

# DYFED INVERTEBRATE GROUP



NEWSLETTER N°. 13

June 1989

ISSN 0952 - 5327

Editor- AP Fowles, °/o NCC, Plas Gogerddan, Aberystwyth, Dyfed, SY23 3EE.

## LEPIDOPTERA

### RECORDS OF BUTTERFLIES AND MOTHS IN CEREDIGION (VC46), WITH PARTICULAR REFERENCE TO 1984 AND 1985 - AP FOWLES

The publication in recent years of reviews for the butterflies (Fowles 1986a) and larger moths (Fowles 1988a) of the vice-county of Cardiganshire has provided an update of the status of the local macrolepidoptera since the only previous county list (Smith 1951). These latest accounts incorporated all records received up to the end of 1983 and 1984 respectively. Subsequently, the vice-county recorder's reports published in the Dyfed Invertebrate Group Newsletter have summarised records for the years 1986-1988 (Fowles 1986b, 1988b, 1989). A number of significant records, however, were made in the intervening years and it is the intention of this paper to 'fill the gap' and hence complete the publication of information up to the present day.

It seems so long ago since we had that excellent butterfly summer of 1984; certainly there has been nothing to match that sustained good weather for the past four years. Most species appeared in abundance that year and there were many highlights to report. Hywel Roderick recorded pearl-bordered fritillaries Boloria euphrosyne from several localities along the southern third of the coast in late April and early May and brimstones Gonopteryx rhamnoides were seen at Eglwys-fach on 29 April (C Fuller) and 29 May (S Rooke). It was an excellent year for marsh fritillaries at many sites and a mark-recapture study at Rhos Llawr-cwrt NNR (22/411499) estimated an adult population of some 10,000 individuals, followed later in the year by a larval web survey which yielded similar results (Fowles 1984). Marsh fritillary webs were also surveyed at Rhos Fullbrook (22/665629) and Rhos Glyn-yr-helyg (22/498511) in 1984, indicating that both of these Dyfed Wildlife Trust reserves hold important populations. Tom McOwatt reported the sighting of two small blues Cupido minimus along the coastal path between Llangrannog and Penbryn on 14 August and another scarce Lycaenid, the brown hairstreak Thecla betulae, was seen at Aeron Park, Llangeitho (22/630615) on 16 September (P Thornley). It was rather a strange year for migrants - there was only a single painted lady Cynthia cardui recorded (at Ynyslas in early July), red admirals Vanessa atalanta turned up in reasonable numbers, but it was another good year for clouded yellows Colias croceus to follow on from the splendid performance of 1983. There were records of 25-30 adults, evenly spread from 31 August until the last one was seen on Pendinas, Aberystwyth on 15 October (M Chater).

1985 started with such promise as hibernating nymphalids were fooled into activity at the end of February and painted ladies were seen at RSPB Ynyshir on 8 & 11 March. The rest of the season never lived up to its potential, however, and declines were reported for many

species - notably commas Polygonia c-album, silver-washed fritillaries Argynnis paphia mid purple hairstreaks Quercusia quercus, amongst many others. Painted ladies re-appeared in mid-June and continued to be recorded in small numbers up until 28 October but, in contrast, the only clouded yellow was seen at Aber-arth on 13 October (PE Davis). Another presumed migrant was the large tortoiseshell Nymphalis polychloros seen by RAD Hughes in Aberaeron on 30 July - the only previous county record was one at Tre-groes in 1980 (ANB Simpson). A brimstone at Ynyshir on 25 June gives hope that a small population lingers on at its only known colony in the county but there were, once again, no records of grizzled skipper Pyrgus malvae, brown argus Aricia agestis, or white-letter hairstreak Strymonidia w-album from Ceredigion. On the other hand, holly blues Celastrina argiolus had a good year and a female was watched in the act of ovipositing on ivy growing on the wall of the Council car park in Queen's Road, Aberystwyth (M Grimes). Phil Thornley was fortunate to see brown hairstreaks again, this time at Talsarn (22/560564) on 2 September, and Arthur Chater found small blues at the mouth of the Soden valley (22/363583) on 4 July - the erratic appearance of this butterfly in Ceredigion undoubtedly contributes to its elusiveness. The marsh fritillary transect at Rhos Llawr-cwrt revealed a massive decline from the previous year (D Woolley). This was presumably due, in part, to a natural crash-cycle instigated by the host-specific braconid parasitoid Apanteles bignellii, as larval counts (J Denyer and F Evans) from Comins Capel Betws (22/615575) and Rhos Pil-bach (22/367529) suggested that breeding was not unduly hampered by the changeable summer weather. A more recent butterfly record of great interest concerns a small blue Cupido minimus which was captured by PM Miles (and subsequently released) at Tanybwllch, Aberystwyth (22/582809) on 24 May 1987. Kidney vetch Anthyllis vulneraria, the larval foodplant, grows sparingly here on the south-facing embankment of the disused railway line and this record marks a considerable expansion of range of the small blue in Ceredigion.

At the time of writing 'The Moths of Ceredigion' details of the catches made by the permanent moth traps operated for the Rothamsted Insect Survey in 1984 were not available. The good summer of that year produced several interesting records, including two species new to the county list (both at Ty Coed, Tregaron): Svensson's copper underwing Amphipyra berbera was identified on 19 August and a triple-spotted pug Eupithecia trisignaria was taken on 28 July (not 1985 as mentioned in DIG 5:17). Other scarce moths recorded at Ty Coed included satyr pug Eupithecia satyrata, four-spotted footman Lithosia quadra, lead-coloured drab Orthosia populeti, northern drab O. opima, golden-rod brindle Lithomoia solidaginis and barret's marbled coronet Hadena luteago. This latter species was also taken in more typical habitat at RAE Aberporth in 1984, along with a netted pug Eupithecia venosata and a pinion-streaked snout Schrankia costaestrigalis - the first record since 1950. Pugs were well-represented at Plas Gogerddan with the first county record of the cloaked pug Eupithecia abietaria (already reported in 'Moths of Ceredigion') and the uncommon netted E. venosata, bleached E. expallidata, and ash E. fraxinata pugs.

Other interesting records which arrived too late for the county review came from Ian Wallace and Bernard Skinner. In the Devil's Bridge area Ian recorded a satin lutestring Tetheella fluctuosa (only the ninth county record) and a very late frosted green Polyploca ridens on 25 June - the latest previous record was 14 May. On Cors Fochno his sighting of a wood tiger Parasemia plantaginis was the first in Ceredigion since 1961, although in the last few years it has been found on several peatland sites. Bernard Skinner ran a successful moth trap near Strata Florida (22/750652) on 1 August and amongst many local species he took a scallop shell Rheumaptera undulata, a welsh wave Venusia cambrica, ten satin beauty Deileptenia ribeata (there had only been records of seven specimens previously in the county), and four male 4-spotted footmen Lithosia quadra.

1985 produced two further additions to the county list - a cosmopolitan Mythimna loreyi at Ty Coed on 10 October and two vine's rustics Hoplodrina ambigua at Plas Gogerddan in July. Despite the weather it was a very productive year at Ty Coed with further records of Amphipyra berbera, Orthosia populeti, Eupithecia satyrata, E. fraxinata and Lithomoia solidaginis. There were also records of several species that have been seen on very few occasions in Ceredigion, including - sprawler Brachionycha sphinx, pale shining brown Polia bombycina, and Haworth's pug Eupithecia haworthiata. RAE Aberporth also had its highlights

- notably coast dart Euxoa cursoria, star-wort Cucullia asteris, saltern ear Amphipoea fuscata and netted pug Eupithecia venosata. Apart from Hoplodrina ambigua, the best record at Plas Gogerddan was a hoary footman Eilema caniola - a nationally rare species which feeds on coastal lichens. There were few other outstanding captures at this trap but it continues to turn up many uncommon species despite its unpromising catchment of farmland and plantation.

Away from the Rothamsted traps, Ceredigion lepidopterists had a quiet time in 1985 and there are few other records of interest to report. The most spectacular moth of the year, though probably not looking at its most attractive, was a striped hawkmoth Hyles lineata caught by a cat at Capel Trisant on 19 April (Ent. Rec. 98:226) - the last one to reach Ceredigion before this was in 1965. Arthur Chater found red-necked footmen Atolmis rubricollis and grey mountain carpets Entephria caesiata common along the edge of a conifer plantation at Hirgoed-ddu (22/807831) and Julian Driver took a 4-spotted footman L. quadra at RSPB Ynysir on 19 August.

