taken on brambles. One of the larger and more distinctive species is the common Argogorytes mystaceus which often frequents umbell flower heads, this wasp nests in soil and as prey it extracts the nymphs and pupae of Philaenus (Cercopidae) from its "cuckoo spit". A singleton of the cleptoparasite of A. mystaceus - Nysson spinosus - has also been taken in the Forest. The rarer Nysson dimidiatus (Nb) (which is a cleptoparasite of Gorytes tumidus and less so of Lindenius albilabris) has been noted on the northern arm of Pembrey Burrows. Neither of the hosts have yet to be found. The common Cerceris arenarius is to be found on the Burrows where it sometimes nests in fairly large aggregations, preying upon larvae of weevils Curculionidae especially Otiorhynchus spp.

References

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Morgan, I.K. (1991). - Dyfed Site Report (9): Tywyn-Pembrey (22/30, 22/40, 21/49) CARMS, VC44. DIG Newsl. *22:* 4-13

Morgan, I.K. & Pavett, P.M. (1993). - Recent collecting of aculeates in south and south-west Wales. Unpublished report.

AN UPLAND RECORD FOR THE CENTIPEDE LITHOBIUS CURTIPES (CHILOPODA, LITHOBIOMORPHA) FROM DYFED - A.D. Barber

A small collection of chilopods was made in the area of The Black Mountain (Mynydd Du) in the Brecon Beacons National Park. Investigations at a cairn on millstone grit moorland, 19 September 1993, yielded the larger lithobiids, Lithobius variegatus and Lithobius forficatus in some numbers together with several small brown animals under rocks derived from the cairn. Examination of these later showed that the collection contained one male Lithobius borealis and six specimens of Lithobius curtipes (4 males, 2 females). The site was at NGR 22/740179 near an area marked as Moel Gornach on the 1:25,000 OS map and around the height of 616m.

Ian Morgan has drawn my attention to two other L. curtipes records from VC44, one from Foel Fawr (560m) close to the present location, the other from a corrie at Bannau Sir Gar 22/805216, 600m).

Although it is a widespread but scattered species in the British Isles L. curtipes has generally, although not exclusively, been found in woodland. It has been considered a possible ancient woodland species. When found several specimens are usually collected at the same time, suggesting its occupation of the small lithobid niche in the site concerned.

The species is not generally regarded as an upland one; in much of eastern Britain the small Lithobius of moorland and upland sites is Lithobius crassipes whilst more westerly areas have L. borealis. The seasonal Lamyctes fulvicornis is also found in such sites (generally wetter areas) as is the distinctive dark Lithobius calcaratus (generally drier sites).

Possibly it is the western upland location that results in these records of L. curtipes; it would be extremely valuable to have other collections from similar situations in western Britain.

Reference:
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ADDITIONS TO THE LIST OF PEMBROKESHIRE HETEROPTERA - K.N.A. ALEXANDER & R.D. HAWKINS

Kirby (1992a) has recently brought together a considerable amount of published and unpublished information on the occurrence of Heteroptera in Pembrokeshire. Unfortunately, one major source not consulted was the National Trust Biological Survey. Examination of these records has brought to light a number of additions to the Provisional List, both from KNAA's own fieldwork and from collation of existing records. RDH is also able to offer additions, from recording during 1993.

KNAA's fieldwork has resulted in the following additions:

Capsodes gothicus (L.) - swept in rushy grassland, with its foodplant Lotus uliginosus, in Cwm Dewi, Dinas Island (SN 007399), 23.6.1988.

Heterocordylus tibialis (Hahn) - from Genista pilosa in heath on St. David's Head (SM 723281), 3.6.i981, and from Ulex europaeus on Penberi (SM 765291), 5.6.1981. Also on broom at Dinas Island, 22.6.1988.

C. gothicus is a fairly local species nationally, and this is my only Welsh record. Southwood & Leston (1959) mention only one Welsh county: Glamorganshire.

The 1981 records for H. tibialis were featured in the Newsletter of the Heteroptera Study Group (Alexander, 1985) as, up until that time, the bug had only been reported from broom. Genista pilosa was expected to have H. genistae, which feeds on Genista tinctoria and is occasionally found on broom.

During the compilation of the National Trust Biological Survey of the Stackpole Estate, I examined records held by the FSC Orielton Field Centre. These include lists of Heteroptera from the three sand dune systems of Freshwater West, Stackpole Warren and Barafundle Bay (from A.H. Arnold and T.R.E. Southwood dating from the 1970's). I am not clear, however, whether these refer only to records checked by T.R.E.S. or whether they include unverified student identifications.

Eurygaster maura (L.). There are confirmed records only from Kent, Surrey and Hampshire, although these do include dunes and other dry grassland areas (Kirby, 1992b).

Podops inuncta (F.). A widespread species of dry grasslands right across southern England, so its presence in the county is not surprising.

Ceraleptus lividus Stein. A sand dune speciality, although only noted from SE England in Southwood & Leston (1959).

Cymus glandicolor Hahn. A widespread species of open damp situations such as marshes, lake shores and dune slacks.

Trigonotylus psammaecolor Reuter. A characteristic species of coastal sand dunes, and known from both Cardiganshire and Carmarthenshire (Kirby, 1992b).

RDH is able to offer the following additions:

John Steer found an overwintering Elasmostethus tristriatus (F.) while working on a cypress hedge in a Kilgetty garden on 3.1.1993. This species was formerly only found on juniper in southern England and so was scarce, but has recently adapted to feed on Lawson's cypress and other garden conifers, and is now quite widespread (including other parts of SW Wales). RDH beat a specimen of E. interstinctus (L.) from birch in Cwm Gwaun on 13.9.1993.

The large and handsome mirid Pantilius tunicatus (F.) has apparently been overlooked since it is not adult until September when visiting Heteropterists are likely to have returned home. RDH found nymphs on alder at Llangloffan Mire on 10.9.1993, and on hazel at Robeston Wathen on 12.9.1993 and in Cwm Gwaun on 13.9.1993. The first and last of these were reared to adult. The insect may also be found on birch. On all these trees, RDH has seen it feeding on the young male catkins that will flower in the following year.

A second Pembrokeshire specimen of the rare mirid Adelphocoris seticornis (F.) was found by John Steer at Llangloffan Mire near Mathry on 10.9.1993, while he and RDH were recording insects for the Dyfed Wildlife Trust. The insect was found on marsh cinquefoil, but greater bird's-foot-trefoil is likely to be its foodplant. The first county record was made by the same two entomologists from very similar habitat with both these plants at another DWT reserve, King's Moor at Kilgetty.

The colourful red and black Corizus hyoscyami (L.) has been recorded from Pembrokeshire by many observers. It is normally coastal, so it is perhaps worth mentioning that it can also occur inland. In 1990 it was found by JS on a DIG meeting in a quarry at Rosebush in the Preseli's. This is some 10km from the sea at Newport Bay.

References

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RECORDING OF LARGER BRACHYCERA IN CARMARTHENSHIRE - I.K. Morgan

Introduction

Recording of Larger Brachycera in Carmarthenshire principally started in 1985 when the author simultaneously embarked upon an investigation of the vice- county's syrphid fauna; in August of that year, Steve Falk visited briefly and provided an impetus to the recording effort by noting several scarce or local species. In July 1986, the "Dipterists Group"* held their annual summer field meeting in Carmarthenshire and, not surprisingly, several species were added

to the vice-county list. In addition to the author, Messrs. S. Coker, A.P. Fowles, G.W. Hopkins and P.M. Pavett have also, in the same general period, provided useful records.

