

NATIONALLY UNCOMMON GROUND BEETLES (COL.: CARABIDAE) FROM WELSH WETLANDS

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THE WELSH Peatland Invertebrate Survey (WPIS), a Nature Conservancy Council survey, studied the invertebrate fauna of Welsh peatlands from 1987 - 1989. The aims of the survey were to record the distribution of invertebrate species in Welsh peatlands and to study the effects of site management on the invertebrate communities present.

The sampling programme used pitfall and water traps, and litter searches and, in each of the three years of the survey, a different area of Wales was studied. The distribution of study sites is shown in Fig. 1. The full background and methodology are laid out in Holmes et al. (1991).

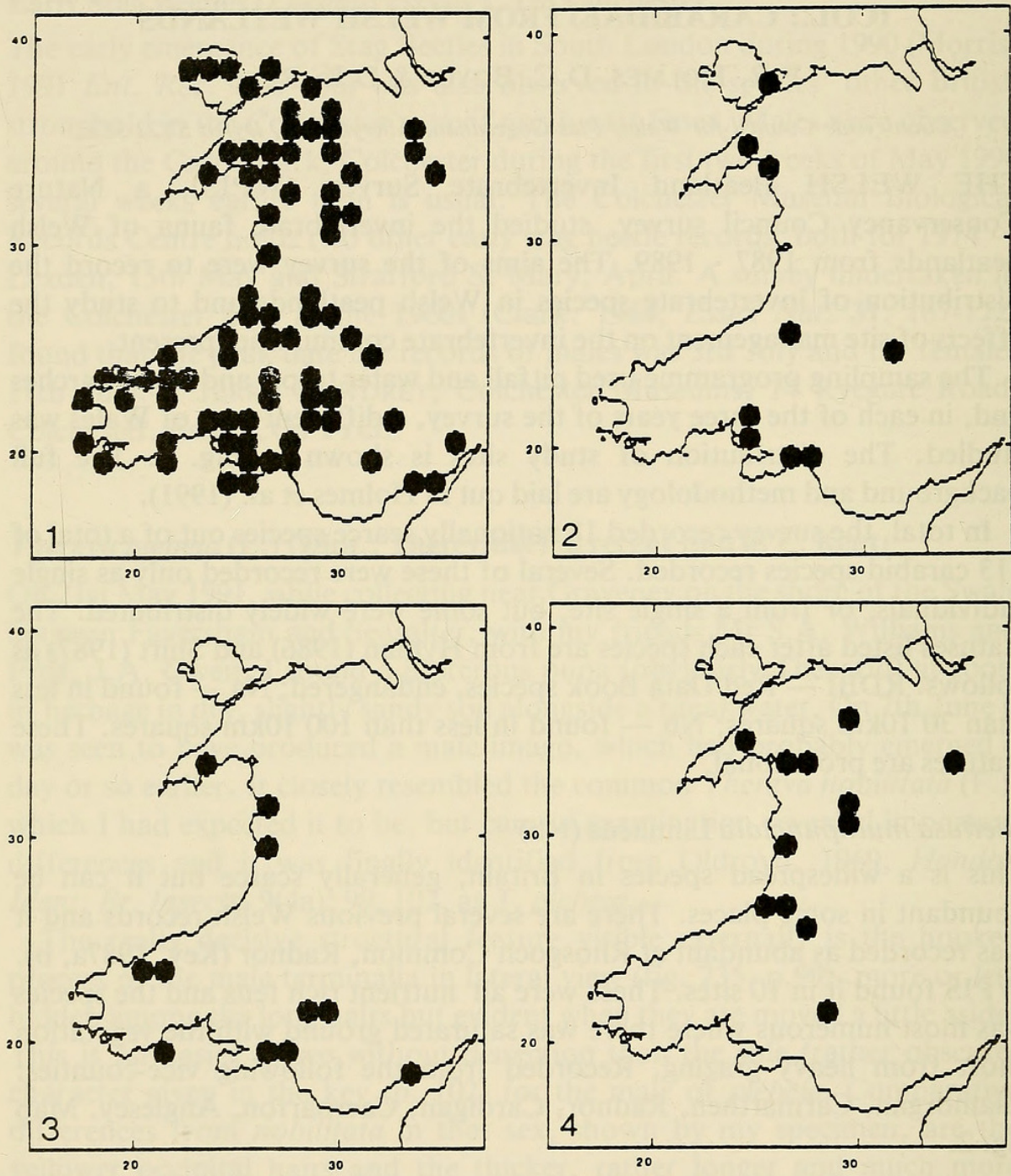
In total, the survey recorded 18 nationally scarce species out of a total of 113 carabid species recorded. Several of these were recorded only as single individuals, or from a single site, but some were widely distributed. The statuses listed after each species are from Hyman (1986) and Shirt (1987) as follows: RDBI — Red Data Book species, endangered; Na — found in less than 30 10km squares; Nb — found in less than 100 10km squares. These statuses are provisional.