Old records continue to surface from time to time and a number of these are worth publishing here. The first concerns a slide of a vapourer Orgyia antiqua in the NCC collection at Plas Gogerddan, taken by JP Savidge at Allt-fedw, Trawscoed (22/660730) in July 1976. This is the only county record since 1961, when vapourers were reported from Cors Caron. Another exciting record is the alder kitten Furcula bicuspis taken by PM Miles at Trawscoed at the beginning of June 1956 and only just re-discovered in his collection (Miles 1988) the only record of this species from Ceredigion. I also previously omitted to include a record of the brindled ochre Dasypolia templi that was captured, for the first time in the county, at Trawsgoed on 1 October 1954 (Miles 1956). There have only been two other vice-county records of this scarce inhabitant of coastal cliffs. Pip Miles has recently published a list of moths captured at Cnwch-coch, 1981-1983, (Miles 1987) which includes many scarce species including smoky wave Scopula ternata, light brocade Lacanobia w-latinum, treble brown-spot Idea trigeminata (first since 1937), pale oak beauty Serraca punctinalis (only recorded from Llanbadarn Fawr in the 1960's), bilberry pug Chloroclystis debiliata (reported by Skinner (1984) from Ceredigion but this is the only specific county record), and small emerald Hemistola chrysoprasaria (a new addition to the county list). PM Miles has also published a correction to his record of dingy shears Enargia ypsilon at Ynyslas (Miles 1988). The only remaining county records of this species are four specimens in the Salter Collection at NMW Cardiff, which were collected at Llanbadarn Fawr in the 1930's, and J Fradgley recorded the species from Tregroes, Llandysul between 1964 and 1966.

Ceredigion records have not been fully extracted from the BRC data-base at Monks Wood and there must certainly be plenty of valuable information there still to be consulted. A selected batch of cards has recently been received from BRC and these include records of a further ten species not previously known from the county. The bulk of these were recorded by Terence Whitaker at Llanbadarn Fawr in the 1960's and there does not appear to be any opportunity for confirmation. PM Miles has recently contacted Terence Whitaker and unfortunately the latter's collection of Cardiganshire lepidoptera has not survived the test of time and there are no existing voucher specimens for any of his unusual records.

Adrian Riley at Rothamsted Experimental Station has now kindly checked the record of cream-bordered green pea Earias clorana at Plas Gogerddan in 1972 and found that this is a computer-error on their listings. This species should, therefore, now be deleted from the county list. The total number of species of 'macro-moths' now reported from Ceredigion (VC46) stands at 553, although a small number of these are almost certainly erroneous. 'The Moths of Ceredigion' listed 536 species (including Earias clorana) and the additional eighteen species reported since that publication are as follows:

1654 - Figure of Eighty Tethea ocellaris - Llanbadarn Fawr (1961-1970). TM Whitaker.

1673 - Small Emerald Hemistola chrysoprasaria - Cnwch-coch (August 1981). PM Miles.

- 1735 - Ruddy Carpet Catarhoe rubidata - Llanbadarn Fawr (1961-1970). TM Whitaker.  
[Also - RB Wallis Collection, Llanbadarn Fawr, 1968-1969].
- 1826 - Triple-spotted Pug Eupithecia trisignaria - Tregaron (28 July 1984). IJL Tillotson.
- 1842 - Plain Pug Eupithecia simplicata - Tregroes (July 1975). ANB Simpson.
- 1868 - Lesser Treble-bar Aplocera efformata - Aberaeron (7 Sept 1969). RF Bretherton
- 1875 - Small White Wave Asthena albulata - Llanbadarn Fawr (1961-1970). TM Whitaker.
- 1936 - Waved Umber Menophra abruptaria - Llanbadarn Fawr (1961-1970). TM Whitaker.
- 1970 - Grass Wave Perconia strigillaria - Llanbadarn Fawr (1961-1970). TM Whitaker.  
[Also - RB Wallis Collection, Llanbadarn Fawr, 1968-69].
- 1996 - Alder Kitten Furcula bicuspis Trawsgoed (June 1956). PM Miles.
- 2029 - Brown-tail Euproctis chrysorrhoea - Llanbadarn Fawr (1961-1970). TM Whitaker.
- 2165 - Small Ranunculus Hecatera dysodea - Llanbadarn Fawr (1961-1970). TM Whitaker.
- 2208 - Cosmopolitan Mythimna loreyi - Tregaron (10 October 1985). IJL Tillotson.
- 2240 - Blair's Shoulder-knot Lithophane leautieri - Salem (9 October 1987). PR Holmes.
- 2298 - Svensson's Copper Underwing Amphipyra berbera - Tregaron (19 August 1984). IJL Tillotson.
- 2317 - White-spotted Pinion Cosmia diffinis - Llanbadarn Fawr (1961-1970). TM Whitaker.
- 2384 - Vine's Rustic Hoplodrina ambigua - Plas Gogerddan (15 & 22 July 1985). IJL Tillotson.

### **References:**

- BRETHERTON, R F & CHALMERS-HUNT, J M (1986) - The Immigration of Lepidoptera to the British Isles in 1985. Ent. Rec. J. var. 98: 226-228.
- FOWLES, A P (1984) - Population studies of the Marsh Fritillary colony at Rhos Llawr-cwrt NNR, Dyfed. Unpublished report. NCC Aberystwyth.
- FOWLES, A P (1986a) - The Butterflies of Ceredigion. Nat. Wales. New Series 3 (1984): 25-43.
- FOWLES, A P (1986 b) - Butterflies and Moths in Ceredigion 1986. DIG Newsletter 4:24.
- FOWLES, A P (1988a) - The Moths of Ceredigion. Research and Survey in Nature Conservation. Number 8. Nature Conservancy Council, Peterborough. 108 pages.
- FOWLES, A P (1988b) - Lepidoptera records from Ceredigion in 1987. DIG Newsletter 9: 5-7.
- FOWLES, A P (1989) - Lepidoptera records from Ceredigion in 1988. DIG Newsletter 12: 5-7.

MILES, P M (1956) - Records of moths trapped at Trawscoed, near Aberystwyth, Cardiganshire, Wales, 1952-1954. Ent. Mon. Mag. 92; 289-295.

MILES, P M (1987) - Moths (Heterocera) of north Cardiganshire, 1981-1983. Nat. Wales. New Series 5 (1986): 48-53.

MILES, P M (1988) - Two new Lepidoptera records, and a correction, from Cardiganshire. Ent. Rec. 100: 276-277.

SKINNER, B (1984) - Colour Identification Guide to Moths of the British Isles. Viking. Penguin Books Ltd, Harmondsworth. Page 48.

SMITH, S G (1951) - The Butterflies and Moths found in the county of Cardiganshire... Cheshire, North and Mid-Wales Natural History. IV: 5-46.

SQUIRES, R (1985) - The 1984 Butterfly Season. Ynys-hir Reserve, Report for 1984. Royal Society for the Protection of Birds, Sandy. Pages 16-17.

SQUIRES, R (1986) - The Butterfly Season. Ynys-hir Reserve, Report for 1985. Royal Society for the Protection of Birds, Sandy. Page 19.

TILLOTSON, IJ L (1987) - Moth Records from Ceredigion Rothamsted Traps, 1986. DIG Newsletter 5: 17.

## COLEOPTERA

### DRYOPS SIMILARIS BOLLOW (COL., DRYOPIDAE) NEW FOR WALES - G N FOSTER

On 12 November 1988 I collected beetles in a small roadside pond (11/925950) near Elegug Stacks, Pembrokeshire but, I should hasten to add, just outside of the Ministry of Defence training ground. The pond was temporarily flooded out into the road and had little of interest other than an abundance of Dryops that later proved to be similaris Bollow. This species was introduced to the British List by Olmi in a review of Palaearctic Dryops and until recently was thought to be confined to the New Forest (old records only), Leicestershire, the Peterborough area (in Cambridgeshire and Northamptonshire), West Norfolk, West Suffolk and the south-east. David Bilton has now discovered it in south-west Scotland and in Ireland so the sting has been taken out of the new Welsh record. Abroad I have found it in winter-flooded habitats in western France and Spain in a highly specialist assemblage of beetles, including some species found on Skokholm.

Another interesting Dryops record comes from Ynyslas Dunes (22/605935) where specimens collected by the University College of Wales, Aberystwyth, have been determined as D. nitidulus. Their reference collection of beetles trapped during species diversity studies since the early 1980's included three D. nitidulus and a further three were trapped in the dune slacks on 5 October 1988. Previous hand-searches at Ynyslas have only yielded D. luridus (A P Fowles, pers. comm.) and it appears that nitidulus is a difficult species to locate by casual searching. It is a scarce species nationally (although possibly overlooked) and there are only two modern Welsh records, both of them from North Wales.