Inspection of the provisional distribution maps (at the end of this summary) and the skeletal text, will show that knowledge of the distribution of the Larger Brachycera in the vice-county is but scant, and it goes without saying that many future happy hours remain to be spent engaged in further collecting, and - importantly - basic observation.

(*Austin Brackenbury, Jon Cole, D. Clements, Roy Crossley, Ian McLean, M.J.Morgan, Ivan Perry, Keith Porter and M.N. Pugh, A.E. Stubbs.

The Brachycera are a polymorphic group of several varied families of generally well-built flies with short antennae (Chinery, 1973), and in this casual review these comprise the Stratiomyiidae, Xylomyiidae, Rhagionidae, Tabanidae, Bombylidae, Therevidae, Asilidae and the Acroceridae. Oldroyd (1969) contains an useful discussion on the classification and phylogeny of this sub-order, to which readers are referred.

The family Stratiomyiidae holds over fifty British species which are commonly known as "soldier-flies" on account of their spinose scutellum and often bright colours; some 24 species have been recorded in Carmarthenshire. The adults can often be seen swarming or sunning themselves on foliage and the larvae live in damp litter or in water, where they feed on detritus or small invertebrates.

The Xylomyiidae are related to the soldier-flies. One species only - Xylophagus ater - which breeds in old wood, has been noted in Carmarthenshire.

Of the scarcer soldier-flies, Vanoyia tenuicornis has been regularly noted around the Witchett Pool 22/283077 on Laugharne Burrows and by the Welsh Peatland Invertebrate Survey (W.P.I.S.) inland at Ynys-uchaf 22/490150 (1989). The large, handsome Stratiomys singularior (=furcata) and S. potamida are both known from coastal ponds (eg Machynys 21/512980), whilst potamida is additionally recorded from Stradey Woods 22/488017 and Dinefwr Park 22/612220; both these latter woodland sites also provide records of the sawfly-like Xylophagus ater. Xylophagus is additionally known from Nant Melyn 22/730466 (D. Clements, 10.6.1986), Coed-y-Marchog, Pembrey 22/42-02- (K. Alexander, 13.2.1989), and in alder carr SW of Cilsan Bridge 22/580205, 5.5.1993. The most interesting record of Stratiomys singularior is from an inland water body (22/491088) below the spoil tips of the now-closed Cynheidre Colliery near Five Roads, as this soldier fly is normally associated with coastal marshes. Interestingly, sea club-rush Scirpus maritimus also grows at this locality. Drake (1993) has drawn attention to various coastal species occurring on inland saline sites.
Three species of Nemotelus have been recorded on the coast - notatus, pantherinus and uliginosus whilst Oxycera rara (= pulchella) and O. nigricornis are known from the tufa and moss-encrusted springs at the western end of Dinefwr Park, Llandeilo 22/609227 (A.P. Fowles and P.M. Pavett); with O. rara additionally once caught, basking on a bramble brake near Drefach 22/525144 (July 1985). The lime green and black-marked Oxycera trilineata is well established at some coastal water bodies, whilst the similarly green Oplodontha (=Odontomyia) viridula is more widespread, extending to inland waters and marshes.

The Rhagionidae has eighteen British species, of slim, mostly terrestrial, long-legged flies (hence "snipe-flies'), often coloured in shades of browns, yellows or greys; most are poorly recorded in the vice-county. One of the commonest species - Rhagio scolopacea - often rests on tree trunks or other objects facing downwards; resulting in the vernacular name "down-looker". The larvae live in decaying wood, mosses or liverworts and soil (though the larvae of Antherix are aquatic). Antherix ibex has been recorded on two rivers - on the Tywi at Dryslwyn 22/555202, 21.5.1991 and the Taf near Old Pale 22/239151, 21.5.1992.

The Tabanidae are familiar in that they include the bothersome Haematopota spp. of summer. The tabanids or "horse-flies" are heftily-built, with a large head and often iridescent eyes. The females require blood feeds before ovipositing and consequently attack livestock and sometimes humans. The larvae live in damp soils, where they lead a predatory existence; fifteen species are known from Carmarthenshire.

Recording coverage of the tabanids in the vice-county is fair and some local species have been noted such as the capture of the southern Haematopota grandis (="itala") on transitional saltmarsh/dune slack at Tywyn Burrows 22/365055 on 8 Sept. 1985. H. grandis was also recorded at Llangennech 22/573023 in mid-August 1992 and again (at 22/571020) on 13.7.1993. Here the habitat was rank willow/herbaceous carr at the very top of saltmarsh. Atylotus fulva, principally a species of southern and wet heaths, has been recorded at three sites: Cors Goch Llanllwch 22/364185, 8.8.1985; Pant Nant-fforchog 22/692190, 8.7.1986; and Cefn Blaenau 22/579416, 13.7.1989. The local Tabanus cordiger has been noted at two localities - Dinefwr Castle Woods 22/612217 and SW of Llandovery 22/755331 (both 1987), and Hybomitra micans from only one site in the NE of the county -A11t-y-Ferdre 22/812338, 19.6.1990. The few records of Tabanus autumnalis, T. bromius and Hybomitra muhlfeldi are mostly coastal and H. montana is only known from Cors Goch Llanllwch 22/362188, 3.7.1988 (A.P. Fowles). The largest British horsefly - Tabanus sudeticus - is a familiar member of the wet acidic pasture invertebrate community in Carmarthenshire, though individuals can wander into urban areas, as did the specimen appropriately caught by the visiting party of dipterists in the Refectory of Carmarthen Trinity College in July 19861

The Bombylidae comprise the familiar "bee-flies", of which two - Bombylius major and B. canescens are regularly seen in the vice-county, B. major being welcome indicator of the return of spring (appearing as early as 18 March in 1990), as it dexterously visits woodland flowers to suck nectar. The bee-flies superficially resemble bumble bees (hence their common name) and their larvae are parasitic on insects, most particularly solitary bees and wasps, the eggs being laid near the nests of these aculeates, with the young larvae making its way into the nest itself to consume both the young bees and wasps or stored food.

Bombylius major and B. canescens will probably prove to be quite widespread in the vice-county, canescens favouring open grassy situations and with major being more of a wood-edge species. There are no county records yet of Villa paniscus (=modesta), which is known however, from dunes just across the Burry Inlet at Whiteford, 21/41-99-, but the spotted-winged Bombylius discolor (recorded at Oxwich Point 21/510848, P.M. Pavett, 1985) is perhaps more unlikely. Pthyria pulicaria, the world's smallest bee-fly, was noted on several coastal burrows by the visiting dipterists in July 1986; there have been no subsequent records. The Therevidae are hirsute, rather slender, fragile-legged flies, clothed in golden-brown or silvery hairs; the predatory larvae living in soil and leaf litter. Recording of therevids is rather badly-neglected in the vice-county, though five species have been noted, including the rather rare Thereva fulva, caught by S.J. Falk at Pembrey 22/427003 on 6.8.1985, and the discovery of a colony of Thereva lunulata on sandy parts of the shingle expanse besides the Afon Tywi at Llanwrda 22/714307 (1989,90,91). The brown T. nobilitata and the silver T. annulata are reasonably frequent on the coastal dunes, with annulata preferring more disturbed areas, and nobilitata part-scrubbed-over duneland; individuals of the latter have been observed ovipositing on damp, sandy trackways leading across the edge of Pembrey Saltings 21/41-99-. Dialineura anilis, a scarce member of the Therevidae, is known from several coastal duneland sites.

