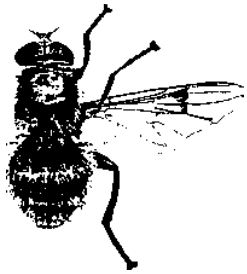
DYFED INVERTEBRATE GROUP



NEWSLETTER Nº. 2 June 1986

We have been gratified by the reception that the formation of the Dyfed Invertebrate Group has received amongst entomologists nationwide and there are now almost one hundred subscribers to the Newsletter. This is a sound base upon which to establish our contribution to invertebrate conservation in west Wales and the specialists involved cover a very wide range of groups. With the summer now upon us (or so I'm reliably informed) the impetus should be there for us all to get out 'in the field' and add to our knowledge of the distribution and ecological requirements of the county fauna. Do remember to send in your records to the relevant county recorders and keep us informed of any interesting observations. The Newsletter is here to ensure that significant records and accounts of methodical surveys find their way in to print. We would welcome more feed-back from subscribers, both in the form of articles for the Newsletter and suggestions for the improvement of DIG - do drop us a line from time to time and tell us how your invertebrate work is progressing.

Which brings me to the thorny problem of subscriptions! The DIG Newsletter is produced entirely through the kindness of NCC Dyfed-Powys in allowing us access to secretarial and photo-copying facilities. However, we would appreciate assistance with postage and hence the subscription for 1986 will be four First Class Stamps. Please send your 'subscription' to the Editor during the course of the summer. We regret that the September issue of the Newsletter will not be sent to members who have not forwarded their subscription in time.

Finally, don't forget to come along to the forthcoming field meetings - these are a wonderful opportunity to discuss aspects of invertebrate conservation and identification and to help compile invaluable site/species data. See you there.

Editor: A P Fowles
c/o NCC Plas Gogerddan
Plas Gogerddan Aberystwyth
Dyfed SY23 SEE

TRICHOPTERA

DYFED'S CADDIS FLIES - I D WALLACE

Caddis are, nationally, not widely recorded by amateurs and whilst they do feature very importantly in river authority sampling they are frequently not identified to species level. Lepidopterists catch adult caddis in large numbers in their light traps but most of them just mutter under their breath and throw them out. For these reasons you may be surprised to learn that Dyfed is one of the few areas in Britain with a good modern list. Tony Jenkins (1979), a biologist based at the Welsh Water Authority's Llanelli laboratory, published an account of the county's fauna which listed 111 species recorded in Dyfed between 1972 and 1977.

There are a number of important caddis habitats in Dyfed. Afon Teifi is nationally a remarkable river, both for the range of species found there and the phenomenon of Cors Caron on its course. There are three leptocerid caddis of note - Triaenodes simulans (also known from the Western Cleddau), Oecetis notata (also known on the Towy) and Athripsodes commutatus (also in the Eastern Cleddau catchment). Bosherston Lakes, still nationally important alkaline waterbodies despite some pollution problems, have a large and accessible population of the enigmatic species Ecnomus tenellus. This was originally classed as a psychomiid caddis and was consequently expected to feed by scraping algae off stones while sheltering inside a meandering gallery but the larva is now known to be a carnivore which spins a snare to entrap small water animals as food. The same tree-roots which are home to the Ecnomus larvae also have the algal-feeding, micro-caddis Orthotrichia costalis, at its only known Welsh site. Leptocerus tineiformis, which is also common at Bosherston but generally rare in Wales, has a beautiful swimming larva in a slender, transparent, silk case. It is also known from Pistyll Pond, near Ammanford. Cors Caron has several 'northern' species which approach the limit of their range, notably Limnephilus elegans and Rhadicoleptus alpestris. the latter may prove to be at its most southerly site in Britain and both are attractive insects at the larval and adult stages.

There are numerous spring streams on various rock types throughout the county and some of these support populations of the parthenogenetic Apatania muliebris. Sericostoma personatum is a very common British species in streams and rivers, whilst in west Dyfed (and in Ireland) it also occurs in tiny tricklets. Another interesting species is Lasiocephala basalis which is found in the middle and lower reaches of the Taf, Teifi, Eastern and Western Cleddau - elsewhere it is known from scattered localities in northern and western Britain (Ormerod and Jenkins, 1985).

References

JENKINS, R A (1979) - Records of Trichoptera from south-west Wales. Ent. Gaz 30: 31-43.

ORMEROD, S J & JENKINS, R A (1985) - A summary of records of Lasiocephala basalis from the area administered by Welsh Water. Ent. Rec. 97: 134-136.

[Dr Wallace of Liverpool Museum is the BRC Trichoptera Recording Scheme Organiser. He is not able to identify samples of caddis larvae or adults but will gladly confirm the identity of voucher specimens. Contact him, in advance, at - County Museum, William Brown Street, Liverpool L3 8EN. He will, of course, be very pleased to receive any caddis records from Dyfed.]

ONISCIDEA

WOODLICE IN CEREDIGION - A O CHATER

Woodlice are easily found animals occurring in almost all types of habitat, and they can mostly be accurately identified with a hand-lens. They have distinctive habitat preferences and geographical distributions, as well as easily observable and fascinating behavioural traits, and just enough is now known about them in Britain to make them an especially practical and rewarding group for further study. The key in Sutton (1972, reprinted 1980), in conjunction with the notes, and the descriptions and illustrations of several of the rarer species, in Harding & Sutton (1985) should enable most of the species to be run down. The informally constituted British Isopod Study Group, currently run by Dr S P Hopkin, Department of Pure and Applied Zoology, University of Reading, Whiteknights, Reading RG6 2AJ, produces an annual newsletter, organises an annual meeting and is a general forum for both amateurs and professionals.

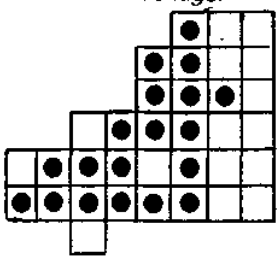
Most woodlouse recording in Ceredigion, VC 46, has been done in connection with the Isopod Survey Scheme, involving the recording of species throughout Britain and Ireland on a 10 km square basis and using an elaborate system of microsite documentation. As well as giving an overall picture of distribution, the scheme enabled the habitat characteristics of each species to be worked out in some detail. The results of the scheme have now been published (Harding & Sutton, 1985) and take account of records up to 1982. The present account of woodlice in Ceredigion should be read in the light of this parent publication, and is based on records made between 1970 and 1986. As well as indicating the distribution and habitats of the species in this single vice-county, I have in appropriate cases attempted to indicate wherever they reflect or depart from the general trends in Britain and Ireland.

Twenty two out of the thirty five British and Irish species are recorded from Ceredigion. Four, Oniscus asellus, Philoscia muscorum, Porcellio scaber and Trichoniscus pusillus are more or less ubiquitous in both natural and synanthropic sites. Four other species, Armadillidium depressum, Porcellio dilatatus, P. spinicornis and Porcellionides pruinosus, seem certainly to be introduced in Ceredigion as they are strictly confined to synanthropic sites. Armadillidium nasatum and Haplophthalmus danicus are probably also introduced, but have spread to some extent into native habitats. All the remaining species appear to be native in at least some of their sites, and all, except Androniscus dentiger and Haplophthalmus mengei (in their synanthropic sites) and Trichoniscus pygmaeus, are entirely or predominantly coastal. Limestone being absent from Ceredigion, the generally calcicole Armadillidium vulgare is probably, so far as its native sites are concerned, restricted to the coast not primarily for climatic reasons but because it is there that the generally acidic characteristics of the natural habitats are counterbalanced by the effects of salt spray. The same factor may well influence the distribution of the other species even though most are not obviously calcicole. Two species seem to have obviously climatically influenced distributions. Porcellionides cingendus has a strongly south-western, Atlantic distribution in Ceredigion, and contrasts strikingly with Porcellio spinicornis, which has a strongly anti-Atlantic distribution and which is the only widespread species with a distinct inland bias.