Blethisa multipunctata Linnaeus (Nb)

This is a widespread species in Britain, generally scarce but it can be abundant in some places. There are several previous Welsh records and it was recorded as abundant at Rhosgoch Common, Radnor (Key, 1987a, b). WPIS found it in 10 sites. These were all nutrient rich fens and the species was most numerous where there was saturated ground with the vegetation short from heavy grazing. Recorded from the following vice-counties: Glamorgan, Carmarthen, Radnor, Cardigan, Caernarfon, Anglesey. Map fig. 2.

Elaphrus uliginosus Fabricius (Na)

Results from the carabid recording scheme (M.L. Luff, pers. comm.) suggest that this is a genuinely scarce species. There are some previous Welsh records, most recently in Radnor and Cardigan (R.S. Key, pers. comm.). WPIS found it to be widespread, with records from 13 sites, although only one was in North Wales. Most records were on one or two individuals but 24 were captured at Crymlyn Bog, Glamorgan. The sites from which *E. uliginosus* was recorded were mostly soligenous flushes, i.e. where there is lateral water movement through the substrate but the species appears highly dispersive and one individual was captured in flight by a road near Cors Caron, Cardigan. Recorded from: Monmouth, Glamorgan, Pembroke, Brecon, Cardigan, Merioneth, Caernarfon. Map fig. 3.



Clivina collaris Herbst. (Nb)

There are previous records for this species in South Wales, Radnor (Key 1987b), and Fowles (1990) found it to be widespread on river shingle in Cardigan. *C. collaris* would appear to be a riverbank species, not confined to shingle but also found on muddy substrates. WPIS found it in 1988 in Dolgarrog reedbed, Caernarfon. The site was an estuarine reedbed, and several other notable species were recorded at this site (see below).

Miscordera arctica Paykull (Nb)

This is a northern species, often found in bare peat in upland areas. The bare peat provides a suitably friable substrate for this apparently fossorial species. It had previously been recorded in North Wales. WPIS recorded it

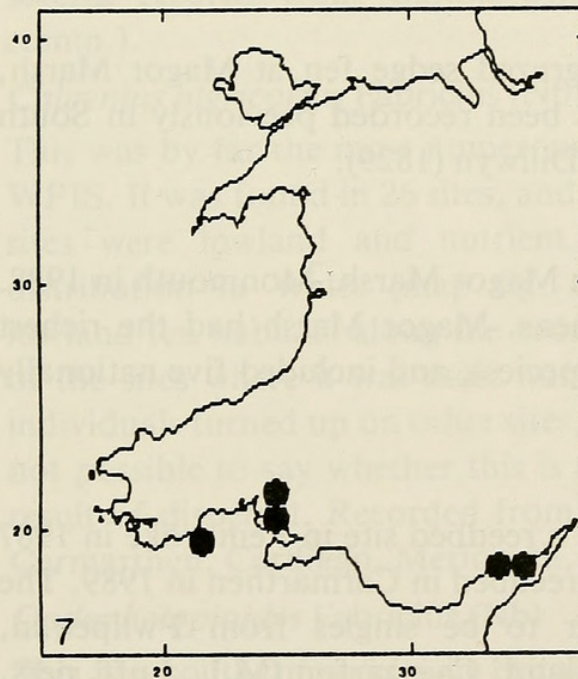
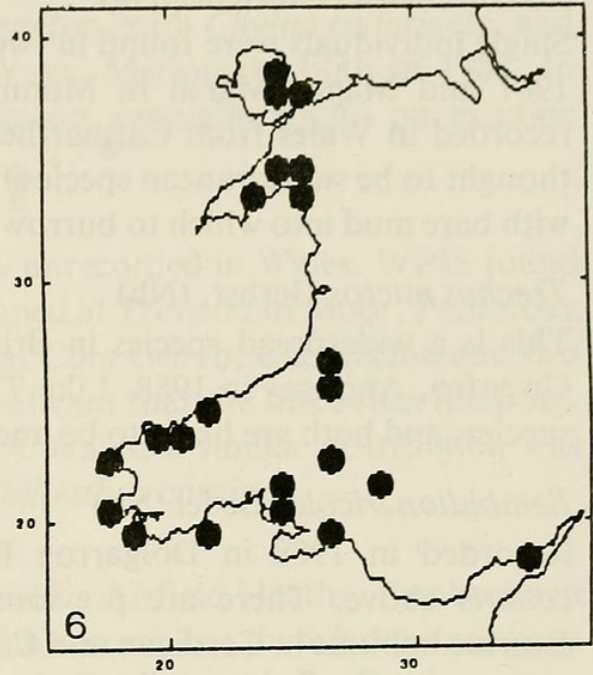
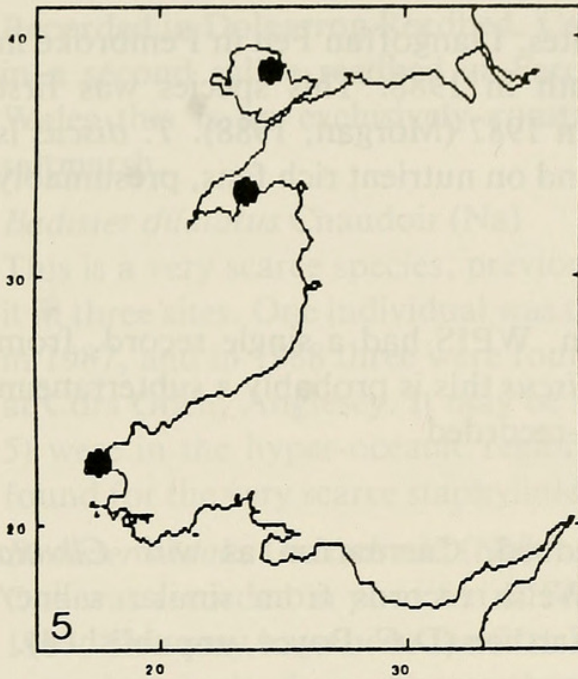