THE CONSERVATION OF INVERTEBRATES AT CAREW CASTLE, PEMBS. - A Dyfed **Invertebrate Group Site Assessment** - AO CHATER, AP FOWLES & DC BOYCE.

Carew Castle (22/046037) stands on the southern bank of the Carew River, seven kilometres to the east of Pembroke, on a site which was first definitely inhabited during the Romano-British period (c.200-400 a.d.). The Castle itself originates from the arrival of the Normans when they erected a stronghold within the existing ditched defences. Subsequent extensions considerably enlarged the Castle but there was also a shift away from military defense towards a grandiose dwelling. By Tudor times, the wealth and influence of the owners was reflected in the splendour of the Castle, particularly its range of impressive mullioned windows, and some of the smaller medieval rooms were replaced with spacious apartments. In the early part of the Seventeenth century the Castle was the scene of several skirmishes and, at the end of the Civil War, the southern wall was slighted. From this time on the fabric deteriorated, taking on the form of romantic ruin and, with the departure of its human occupants, becoming increasingly important for wildlife. The Castle and its environs provide roosting and feeding areas for bats and the grassland and old walls contain several locally uncommon species of flowering plants.

Carew Castle is leased by the Carew Estate to the Pembrokeshire Coast National Park (P.C.N.P.) Authority, who are responsible for basic site maintenance. The Castle is a popular tourist attraction and public safety is a prime concern of the Park Authority so consolidation of the walls is an essential management task here, as it is with any archaeologically-important ruin. The nature conservation interest of the site is enhanced as the Castle is built from limestone on top of outcropping limestone and many base-demanding plants and animals have settled here over the centuries. To ensure that management, particularly the replacement of crumbling mortar, is as sympathetic as possible towards rupestral invertebrates (species which are associated with walls) Jane Hodges, the P.C.N.P. Ecologist, asked the Dyfed Invertebrate Group to carry out a survey and provide advice on management of the site for invertebrates.

On 24 March 1989, nine DIG members gathered on a cold and wet morning and set about investigating the countless nooks and crannies that the Castle offers for its invertebrate inhabitants. Attention was concentrated on the molluscs and woodlice as these groups are well-represented in lime-rich, stony habitats and, indeed, Carew Castle was shown to be quite a rich site with a total of 32 species of land molluscs and 11 species of woodlice recorded. The richest site for snails was the Ravelin, a hollow and ridges in the limestone grassland with decayed masonry fragments half-buried in the grass, just outside the Gatehouse. Of particular interest here was the presence of Helicella itala and Vallonia costata. Helicella, though recorded from a number of sites on the South Wales coast, is a decreasing species; in many of its former sites only empty shells are now found and it is significant that live animals were present here. Vallonia is very rare in Dyfed, with apparently only two other records for Pembs. and records from two sand dune areas in Carmarthenshire. Another good site was the Garden Wall, constructed of mortared limestone and supporting an attractive plant cover of Welsh polypody Polypodium cambricum, pellitory-of-the-wall Parietaria diffusa, etc.. Local species recorded here included Pyramidula rupestris and Vertigo pygmaea. Inside the Castle a typical assemblage of synanthropic species was found, although it was interesting to find Cecilioides acicula on the turf-clad passage to the North Turret. This tiny subterranean snail is found in friable, calcareous soils and is believed to have been accidentally introduced to Britain by the Romans, though not necessarily to Carew Castle!

List of Molluscs recorded at Carew Castle:

Carychium tridentatum	Arion distinctus	Clausilia bidentata
Cochlicopa lubrica	Vitrina pellucida	Candidula intersecta
Pyramidula rupestris	Vitrea crystallina	Cerņuella virgata
Vertigo pygmaea	Aegopinella pura	Helicella itala
Lauria cylindracea	A. nitidula	Ashfordia granulata
Vallonia costata	Oxychilus draparnaudi	Trichia striolata
V. excentrica	O. cellarius	T. hispida

Discus rotundatus	O. alliarius	Cepaea nemoralis
Arion ater agg.	Limax marginatus	C. hortensis
A. subfuscus	Deroceras reticulatum	Helix aspersa
A. circumscriptus	Cecilioides acicula	

The woodlice found were the expected and characteristic species of stony grassland in coastal or calcareous districts, and of old mortared walls or rubble. The ubiquitous species, Oniscus asellus, Porcellio scaber, Philoscia muscorum and Trichoniscus pusillus, were present under stones, in grass tussocks and in leaf litter all over the site. Androniscus dentiger, an attractive small, salmon-pink species, and Armadillidium vulgare, mostly characteristic of limestone or coastal sites or places with mortar, were in several places by the Garden Wall and in the Castle. Armadillidium depressum and Porcellio spinicornis, very characteristic of limestone and old mortared walls, were both on and under stones at the base of the Garden Wall. Porcellionides cingendus, a species of grassland and leaf litter with an Atlantic and southwestern distribution in Britain, was found inside the Castle. Trichoniscus pygmaeus, a small, widespread but under-recorded species, was under stones in several places. The blind white species Platyarthrus hoffmannseggii that lives as a commensal with ants was found in the nests of Lasius flavus under stones in the Ravelin and in Myrmica rubra nests on the edge of the estuary.

List of woodlice recorded from Carew Castle:

Androniscus dentiger	Porcellio scaber
Armadillidium depressum	P spinicornis
A. vulgare	Porcellionides cingendus
Oniscus asellus	Trichoniscus pusillus
Philoscia muscorum	T. pygmaeus
Platyarthrus hoffmannseggii	

Few other invertebrates were recorded during this brief survey and further investigations of such groups as the ground-beetles, spiders and myriapods is desirable. Two species found during our visit deserve mention; they are - the pseudoscorpion Chthonius tetrachelatus and the ground-beetle Pristonycha terricola. A single specimen of C. tetrachelatus was found amongst an accumulation of leaf litter at the bottom of the stairs in the South-West Tower. This is a scarce species which occurs in both wild and synanthropic sites and which has only been recorded on one previous occasion in South Wales. Pristonychus is a large carabid which is found in dark, often subterranean, micro-sites and has been recorded on very few occasions previously in Dyfed. A single specimen was found underneath a stone on the floor of the Great Hall.

The present management of the site seems, in general, to be favourable to these invertebrate groups. Whilst the Garden Wall is vegetated to an ideal degree for both plants and animals, the vegetation of the upper parts of the Castle itself, especially on the wall-tops and open passages, seems much too dense. Here, a thick mattress of turf covers most of the horizontal surfaces, so that both the flora and fauna resembles that of dry, rank grassland at ground level. Although it is difficult to be certain exactly what is present from one visit to a very small area of the Castle, we feel that a much more interesting and characteristic wall-top fauna (and flora) would develop if the turf was removed, along with most of its associated humus, so that animals requiring crevices and very dry, thin layers of soil or humus could become established instead. In particular, those walls which are exposed to several hours of sunshine during the day should be maintained with just a sparse cover of vegetation to provide suitable conditions for warmth-loving species. External, south-facing walls are obviously of prime importance in this respect.

The grassland of the grounds seemed well-managed. The smattering of loose stones and half-buried masonry in the Ravelin is ideal for invertebrates, as is the rubble on the slope below the ash tree at the north-east corner (the south and west sides of the Castle were not visited and may presumably have similar sites). Invertebrates are much easier to find, and to some extent are probably really more abundant, in grassland which has loose and half-buried stones, and these should ideally be increased rather than cleared-up, if possible. Many species

associated with old buildings are lapidicolous; that is, they tend to occur under stones where they can find shelter and a relatively stable micro-climate. It is advisable, therefore, to ensure that scattered stones remain at the bases of the walls in undisturbed areas of the Castle.

The vegetation and leaf litter inside the Castle on the ground floor under the Great Hall is quite rich in species and should be preserved if possible. Chthonius tetrachelatus is doubtless in other places as well as the litter heap where it was found and, along with the snails Helicella itala and Vallonia costata, well justifies the way in which the Castle and its grounds are allowed to remain in a moderately wild and unmanicured state.

We are grateful to Jane Hodges for arranging this survey, for guiding us around the Castle, and for ensuring that invertebrate conservation is taken into account during repairs to the Castle walls. We are also grateful to Sandy Gerrard (P.C.N.P. Archaeologist) for providing notes on the history of Carew Castle.