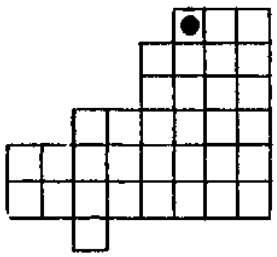
The selection of tetrad maps reproduced here shows some of these distribution patterns, and the map of the probably ubiquitous Oniscus asellus is included to give an idea of the very incomplete coverage of tetrad recording (which has not been attempted on a methodical basis in the vice-county). The total number of tetrads in VC 46 is 530.

Woodlouse recording is subject to extreme recorder bias. Many species are easy to find once a favoured microsite is recognised, and there is thus a strong temptation always to look for particular species in particular habitats. Recent unexpected finds

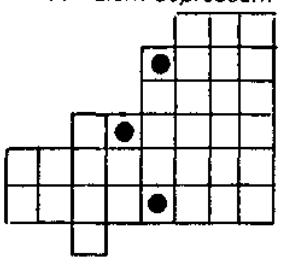
Androniscus dentiger

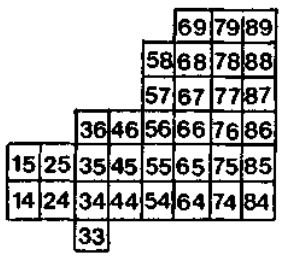


Armadillidium album

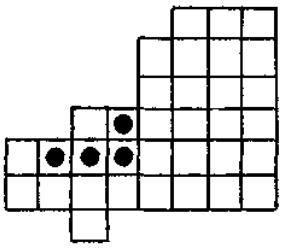


Armadillidium depressum

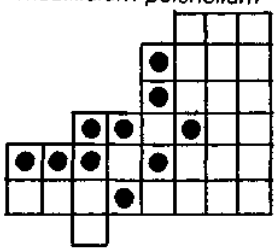




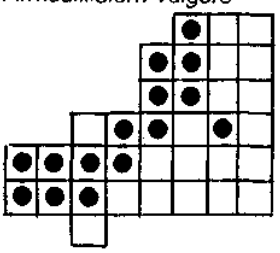
Armadillidium nasatum

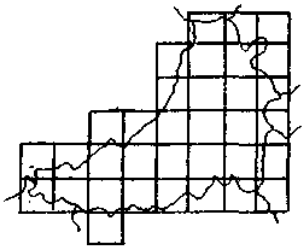


Armadillidium pulchellum

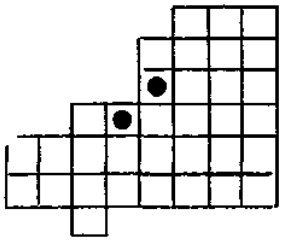


Armadillidium vulgare

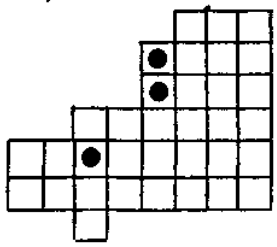




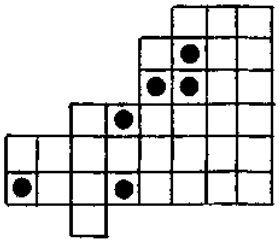
Cylisticus convexus



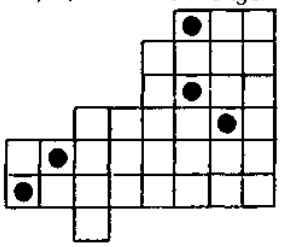
Halophiloscia couchi



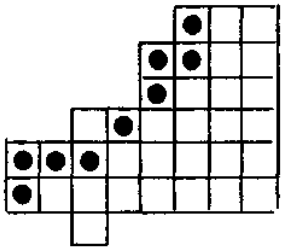
Haplophthalmus danicus



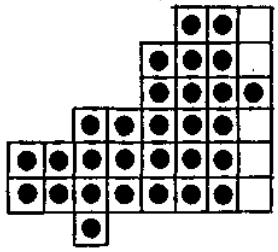
Haplophthalmus mengei



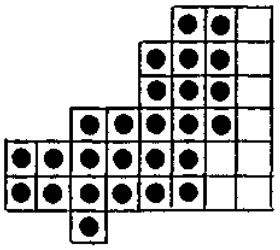
Ligia oceanica



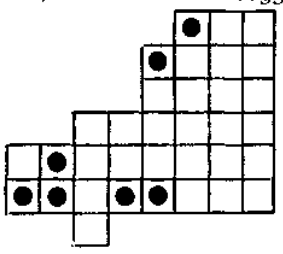
Oniscus asellus



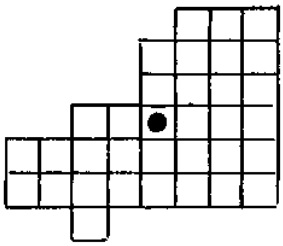
Philoscia muscorum



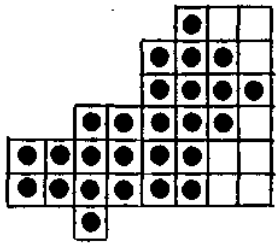
Platyarthrus hoffmannseggi



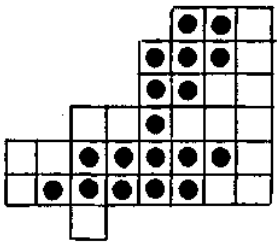
Porcellio dilatatus



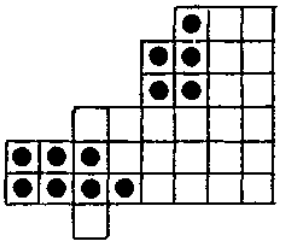
Porcellio scaber



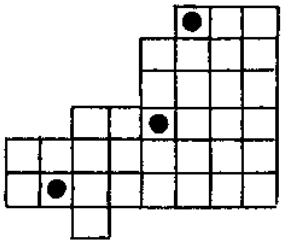
Porcellio spinicornis



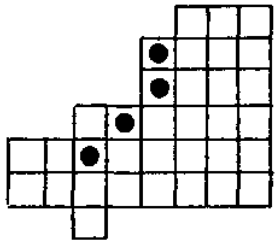
Porcellionides cingendus



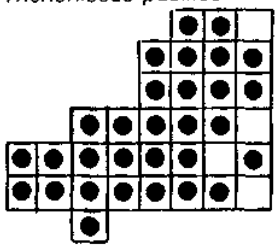
Porcellionides pruinosus



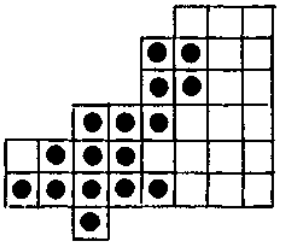
Trichoniscoides saeroeensis



Trichoniscus pusillus



Trichoniscus pygmaeus



in Ceredigion, such as that of Halophiloscia couchi far beyond its previously known range, or of Armadillidium pulchellum in a previously unrecorded habitat (walltops inland), suggest that further recording, and especially random sampling of a wide variety of sites, may well change our picture of the distribution and habitat range of woodlice in Ceredigion, as well as in the country as a whole.