The Asilidae or "robberf1ies" are, like the therevids, slender but generally more strongly-built flies, as befits their predatory adult lifestyle, for they are great hunters of other insects which they suck dry of body juices with their strong probosces. The larvae feed on humus or other decaying matter in soil. Although never numerous, the robberflies are normally reasonably conspicuous insects and recording coverage is fair. The large Asilus crabroniformis is represented by four records - Pentrecwrt, Llandysul 22/38- 38-, July 1963 (R. Millichamp); Cencoed-uchaf 22/480033, 28.7.1977; Garn,

Drefach 22/512145, 17.8.1985 and N. of Carregwenlais 22/598166, 29.8.1986. The equally attractive Pamponerus germanicus (a species, which in Britain, is mostly confined to west coast dune systems) is known from the sand dunes of Laugharne, Tywyn and Pembrey Burrows, where it can be seen frequenting "blow-outs" or scrub-edge situations. Pamponerus shares these dunes with Dysmachus trigonus, Philonicus albiceps, Dioctria rufipes and the small Lasiopogon cinctus; none of these species are currently known to occur inland in Carmarthenshire.

The inland asilid fauna is represented by a few records (at present only in the NE hill country) of Leptarthrus brevirostis and Dioctria oelandica, both known from the edge of upland woods and sheep pasture. Recent records of oelandica from Pembrokeshire suggests that careful searching in west Carmarthenshire will reveal it to be present there also. The distribution of Machimus atricapillus in VC44 fits in well with the observation of other dipterists that the species favours calcereous soils, for Carmarthenshire records hail from the carboniferous limestone outcrop and the slightly base- enriched Silurian soils of the Rhandirmwyn-Cilycwm (22/74) district. It has also recently been recorded near Gelli Aur (22/585195, 2.8.1993), when one was observed resting on a log in a felled conifer plantation. The small Leptogaster cylindrica is probably overlooked, the few records resulting from sweeping of grassy situations.

The Acroceridae are smallish rotund flies, with significant-sized heads; the larvae are said to parasitise wolf-spiders in sunny, open habitats. Acrocera orbicula has been netted on river shingle near Llandovery 22/755331 (19.7.1987) and on Tywyn Burrows 22/37-04- (17.7.1988).

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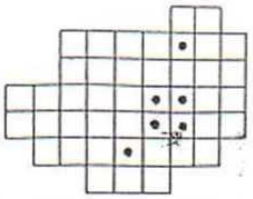

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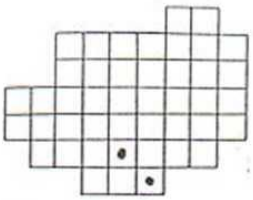

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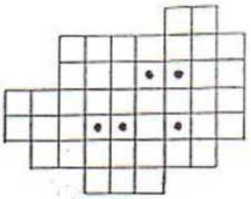

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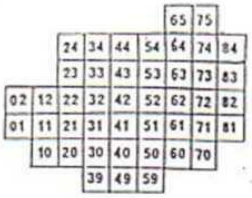

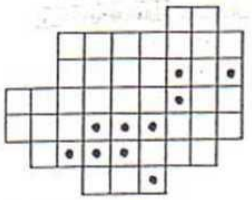

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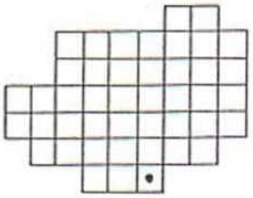

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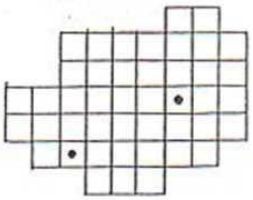

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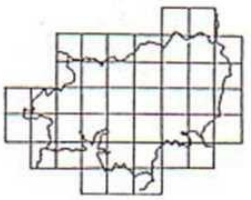

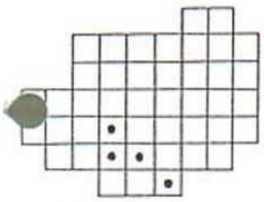

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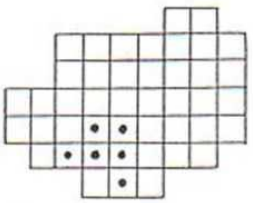

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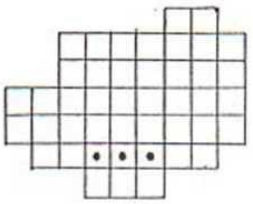

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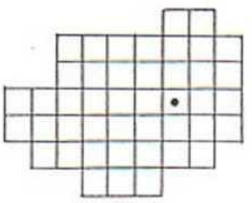

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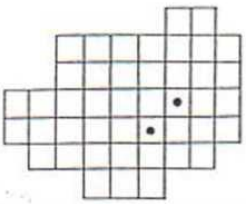

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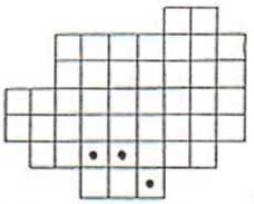

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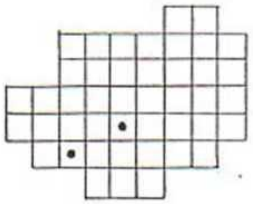

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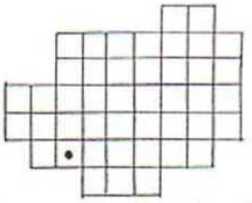

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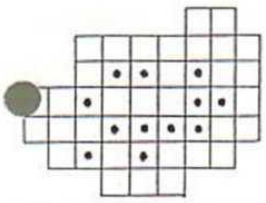

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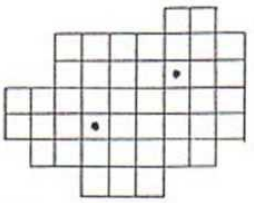

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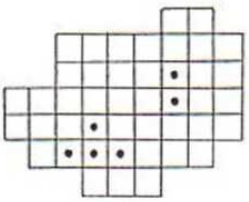

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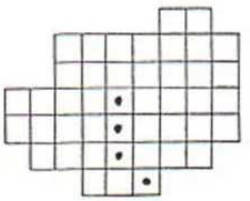

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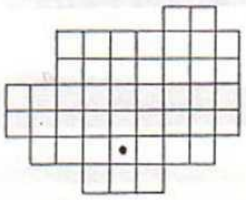

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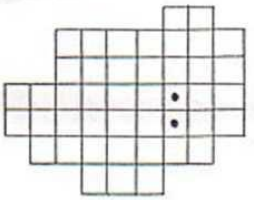

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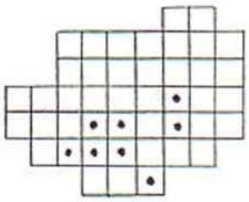

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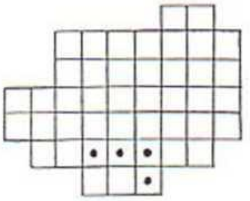

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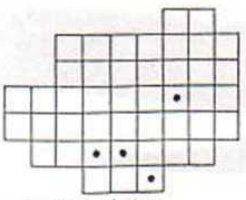

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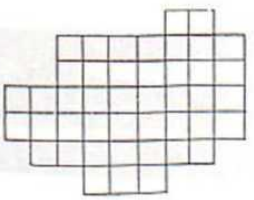

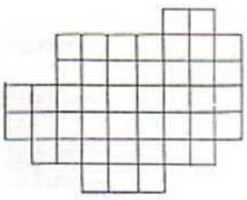

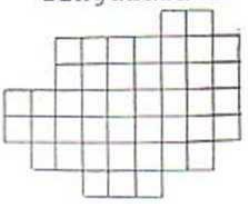

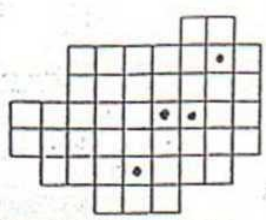

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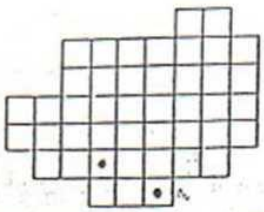