## LETTERS TO THE EDITOR

### OSMYLUS FULVICEPHALUS IN CEREDIGION

In response to the note in the last Newsletter (DIG 12: 25), Joan Morgan (UCNW Bangor) has written to point out that last year's records were not the first for this species in the vice-county. The giant lacewing was reported on three occasions in the 1970's, as follows:

3 June 1971 - Pant-yr-holiad, near Rhydlewis (22/34-47-) - F Fincher 31 July

1971 - Pant-y-fedwen, Pontrhydfendigaid (22/752651) - RP Bray

17 July 1975 - Plas Gogerddan, Bow Street (22/633836) - specimen taken in a Rothamsted light-trap.(det. MJM)

Mrs Morgan comments that O. fulvicephalus is probably widespread in Wales but occurs more commonly in the southern counties and points out that, with its 45mm wingspan, it is not an insect that is easily overlooked. The giant lacewing occurs in small colonies on woodland streams where the larvae are predatory on other insect larvae (chiefly Diptera) in damp moss and leaf-litter at the water's edge. The adults are on the wing from May to August.

### DYFED SITE REPORT - Number Six - COED NANT LLOLWYN, CEREDIGION (22/588770) - A P FOWLES

Nant Llolwyn is a small tributary, running south-west to north-east, on the southern flanks of the Ystwyth Valley just three kilometres from the coast. In many respects, Coed Nant Llolwyn is typical of the series of such dingle woodlands which lie between Llanfarian and Llanilar, consisting of a mixed canopy woodland with a lush ground flora indicative of the locally base-enriched soils. However, Nant Llolwyn is the least modified of these narrow valleys, the others having been underplanted with conifers or damaged by unrestricted stock-access, and was notified as a Site of Special Scientific Interest in 1967 as a good example of its type with a diverse field-layer and a selection of uncommon lichens. For many years the wood has been used by Aberystwyth University to demonstrate the principles of woodland plant ecology to environmental science students and several theses related to this topic have been undertaken here.

There is little evidence of woodland management apart from the presence of old coppice-



stools and since the second World War the only recorded use is the occasional extraction of timber for gate-posts. In 1982 the Nature Conservancy Council grant-aided Aber-llolyn (the owners of the western half of the valley) to fence along the western boundary but stock are still able to gain access from Aberbrwynen to the woodland east of the stream, although this is usually only for winter-shelter by small numbers of sheep or cattle and grazing pressure is slight. The wood is entirely privately-owned but a public footpath passes right down the valley, from which most of the woodland habitats can be explored.

Coed Nant Llolyn appears on all editions of the Ordnance Survey maps for the area and is regarded as an ancient woodland site. There are approximately six hectares of mature woodland, chiefly dominated by sessile oak Quercus petraea, although ash Fraxinus excelsior is the main canopy tree in places and, prior to Dutch Elm disease, wych elm Ulmus glabra formed locally dominant stands. There are also maiden trees of beech Fagus sylvatica, hornbeam Carpinus betulus and English elm Ulmus procera (which were almost certainly planted about one hundred years ago) and along the banks of the stream there are well-established bushes of cherry laurel Prunus laurocerasus. Sycamore Acer pseudoplatanus is widespread and regenerating abundantly. Small-leaved lime Tilia cordata is present along with a few crab apple Malus sylvestris trees and a good number of field-layer species which can perhaps be regarded as indicators of ancient woodland in Ceredigion, including tutsan Hypericum androsaemum, sanicle Sanicula europaea, giant fescue Festuca gigantea, wood millet Milium effusum, wood melick Melica uniflora and hairy wood-rush Luzula pilosa. The shrub-layer is generally sparse and composed chiefly of hazel Corylus avellana with occasional hawthorn Crataegus monogyna, elder Sambucus nigra and blackthorn Prunus spinosa. The ground flora is rich with extensive areas of dog's-mercury Mercurialis perennis, sheets of bluebell Hyacinthoides non-scripta and wood anemone Anemone nemorosa in spring, and grassy pockets dominated by creeping soft-grass Holcus mollis. There are a few plants of broad-leaved helleborine Epipactis helleborine and twayblade Listera ovata and this was the only site known for herb-paris Paris quadrifolia in Ceredigion. However there have been no records of this unusual plant since about 1974 and it is now presumed to be extinct in the vice-county.

Whereas there are about fifteen plant species in Coed Nant Llolyn that are provisionally regarded as ancient woodland indicators in Ceredigion (A O Chater, pers. comm.), the evidence from the invertebrate surveys undertaken so far is somewhat conflicting. This is best demonstrated by the molluscs, a group which has been more thoroughly recorded in Coed Nant Llolyn than any other woodland in the county. A total of forty-one species are known to occur but this includes only one, Zenobiella subrufescens, listed by Kerney & Stubbs (1980) as indicative of primary woodland habitats. However, Z. subrufescens is also frequently present in hedgerows and secondary woodland in Wales and has little value as an indicator species in Welsh woods. From the range of habitats available in Coed Nant Llolyn, at least four more of the Kerney & Stubbs indicator species could have been expected to occur. Indeed, it is very surprising that the most reliable indicator in Ceredigion, Spermodea lamellata, is not abundant in the numerous base-rich flushes (characterised by mats of opposite-leaved golden saxifrage Chrysosplenium oppositifolium and the stiff fronds of hart's-tongue Phyllitis scolopendrium) that adorn the streambanks. Of the species recorded, the most interesting is Balea perversa, which can be beaten in abundance from mature ivy stems. Other characteristic woodland molluscs in the valley include Arion flagellus, Zonitoides excavatus, and Oxychilus helveticus.

The widespread abundance of dead and dying trees in the Llolyn valley is one of its most striking features. The majority of these are diseased elms but there are also many oaks and ashes which have fallen as a result of gale damage. The profusion of deadwood suggests that the saproxylic beetle fauna (species associated with decaying wood) should be of some interest but, once again, the evidence does not bear this out. On current knowledge, Ceredigion does not have a particularly diverse deadwood fauna (Boyce 1988) but there are a number of species which can be anticipated to occur in the better sites. With over a hundred beetle species recorded, Coed Nant Llolyn is one of the best-worked woodlands in the county but the results so far do not suggest that the deadwood fauna is by any means exceptional. Nonetheless, five of the species originally considered by Harding (1978) as old timber indicators are present - Siagonium quadricorne, Cerlyon ferrugineum, Triplax aenea, Tetratoma ancora and

Sinodendron cylindricum (although the first two were not retained in the amended lists by Harding & Rose, 1986). The "under-bark" fauna also includes such characteristic species as Rhizophagus dispar, Scaphidium quadrimaculatum, Atrechus affinis, Gabrius splendidulus, and the notable aleocharine Leptusa pulchella. In Ceredigion terms, where few woods or parks have the range of mature timber habitats associated with old trees, this is quite a respectable list but, in view of the level of recording effort, this is hardly surprising. All three of the "Harding & Rose" species are grade 3 ("weak") indicators of ancient woodland and, indeed, Triplax occurs in fungi on a Norway Maple in a nearby hedgerow in Llanfarian. So far, Sinodendron and Tetratoma are known only from Coed Nant Llolwyn in the vice-county but the former, at least, is known elsewhere in Wales from secondary woodland. The longhorn beetles (Cerambycidae) are a group of deadwood beetles which reach their greatest diversity in ancient wooded sites but, to date, only four species are known from within the wood - Grammoptera ruficornis, Strangalia maculata, Pogonocherus hispidus and Rhagium mordax. The deadwood beetles as a whole, therefore, do provide more evidence for the ancient status of Coed Nant Llolwyn than the molluscs but this is still far from conclusive.