ANDRONISCUS DENTIGER - Scattered throughout the district in synanthropic sites, chiefly under stones, bricks and slates, or among rubble, where there is mortar or cement, and rarely found where this strongly calcareous element is not present. The only records from natural habitats are at the eroding edge of vegetated shingle on the tidal part of the Afon Ystwyth, and from damp, clayey scree on the sea cliffs at New Quay, and it seems genuinely rare in such coastal sites in Ceredigion although such sites are very characteristic for the species in other parts of Britain. It might be expected to occur underground in lead mines, but perhaps only where mortar has been introduced. (Recorded in 33 tetrads)

ARMADILLIDIUM ALBUM - First recorded in April 1971 on the Ynys-las dunes NNR foreshore by M G Morris, but not re-found in spite of repeated searches until April 1986 when A P Fowles discovered it in some abundance all round the northern part of the dunes. It occurs sparsely under driftwood and other objects along the strandline on the seaward side of the dunes for some 750 m southwards from the northern tip, and abundantly in a largely buried strandline of Spartina (Cord-grass) and seaweed along c 600 m of the northern and eastern sides of the dunes. This strandline, well above the normal tidal strandline and presumably cast up by severe storms, is some 15 cm deep and is (at least in April and May 1986) mostly covered by blown sand. A. album occurs in this debris at a density of very approximately one per 100 cc. Assuming that this microsite is a reasonably permanent feature at Ynyslas, A. album is probably unlikely to be threatened by the very heavy tourist pressures which regularly disturb the more superficial features of the foreshore. The species is considered to be at risk in Britain and Ireland as a whole. (2 tetrads)

A. DEPRESSUM - Known only from three synanthropic sites. There is a large population in the old mortared Wall along the east side of the road running north from Llanybydder Bridge, most readily seen in very wet weather when the animals come to the top of the wall. It occurs in the quay walls and in old mortared walls around the stonemason's yard on the north side of Aberaeron harbour. A scattered population around the car parks in Park Avenue, Aberystwyth, is the most northerly known site for this species which has a predominantly south-western distribution in both Britain and in Europe as a whole. (3 tetrads)

A. NASATUM - Locally abundant in coastal grassland and on slumping clay cliffs on the coast in the south-west between Aber-porth and Aberaeron, but not found in many apparently suitable sites further north. This species is known to be widely dispersed by man, and in our area it was perhaps introduced with limestone to the coastal limekilns. (10 tetrads)

A. PULCHELLUM - Recorded from eight sites on the coastal cliffs from Mwnt to Wallog, and apparently always in small colonies occupying a few square metres on partially vegetated earthy scree. It usually occurs in mats of Sedum anglicum (English Stonecrop) and the mosses Pseudoscleropodium purum, Eurynchium praelongum and Dicranum scoparium, indicating a slightly damp microclimate although the substrate is always very dry. It also usually occurs on the upper parts of the cliff slopes. In the dingle of the Afon Soden south-west of New Quay colonies also extend to 800 m inland on a south-facing bracken-covered slope. A. pulchellum also occurs in three synanthropic sites in Ceredigion, uniquely for Britain and Ireland. Two of these are under ivy on the tops of short lengths of mortared wall, one at the entrance to the Wesyn farm lane near Tre-groes at 95 m asl and 12 km from the sea, the other at the entrance to Blaenpennal churchyard at 230 m asl and 11 km from the sea. The third

site is a 5 m long tumbledown unmortared wall of water-worn stones, sparsely vegetated, by the abandoned vegetable garden of Ty-draw, Rhydrosser, at 150 m asl and 4 km from the sea. All three sites are very rural, and the Woodlice have most probably got there whenever these Walls were built, although it is surprising that a species apparently with very restricted habitat requirements can maintain itself in such unnatural sites. (13 tetrads)

A. VULGARE - Widespread along the coast in natural habitats such as dry maritime grassland and heath, vegetated scree and sand dunes (it is abundant at both the Gwbert and Ynys-las dunes), as well as in a variety of synanthropic sites such as gardens, mortared walls and ruins. Inland it is confined to a few synanthropic sites, mostly in the lower Teifi valley, around Cors Fochno, and along the railway system. (46 tetrads)

CYLISTICUS CONVEXUS - The only two sites are representative of its two main habitats in Britain. On the coastal cliff slope of the Allt Wen SSSI at Aberystwyth it occurs in exposed, unstable, sparsely vegetated scree, typical of its natural sites. At Aberaeron it occurs amongst builders' rubble and shingle on top of the beach at the north end of the promenade, typical of its synanthropic sites where it is introduced. (2 tetrads)

HALOPHILOSCIA COUCHI - Previously thought to extend no further north in Britain than Nash Point in Glamorgan, this coastal species has since 1983 been found in scattered sites up the Welsh coast as far as Borth, and at Penmon in Anglesey. All three Ceredigion records are from its very characteristic habitat of storm beaches, which form a terrace above the normal intertidal shingle and boulder beaches and are disturbed only by high spring tides and storms. They are backed by unstable cliffs or scree, fresh material from which contributes to the composition of the beach. H. couchi can best be found under large, deeply embedded boulders and freshly fallen rocks and further, necessarily strenuous, searches will undoubtedly show it to be more widespread on the Ceredigion, as well as the rest of the Welsh, coast. Our records are from 700 m south of the Borth War Memorial, 800 m north of Morfa Bychan, and the mouth of the Afon Soden. It is not associated with Ligia at any of these sites. (3 tetrads)

HAPLOPHTHALMUS DANICUS - Apparently rare, with only seven records. Four of these are from litter, chiefly of Prunus laurocerasus (Cherry Laurel), and rotting stumps in old estate woodlands (Alltyrodyn, Pen-y-wern, Nanteos and Gogerddan), and another is from under rotting logs in a similarly wooded and synanthropic site in the grounds of Cardigan Castle. The remaining records are from possibly more natural sites, a dead elm stump at Rhydyfelin (a characteristic habitat in south-east England) and the river bank at Aberaeron. (7 tetrads)

H. MENGEI - Recorded from five sites, only one of which, by seepages in the splash zone on the clayey and shaley parts of the Traeth Penbryn SSSI sea cliffs, is natural. Intensive searching in other similar sites has failed to reveal it elsewhere and it is probably genuinely rare on the Ceredigion coast. The synanthropic sites are under stones on waste ground in Cardigan, on the abutments of disused railway bridges at Ystrad Meurig and Trawscoed and on the railway embankment by the Dyfi. (5 tetrads)

LIGIA OCEANICA - Common along the coast on rocky shores, slumping cliffs of boulder clay, quays, sea walls and groynes. It has occasionally been found in shingle and boulder beaches but on our very exposed coast probably prefers more stable microsites. it can be conveniently seen in large numbers at night in the open on the Aberystwyth promenade wall. (17 tetrads)

ONISCUS ASELLUS - Ubiquitous in suitable habitats, but usually restricted to slightly damper microsites than Porcellio scaber Will tolerate. It is especially abundant in deciduous Woodland and scrub, on coastal cliffs of rock or clay, in gardens and hedgebanks in litter, rotting wood, under stones and dead wood and in crevices of all sorts. In the uplands it is frequent on damp rock ledges and by streams, and in smaller numbers in grassland and moorland. (190 tetrads)

PHILOSCIA MUSCORUM - Almost as ubiquitous as Oniscus asellus, but usually less abundant and more restricted to microsites with litter. It is especially characteristic of ungrazed grassland and open woodland and scrub. In the uplands it seems more restricted to sheltered ravines and damp ledges. (151 tetrads)

PLATYARTHRUS HOFFMANNSEGGI - The ten records are all from ants' nests (probably Lasius flavus and L niger) under stones, scattered along the coast and up the Teifi valley to Lampeter. Apart from a site on the Ynys-las dunes, all are synanthropic such as gardens, churchyards and waste ground in towns. Intensive searching suggests that it is genuinely rare or absent from coastal grassland sites where it might be expected, but it is probably widespread in lowland gardens. (10 tetrads)