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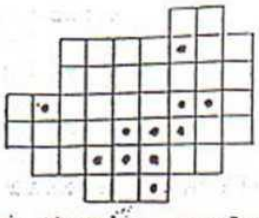

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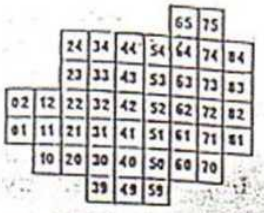

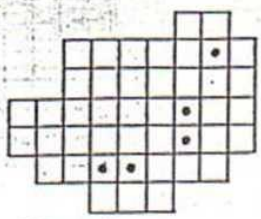

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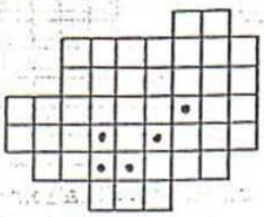

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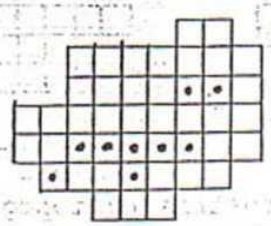

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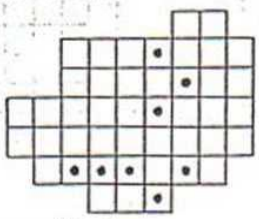

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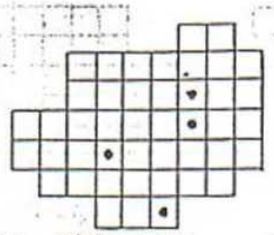

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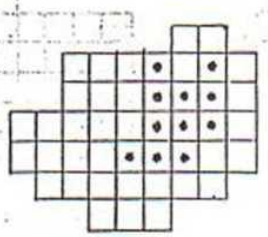

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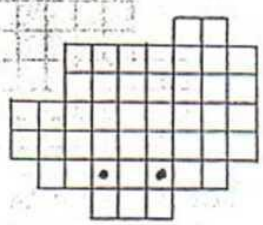

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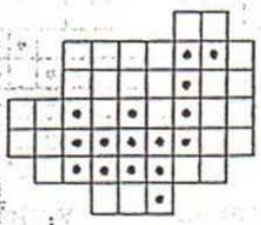

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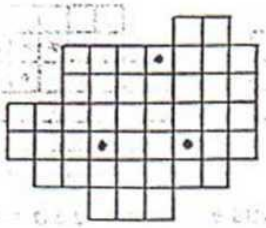

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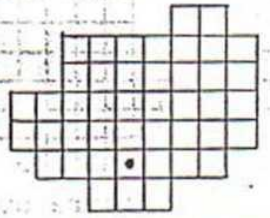

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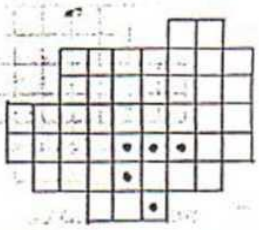
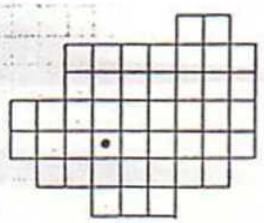


H. distinguenda



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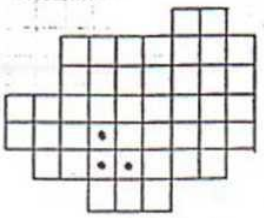

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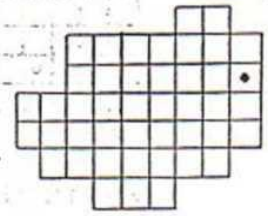

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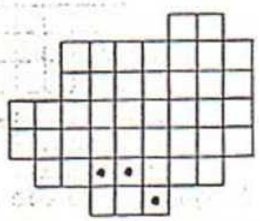

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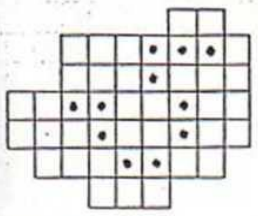

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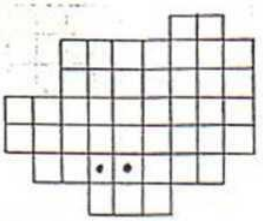

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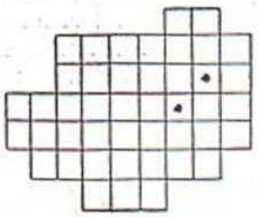

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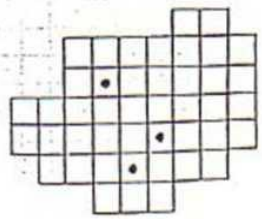
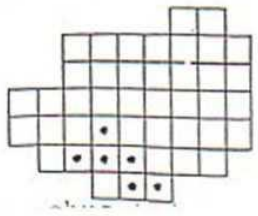
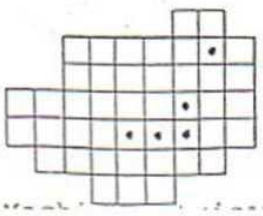
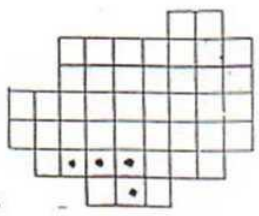
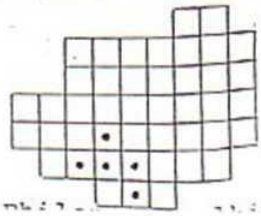