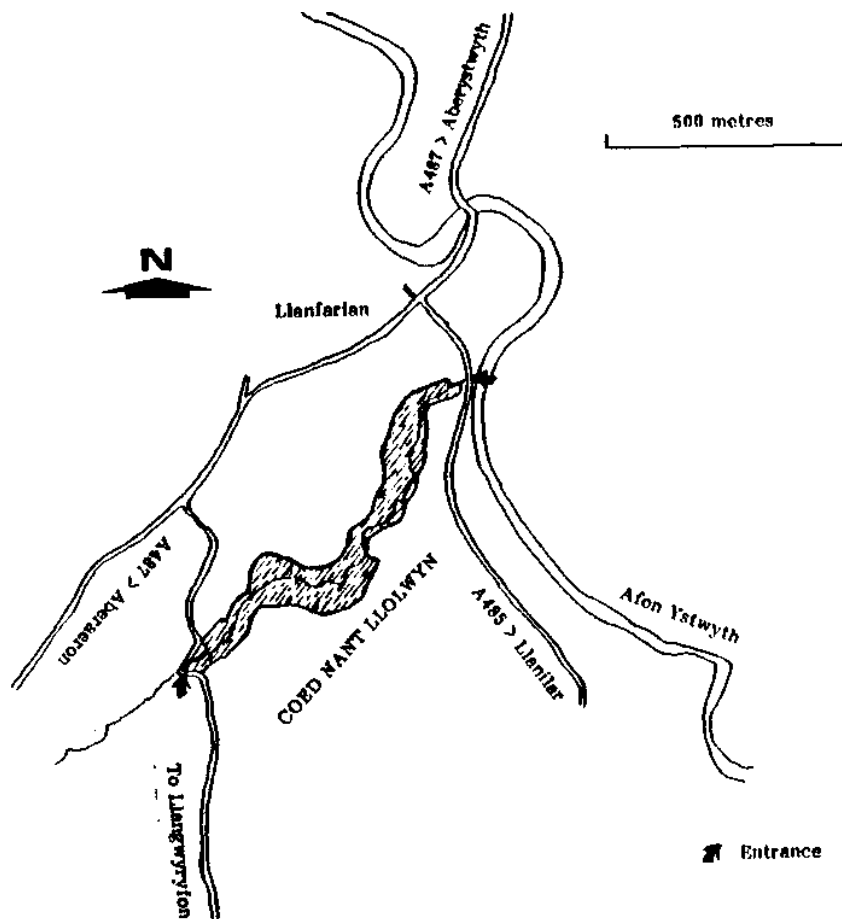
Other interesting beetles recorded from the woodland include the notable weevils Acalles misellus and Apoderus coryli. Acalles breeds in old ivy and other types of hardwood timber but is often associated with hedgerows and is not considered to be indicative of ancient woodland. Apoderus is a spectacular black-and-red weevil which is known as the hazel leaf-roller as the adult prepares a shelter for its larvae by rolling-up hazel leaves before depositing its eggs inside. Ground-beetles recorded so far include three arboreal species - Bembidion harpaloides, Dromius quadrimaculatus, and D. quadrinotatus - and the scarce, ground-active, predator Asaphidion curtum. The orange ladybird Halyzia 16-guttata occurs commonly throughout the wood, favoured by the damp situation which promotes the growth of mildews (on which both the adults and larvae feed) on the underside of sycamore leaves.

A group which is poorly-represented in Coed Nant Llolwyn are the butterflies - just five species are recorded and the only one of any interest is the comma Polygonia c-album, which is not uncommon around the wood-edge in Spring. This paucity is due to the virtual absence of clearings, although it is possible that canopy species, such as purple Quercusia quercus and white-letter Strymonidia w-album hairstreaks, have been overlooked so far. The lack of rides or sunny glades is also reflected in the diversity of hoverflies known from the wood, however they do include a number of local species which are able to tolerate the shady conditions. Of greatest interest is the impressive bumblebee-mimic Criorhina ranunculi, which, to date, has not been recorded elsewhere in Ceredigion. Another species only known from this site is Pipiza luteitarsis, considered as an old woodland species and associated with elms. The total of thirty-nine species recorded includes three nationally notable species in addition to C. ranunculi; these are C. berberina, Arctophila fulva and Brachypalpoidea lenta, all of which breed within rot-holes or deadwood. Other decaying timber species known from Coed Nant Llolwyn include Cheilosia scutellata, Myathropa florea, Xylota segnis and X. sylvorum. Stubbs & Falk (1987) have compiled a provisional list of fifty hoverflies which can be regarded nationally as indicator species of ancient woodlands. A total of seventeen of these have been recorded from Ceredigion woods but only five are known from Coed Nant Llolwyn - B.lenta, C.berberina, C.ranunculi, P.luteitarsis and X.sylvorum. As with the deadwood beetles, all of the Llolwyn hoverfly indicator species are classed as Grade 3 ("weak") and several relatively widespread species on the Stubbs & Falk list, such as Sphegina clunipes, Chalcosyrphus nemorum and Ferdinandea cuprea, are noticeably absent.

The value of sheltered clearings to the ecology of woodland insects is demonstrated by the number of woodland species which visit my 'wild' stretch of garden, which is adjacent to the southern end of the wood. For example, Criorhina ranunculi is a frequent visitor to apple blossom and willow catkins and males of the rare hoverfly Parasyrphus nigritarsis (whose larvae are reputed to feed on the larvae of chrysomelid beetles found on poplars) choose the garden to establish their territories, although none have yet been found within the boundary of the wood. The longhorn beetles Strangalia maculata and Clytus arietis are common on bramble flowers whilst Judolia cerambyciformis favours hogweed umbels. Another characteristic wood-edge species is the parasitic bee-fly Bombylius major, a regular visitor to the profusion of primroses. Nectar sources are important for many woodland insects, enabling

them to build-up energy reserves for egg-production or to prepare them for winter-hibernation. After the Spring flush of woodland flowers, closed-canopy woodlands can become a desert for nectar-seekers, undoubtedly resulting in a reduction in the range of species a woodland is capable of supporting. Similarly, many phytophagous species require plants growing in sunny conditions to complete their development and shady woods will be lacking in a number of beetles, flies, butterflies etc. that are dependent upon the extra warmth provided by clearings, rides and wood-edge habitats.

The invertebrate fauna of Coed Nant Llolwyn is probably best regarded as typical of the northern valley woodlands of Ceredigion, although with interesting dilemmas regarding absent species that may perhaps help us to evaluate the role of indicator species in the county. The base-rich flushing throughout the wood and the abundance of fallen timber are significant features for invertebrate conservation and there are still many micro-habitats left to explore. There are also many groups which have not been looked at which could prove to contain many local species; spiders and other Dipteran families for instance. Little time has been spent on the phytophagous species of the field-layer or the decomposers and predators of the leaf-litter (although the scarce harvest man *Anelasma cephalus cambridgei* and the woodland ant *Stenamma debilis* have been recorded). Above all, Coed Nant Llolwyn is an attractive woodland that is a pleasure to survey and, I must confess, not a bad place to live next door to!



## References;

BOYCE, DC (1988) - Deadwood Beetles in Ceredigion (VC46) - DIG 11: 13-15

HARDING, PT (1978) - A bibliography of the occurrence of certain woodland Coleoptera in Britain. (CST Report No. 161). Banbury:Nature Conservancy Council.

HARDING, PT & ROSE, F (1986) - Pasture-woodlands in lowland Britain. Institute of Terrestrial Ecology, Huntingdon.

KERNEY, M & STUBBS, AE (1980) - The conservation of snails, slugs and freshwater mussels. Nature Conservancy Council, Peterborough.

STUBBS, AE & FALK, SJ (1987) - Hoverflies as Indicator Species: Ancient woodland indicators. in - Hoverflies of the Sheffield Area and North Derbyshire. D Whiteley (Ed.). Sorby Record Special Series 6: 46-49.

## **DYFED INVERTEBRATE BIBLIOGRAPHY, 1988**

**AGASSIZ, D J L** - Microlepidoptera: a review of the year 1986. Ent. Rec, 100: 118-130.  
[Includes records of Haplotinea insectella and Elachista dispunctella, new to Cardiganshire.]

**AGNEW, A D Q** - The land snails of the dunes. Ynyslas Nature Reserve Handbook. Part 3B. The Sand Dune Fauna. Edition 5 (1987). UCW/NCC Aberystwyth. Pages 130-139.  
[A reprinting of the 1976 article which discussed the results of transects across the dune succession.]

**ALEXANDER, K N A** - Dorcatoma chrysomelina Sturm (Col: Anobiidae) and Xylophagus ater Meig. (Dip: Xylophagidae) new to Pembrokeshire. Br. J. Ent. Nat. Hist. 1: 127.  
[ Old woodland species recorded from Lawrenny Wood.]

**ALEXANDER, K N A** - Rhagonycha lutea (Muller,OF) and other uncommon Cantharidae (Coleoptera) in west Wales. Ent. Rec. 100: 274.  
[New county records from Cards. & Pembs.]

**BARBER, A D & KEAY, AN** - Centipedes from the Newbridge-on-Wye meeting. British Myriapod Group Newsletter 19: 5-7.  
[List of species recorded from the 1988 field meeting, including sixteen species from Cardiganshire.]

**BOYCE, DC** - Some preliminary results for carabid beetles. Welsh Peatland Invertebrate Survey Newsletter 1: 3-4.  
[Introduces trends appearing from the survey results to date from Cardiganshire and Pembrokeshire samples.]

**BRETHERTON, R F A & CHALMERS-HUNT, J M** -The immigration of Lepidoptera to the British Isles in 1987. Ent. Rec. 100: 177.  
[Records single specimens of Colias croceus in Carmarthenshire and Pembrokeshire.]