PORCELLIO DILATATUS - Recorded only from the disused limekilns on the shore between Llansanffraid and Llanrhystud, and doubtless introduced in the last century with limestone (which mostly, however, came from the Gower where this species is not recorded). (1 tetrad)

P. SCABER - Fairly ubiquitous, but away from the coast somewhat more restricted to synanthropic sites than Oniscus asellus and especially abundant in mortared Walls and ruins. In woodland it is commoner under dead bark than under rotting wood on the ground or in litter where Oniscus is more abundant. On the coast it is the most abundant species in shingle beaches, especially along driftlines, and in rock and clay cliffs. In the uplands it is mostly confined to ruins. (155 tetrads)

P. SPINICORNIS - The Ceredigion distribution generally mirrors the British distribution, being inland and eastern with a strong anti-Atlantic tendency. It has not been recorded in the south-west corner of Ceredigion, in spite of an abundance of apparently suitable sites, and the only coastal records are from the ruined limekilns between Llansanffraid and Llanrhystud and from the Aberystwyth Castle ruins (at both sites it is only in very small numbers). All its sites are old mortared walls, or under stones by such walls, frequently in churchyards and chapel yards. It is scattered throughout the distribution area, and in the uplands it has been found at such remote sites as Soar-y-mynydd chapel at 330 m asl and the ruins of Hengwmannedd at 380 m asl on the north side of Pumlumon Fawr. (43 tetrads)

PORCELLIONIDES CINGENDUS - Markedly Atlantic, that is south-western and coastal, in Ceredigion as in Britain and Ireland as a whole. Apart from isolated records from Bangor and the Isle of Man, the Ceredigion sites seem to mark the northern limit of the main distribution of this species in Britain as it is at present known. It always occurs in loose, fairly deep litter in dry, usually south or west facing sites, in sloping grassland, oakwoods, gorse, scrub and hedgebanks, and is usually found associated with Philoscia muscorum. It is especially abundant, both on the coast and inland, between Cardigan and Aber-porth and extends up the Teifi valley to Llanfairorllwyn and Tre-groes, 13 km inland. It also occurs at several coastal sites between Borth and Wallog in the north. It has been found on waste ground at Borth, in gardens at Aberystwyth, and in Llanilar churchyard, where it is doubtless an introduction, as well as in a hedgebank 1 km inland near Llanrhystud. Detailed investigation of the climatic and microsite requirements of this species, which may be to some degree at the edge of its natural range in Ceredigion, would be of great interest. (28 tetrads)

P. PRUINOSUS - Recorded from manure heaps, a very characteristic site, at Bron-gwyn, Glandyfi and Nebo. It is doubtless under-recorded, although it seems to be rare in Wales as a whole. (3 tetrads)

TRICHONISCOIDES SAEROEENSIS - Recorded from five sites along the coast. Three are where shingle abuts on earthy or clayey cliffs, at Coybal south-west of New Quay, at Aberaeron and at Wallog. At the mouth of the Afon Ystwyth it is in the erosion bank where vegetated shingle and soil is being washed away at high tides. On the cliff slope of the Allt Wen SSSI, T. saeroeensis occurs under stones in the unstable, sparsely vegetated shaley scree, up to 50 m above the shore, an unusual altitude for this species which elsewhere in Ceredigion, and in most of the rest of Britain, occurs within 3 or 5 m of high water mark. (5 tetrads)

TRICHONISCUS PUSILLUS - Ubiquitous in suitable habitats, from coastal shingle and cliffs to damp grassland, marshes, woods, damp cliff ledges and streamsides in the uplands, and a wide variety of synanthropic sites. It is especially abundant in litter and moss in woodlands and marshes. Male specimens have not been noticed in Ceredigion, and the few populations that have been analysed are of the parthenogenetic forma pusillus. (164 tetrads)

T. PYGMAEUS - Scattered along the coast and with a few inland sites. Most of the sites (in gardens, waste ground, churchyards, roadside verges, estate woodlands and by coastal limekilns) are clearly more or less synanthropic. Only one inland site, in woodland near Pontalltycafan on the Teifi seems at all natural, and only three coastal sites, in eroding cliffs of earth or clay at Aber-porth, New Quay and Llansanffraid, seem unassociated with buildings and severe disturbance by man. In the rest of Britain T. pygmaeus is a regular feature of coastal erosion banks and the interface of shingle and earth or clay, and is usually found Wherever Trichoniscoides saeroeensis occurs, but the two have not been found together in Ceredigion. T. pygmaeus is a soil and litter dwelling species and occurs chiefly in damp loamy and clayey soils and in damp litter. It is often abundant in compost heaps. Like most of the smaller species, it is most easily seen under stones and rotting wood and its presence in a homogeneous soil environment is usually only revealed by sieving. (22 tetrads)

References

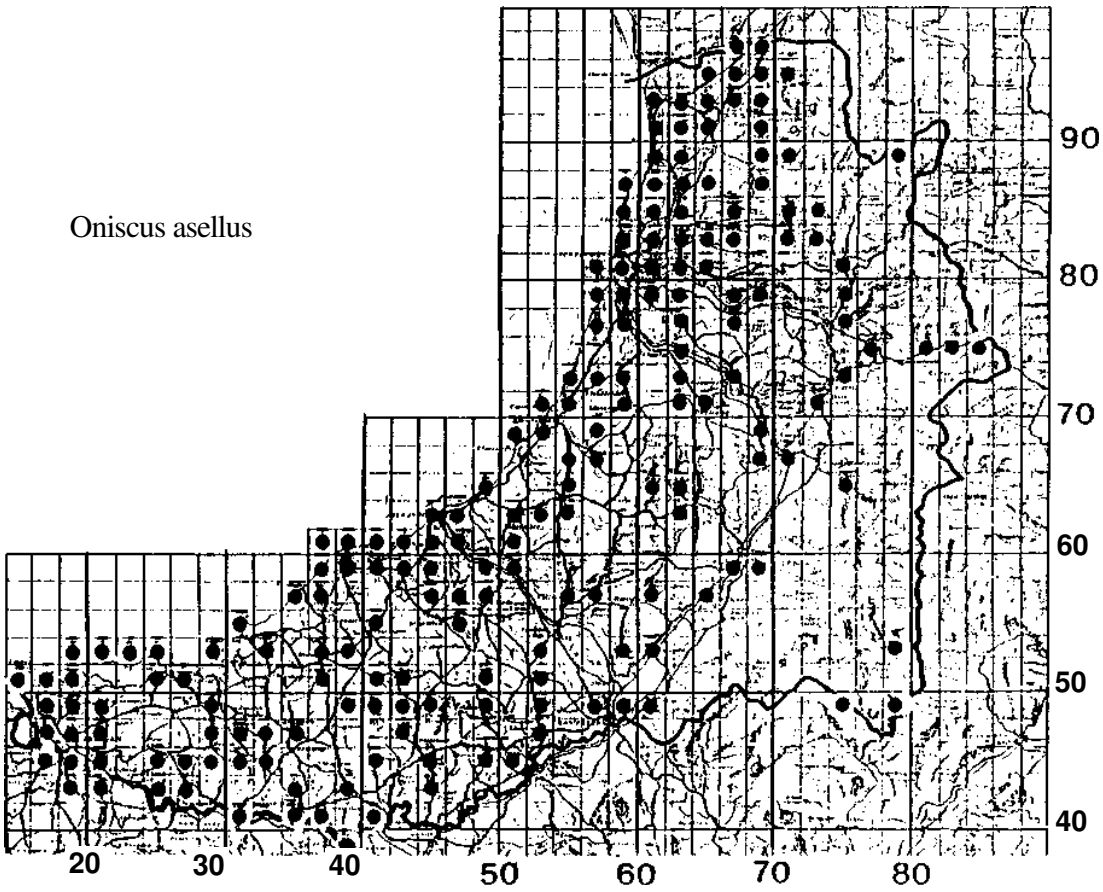
HARDING, P T & SUTTON, S L (1985) - Woodlice in Britain and Ireland: distribution and habitat. Biological Records Centre, Institute of Terrestrial Ecology.

