Newsletter

No. 44, Spring 2022

British Myriapod and Isopod Group – *discovering millipedes, centipedes, woodlice and other isopods in Britain and Ireland*

The British Myriapod and Isopod Group (BMIG) aims to improve awareness and knowledge of centipedes, millipedes and other Myriapoda, woodlice, waterlice and intertidal Isopoda and related species in Britain and Ireland.

In this issue:

BMIG spring field meeting

A reminder that our 2022 field meeting will be held at FSC's Preston Montford field centre near Shrewsbury from Thursday 21st to Sunday 24th April (see further **Of Unicorns and Flying Pigs** on page 3).

BMIG AGM

The AGM will be held during the field meeting on Friday 22nd April, to which everyone is welcome. Two items to bring to your attention are:

1) Changes to the constitution:

Some changes to the constitution have been proposed. A section called "Scope" has been added to clarify which taxa BMIG studies and promotes. Under the "Objectives" section the phrase "terrestrial isopods" has been shortened to "isopods" to reflect the fact we also study intertidal species. The Scope section reads as:

The Group studies or promotes the study of the following taxa:

- *Myriapoda; Diplopoda (millipedes), Chilopoda (centipedes), Pauropoda (pauropods) and Symphyla (symphylans).*
- *Isopoda; terrestrial and freshwater isopods (woodlice and waterlice) and intertidal isopods.*
- *Amphipoda; terrestrial amphipods (landhoppers).*

These changes have provisionally been made to the copy of the constitution on the BMIG website. We will vote to accept or reject these changes at the AGM.

2) The election of officers:

Officers are re-elected on a three-year cycle, unless circumstances require otherwise, and this year the following posts are due for re-election:

- Exhibition and Events Officer: Dafydd Lewis
- Resources Officer: Graham Proudlove

A further three officer posts remain vacant and we would welcome volunteers to fill these positions.

- Vice Chair
- Projects Officer
- Librarian and Collections Manager

Nominations can be made prior to the AGM or during the actual meeting. An agenda will be produced closer to the meeting. If there are particular issues you would like to raise or think should be discussed at the AGM please make the Chair or Secretary aware of these in advance.

BMIG notices

This year's Bulletin should be published before the field meeting/AGM in April – look out for notification that it is available on the website:

www.bmig.org.uk/page/bulletins

Contents include articles on *Armadillidium arcangelii*, *Lithobius curtipes*, *Pachymerium*, *Cylindroiulus bouvieri* (you will have to wait for the Bulletin to find out about this!) and much more, including the usual reports from field meetings.

Newsletter: Autumn Newsletter items to Warren Maguire by 7th September 2022.

Myriapod meet-up

On 1st March Paul Marek (Virginia Tech, USA) hosted an International Myriapod meeting on zoom. Anyone who wanted to could give a 5 minute talk, with another 5 minutes allotted for questions. The atmosphere was very informal, with people joining from across America, both north and south, Europe and a few from Australasia. We were treated to the sound of millipedes stridulating, micro CT scans of the mouth parts of colobognath millipedes (spoiler alert – their heads are so full of the mechanics that allow them to suck that their brains are displaced down into the trunk), the impact of climate change on mountain millipedes in Switzerland, photographs of pauropods in the UK and much, much more. It was great to see lots of new faces as well as some older, well known ones, and in the absence of a physical meeting was great fun and very informative. More virtual meetings are being considered for the future and are well worth attending.

Helen Read

Of unicorns and flying pigs?

Or which BMIG species could be found during BMIG's field meeting based at FSC Preston Montford, near Shrewsbury, this April. The 12-hectare estate includes ponds, a wildflower meadow, an ancient orchard, the remains of a walled garden and a stand of ancient woodland growing on a steep bank of glacial drift beside the river Severn. Past surveys have shown the site to support the usual suspects, but recent surveys have also recorded several female *Chordeuma* sp. from the acidic woodland and *Porcellio spinicornis* on an old brick wall. However, I'm sure the combined might of BMIG's finest will be able to find a so far elusive male *Chordeuma* to confirm species identity and add additional species to the site list.