**CATLEY, KM** - An interim note on some interesting spider records. Welsh Peatland Invertebrate Survey Newsletter 1: 2-3.  
[Records of spiders from Cardiganshire and Pembrokeshire which are new to Wales (3 species) and of spiders recorded only once before in Wales (3 species)]

**COLE, J H** - Additional British records of Aspistes berolinensis (Dip: Scatopsidae), including one inland. Ent. Mon. Mag. 124: 68.  
[Includes a record of this species from St Ishmael, Carmarthenshire in 1974.]

**FINCH, G L & M A** - Dolicharthria punctalis D. & S. (Lep: Pyralidae) in Pembrokeshire. Ent. Rec. 100: 28. [A short note on the capture of this scarce species at Dale Fort.]

**FINCH, G L & M A** - Microlepidoptera: 1987 Annual Exhibition. Br. J. Ent. Nat. Hist. 1: 28. [Lists three species recorded from Dale Fort, Pembrokeshire.]

**FOWLES, A P** - The Moths of Ynyslas Dunes. Ynyslas Nature Reserve Handbook. Part 3B. The Sand Dune Fauna. Edition 5 (1987). UCW/NCC Aberystwyth. Pages 125-127.  
[Brief discussion of the dune fauna and an account of the specialised moths which are found at Ynyslas.]

**FOWLES, A P** - The Moths of Ceredigion. Research and Survey in Nature Conservation. Number 8. NCC, Peterborough. 108 pages.  
[Comprehensive review of the macro-fauna with individual accounts for the 536 species reported up to the end of 1984. Includes an appendix on the life history of the rosy marsh moth and a list of the micro-moths (296 species) recorded from Cardiganshire.]

**GEE, J H R** - The distribution of Asellus in upland lakes in west Wales. Bull. Brit. Ecol. Soc. 19: 247-251.  
[Discusses the occurrence of these aquatic woodlice in lakes near Aberystwyth, Cardiganshire.]

**HALL, N M** - Microlepidoptera: 1987 Annual Exhibition. Br. J. Ent. Nat. Hist. 1: 29.  
[Records two species from northern Cardiganshire.]

**HOLMES, P R** - Blair's Shoulder Knot Lithophane leautieri in west Wales. Br. J. Ent. Nat. Hist. 1: 127.  
[ The first Dyfed record of this noctuid moth which has only recently colonised Britain.]

**HOLMES, P R** - Welsh Peatland Invertebrate Survey. Antenna 12: 7.  
[A description of the survey and a request for assistance with identification.]

**HOLMES, P R, BOYCE, D C & REED, D K** - Invertebrate Survey. Ynyshir Reserve Annual Report for 1987. No. 9, pp26-28. RSPB.  
[Lists carabids, staphylinids, ants and snails recorded during the Welsh Peatland Invertebrate Survey of this Cardiganshire RSPB reserve and mentions a handful of other records of interest.]

**JONES, R E** - April 1988 Welsh Millipedes. British Myriapod Group Newsletter 9: 3-5.  
[List of species recorded during the 1988 field meeting, including eleven species from Cardiganshire.]

**KEAY, A N** - The April weekend in Wales: full of surprises. British Myriapod Group Newsletter 9: 1. [Lithobius tenebrosus from Aberystwyth, Cardiganshire.]

**KERNEY, M P** - Recorder's Report: Non-marine Mollusca. J. Conch. 33: 104-105.  
[Trichia plebeia new to Carms.]

**MILES, P M** - Comparison of two Welsh sand dune faunas with special reference to the Collembola. Br. J. Ent. Nat. Hist. 1: 85-88.  
[Species lists provided for arthropods collected during winter transects at Manorbier, Pembrokeshire and Gwbert, Cardiganshire, with a brief discussion of some patterns of distribution.]

**MILES, P M** - Two new Lepidoptera records, and a correction, from Cardiganshire. Ent. Rec. 100: 276-277.  
[ Announces the addition of the alder kitten to the county moth list.]

**MILES, P M** - Phoretic and parasitic Nematoda of Collembola and Chelonethi. Br. J. Ent. Nat. Hist. 1: 60-61.  
[Records from the sand dunes at Manorbier, Pembrokeshire with four E M photographs.]

**MORGAN, I K** - The dark bush cricket in south-east Carmarthenshire. Nat. Wales. (New Series) 6: 67.  
[A description of the distribution of this species in VC44 - reprinted from Llanelli Nats. Newsletter (Dec. 1986); p8.]

**MORGAN, I K** - Carmarthenshire butterflies and moths 1988. Llanelli Nats. Newsletter (Winter 1988-89); pp12-15.  
[An account of the interesting Lepidoptera records in VC44 for 1988.]

**MORGAN, I K** - Extraordinary numbers of Platyarthrus hoffmannseggii in one ant's nest. British Isopod Study Group Newsletter 24: 6.  
[Recounts the profusion of this myrmecophile woodlouse at a site in Carmarthenshire following heavy rain.]

**MORGAN, I K** - Armadillidium nasatum in Carmarthenshire, VC44. British Isopod Study Group Newsletter 24; 6-7.  
[Records of this woodlouse in four base-enriched sites along the coast.]

**MORGAN, I K** - The entomological correspondence of Terence Parsons with special reference to Carmarthenshire. Llanelli Nats. Newsletter (Summer 1988); pp 16-18.  
[Includes records of Lepidoptera, chiefly butterflies, referring particularly to the 1940's but with some older material also.]

**MORGAN, I K** - Recent recording of myriapods in south-west Wales. Bull. British Myriapod Group 5: 11-23.  
[ Distribution and habitat notes for millipedes and centipedes recorded from the Dyfed vice-counties between 1985 and 1987, including an appendix of new county records.]

**MORGAN, M J** - Field Notes: Invertebrates. Nat. Wales (New Series) 6: 72-75.  
[Records of insects (Neuroptera, Lepidoptera and Diptera) from Carmarthenshire and Pembrokeshire.]

**PESTER, S** - Butterflies of Ynyslas Dunes. Ynyslas Nature Reserve Handbook. Part 3B. The Sand Dune Fauna. Edition 5. (1987). UCW/NCC Aberystwyth. Pages 111-124.  
[Reviews the results of the butterfly monitoring scheme carried out at Ynyslas between 1976 and 1984.]

**PUGH, P J A & KING, P B** - Acari of the British supralittoral. J. Natural History 22: 107-122.  
[Records of mites from tidal debris and supralittoral lichens in South Pembs, with an analysis of the effects of different environmental factors.]

**RILEY, A M** - New Eupithecia records (Lep: Geometridae) for Cardiganshire from Rothamsted Insect Survey light traps. Ent. Rec. 100: 35-36.  
[Records of Pugs taken between 1984 and 1986 and claimed, erroneously, as additions to the county list.]

**ROTHNEY, B** - The Insects of Ynyslas Dunes. Ynyslas Nature Reserve Handbook. Part 3B. The Sand Dune Fauna. Edition 5 (1987). UCW/NCC Aberystwyth. Pages 100-110.  
[A very general account of insect diversity at Ynyslas.]

**ROTHNEY, E, SINCLAIR, W & WOOTON, R T** - Arthropods of Ynyslas. Ynyslas Nature Reserve Handbook. Part 3B. The Sand Dune Fauna. Edition 5 (1987). UCW/NCC Aberystwyth. Pages 90-99.  
[An updated version of the article in the 1976 edition, describing sampling methods and techniques.]

**SQUIRES, R & ELLIOT, D** - Butterflies recorded in 1987. Ynyshir Reserve Annual Report for 1987. No. 9. RSPB. pp22-23.  
[Species list for 1988 with comments on abundance.]

**SQUIRES, R & ELLIOT, D** - Dragonflies and damselflies recorded in 1987. Ynyshir Reserve Annual Report for 1987. No. 9. RSPB. pp 24-25.  
[Species list for 1988 with comments on abundance.]

**SQUIRES, R & ELLIOT, D** - Moths and other insects recorded in 1987. Ynyshir Reserve Annual Report for 1987. No. 9. RSPB. p 25.  
[New moth records for the reserve with records of Orthoptera and glow-worms.]

**STUBBS, A B** - Courtship of Dolichopus plumipes (Scop.) (Dolichopodidae). Dipterists Digest 1: 43.  
[Preliminary observations on the display of this widespread species (based on a pair watched near Pentood Marshes, VC44).]

**STUBBS, A E** - Initial results for craneflies. Welsh Peatland Invertebrate Survey Newsletter 1: 6-7.  
[Discusses the usefulness of static sampling and suggests that the results will yield valuable information on ecological preferences.]

**WELSH PEATLAND INVERTEBRATE SURVEY** - Other Coleoptera records. WPIS Newsletter 1: 5-6.  
[Brief notes on survey results for Pselaphidae, Scydmaenidae, Water beetles, Aleocharines, Chrysomelids and Cantharids from Cardiganshire and Pembrokeshire.]