SUTTON, S L (1972) - Woodlice. Ginn.

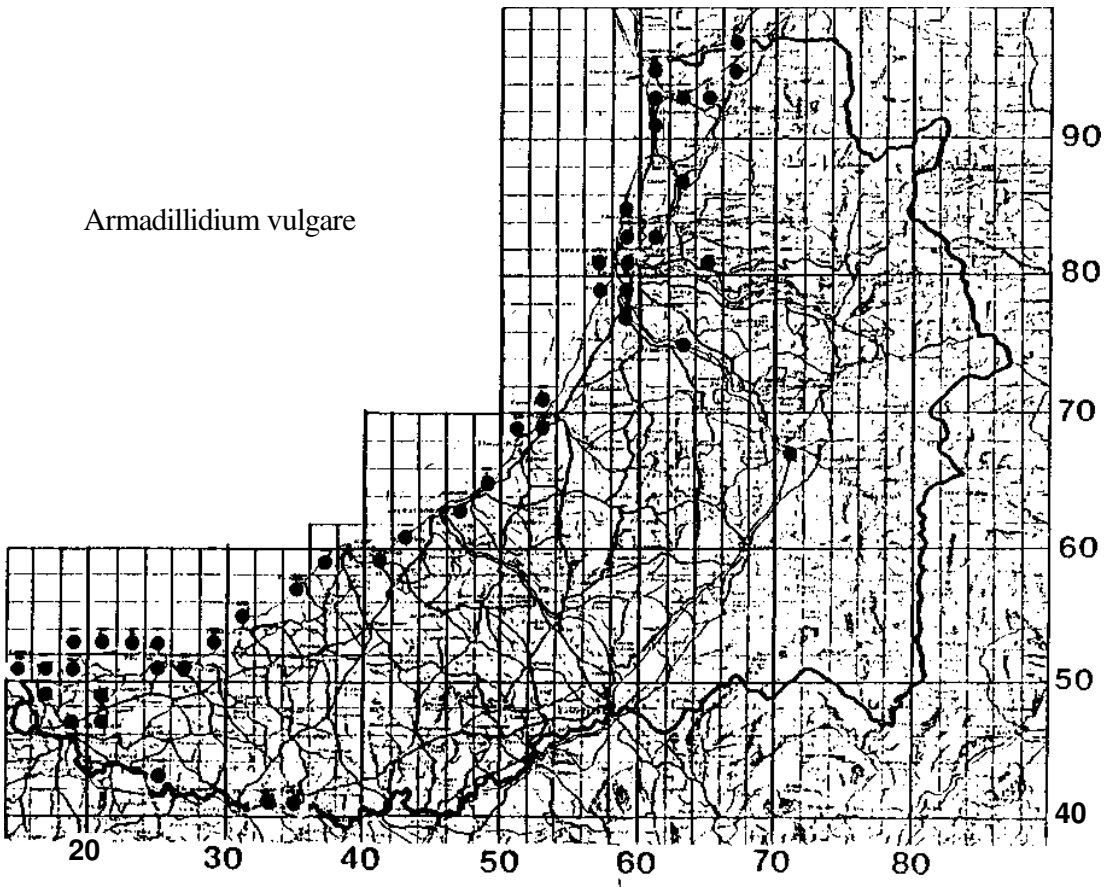
SUTTON, S L (1980) - Woodlice. Pergamon Press.

[POSTSCRIPT: Armadillidium album was found to be present under strandline debris at Gwbert Dunes on the Teifi Estuary on 26 June 1986. The species had not previously been known from Afon Teifi and it is quite possible that it has also been overlooked on the Poppit Dunes in Pembrokeshire - Ed.]