Further afield, the proximity of the river Severn suggests a possibility that *Trachelipus rathkii* and *Trichoniscoides albidus* (both favouring 'river valleys') could be encountered either on flood plains, in quarries or woodland. Ancient woodland sites may harbour the western *Philoscia affinis*; and what are the odds on *Ligidium hypnorum*? To be entirely outlandish, maybe even a *Melogona voigtii*. A species currently expanding its range, *Leptoiulus belgicus* is known from two sites in Shrewsbury and may be found elsewhere. Synanthropic sites could turn up the elusive *Henia brevis*, *Cylindroiulus vulnerarius* or an additional site for the increasingly recorded *Anamastigona pulchella*. One of the 'big' *Cryptops* may be found. On the limestone (e.g. Wenlock Edge) the elusive *Geoglomeris subterranea* is very likely and this area is also known to support *Armadillidium nasatum*. Paul Richards (pers. comm.) mentions the collection of a possible *Leptoiulus kervillei* at Dolgoch Quarry; surely a site worth visiting. *Lithobius borealis*, *L. calcaratus*, *L. curtipes* or *L. macilentus* must be about somewhere, albeit in their usual widely scattered small numbers. And everyone's favourite, the Bristly Millipede *Polyxenus lagurus* is always a likely contender. Good Luck!

Steve Gregory

The observations of Douglas Richardson

I, like many others, was first introduced to the delights of Myriapods and Woodlice on a workshop run by Doug Richardson. Affectionately referred to as 'Compo' by several BMIG members, Doug was instrumental in the formation of BMG (as it was known then) and acted as national millipede recorder for many years. For more details see the obituary published in the BMIG Bulletin 27 in 2014:

https://www.bmig.org.uk/sites/www.bmig.org.uk/files/bulletin/BullBMIG27-2014.pdf.

Doug was a delightful man to know and an accomplished chemist and microscopist with varied natural history interests. In the latter years of his life he took to capturing much of his acquired knowledge into legible notes and observations, which were brought together in a single document by Steve Gill. I have only recently discovered this fascinating resource, located on the Quekett Microscopical Club website and would recommend it to you – all 364 pages of it!:

https://www.quekett.org/wp-content/uploads/2020/02/doug-richardson-observations.pdf.

It gathers together many of his records and observations, from the shelf life of microscopy stains to how to mount fish scales and stain arthropods. There are numerous images of crystals, lichens, mosses, fungi, galls, various insects and of course myriapods (centipedes: pp. 123-126, millipedes: pp. 136-138) and woodlice (pp. 150-152) – all identified and often fully provenanced. There are many beautiful images of exquisite microscope slides of animals (especially spiders), plants and minerals, alongside a catalogue of his geological specimens and survey results and site analyses from a number of North Yorkshire sites.

Today, we may rely more on our records and images being stored and shared in places like iRecord and Flickr, but this catalogue acts as a fine example for us of how one man preserved and passed on his experience, so that it wasn't lost to the next generation, ensuring that all the effort he had put in to gathering records and knowledge was not in vain. It has motivated me to consider where I can be more organised in maintaining my data, specimens and images. Doug was a man who first inspired me and continues to do so even now.

Paul Richards

Rediscovery of *Lamyctes africanus* in Britain

Specimens referred to *Lamyctes africanus* (Porath) by Ted Eason were collected by Charles Rawcliffe from glasshouses at the Royal Botanic Garden, Edinburgh in 1986. However, the species was not included within Tony Barber's AIDGAP Centipede Key (2008) nor the Centipede Synopsis (2009) and there have been no additional British or Irish records for this species. However, *L. africanus* has recently been recorded from several outdoor sites in Denmark, typically associated with railways (Enghoff et al., 2013), and in France has been found within plant pots in a garden. In December Nicola Garnham found some *Lamyctes* centipedes living inside a large heated plant propagator located inside her house in North Lancashire. However they bore 28 antennal articles, and the widespread *L. emarginatus* has just 25. Could they be *L. africanus*? Images were posted in BMIG's online group at https://www.facebook.com/groups/407075766387553/posts/1349177752177345.

Nicola kindly sent me three specimens to examine. These were 8-9 mm in length. There were 2+2 prominent forcipular teeth, with the third outer 'tooth' barely discernible (3+3 distinct teeth in *L. emarginatus*). Leg 15 was relatively long and slender (shorter and stouter in L. emarginatus) with the two accessory claws almost half the length of the central claw (barely a third in *L. emarginatus*). Leg 12 bore a triangular projection on the tibia (absent in *L. emarginatus*). These characters are all in keeping with the description of *L. africanus* in Enghoff et al. (2013) (and rule out *L. emarginatus*).

Lamyctes africanus is of very similar appearance to *L. emarginatus* and it is has become apparent that on several occasions in continental Europe the former species has been mis-identified as the latter. Thus, it is highly likely that *L. africanus* has been overlooked in outdoor localities in Britain or Ireland. Please do check any *Lamyctes* you may encounter, particularly in gardens or near railways,

or indeed anywhere. And if you have any preserved reference specimens please do check them. Surely in Britain the extant population of *L. africanus* cannot be confined to just a single heated plant propagator inside one house in northern England.