Fig. 1. The distribution of WPIS study sites in Wales by 10km squares.

Fig. 2. WPIS records of *Blethesa multipunctata*.

Fig. 3. WPIS records of *Elaphrus uliginosus*.

Fig. 4. WPIS records of *Agonum ericeti*.

Fig. 5. WPIS records of *Badister dilatatus*.

Fig. 6. WPIS records of *Chlaenius nigricornis*.

Fig. 7. WPIS records of *Oodes helopioides*.

in 1989 in a single upland site, at Gors Goch, Radnor, which may be the southernmost British record. *M. arctica* is thought to be predatory on beetles in the family Byrrhidae (Lindroth, 1974) and both *Byrrhus pilula* and *B. fasciata* were present in this site.

Trechus rivularis Gyllenhal (RDBI)

The discovery of this species, in upland blanket bog sites in Montgomery and Caernarfon in 1988 has been reported elsewhere (Holmes et al., 1990). We were disappointed not to discover it in further sites in 1989, particularly in the Berwyn Mountains, which had appeared similar habitat to the earlier sites. It has recently been found in similar sites in North-east England (Luff & Wardle, 1991).

Trechus discus Fabricius (Nb)

Single individuals were found in two sites. Llangoffan Fen in Pembroke in 1987 and Magor Marsh in Monmouth in 1988. This species was first recorded in Wales from Carmarthen in 1987 (Morgan, 1988). *T. discus* is thought to be subterranean species found on nutrient rich fens, presumably with bare mud into which to burrow.

Trechus micros Herbst. (Nb)

This is a widespread species in Britain. WPIS had a single record, from Gwenfro, Anglesey in 1988. Like *T. discus* this is probably a subterranean species, and both are likely to be under-recorded.

Bembidion iricolor Bedel (Nb)

Recorded in 1988 in Dolgarrog Reedbed, Caernarfon as with *Clivina collaris* above. There are previous Welsh records from similar saline/estuarine habitats in Cardigan and Carmarthen (D.C. Boyce, unpublished).

Tachys bistriatus Duftschmid (Nb)

A single individual was found in a grazed sedge fen at Magor Marsh, Monmouth, in 1988. This species has been recorded previously in South Wales at Crymlyn Bog, Glamorgan by Dillwyn (1829).

Pterostichus anthracinus Illeger (Nb)

Several individuals were recorded from Magor Marsh, Monmouth in 1988. These may be the first Welsh specimens. Magor Marsh had the richest carabid fauna of any site studied (40 species), and included five nationally notable species.

Pterostichus gracilis Dejean (Nb)

Several specimens were collected from a reedbed site in Pembroke in 1987 and a single individual was found in a reedbed in Carmarthen in 1989. The only previous Welsh records appear to be singles from Pwllpeiran, Cardigan (Miles, 1960) and Bardsey Island, Caernarfon (M.L. Luff, pers. comm., per R. Loxton).