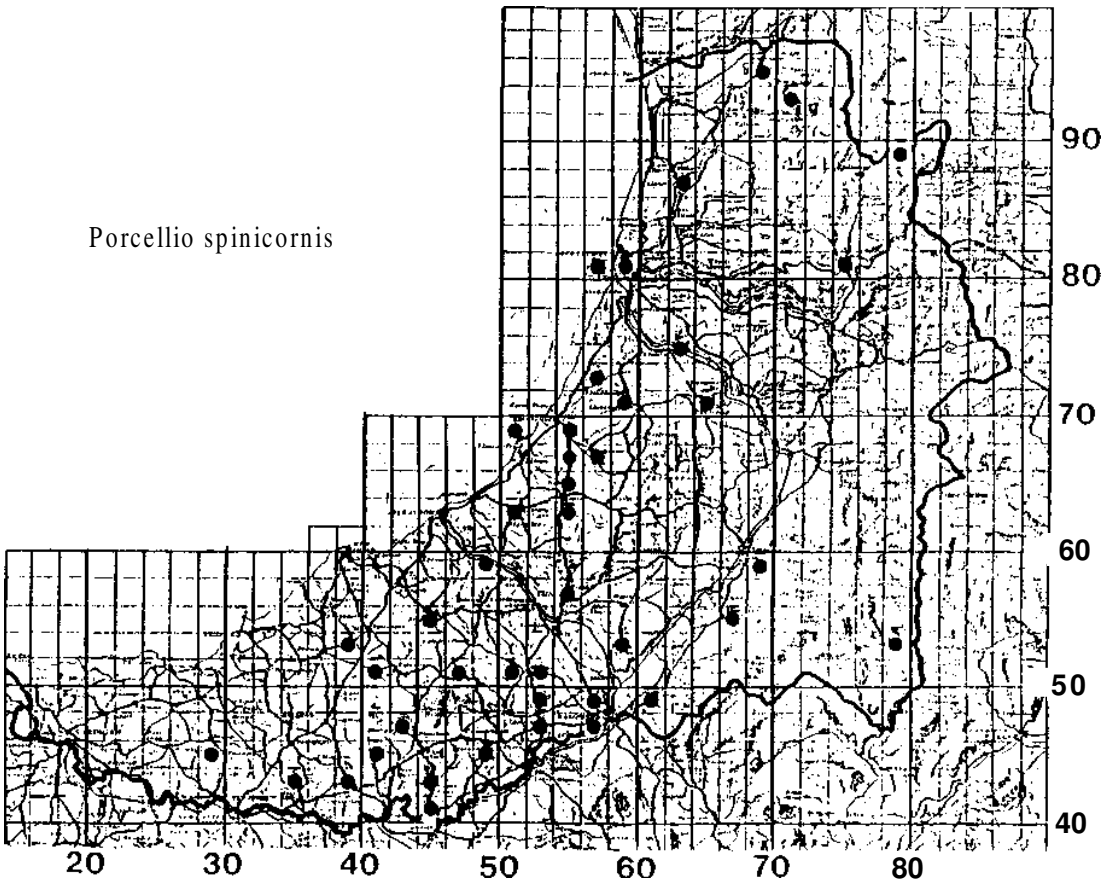
Oniscus asellus



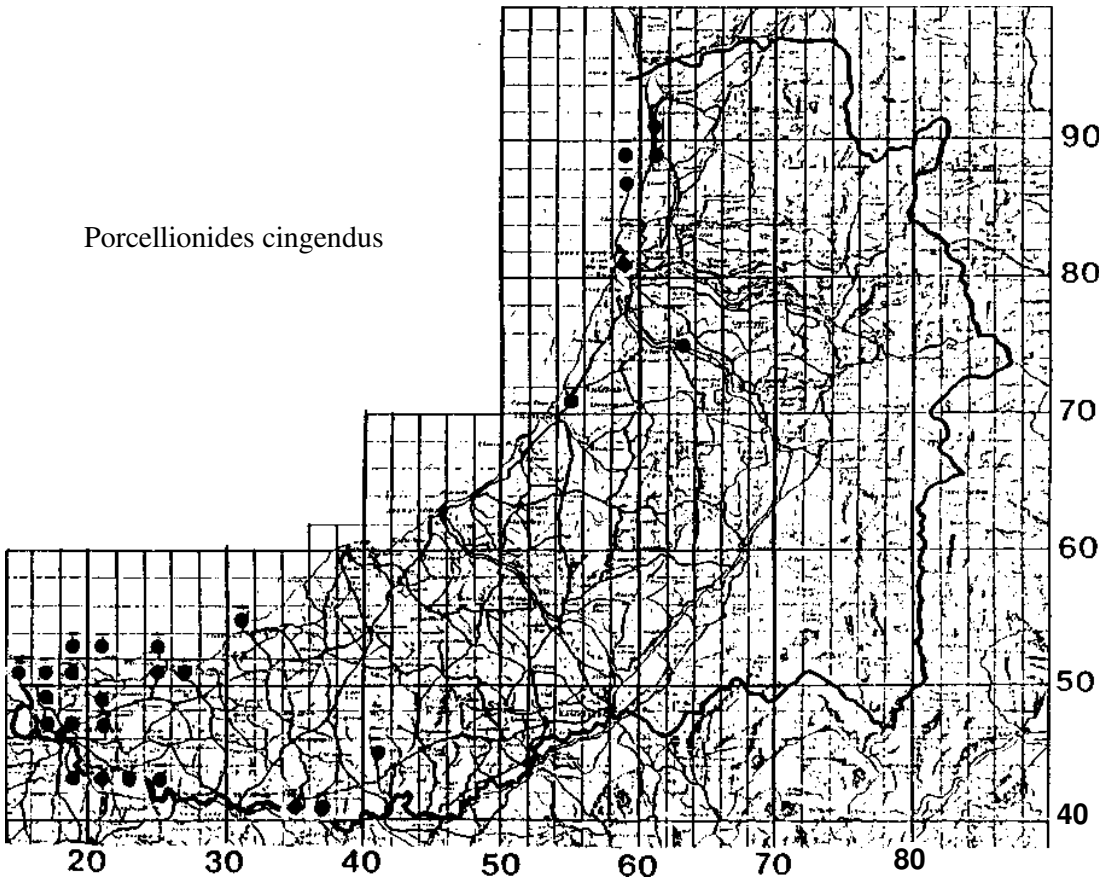
Armadillidium vulgare



Porcellio spinicornis



Porcellionides cingendus



FIELD MEETING - TYWYN BURROWS (22/361053) VC 44, 7 JUNE 1986 - I K MORGAN

Tywyn Burrows, located on the South Carmarthenshire coast was the site chosen for the inaugural meeting of the Dyfed Invertebrate Group. The burrows were selected because of the diversity of habitats available, ranging from substantial expanses of embryo and mature dunes, dry base-rich grassland, damp dune slacks and adjacent ungrazed saltmarsh vegetation. Although the site had long been recognised as of high botanical interest, until recent years very little concentrated invertebrate recording work had been done, making likely the chances of exciting discoveries.

Including the leader, only five people attended the field meeting and this, combined with the dull, drizzly weather of early morning seemed to suggest a disappointing day was to follow. However, by mid-afternoon the weather had considerably improved and the many interesting and notable invertebrates found in Tywyn Burrows made the meeting very enjoyable and worthwhile for all the participants. A brief summary of the day's highlights is given below.

One of the first noteworthy finds was a single specimen of the scarce and attractively marked Silver Hook moth Eustrotia uncula found resting in a damp dune slack; other locally distributed moths recorded during the meeting were the Small Purple-barred Phytometra viridaria and the Yellow Belle Aspitates ochrearia.

Together with the adjacent Laugharne Burrows, Tywyn Burrows comprises the most north-westerly world locality for Cepero's Groundhopper Tetrix ceperoi. By searching this small orthopteran's preferred habitat - damp, sparsely vegetated, mossy dune slacks - specimens were soon found in some quantity; during the meeting T. ceperoi was located at three sub-sites on Tywyn Burrows. The commoner Tetrix undulata was also noted.

At the accreting embryo dune area of Tywyn Point three specialised sand dune - littoral beetles were found: the large carabid Broscus cephalotes, the much smaller scarabid Aegialia arenaria and the beautiful Coast Tiger Beetle Cicendela maritima. This latter species was first recorded on these burrows as long ago as 1906. by E A Butler who principally worked the Hemiptera of the Carmarthenshire dune systems. He subsequently published his results in a little-known paper "Insect Life on the Sandhills of Carmarthenshire" (Butler, 1910). The only intervening record at Tywyn Burrows for C. maritima was in 1961 (Price, 1961).

A speciality to be found under driftwood and strandline debris at Tywyn Point is the Red Data Book woodlouse Armadillidium album. This mostly white pillbug can prove elusive to find, but once its micro-habitat preferences are appreciated location is much more easy. On recent tidelines, where jetsam overlaid vegetable matter such as Spartina and other saltmarsh debris, Armadillidium album was found on several occasions in considerable quantity, and all present had the opportunity to examine this rare and specialised woodlouse at close quarters.

Within the dunes, on bare sandy areas the impressive robberfly Pamponerus germanicus was seen, the males distinctive with white wing bases, this species being confined to the coastal dunes of western Britain. Anoplius viaticus, an attractively marked black and dark orange spider-hunting wasp, was observed several times as it hunted with typical Jerking, erratic movements over bare pathways for its prey; it is a characteristic late spring-early summer species of these sandhills.

The brighter, sunny weather of the afternoon brought out many hoverflies. The wasp-mimic Chrysotoxum cautum was often seen, mainly on mature dune areas with established scrub of Sea Buckthorn Hippophae rhamnoides and other bushes; one specimen of the related Chrysotoxum festivum was also caught. Helophilus trivittatus and Eumerus strigatus (not, unfortunately E. sabulonum!) were amongst the other syrphids seen. Finally, the sun also resulted in the emergence of the butterflies, with Small Blues Cupido minimus, Dingy Skippers Erynnis tages, Green Hairstreaks Callophrys rubi and a single fresh-looking Marsh Fritillary Eurodryas aurina with commoner species but the party were too early in the season for the Marbled Whites Melanargia

galathea that abound over these dune grasslands.

References;

BUTLER, E A (1910) - Insect Life on the Sandhills of Carmarthenshire. Carmarthen Antiquarian Vol. 6, p. 74-76.
PRICE, A (1961) - "Field Notes: Insects" Nat. Wales 7: 25.

A CHECKLIST OF THE LAND MOLLUSCS OF CARMARTHENSHIRE VC 44 - I K MORGAN

Introduction

Although the first published list of Carmarthenshire Mollusca appeared as long ago as 1905 (Barker 1905) since then, apart from occasional survey work by visiting conchologists, only a little attention has been given to the study of the distribution of the vice county's snail and slug fauna.