**WELSH PEATLAND INVERTEBRATE SURVEY** - Miscellaneous Diptera records. WPIS Newsletter 1: 8. [A brief account of Lonchopteridae and Psychodidae recorded during the survey.]

**WELSH PEATLAND INVERTEBRATE SURVEY** - Other Invertebrate groups. WPIS Newsletter 1: 8-9.  
[Highlights of Lepidoptera and Trichoptera records, including the caddis Oxyethira mirabilis found in three sites in Cardiganshire and Pembrokeshire.]

#### DYFED INVERTEBRATE BIBLIOGRAPHY. 1987 Addenda

**WOOD-BAKER, C S** - A note on the Lupin Aphid. Aphidologists Newsletter 22; 14.  
[Recorded from Cardiganshire, marking a westward expansion of range in Britain of Macrosiphium albifrons, a north American species first recorded at Kew in 1981.]

**WOOD-BAKER, C S** - The Macrosiphium euphorbiae complex. II - M. stellariae and M. centranthi.  
Aphidologists Newsletter 22: 10-13.  
[Records of both species from Cardiganshire with notes on culture experiments.]

#### **LEPIDOPTERA**

##### AN INTERIM REVIEW OF PRE-1970 MOTH RECORDING IN CARMARTHENSHIRE - IK MORGAN

This short account attempts to chronicle the recording of macro-moths in the vice-county of Carmarthenshire (VC44) from the earliest-known records in 1856 to 1970. The cautious title has been deliberately chosen as the author is aware that the present account is not comprehensive and that other untapped sources undoubtedly exist. 1970 was used to mark the end of the period that is outlined under this review, for it was in that year that Dafydd Davies began his ongoing and valuable continuous trapping at Rhandirmwyn in the north-east of the county for the Rothamsted Insect Survey, whilst the present author also started recording moths in the same period (albeit on a very casual scale at first).

The earliest evidence of moth recording in Carmarthenshire that I have been able to trace is the work of William Baker in the 'Cross Inn' (Ammanford, 22/61) area during 1856. Baker (1856) published a short, but very useful, list of butterflies in the long-defunct "Entomologist's Weekly Intelligencer", at the end of which two species of moths are noted - Smerinthus (=Laothoe) populi, the poplar hawkmoth, and Thyatira derasa (=Habrosyne pyritoides), the buff arches. A couple of years later, in c.1858, Sir John T. Dillwyn-Llewelyn, a keen amateur naturalist who owned the Penllergaer Estate in nearby Glamorgan, visited the sandy expanses that stretched between Pembrey and Kidwelly (22/30, 22/40 & 21/49), which were then, of course, devoid of conifer plantations. Of the common species that he presumably saw we



know nothing, but he did record the occurrence of a notable migrant, the purple marbled Eublemna ostrina (reported in Barret 1900).

In 1880 Colonel Owen S. Wilson published his "Larvae of the British Lepidoptera and their foodplants", in which certain species are given as occurring in the vice-county of Carmarthen. These were later included by TW Barker in his county list of 1905 (see below). It is not generally known that Col. Wilson resided at one stage at Cwmffrwd, just south of Carmarthen; hence his knowledge of Carmarthenshire species. Three years later he published a note entitled 'Lepidoptera in Carmarthenshire'<sup>1</sup> (Wilson 1883) in which he reported that the death's head hawkmoth Acherontia atropos and the elephant hawkmoth Deilephila elpenor were the only representatives of the Sphingidae seen that season. Wilson also noted that the larvae of the golden-rod pug Eipithecia virgaureata were abundant on ragwort Senecio jacobaea and larvae of E. minutata were abundant on devil's-bit scabious Succisa pratensis. [E. minutata is the old name for the ling pug E. goosensiata which is believed to feed exclusively on Calluna vulgaris and it is likely that Wilson probably mistook reared adults of the wormwood pug E. absinthiata for E. minutata, which was for a long time considered to be a sub-species of absinthiata]. In the last decade of the 19th Century, TB Jeffreys (1892, 1893, 1894, 1896 & 1898) published notes on his captures, principally in the Llanstephan (22/31) coastal area of the county. His notes chiefly give the emergence dates or comments on the general status of various common species.

The publication in 1905 of Thomas Barker's 'Handbook to the Natural History of Carmarthenshire' represented a milestone in the recording of moths in the vice-county for, included in this slim volume, was the first attempt to provide a list of Carmarthenshire species. The more notable of the 150 or so species on Barker's list are given below. It should be noted that several were extracted by Barker from OS Wilson's 1880 publication - which, incidentally, the present writer has not had the opportunity to examine.

Death's head hawkmoth Acherontia atropos - No data.

Striped hawkmoth Hyles lineata livornica - "one taken by Mr Hoole at Glannant, Carmarthen (22/42). Recorded by Col. Owen Wilson's book as occurring in the county".

Narrow-bordered bee hawk Hemaris tityus - "near Oaklands". [Barker's home (22/42-16-); most, if not all, of the pastures near Barker's home are now agriculturally improved and unsuitable for this species.]

White-barred clearwing Synanthedon spheciformis - "abundant at Dolaucothi"(22/66-40-) - record extracted by Barker from "Tutt's Practical Hints for the Field Lepidopterist".

Currant clearwing Synanthedon tipuliformis - No data.

Scarlet tiger Callimorpha dominula - "Taken by Mr Holmes near the Carmarthen Training College" (22/39-20-).

Small chocolate-tip Clostera pigra - "Beaule-fawr, Llangunnor" (22/439181).

White colon Sideridis albicolon - "O. Wilson's 'Larvae of the British Lepidoptera'".

Brindled ochre Dasypolia templi - No data.

Scarce burnished brass Diachrysia chryson - "Oaklands" (22/42-16-).

Blackneck Lygephila pastinum - "marshy field at Oaklands".

Yellow belle Aspitates ochrearia - "O. Wilson's Larvae etc.."

Marbled pug E. irriguata - "O. Wilson's Larvae etc.."

About fifty years later, John Brunker (who mostly lived at Llanegwad (22/519214) in the Tywi valley) produced a manuscript document (now held at the Carmarthen Record Office) which listed 155 species of moths to be found in the Llanegwad Parish. Brunker - a competent all-round naturalist - mentions the capture of the convolvulus hawkmoth Agrius convolvuli and the finding of death's head hawkmoth caterpillars and pupae in the potato fields in the Llanegwad area. He also records the bringing to school by pupils (he was a school-teacher for many years) of larvae of the goat moth Cossus cossus and a caterpillar of the cream-spot tiger Arctia villica britannica. He also recorded, on wet meadows near Llanegwad, the water ermine Spilosoma urticae (a local wetland species mainly found in south-east England) and the scarce burnished brass (a very local moth whose present stronghold may be said to be south Wales). As well as his informative manuscript list, there also survives a letter to Brunker written by Terence Parsons (an active Glamorgan lepidopterist in the 1940's). In this letter, dated 27 April 1949, Parsons refers to the occurrence of the alder moth Acronicta alni in Brunker's garden (22/519214). Brunker (1959a, 1959b) also published a rather superficial note on natural history recording in the county in which he mentions that he had often watched the hummingbird hawkmoth Macroglossa stellatarum "hovering over blossoms and probing them with its long tongue" and that in Carmarthenshire's damp meadows "live the burnets and foresters".

Two papers published in the 'Entomologist' by DL Thomas (1952, 1953) hold interesting records :-

Sharp-angled peacock Semiothisa alternaria - 13 July 1951 (Carmarthen, 22/42; caught by his brother BR Thomas).

Alder Acronicta alni - "Conwil Waterworks" (22/38-26-), 6 Aug 1951, caterpillar.

Dordered straw Heliiothis peltigera - "a perfect male .. netted at Conwil Waterworks, 5 July 1952".

Beautiful snout Hypena crassilis - "Conwil, 27 July 1952".

Beautiful Carpet Mesoleuca albicillata - no data, believed to be the Carmarthen - Conwil area.

For the remainder of the period (i.e. 1954 - 1970) very little was published on Carmarthenshire moths. A few short lists, usually of common species, are included in the References which follow, with brief summaries of their content in parentheses. Inspection of the distribution maps in the 'Moths and Dutterflies of Great Britain and Ireland' (Vols. 9 & 10) reveals that there are pre-1960 dots for many species in 10 km square 22/40, including - the confused Apamea furva, round-winged muslin Thumatha senex, muslin footman Nudaria mundana, Kent black arches Meganola albula, crescent dart Agrotis trux and shore wainscot Mythimna littoralis. At the time of writing (May 1989), the present author has not yet had the chance to trace the source of these records with the Biological Records Centre, nor has he been able to consult the card-index of records held at the Department of Zoology in the National Museum of Wales, Cardiff. Doth of these sources can be anticipated to reveal many interesting and noteworthy records.