Agonum ericeti Panzer (Nb)

This species shows a very strong association with ombrotrophic mires (i.e. those fed by rainwater only), being found on both high altitude blanket mires and lowland raised mires. In our study, it was recorded in 12 sites, in the following vice-counties: Glamorgan, Cardigan, Merioneth, Montgomery, Caernarfon, Denbigh, Shropshire (Wem Moss straddles the Denbigh/Shropshire border). At Figyn Blaen Brefi, Cardigan, there was a high incidence of the usually uncommon black form. Surprisingly *A. ericeti* seemed able to persist where the hydrology has been damaged by peat cutting at Fenn's Moss, Denbigh but this may be because intact bog areas remain adjacent to the cut areas. Map fig. 4.

Agonum nigrum Dejean (Nb)

Recorded in Dolgarrog Reedbed, Caernarfon, with *Clivina collaris* etc, and in a second saline reedbed at Farch-Ynys, Merioneth, both in 1988. In Wales this is an exclusively coastal insect generally found on estuarine saltmarsh.

Badister dilatatus Chaudoir (Na)

This is a very scarce species, previously unrecorded in Wales. WPIS found it in three sites. One individual was trapped at Trefeiddan Moor, Pembroke in 1987, and in 1988 three were found at Cors Geirch, Caernarfon and two at Cors Goch, Anglesey. It may be significant that the three sites (map fig. 5) were in the hyper-oceanic regions of Wales; a similar distribution was found for the very scarce staphylinid *Philonthus corvinus*.

Badister sodalis Duftschmid (Nb)

One was recorded in poor fen at St David's Airfield Heaths, Pembroke in 1987. This may have been the first Welsh record, but there have since been several records from Carmarthen and Cardigan (A.P. Fowles, pers. comm.).

Chlaenius nigricornis Fabricius (Nb)

This was by far the most numerous of the "notable" species recorded by WPIS. It was found in 26 sites, and was abundant in several of these. Most sites were lowland and nutrient rich, so the species has a western distribution in Wales (map fig. 6), because of the preponderance of lowland fen habitats along the southern and western coastal fringe. Many of the sites where it was most numerous were floodplains. However odd individuals turned up on other sites, in particular on humid heaths, but it is not possible to say whether this is a real ecological association or just the result of dispersal. Recorded from: Monmouth, Glamorgan, Pembroke, Carmarthen, Cardigan, Merioneth, Caernarfon, Anglesey.

Oodes helopioides Fabricius (Nb)

This is a southern species in Britain, previously recorded in South Wales with a single record in North Wales. WPIS found it in several sites in South Wales only, and it was generally fairly numerous where it occurred. All sites were nutrient rich fens. Recorded from: Monmouth, Glamorgan, Pembroke, Carmarthen. Map fig. 7.

Odacantha melanura Linnaeus (Nb)

This species had previously been recorded from Crymlyn Bog, Glamorgan (Dillwyn, 1829; Tomlin, 1912). Although WPIS did not find it at Crymlyn, we did record it in 1989 at the nearby Pant-y-Sais, which is hydrologically part of the same unit.

Acknowledgements

We would like to thank all the landowners and NCC staff who assisted this

study. We are grateful to Martin Luff who checked several of our specimens, and supplied information on distribution, Stuart Ball who produced the mapping routine for our figures and Roger Key and Adrian Fowles who read and commented on earlier drafts of the paper.

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Aplocnemus pini (Redt.), not *nigricornis* (F.) (Col.: Melyridae) in Epping Forest, Essex.

In the list of Epping Forest Coleoptera by the late F.D. Buck (1955, *Entomologist's mon. Mag.* **91**: 172-192), the rare *A. nigricornis* (p. 184) is given as widely distributed in the area, while there is no mention of the less rare *A. pini*. I have no doubt, however, that this is an error due to the fact that Joy (1932, *Pract. Handb. Brit. Beetles*, **1**: 431) treats our two species as one under the name *nigricornis*. Actually they are quite distinct, as is now universally recognised (cf., for instance, Allen, 1975, *Entomologist's mon. Mag.* **111**: 210). I have found *pini* more than once in Epping Forest and also not far away at Waltham Abbey and Cheshunt but never *nigricornis*, which I have taken only in East Kent (Orlestone Forest, Ham Street).—A.A. ALLEN, 49 Montcalm Road, Charlton, SE7 8QG.



Holmes, P R, Boyce, D. C., and Reed, D K. 1991. "Nationally uncommon ground beetles (Col.: Carabidae) from Welsh wetlands." *The entomologist's record and journal of variation* 103, 301–306.

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