The scope of Barker's Handbook did not allow more than the briefest of distributional comments, but some of his statements for the scarcer species are of interest. For example, he notes Helix (= Helicella) itala at "Pendine and Marros and on limestone rocks in Llangyndeyrne parish" and Cyclostoma (- Pomatias) elegans again at Pendine cliffs. Pomatias elegans which is near the edge of its European range in the county, was in fact first recorded "between Laugharne and Pendine" by G W Mellors in August 1888 and happily still occurs commonly (with abundant Helicella itala) on the Pendine limestone cliffs and also at Craig Ddu, Llansteffan.

The visits made by two National Museum of Wales staff, S P Dance and June Chatfield, in the late 1960's and early 1970's respectively, gave a strong and valuable impetus to recording of molluscs in the county; both workers adding species to the county list. In the present decade, Arthur Chater has done some very useful field work which included two exciting discoveries - Helicigona lapicida on the medieval ruins of Dryslwyn Castle and Vertigo lilljeborgi at Cilyblaidd near Lampeter, both finds representing notable range extensions for these restricted species. Recording work by the author, mostly during the winters of 1984-85 and 1985-86 has resulted in several additional species being found in the vice county.

Many parts of Carmarthenshire are still poorly covered and help from any interested Dyfed Invertebrate Group members will be welcomed, especially in the North and West of the county, where it is possible that there are species still to be discovered - perhaps Acicula fusca or Spermodea lamellata in a deep wooded valley; or to the SE, possibly even Phenacolimax major in an ashwood on the Carboniferous Limestone outcrop. All three species occur in neighbouring counties.

Mollusc surveying can provide pleasant field-work during the winter months, or indeed at any time of the year, once one has 'an eye' for suitable sites and is familiar with the most productive searching techniques, when quite impressive tallies of species can be achieved at some localities. As well as searching under logs or stones, it is necessary to scrutinize, by close examination or sieving, leaf-litter and soil samples for the smaller snail species. Weather, too, is important for some slugs are particularly difficult to find in very dry or cold conditions. Warm, damp weather is the best. Such field techniques are more fully expanded upon, together with descriptions and illustrations of all the British species, in the recommended Field Guide to the Land Snails of Britain and North-west Europe by M P Kerney and R A D Cameron (1979).

An updated list of the Carmarthenshire species is given below, an asterisk preceding the species name indicating a new county record made in the present post - 1980 recording period; a similarly-positioned asterisk in parentheses denotes a re-discovery of a species not recorded for at least 50 years prior to 1980.

(*) Pomatias elegans
Carychium minimum
Carychium tridentatum
Succinea putris
Oxyloma pfeifferi
Cochlicopa lubrica
Cochlicopa lubricella
Pyramidula rupestris
* Columella edentula
Columella aspera
* Vertigo antivertigo
Vertigo substriata
Vertigo pygmaea
* Vertigo lilljeborgi
* Pupilla muscorum
Leiostyla anglica
Lauria cylindracea
* Vallonia costata
Vallonia pulchella
Vallonia excentrica
Acanthinula aculeata
(*) Ena obscura
Punctum pygmaeum
Discus rotundatus
Arion ater
Arion subfuscus
Arion circumscriptus
Arion silvaticus
Arion hortensis
Arion intermedius
Arion distinctus
* Arion flagellus
Vitrina pellucida
Vitrea crystallina
Vitrea contracta
Nesovitrea hammonis
Aegopinella pura
Aegopinella nitidula
Oxychilus draparnaudi
Oxychilus cellarius
Oxychilus alliarius
Zonitoides excavatus
Zonitoides nitidus
Milax sowerbyi
Milax budapestensis
* Boettgerilla pallens
Limax maximus
Limax cinereoniger
Limax flavus
Limax marginatus
Deroceraslaeve
Deroceras caruanae
Deroceras reticulatum
Euconulus fulvus
Euconulus alderi
Cecilioides acicula
Clausilia bidentata
* Balea perversa
Candidula intersecta
Cernuella virgata
Helicella itala
Cochlicella acuta
* Monacha cantiana
Ashfordia granulata
Zenobiella subrufescens
Trichia hispida
Trichia plebeia
Trichia striolata
Arianta arbustorum
* Helicigona lapicida
Cepaea nemoralis
Cepaea hortensis
Helix aspersa

Acknowledgements; The author would like to sincerely thank A O Chater and A P Fowles for instruction in field techniques and identification. Gratitude is also due to Dr M P Kerney, the national co-ordinator for the Conchological Society of Britain and Ireland mapping scheme, for encouragement in the writing of this short paper and for information provided.

Bibliography

BARKER, T W (19O5) - A Handbook to the Natural History of Carmarthenshire. Carmarthen.
CHATER, A O (1985) - Land Snails at DryslWyn Castle, Llanelli Nats. Newsletter (March 1985), pp16-17.
MORGAN, I K (1986) - Carmarthenshire Mollusca 1985-86. Llanelli Nats. Newsletter (March 1986) pp 13-14.

DYFED INVERTEBRATE BIBLIOGRAPHY, 1985/1986

CHATER, A O (1985) - Vertigo lilljeborgi living in Cardiganshire. J. Conch. Lond 32: 147-148.
CHATER, A O (1985) - Land snails at Dryslwyn Castle. Llanelli Nats. Newsletter (March 1985), pp 16-17.
COKER, S & FOX, A D (1986) - West Wales Dragonflies. Mountain Books.
COMONT, J (1985) - Orthoptera of Pembrokeshire, VC 45 - an introduction. Llanelli Nats. Newsletter (March 1985), p 17.
COMONT, J (1985) - Marbled White in Pembrokeshire, VC 45. Llanelli Nats. Newsletter (Sept. 1985), p 19.
ELLIOT, R (1986) - The Marsh Fritillary. West Wales Trust Nat. Cons. Bull. 40: 5.
EVANS, F (1986) - The Brimstone butterfly at Ynys-hir Reserve. Ynys-hir Reserve Report, 1985. RSPB. pp 20-21.
FISH, J D (1986) - The estuarine fauna at Ynyslas. Ynyslas Nature Reserve Handbook. Part 4 - The estuary. NCC. pp 147-159.
FOWLES, A P (1985) - The Marsh Fritillary in Ceredigion. Br. Butterfly Cons. Soc. News. 35: 36-39.
FOWLES, A P (1985) - Orthoptera in Ceredigion. Llanelli Nats. Newsletter (March 1985), p19.
FOWLES, A P (1985) - Marbled White records from Ceredigion. Llanelli Nats. Newsletter (June 1985), p 22.
FOWLES, A P (1985) - Raft spider (Dolomedes fimbriatus). Llanelli Nats. Newsletter (March 1985), p 15.
FOWLES, A P (1986) - The Butterflies of Ceredigion. Nat. Wales. New Series 3 (1984): 25-43.
FOX, A D (1986) - The dragonflies of Ceredigion - an update. J. Br. Dragonfly Soc. 2*:* 4-7.
MORGAN, I K (1985) - The Marbled White in South Wales. West Wales Trust Nat. Cons. Bull. 38: 3.
MORGAN, I K (1985) - Miscellaneous invertebrates, 1984. Llanelli Nats. Newsletter (March 1985), pp 8-9.
MORGAN, I K (1985) - Butterflies in Carmarthenshire - an introduction. Part One. Llanelli Nats. Newsletter (March 1985), pp 2O-22.
MORGAN, I K (1985 - Gomphus vulgatissimus in Carmarthenshire. Llanelli Nats. Newsletter (June 1985), p 3.
MORGAN, I K (1985) - Reports of field meetings. Llanelli Nats. Newsletter (June 1985), pp 7-8.
MORGAN, I K (1985) - Butterflies in Carmarthenshire - an introduction. Part Two. The Marbled White in Carmarthenshire. Llanelli Nats. Newsletter (June 1985), pp 17-20.
MORGAN, I K (1985) - Woodlice of Carmarthenshire - an introduction. Llanelli Nats. Newsletter (Sept. 1985), pp 5-6.
MORGAN, I K (1985) - Carmarthenshire centipedes and millipedes. Llanelli Nats. Newsletter (Sept. 1985), p 7.
MORGAN, I K (1985) - A naturalists guide: some notes on sites of interest in the Llanelli area. Part 12. The Parc-y-llong - Pont Newydd area, Lower Gwendraeth Fawr. Llanelli Nats. Newsletter (Sept.1985), pp 17-19.
MORGAN, I K (1985) - Three visits to Craig Ddu near Llanstefan: some extracts from my diary. Llanelli Nats. Newsletter (Sept. 1985), pp 19-20.
MORGAN, I K (1985) - Boetgerilla pallens and Anodonta anatina, two molluscs new to Carmarthenshire VC 44. Llanelli Nats. Newsletter (Sept. 1985), p 20.
MORGAN, I K (1985) - A naturalists guide: some notes on sites of interest in the Llanelli area. Part 11. Rehoboth to Cencoed-uchaf. Llanelli Nats. Newsletter (June 1985), pp13-14.