#### References:

BAKER, W (1856) - Lepidoptera near Llanelly, Carmarthenshire. Entom. Weekly Intelligencer. 22: 171.

BARKER, TW (1905) -A Handbook to the Natural History of Carmarthenshire. W Spurrel & Son, Carmarthen.

BARRET, CG (1900) -Lepidoptera of the British Isles. London. pp194-195.

BRUNKER, J (c. 1950)-Llanegwad Parish: Natural History Section. (Unpublished manuscript held at Carm. Record Office, CDX/259/11).

BRUNKER, J (1959a) -A half-century of natural history. Trans. Carm. Antiquarian and Field Club. 3: 194-199.

BRUNKER, J (1959b) - Ibid. pp70-73.

COOK, LM (1959) - The Distribution in Britain of the Scarlet Tiger Callimorpha (Panaxia) dominula L. Entomologist 92; 232-236.

[Lists sites for this species in Britain, including Pendine (22/20), Carmarthen (22/42) and near Llanybri (22/31).]

FAIRCLOUGH, R (1959) -Lampropteryx otregiata in Wales. Entomologist's Rec. J. Var. 71; 229-230. [Includes a record of the devon carpet at Pencader (22/44-36-) on 31 July 1942.]

FORD, EB (1955)-Moths. New Naturalist Series, No. 30. Collins, London, p 137. [Mentions the occurrence of the scarlet tiger in "exceptional" habitat - Pendine Sands (22/20)].

JEFFREYS, TB (1892)-Lepidoptera in south Wales. Entomologist. 25: 322.

JEFFREYS, TB (1893)-Spring Lepidoptera in Carmarthenshire. Entomologist. 26: 195-196.

JEFFREYS, TB (1894)-Collecting in south Wales. Entomologist. 27: 351-352.

JEFFREYS, TB (1896)-Notes from Wales. Entomologist. 29: 217.

LEA-WILSON, B (1953)-Apatele alni in Carmarthenshire. Entomologist. 86: 33. [Caterpillar of the alder moth found in a garden at Laugharne (22/31)].

MILES, PM (ed.) (1960)-Field Notes: Insects. Nature in Wales. 6: 142-143. [Regarding various common species found at Ferryside (22/31) by RF May].

MILES, PM (1965) -Immigrant insects recorded in Wales in 1964. Nature in Wales 9: 226. [Hummingbird hawkmoth seen at flowers of Phlox at Carmarthen 722/42) by JG Treharne.]

MORGAN, MJ (ed.) (1970)-Entomological Notes. Nature in Wales j\_2: 43. [Regarding the finding of the rare yellow aberration lutescens of the ruby tiger Phragmatobia fuliginosa at Talley (22/63-33-) by CM Roberts].

SYMES, H (1965)-The larvae of Cossus cossus. Entomologist's Rec. J. Var. 77: 110-111. [Goatmoth larva found on gatepost at Llandovery (22/73), 20 Sept 1922].

THOMAS, DL (1952)-Notes on Carmarthenshire Lepidoptera. Entomologist. 85: 143-144.

THOMAS, DL (1953)-Notes on Carmarthenshire Lepidoptera. Entomologist. 86: 215-216.

WILSON, OS (1880)-The Larvae of the British Lepidoptera and their foodplants.

WILSON, OS (1883)-Lepidoptera in Carmarthenshire. Entomologist. 16: 61-62.

INSECTS RECORDED FROM NEST-LININGS TAKEN FROM RED KITE NESTS IN CEREDIGION, VC46 - AP FOWLES, DC BOYCE & AV CROSS.

Raptor nests provide a stable micro-habitat rich in decaying organic matter which is exploited by a wide range of insect species. A number of these inhabitants are exclusively associated with the nests of birds of prey and hence the conservation of raptors has the additional benefit of ensuring the conservation of their commensal invertebrates. Previous research has indicated that beetles are of particular interest in raptor nests but there are also many flies which breed in this micro-habitat, some of them feeding as larvae on the nestlings (Owen 1954), although this does not appear to have been reported for British raptors. As would be expected, nests which are in use year after year have the richest associated fauna but some species are also able to opportunistically inhabit nests which are in use for a single season (Owen & Taylor 1989). Red kites fall between these two extremes, as some nests are used regularly for many years whilst others are only in use occasionally; nest-site selection being strongly influenced by breeding success in the previous year (Walters Davies & Davis 1973).

On 26 September 1988, samples were collected from two nest-linings by AV Cross. They consisted chiefly of matted wool with a few twigs, bits of bone and decaying leaves. The samples were hung up dry in a Winckler extractor (Owen 1987) for seven days at room temperature but very few insects had emerged from the nest-material by the end of this period and the linings were therefore immersed in a bowl of water to hasten the sampling procedure. This 'flotation' method rapidly forced beetles to the surface of the water and the following specimens were collected:

Nest 1	Nest 2
<u>Coleoptera</u> (Staphylinidae)	<u>Coleoptera</u> (Staphylinidae)
<i>Leptusa fumida</i> (2)	<i>Leptusa ruficollis</i> (1)
<i>Leptusa ruficollis</i> (4)	<u>Diptera</u> (Psychodidae)
<i>Atheta nigricornis</i> (8)	<i>Psychoda albipennis</i> (2)
<i>Hapalaraea pygmaea</i> (1)	
<u>Coleoptera</u> (Ptilidae)	
<i>Acrotrichis rugulosus</i>	
<u>Coleoptera</u> (Leiodidae)	
<i>Sciodreporoides fumata</i> (1)	
<u>Diptera</u> (Psychodidae)	
<i>Psychoda albipennis</i> (2)	

The reason behind the differences in species-richness of the two nests is unclear. Both were built in oak trees, about 700m apart, on steep, north-to-northeast facing slopes and each pair successfully reared one chick. Nest 1 was a new nest but Nest 2 had been used in the previous year. Perhaps the most significant feature was the difference in structure of the oakwoods in which the nests were situated, as Nest 1 was in an open group of oaks on a sheep-grazed hillside whilst Nest 2 was in a small oakwood completely surrounded by conifers. What is clear is that the abundance of beetles generally was far below that reported by previous researchers sampling osprey (Owen & Taylor loc. cit.) or buzzard and sparrowhawk (Joy 1930) nests. It is possible that this is related to the date of collection as kite nests are usually vacated by the fledglings by mid-July. In future, it would be interesting to take nest-lining samples when the young are being ringed to ascertain whether there is any substantial difference in the insect fauna of occupied nests.

The red kite was reduced to a population of only a dozen or so birds at the beginning of this century and hence it is most improbable that any host-specific species are likely to occur in Britain. The nest fauna is most likely to resemble that of buzzard nests in mid-Wales but, as yet, the rare staphylinid *Haploglossa picipennis* (which is known from buzzard nests (Joy, loc. cit.)) has not been recorded. In fact, of the species found in this study, only *Atheta nigricornis* can be considered as a typical birds'-nest associate. Both *Leptusa* species are normally found under the bark of dead trees in deciduous and coniferous woodland and both *Hapalaraea pygmaea* and *Acrotrichis rugulosus* are widespread inhabitants of decaying vegetable matter. The leiodid beetle *Sciodreporoides fumata* is also a generalist woodland scavenger but it is interesting that Joy (loc. cit.) found it in abundance in buzzard nests in mid-Wales. The owl-midge *Psychodes albipennis* is also a rather common and catholic breeder in decaying organic matter of various forms.

We are grateful for the assistance of John Owen (Staphylinids), Colin Johnson (Ptilids) and Phil Withers (Psychodids) with the identification of specimens.

References:

JOY, NH (1930)-Coleoptera in birds' nests, including a species of *Microglossa* new to Britain. Entomologist's Monthly Magazine 66: 41-42.

OWEN, DF (1954) -Protocalliphora in birds' nests. British Birds 47: 236-243.

OWEN, JA (1987)-The 'Winckler Extractor'. Proc. Trans. Br. Ent. Nat. Hist. Soc. 20: 129-132.

OWEN, JA & TAYLOR, S (1989) - Haploglossa picipennis (Gyllenhal) (Col., Staphylinidae) in ospreys' nests. Entomologist's Rec. J. Var. 101: 53-57.

WALTERS DAVIES, P & DAVIS, PE (1973) -The ecology and conservation of the red kite in Wales. British Birds 66: 183-224, 241-270.