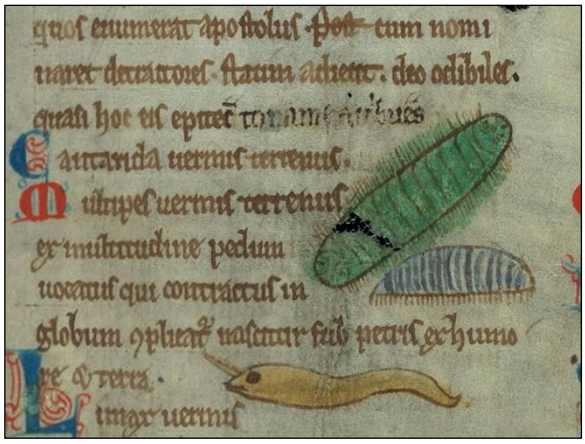
References

Enghoff H., Akkari N. & Pedersen J. (2013) Aliquid novi ex Africa? *Lamyctes africanus* (Porath, 1871) found in Europe (Chilopoda: Lithobiomorpha: Henicopidae). *Journal of Natural History*, **47**: 1-24.

Steve Gregory

13th century millipedes

In our Spring 2021 Newsletter, Steve Gregory presented us with a palaeographic and linguistic puzzle that had been sent to him by John Lock, in the form of a 13th century illustrated Latin text which appears to refer to and illustrate millipedes and perhaps woodlice.



Luckily BMIG has a linguist on its team, and I just so happen to work with some experts in medieval manuscripts. We put our heads together and have come up with the following transliteration of the text:

quos enumerat apostulus ~~Post~~ cum nomi[-]
naret detractores. statim adierit. deo odibiles.
quasi hoc eis epit[h]et^{on} ***toname*** *a^{d}u^{er}sories*
Cantarida uermis terrenus.
Multipes uermis terrenus
ex multitudine pedum
uocatus qui contractus in
globum ^{com}plicat^{ur} nascitur sub petris ex humo[-]
re & terra.
Limax uermis

Most of this was fairly obvious, but the third line in particular presented some difficulties; at some stage, *epitheton a(d)uersories* 'epithet (for these): enemies' has been partially scratched out and replaced by the Middle English *toname* 'nickname'. Taking into account abbreviations (indicated by superscript text) and words split across the line ends (indicated by [-]), this translates as:

which are listed by the apostle, who calls
them pests, immediately adding: disgusting to God.
This is like an epithet for these - nickname - enemies
Cantarida are creepy-crawlies of the earth.
The Multipede, a creepy-crawly of the earth,
so called because of its many feet,
which, drawn together,
is folded up in a ball, (and) is born beneath stones from the earth and soil.
The slug [is] a creepy-crawly

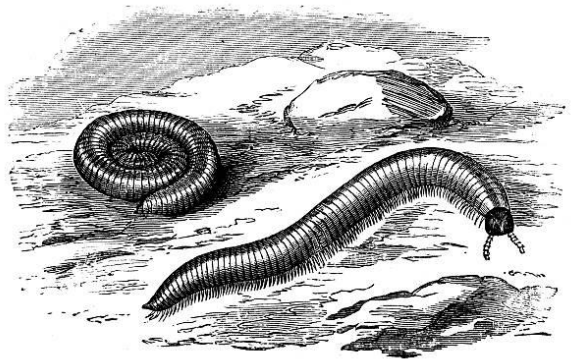
So it looks like the text is referring to millipedes (*Multipes* 'many foot') rather than woodlice, though whether the author had Pill Millipedes (*Glomeris* sp., which are often mistaken for a Pill Woodlice) in mind is uncertain and it might be pushing the evidence too far to make such an assumption. Thankfully attitudes, taxonomy and our understanding of myriapod biology have come some way since the 13th century!

Many thanks to my colleagues in Linguistics & English Language at the University of Edinburgh, Dr Meg Laing and Dr Alpo Honkapohja (now at the University of Oslo) for their expertise and enthusiastic help with figuring out this fascinating historical puzzle.

Warren Maguire

Catching myriapods *or* Elephant traps for millipedes

In studies of cryptozoic organisms like centipedes and millipedes, a variety of techniques are used to capture the specimens. Hand-searching (sometimes called "grubbing") is about sorting for specimens by hand and is a valuable way of getting an indication of species present. This involves searching under stones/rocks, in shingle, under and in logs, under or on bark, under moss & lichen, under rubbish, etc. Everyone has their own favourites. In searching in leaf/twig litter, a spatula/widger or a small trowel or similar tool is often helpful. Sieving of leaf litter or soil in the field is a further way of getting animals as is the use of a white tray (plastic) for putting material into to see the animals.