MORGAN, I K (1985) - A naturalists guide: some notes on sites of interest in the Llanelli area. Part 10. Around Llanon. Llanelli Nats. Newsletter (March 1985), pp 18-19.
MORGAN, I K (1985) - A naturalists guide: some notes on sites of interest in the Llanelli area. Part 13. Ffrwd nature reserve, Pembrey. Llanelli Nats. Newsletter (Dec. 1985), pp9-10.
MORGAN, I K (1985) - Invertebrate recording 1985. Llanelli Nats. Newsletter (Dec. 1985), pp13-15.
MORGAN, I K (1986) - The Carmarthenshire butterfly recording scheme. West Wales Trust Nat. Cons. Bull. 40; 3.
MORGAN, I K (1986) - Butterflies in Carmarthenshire. West Wales Trust Nat. Cons. Bull. 40: 7-8.
MORGAN, I K (1986) - Invertebrate recording 1985: Syrphidae (Hoverflies). Llanelli Nats. Newsletter (March 1986), pp 11-12.
MORGAN, I K (1986) - Diptera: Asiloidea. Llanelli Nats. Newsletter (March 1986), p 12.
MORGAN, I K (1986) - Carmarthenshire Mollusca, 1985-86. Llanelli Nats. Newsletter (March 1986), pp 13-14.
MORGAN, I K (1986) - A naturalists guide: some notes on sites of interest in the Llanelli area. Part 14. Around St Ishmaels, near Ferryside. Llanelli Nats. Newsletter (March 1986), p 15.
ORMEROD, S J & JENKINS, R A (1985) - A summary of records of Lasiocephala basalis from the area administered by Welsh Water. Ent. Rec. 97: 134-136.
PRYCE, R D (1985) - Meeting of Llanelli Naturalists and Carmarthen Flora Project to Llyn Llech Owen, 17 Aug. 1985. Llanelli Nats. Newsletter (Sept. 1985), p 15.
PRYCE, R D & MORGAN, I K (1985) - Llanelli Nats. meeting, Marros area, 16 June 1985. Llanelli Nats. Newsletter (Sept. 1985), pp 11-12.
PRYCE, R D & MORGAN, I K (1985) - Joint meeting of Llanelli Nats. and East Carmarthenshire section of the West Wales Trust for Nature Conservation to Tywyn Burrows and Ffrwd Fen, 14 July 1985. Llanelli Nats. Newsletter (Sept. 1985), pp 13-14.
SQUIRES, R (1985) - The 1984 Butterfly Season. Ynys-hir Reserve Report, 1984. RSPB. pp16-17.
SQUIRES, R (1985) - Dragonflies. Ynys-hir Reserve Report, 1984. RSPB. pp 17-18.
SQUIRES, R (1986) - The Butterfly Season. Ynys-hir Reserve Report, 1985. RSPB. p 19.
SQUIRES, R (1986) - Dragonflies and damselflies. Ynys-hir Reserve Report, 1985. RSPB. pp 21-22.
SQUIRES, R (1986) - Moth records. Ynys-hir Reserve Report. RSPB. p 22.
TILLOTSON, I J L (1985) - Some notes on the larval feeding of the Rosy Marsh Moth. Ent. Rec. 97: 87-91.
TILLOTSON, I J L (1985) - The Autumnal Rustic Paradiarsia glareosa ssp edda in Cardiganshire. Ent. Rec. 97; 86.
TILLOTSON, I J L (1986) - Mythimna loreyi (The Cosmopolitan) in west Wales. Ent. Rec. 98: 61.

To keep subscribers informed of published records of Dyfed's invertebrate fauna it is intended to publish regular bibliographies in this vein. If you are aware of any omissions from the above list please send references (or copies) of short notes, articles, papers, etc .... to the Editor.

RECENT NOTABLE INVERTEBRATE RECORDS FROM DYFED

MOLLUSCA

Vertigo lilljeborgi
- 22/610529 (VC46-Llangybi) July 1984 - A O Chater
- 22/508430 (VC46-Highmead) 25 June 1985 - A O Chater
22/637558 (VC46-Llanio Isaf) 27 Aug 1985 - A O Chater
22/541457 (VC44-Cilyblaidd) 21 July 1985 - A O Chater

Pomatias elegans
(sub-fossil shell)
- 22/194519 (VC46-Mwnt) 24 Jan 1986 - A P Fowles

ODONATA

Gomphus vulgatissimus
- 22/533213 (VC44-Afon Tywi) 18 May 1985 - S & A Coker

COLEOPTERA

Cassida murraea 11/895997 (VC45-Freshwater West) May 1986 - I D Wallace
Panageus crux-major 22/361053 (VC44-Tywyn Burrows) 20 Apr 1985 - I K Morgan

LEPIDOPTERA

Nymphalis polychloros 22/460629 (VC46-Aberaeron) 30 July 1985 - R A D Hughes
Bembecia scopigera 21/513979 (VC44-Machynys) 7 Aug 1985 - I K Morgan
Mythimna loreyi 22/687618 (VC46-Tregaron) 10 Oct 1985 - I J L Tillotson

DIPTERA

Asilus crabroniformis
- 22/512145 (VC44-Drefach) 17 Aug 1985 - I K Morgan

Stratiomys pomatida
21/513980 (VC44-Machynys) July 1985 - I K Morgan
22/387043 (VC44-Pembrey Forest) 6 Aug 1985 - S J Falk
22/488017 (VC44-Stradey Woods) 13 June 1986 - I K Morgan
22/612220 (VC44-Llandeilo) 19 June 1986 - A P Fowles

ONISCIDAE

Armadillidium album
- 22/357063 (VC44-Tywyn Point) 20 Apr 1985 - I K Morgan
22/435002 (VC44-Pembrey Burrows) 1 Apr 1986 - I K Morgan
22/606945 (VC46-Ynyslas Dunes) 26 Apr 1986 - A P Fowles

Metatrichoniscoides celticus
- 22/468128 (VC44-Crwbin) 28 Mar 1986 - A O Chater

ARANEAE

Singa hamata
- 22/682622 (VC46-Cors Caron) 30 Oct 1985 - K Catley

Allomengea vidua 22/684627 (VC46-Cors Caron) 20 Oct 1985 - K Catley

A fuller account of recent interesting records of invertebrates in Dyfed will appear in the December issue of the Newsletter. Contributions to the Editor, please.