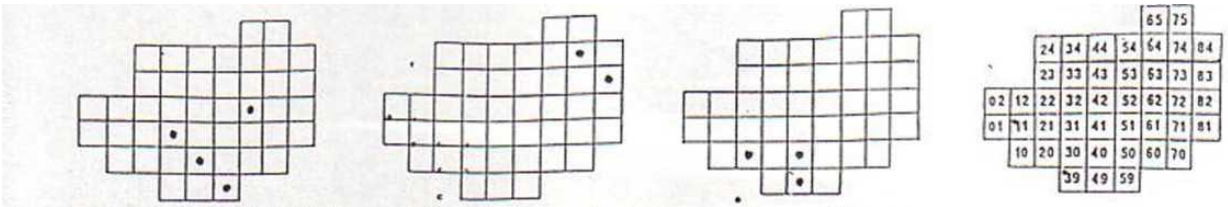
Asilus crabroniformis



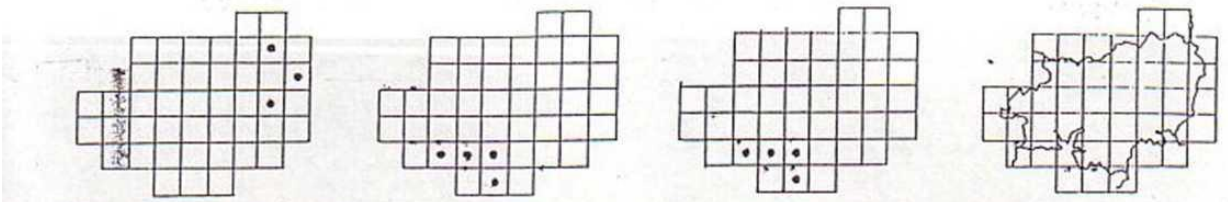




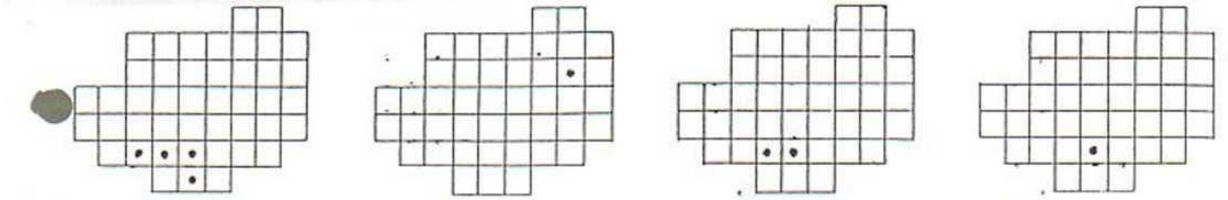




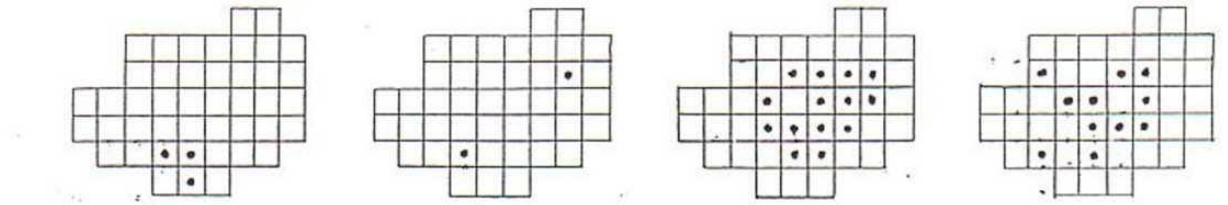
Leptogaster cylindrica Dioctria oelandica D. rufipes



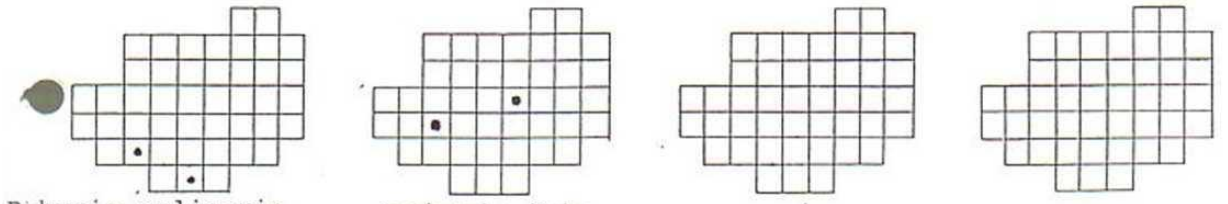
Leptarthrus brevirostris Lasiopogon cinctus Dialineura anilis



Thereva annulata T. lunulata T. bipunctata T. fulva



T. nobilitata Acrocera orbicula Bombylius canescens B. major



Pthyria pulicaria Antherix ibis

A Review of Micro Lepidoptera in Carmarthenshire

Barry Stewart

Recorders and Coverage

Carmarthenshire's Microlepidoptera, like so many other of its invertebrate groups, has received only a minimal amount of attention. The period covered in this report is from 1971 up to the end of 1992. A search of the files for Carmarthenshire held by I.K. Morgan revealed only four active recorders during the period. A major contribution of records has come from David Davies at Rhandirmwyn, where between 1971 and 1987 he noted over 200 species. Many of his records are from the early eighties and are of insects caught as adults. A visit to the vice-county was made by A.M. Emmet and J.R. Langmaid on the 20th September 1990. They visited Carmel Woods and Gelli Aur, but unfortunately bad weather prevented them from really working these sites well. However they still managed to record fifty species, including several new to Carmarthenshire. Ian Morgan during his field work on other groups has kept open a watchful eye for micros, producing some interesting records. The author has sampled several sites along the coast between Kidwelly and Loughor bridge, as well as a few selected inland sites, and has recorded around 200 species. Recently both Andrew Lucas (CCW), and Steve Lucas have taken an interest in Micro's, which will hopefully help to generate future records. It is possible that there are still some old records which have not yet come to light. British Tortricoid Moths bv Bradley, Tremewan & Smith 1973 list several species as being recorded in Carmarthenshire, and 'The Moths & Butterflies of Great Britain & Ireland' by Emmet and Heath has dots in the vice-county distribution maps for a good number of species. Records from these sources have been included in the species list but have been marked with an asterisk.

A copy of this paper and a full list of species recorded have been placed with the lepidoptera recorder for Carmarthenshire (currently I.K. Morgan) and at the Dept. of Zoology, National Museum of Wales, Cardiff.

Clearly much of the county remains virgin territory for the Microleidopterist, and this summary is intended to act as a baseline for future work. The notes below refer to some of the more interesting records, followed by a species list (names and order as Emmet & Heath '92) covering all species of Microlepidoptera recorded in the Vice County.

Summary of records

A total of 327 species have been recorded up to the end of 1992, the majority of these within the last decade, with 23 families being represented.

David Davies' recording work at Rhandirmwyn produced a good range of species typically associated with mature oak and birch woodland. Dissection of all Caloptilia spp. in 1987 yielded C. robustella, an under-recorded and easily overlooked species, especially in the west, the larvae feed on oak. Another oak

feeder restricted to southern areas is Coleophora lutipennella, the larvae of this species live in portable cases eating only the inside of the leaf leaving a transparent window (1985). C. ibipennella was recorded in 1987 and is one of the few birch feeders apparently absent from Scotland. Psoricoptera gibbosella also recorded in 1985 is described as a scarce oakwood species. Also described as scarce but widespread is Hypatima rhomboidella, the larvae of which feed on birch and hazel (1982). One of the best tortricoid records was of Eudemis profundana, which is confined to the better woodlands in southern Britain and is quite scarce (1981). Another local species of southern oakwoods is Epagoge grotiana (1982). Acleris literana is a beautiful green moth found in better woodland areas, recorded in 1983. Gelechia soroculella is a scarce moorland species in our area and feeds on Salix (1985). Capua vulgana is an uncommon species which feeds on Vaccinium usually growing under oak (1986). Apotomois semifasciana, also recorded in 1986, is a widespread but scarce species which feeds on Salix. Lobesia abscisana is a local and scarce species and feeds on spun shoots of Cirsium (1986). Epinotia abbreviana is a scarce species among Ulmus (1986). Cydia splendana is mostly a southern species inhabiting oak and chestnut woods, the larvae feeding in the maturing acorns and nuts (1986). Spatalistis bifasciana is a rare Tortricoid usually found only in south-east England which feeds in the berries of Rhamnus and Frangula, may be new to Wales (1987).

Pyralids at Rhandirmwyn are well represented with 40 species recorded. A noteworthy record yet to be confirmed is that of the local and rare Ephestia parasitella unicolorella (1987).

The visit by A.M.Emmet and J.R.Langmaid to the vice-county on 20th September 1990 generated several new additions to the county list. Stigmella trimaculella, recorded at Gelli Aur is regarded as scarce in Wales. S. myrtillella was recorded at Cynghordy, and is a species more typically found in the north and west of Britain.

Between 1989 and 1992, the author sampled a selection of different habitats primarily in the south-east of the vice-county with no great effort given to any one particular site or family. Much more work is required to cover adequately the diversity of habitats in this area, and to build up a more realistic list of species present. The list of species recorded gives an idea of how important the coastal strip is for micro's.

Coastal sites included the wooded cliffs around St Ishmael's, the cliff-top heath at Ragwen Point, Kidwelly town, the saltmarsh at Penclacwydd, but the probably best sampled of all the sites, was the dune system running from Pembrey Saltings along to Tywyn Point, including sites within Pembrey Forest.

A few interesting Tortricoids were recorded along the coast including the local Aethes tesserana at Pembrey Saltings (30/06/92), this species is usually found on calcareous ground. Epiblema incarnatana was abundant in a clearing in Pembrey Forest (10/08/92), this local species usually feeds on Rosa pimpernellifolia.

Interesting species typical of these coastal habitats included the Pyralids Agriphila latistria in the 'Butterfly Ride' in Pembrey Forest (01/08/90), Anerastia lotella on the dunes at Pembrey Saltings (09/07/92) and Entotrichia flammealis at Ragwen Point (26/06/92). In July 1991, Catoptria pinella was recorded at Penclacwydd and St Ishmael's, somewhat unexpectedly as they usually occur in more boggy or heathy sites. Agriphila selasella, a characteristic species of saltmarshes, was noted annually at several sites on our estuaries, including Penclacwydd and Morfa Uchaf, near Ferryside. It was also noted a short distance away from the coast at Ffrwd Fen in small numbers (10/08/93). Stigmella prunetorum described as scarce and local preferring western counties was recorded at both Penclacwydd and Pembrey Burrows (18/08/91).

Several wetland sites provided a selection of notable species. For example Ffrwd Fen held good numbers of the Pyralid Chilo phragmitella in August 1991, this species is characteristic of large reedbeds and it would be interesting to see if it occurs at other reed bed sites. Obsibotys fuscalis was also recorded here (04/09/91), the larvae are said to feed on Rhinanthus and Melampyrum (neither of which occur at this site. It was probably a wanderer from Mynydd Penbre). The 'China-marks' were well represented with Cataclysta lemnata at Ffrwd Fen (21/08/92), Nymphula stagnata at Kidwelly (01/07/91), Elophila nymphaeata at Penclacwydd (20/07/91) and Parapoynx stratiotata also at Penclacwydd (10/07/91). Ebulea crocealis was recorded in August 1991 at Ffrwd Fen, Penclacwydd and Cwm Clydach. This species is described as very local in Wales.

Tortricoids at Ffrwd included Phalonidia manniana (14/07/92), a localised southern species of marshy areas feeding on Mentha spp.. At the same site and during the same period Bactra lancealana was super-abundant, it prefers damp places where its foodplants, Juncus and Scirpus occur.

Many woodland species were recorded in the Carmel Woods area. Localised Pyralids included Phycita roborella (17/07/91), Eudonia angustea (17/07/91) and E. truncicolella (09/08/92), the latter two are moss feeders and are described as local. Carmel Woods also held a good population of Pyrausta aurata in May 1991, a species with a patchy distribution and more frequently found on chalk. It most probably feeds on Origanum at Carmel. A further noteworthy species seen at this site was Perinephila lancealis which feeds on Eupatorium cannabinum (15/07/91). Another productive woodland site was Cwm Clydach near Trimsaran. The most interesting Tortricoid recorded was Eudemis profundana (15/07/92), an uncommon species associated with Oak.

Heaths and upland areas were very poorly sampled but occasional visits did produce a few records of note. The easily disturbed Catoptria margaritella appeared to be present at most suitable sites including: Carmel Woods, Carmel Bog, Kidwelly and Allt Rhyd-y-groes

The systematic list below follows Emmet and Heaths 'The Moths and Butterflies of Great Britain and Ireland' Vol. 7, part 2

MICROPTERIGIDAE
---l*Micropterix thunbergella
---5*M. calthella

ERIOCRANIIDAE
---6 Eriocrania subpurpurella
--12 E. sangii

NEPTICULIDAE
--28 Ectoedemia angulifasciella
--29*E. atricollis
--34*E. occultella = mediofasciella
--37 E. albifasciella
--39*E. heringi = quercifoliae
--42 Formoria septembrella
--46*Trifurcula immundella
--50 Stigmella aurella
--53*S. splendidissimella
--63 S. marginicolella
--66*S. sorbi
--67 S. plagicolella
--68 S. salicis
--72 S. myrtillella
--73 S. trimaculella
--75 S. floslactella
--77*S. tityrella
--79 S. perpygmaeella = pygmaeella
--81*S. hemargyrella
--83 S. atricapitella
--84 S. ruficapitella
--87 S. svenssoni
--92 S. anomalella - ROSE LEAF MINER
--99 S. hybnerella
-100*S. oxyacanthella
-103*S. nylandriella = aucupariae
-108 S. crataegella
-109 S. prunetorum
-111 S. microtheriella
-113*S. sakhalinella = distinguenda
-114*S. glutinosae = distinguenda
-116 S. lapponica
-117*S. confusella

TISCHERIIDAE
-123 Tischeria ekebladella
-125 T. marginea

INCURVARIIDAE
-130*Incurvaria masculella
-135*Lampronia luzella
-140 Nematopogon swammerdaraella
-141 N. schwarziellus = panzerella
-148 Nemophora degeerella
-150*Adela reaumurella

HELIOZELIDAE
-154 Heliozela sericiella
-156 H. resplendella

-157*H. hammoniella = betulae
-158 Antispila metallella = pfeifferella

TINEIDAE
-216 Nemapogon cloacella
-220*N. clematella = arcella
-227*Monopis laevigella = rusticella - SKIN MOTH
-230*M. crocicapitella
-245 Tinea pallescentella
-246 T. semifulvella
-247 T. trinotella

LYONETIIDAE
-254 Leucoptera labumella
-263 Lyonetia clerkella

BUCCULATRICIDAE
-267 Bucculatrix maritima (needs checking)
-272 B. cidarella
-276*B. demaryella

GRACILLARIIDAE

Gracillariinae
-282 Caloptilia elongella
-286 C. alchimiella
-287 C. robustella
-288 C. stigmatella
-290 C. semifascia
-293 C. syringella
-294*Aspilapteryx tringipennella
-301 Parornix betulae
-303 P. anglicella
-304 P. devoniella
-305*P. scoticella
-308 P. finitimella
-309 P. torquillella
-310*Callisto denticulella

Lithocolletinae
-315 Phyllonorycter harrisella
-317 P. heegeriella
-320 P. quercifoliella
-321 P. messaniella
-323 P. oxyacanthae
-326 P. blancardella
-329 P. spinicolella = pomonella
-332 P. corylifoliella
-333*P. viminiella
-335 P. saliciolella
-338 P. cavella
-341 P. maestingella
-342 P. coryli
-345 P. rajella
-348*P. quinqueguttella
-351*P. lautella
-353 P. ulmifoliella

-359 P. nicellii
-360*P. kleemannella
-361*P. trifasciella
-364 P. geniculella

Phyllocnistinae
-368 Phyllocnistis unipunctella

CHOREUTIDAE
-385 Anthophila fabriciana

YPONOMEUTIDAE
-410 Argyresthia brockeella
-414 A. curvella
-415 A. retinella
-417 A. spinosella
-424 Yponomeuta evonymella
-427 Y. cagnagella
-441 Paraswaramerdamia lutarea
-449 Prays fraxinella
-460 Ypsolopha parenthesella
-461 Y. ustella
-464 Plutella xylostella
-465 P. porrectella

SCHRECKENSTEINIIDAE
-485 Schreckensteinia festaliella

COLEOPHORIDAE
-490 Coleophora lutipennella
-491 C. gryphipennella
-492 C. flavipennella
-519 C. deauratella
-526 C. laricella
-536 C. ibipennella
-544 C. albicosta
-547 C. discordella
-553 C. striatipennella
-582 C. glaucicolella
-584 C. alticolella

ELACHISTIDAE
-597 Elachista atricomella
-600 E. luticomella
-607 E. canapennella
-610 E. argentella
-621 E. subalbidella

OECOPHORIDAE
-647 Hofmannophila pseudospretella
-648 Endrosis sarcitrella -WHITE-SHOULDERED HOUSE-MOTH
-658 Carcina quercana
-660 Pseudatemelia josephinae
-663 Diurnea fagella
-664 D. phryganella
-666 Semioscopis avellanella
-670 Depressaria daucella
-672 D. pastinacella

-688 Agonopterix heracliana
-689 À. ciliella
-697 A. arenella
-701 A. ocellana
-702 A. assimilella
-705 A. ulicetella
-706 A. nervosa
-710 A. conteminella

GELECHIDAE
-765 Teleiodes vulgella
-767 T. decorella
-774 T. luculella
-776 Teleiopsis diffinis
-787 Bryotropha terrella
-792 Mirificarma mulinella
-797 Neofaculta ericetella
-802a Gelechia sororculella
-834 Caryocolum tricolorella
-855 Acompsia cinerella
-856 Anarsia spartiella
-858 Hypatima rhomboidella
-859 Psoricoptera gibbosella

MOMPHIDAE
-883 Mompha raschkiella
-892 M. subbistrigella
-893 M. epilobiella

COSMOPTERIGIDAE
-905 Blastodacna hellerella

TORTRICIDAE

Cochylinae
-926 Phalonidia manniana
-928*Piercea permixtana
-936 Cochylimorpha straminea
-937 Agapeta hamana
-938 A. zoegana
-939 Aethes tesserana
-945 A. cnicana
-946 A. rubigana
-954 Eupoecilia angustana
-959 Cochylidia rupicola
-966 Cochylis atricapitana

Tortricinae
-969 Pandemis corylana
-970 P. cerasana
-971 P. cinnamomeana
-972 P. heparana
-977 Archips podana
-980 A. xylosteana
-986 Syndemis musculana musculana
-988 Aphelia viburnana
-989 A. paleana
-993 Clepsis spectrana

-994 C. consimilana
1000 Ptycholoma lecheana
1002 Lozotaenia forsterana
1006 Epagoge grotiana
1007 Capua vulgana
1010 Ditula angustiorana
1011 Pseudargyrotoza cowagana
1020 Cnephasia stephensiana
1024 C. incertana
1025 Tortricodes alternella
1029 Eana osseana
1031 E. penziana
1032 Aleimma loeflingiana
1033 Tortrix viridana
1034 Spatalistis bifasciana
1035 Croesia bergmanniana
1037 C. halmiana
1038 Acleris laterana = latifasciana
1041 A. sparsana
1042 A. rhombana
1043 A. aspersana
1048 A. variegana
1053 A. hastiana
1055 A. hyemana
1061 A. literana
1062 A. emargana

Olethreutinae
1063 Celypha striana
1064* C. rosaceana
1065* C. rufana
1076 Olethreutes lacunana
1079 Olethreutes bifasciana
1082 Hedya pruniana
1083 H. demidioalba = nubiferana
1084 H. ochroleucana
1085 H. atropunctana
1087 Orthotaenia undulana
1089 Apotomis semifasciana
1093 A. betuletana
1099 Endothenia marginana
1104 E. quadrimaculana
1108 Lobesia abscisana
1111 B. lancealana
1113 Eudemis profundana
1126 Ancylis badiana
1128 Ancylis myrtillana
1134 Epinotia ramella
1138 E. nisella
1139 E. tenerana
1142 E. tedella
1144 E. signatana
1147 E. cruciana
1150 E. abbreviana
1152 E. maculana
1154 E. caprana
1155 E. brunnichana
1156 E. solandriana

1159 Rhopobota naevana = unipunctana
1163 Zeiraphera ratzeburgiana
1165 Z. isertana
1166 Z. diniana
1168 Gypsonoma sociana
1169 G. dealbana
1174 Epiblema cynosbatella
1175 E. udmanniana
1177 E. rosaecolana
1178 E. roborana
1179 E. incarnatana
1184 E. scutulana
1187 E. costipunctata
1197 Eucosma campoliliana
1200 E. hohenwartiana
1201 E. cana
1202 E. obunbratana
1205 Spilonota ocellana - BUD MOTH
1206* Clavigesta purdeyi - PINE LEAF-MINING MOTH
1210 Rhyacionia buoliana
1219 Lathronympha strigana
1241* Cydia compositella
1255 C. succedana f. asseclana
1260 C. splendana
1261 C. pomonella - CODLING MOTH
1286 Dichrorampha sedatana

ALUCITIDAE
Alucita hexadactyla - MANY-PLUMED MOTH

PYRALIDAE
1290 Chilo phragmitella
1293 Chrysoteuchia culmella
1294 Crambus pascuella
1301 C. lathoniellus = nemorella
1302 C. perlella
1303 Agriphila selasella
1304 A. straminella
1305 A. tristella
1306 A. inquinatella
1307 A. latistria
1309 A. geniculea
1313 Catoptria pinella
1314 C. margaritella
1332 Scoparia subfusca
1333 S. pyralella
1334 S. ambigualis
1336 Eudonia pallida
1338 Dipleurina lacustrata = Eudonia crataegella
1340 Eudonia truncicolella
1342 E. angustea
1344 E. mercurella
1345 Elophila nymphaeata = Nymphula - BROWN CHINA-MARK
1348 Parapoynx statiotata - RINGED CHINA—MARK
1350 Nymphula stagnata - BEAUTIFUL CHINA-MARK
1354 Cataclysta lemnata - SMALL CHINA-MARK
1356 Evergestis forficalis
1361 Pyrausta aurata

1362 P. purpuralis
1365 P. cespitalis
1376 Eurrhypara hortulata - SMALL MAGPIE
1377 Perinephila lancealis
1378 Phlyctaenia coronata
1385 Ebulea crocealis
1386 Opsibotys fuscalis
1388 Udea lutealis
1390 U. prunalis
1392 U. olivalis
1395 U. ferrugalis
1398 Nomophila noctuella
1405 Pleuroptya ruralis - MOTHER OF PEARL
1413 Hypsopygia costalis - GOLD TRIANGLE
1424 Endotricha flammealis
1428 Aphomia sociella
1432 Anerastia lotella
1433 Cryptoblabes bistriga
1439 Numonia advenella = Eurhodope
1451 Pyla fusca
1452 Phycita roborella
1454 Dioryctria abietella
1458 Myelois cribrella
1474 Ephestia parasitella unicolorella (provisional record)
1481 Homoeosoma sinuella
1483 Phycitodes binaevella ? = Rotruda
1484 P. saxicola ? = Rotruda

PTEROPHORIDAE
1495 Marasmarcha lunaedactyla
1497 Amblyptilia acanthadactyla
1498 A. punctidactyla
1500 Platyptilia calodactyla
1504 P. pallidactyla = Pterophorus
1508 Stenoptilia bipunctidactyla
1513 Pterophorus pentadactyla - LARGE WHITE PLUME
1524 Emmelina monodactyla

Acknowledgements
Many thanks must go to Ian Morgan for encouraging me to write this review, also for his enthusiasm in showing me around many of the sites mentioned in the text during the last four and a half years.

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Appendix:
Grid references of sites mentioned in text.

Allt Rhyd-y-Groes	SN/771474
Carmel Bog (Cors Carmel)	SN/593156
Carmel Woods	SN/604164
Cwm Clydach	SN/444075
Cynghordy	SN/806401
Ffrwd Fen	SN/420027
Gelli Aur (Golden Grove)	SN/59-19-
Kidwelly	SN/409073
Loughor Bridge	SS/560980
Morfa Uchaf	SN/370123
Mynydd Penbre	SN/434032
Pembrey Burrows	SS/41-99-
Pembrey Forest ('Butterfly Ride')	SN/390021
Pembrey Forest (Clearing)	SN/390027
Pembrey Saltings	SS/42-99-
Penclacwydd	SS/530983
Ragwen Point	SN/221073
Rhandirmwyn	SN/782440
St Ishmael's	SN/363063

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LLwynhendy
LLanelli
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RECENT RECORDS OF *MELIGETHES* (COLEOPTERA: NITIDULIDAE) FROM CARDIGANSHIRE (V.C. 46) - A.H. KIRK-SPRIGGS.

INTRODUCTION

The pollen beetle genus *Meligethes* has received very little attention in the past, due largely to the difficulties of identification. Collections of the genus from Wales are few and far between. In 1991 a paper appeared giving published and unpublished records for the genus from Cardiganshire, as well as an overview of the host-plants and Welsh distribution (Kirk-Spriggs, Fowles & Boyce, 1991). Thirteen species have been confirmed as occurring in the vice-county, with one species (M. *ruficornis* (Marsham) (= *M. flavipes* Sturm), recorded by Sage (1957: 266) unconfirmed. The material that this record is based upon is no longer in existence (Sage pers. comm.).

Dr Adrian Plant and I made a collecting trip to Cardiganshire from the 17th-20th May 1991, this paper gives the results of my sampling, carried out mainly in deciduous woodland sites. In addition further specimens of the genus from the J.H. Salter collection which have come to light since the publication of the first paper are also recorded here.

There have been several name changes in the genus since the publication of the 1991 paper (see Bacchus & Kirk-Spriggs, 1991). Where a new name is used, I give the former name in parenthesis. All material included in this paper has been deposited in the collections of the National Museum of Wales, Cardiff.

SPECIES AND LOCALITIES

Meligethes flavimanus *Stephens, 1830*

2♀♀ Llaethliw, near Ciliau Aeron, 22/478589, 17.v.1991, *Primula vulgaris* Hudson; 1 Pen-rhiw, near Pisgah, 22/665777, 18.v. 1991, swept from *Vaccinium myrtillus* L.; 6 Troedyrhiw, near Cenarth, 22/276426, 20.v.1991, *Anthriscus sylvestris* (L.) Hoffm.; 1 Gilfachrheda, near Llanarth, 22/403588, 19.v.1991, *Anthriscus sylvestris* (L.) Hoffm.

Meligethes atratus *(Olivier, 1790)*

l♂ Llaethliw, near Ciliau Aeron, 22/478589, 17.v.1991, swept off *Hyacinthoides non-scripta* (L.) Chouard ex Rothm.; 3 Llechryd isaf, near Llechryd, 22/208437, 20.v.1991, *Taraxacum officinalis* agg.; 18 same data, *Alliaria petiolata* (Bieb.) Cavara & Grande; 1 same data, *Anthriscus sylvestris* (L.) Hoffm.; 5 Gilfachrheda, near Llanarth, 22/403588, 19.v. 1991, *Smyrnium olusatrum* L.; 19 same data, *Anthriscus sylvestris* (L.) Hoffm.; 3 Troedyrhiw, near Cenarth, 22/276426, 20.v.1991, *Cardamine pratensis* L.; 4 same data, *Anthriscus sylvestris* (L.) Hoffm.; 15 same data, *Alliaria petiolata* (Bieb.) Cavara & Grande.

Meligethes aeneus (Fabricius, 1775)

3 Gilfachrheda, near Llanarth, 22/403588, 19.v.1991, *Ranunculus ficaria* L.; 2 same data, *Taraxacum officinalis* agg.; 1 same data, *Smyrnium olusatrum* L.; 2 Troed-y-rhiw, near Aberporth, 22/257509, 20.v.1991, *Anthriscus sylvestris* (L.) Hoffm.; 1 Llaethliw, near Ciliau Aeron, 22/478589, 17.v.1991, swept off *Hyacinthoides non-scripta* (L.) Chouard ex Rothm.; 1 Llechryd isaf, near Llechryd, 22/208437, 20.v. 1991, *Ranunculus ficaria* L.; 12 same data, *Taraxacum officinalis* agg.; 4 same data, *Anthriscus sylvestris* (L.) Hoffm.; 1 same data, *Alliaria petiolata* (Bieb.) Cavara & Grande; 4 Troedyrhiw, near Cenarth, 22/276426, 20.v.1991, *Taraxacum officinalis* agg.; 15 same data, *Anthriscus sylvestris* (L.) Hoffm.; 4 same

data, *Alliaria petiolata* (Bieb.) Cavara & Grande; 41 Penrallt, near Llangranog, 22/323539, closed flowers of *Taraxacum officinalis* agg. at dusk; 1 Trefechan, 22/583806, 18.V.1991 *Taraxacum officinalis* agg.; 2 Neuadd, near Llwyndafydd, 22/365558, 19.v. 1991, general sweeping; 1 No. 6788, Maes Fron, Rheidol Valley. Nantyronnen Way [22/6778], 20.xii.1924 (J.H. Salter); 1 No. 11384, Devil's Bridge [22/7376], 28.iv.1933, at blackthorn, J.H. Salter).

Meligethes pedicularius *(Gyllenhal, 1808) nec. auctt. (=M. viduatus (Heer, 1841)*
l♀ Llechryd isaf, near Llechryd, 22/ 208437, 20.v.1991, *Meconopsis cambrica* (L.) Vig.; 3♂♂ Neuadd, near Llwyndafydd, 22/365558, 19.v.1991, *Ranunculus*. *ficaria* L.; l♂ same data, *Taraxacum officinalis* agg.

Meligethes obscurus Erichson*, 1845*
1♂ & l♀ Penrallt, near Llangranog, 22/323539, closed flowers of *Taraxacum officinalis* agg. at dusk; 2♂♂ Trefechan, 22/583806, 18.v.1991, *Taraxacum officinalis* agg.; 1 No. 12060, Garden [22/598810], l.vii.1934, (J.H. Salter).

Meligethes nigrescens *Stephens, 1830*
1 No. 11918, *Viburnum tinus* blossom [Fairview, 22/598810], 2.v.1934, J.H. Salter); 1 No. 140042, Arth, below Pennant [22/5063], 3.v.1938, J.H. Salter).

Meligethes carinulatus *Forster, 1849 (= M. erythropus (Marsham, 1802)) auctt.*
l♂ *&* 2♀♀ Trefechan, 22/583806,18.v.1991, *Ranunculus acris* L.; 1♂ & 1♀ same data, *Lotus corniculatus* L.; 25♂♂ *&* 7♀♀ same data, *Taraxacum officinaliP* agg.; 1♂ Gilfachrheda, near Llanarth, 22/403588, 19.v.1991, *Ranunculus ficaria* L.; 5♂♂ same data, *Glechoma hederacea* L.; 1♂ Troed-y-rhiw; near Aberporth 22/257509, 20.v.1991, *Anthriscus sylvestris* CL.) Hoffm; 1♂ Llaethliw, near Ciliau Aeron, 22/478589,17.v.1991, swept off *Hyacinthoides non-scripta* (L.) Chouard ex Rothm.; 1♂ same data, *Primula vulgaris* Hudson; 18♂♂ & 1♀ same data, *Taraxacum officinalis* agg.; 2♂♂ Troedyrhiw, near Cenarth, 22/276426, 20.v.1991, *Taraxacum officinalis* agg.; 7♂♂ & 1♀ Llechryd isaf, near Llechryd, 22/208437, 20.v.1991, *Taraxacum officinalis* agg.; l♂ same data, *Anthriscus sylvestris* (L.) Hoffm.

Meligethes ovatus *Sturm, 1845*
10 near Llanarth, Gilfachrheda, 22/403588,19.v.1991, *Glechoma hederacea* L.

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