For more quantitative and comparative studies there are two main methods, both of which might be used in studies of a site:

Extraction – from appropriate size samples of litter, soil or other material by hand-sorting, sieving, heat extraction, etc. This is particularly appropriate for burrowing species such as many geophilomorphs and, indeed, *Schendyla dentata* was first found in Britain by Tullgren (heat) extraction from soil collected from a waste site in SW Surrey. The downside of extraction methods is the need, not only to carry equipment in the field to collect samples, but the need to carry samples, which may be either heavy or bulky or both, back home (or to the lab). They are also time-consuming in processing and disturb the soil surface – "which land-owners do not like" (Tuf et al., 2015).

Trapping – various simple devices such as putting out pieces of wood / slate / vegetable matter and checking underneath after some days is a fairly non-quantitative approach. However, traditionally, many myriapod studies have used pitfall traps. These are pots of some sort (usually plastic cups these days) sunk in the soil so that their rim is flush with the soil surface. Various devices may be used to keep out rain and small vertebrates and an inner replaceable cup makes it possible to take samples at intervals over a period of days or weeks.

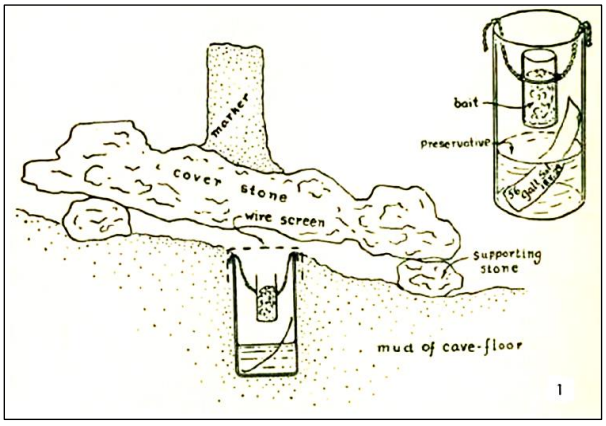
There have been concerns in recent years about the effectiveness of pitfall traps as a way of getting quantitative comparative studies of different species but they remain a useful way of catching animals so long as you are aware that some species are more "trap happy" than others and so are more likely to get caught than the "trap shy" ones and that the method works best for animals that move around a lot on the surface (at night). Pitfall traps could also be used to investigate seasonality and circadian (daily) activity, lifespan, estimating movement between habitats and in mark-and-release surveys.

A good way is to use two coffee cups, one inside the other. A suitable size hole is dug with a trowel and (still together) the cups are buried in the soil with their rims flush with the surface. Once the surface is levelled, take out the inside cup if necessary and empty out any soil that has more than likely fallen into it. Then put this cup back in. This is the one you will, hopefully, catch your animals in – you will be able to take it out and empty it or replace it with a clean one. Suitably cut-off soft drinks bottles have also been used.

You may want to prop a stone, piece of slate or other thing above your trap to stop rain coming in but still let the animals do so. You can use them to catch animals and keep them alive so long as you empty them at least once a day but remember that big *Lithobius* or carnivorous beetles, if they fall in, will eat anything else in sight/smell – so put some leaves, tissue or similar in for some shelter. It's also

good practice to try to stop small mammals entering with gauze or wire-netting.

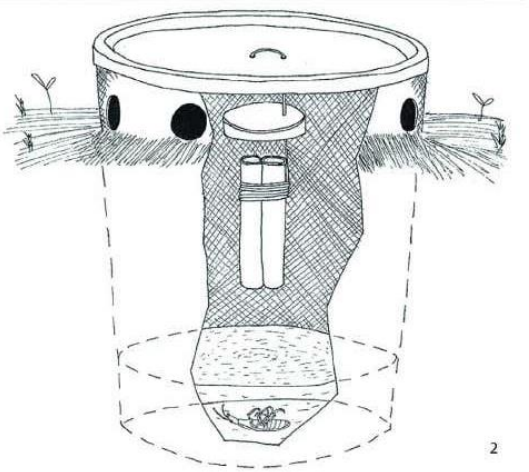
If you want to catch, kill and preserve your millipedes then you will need a suitable liquid in the bottom of your trap. Although water may be used in traps, it does not effectively preserve specimens so various preservatives have been used at different times. Aside from any health risks to the user and the environment (which should not be ignored), choice of preservative depends upon the purpose of trapping, e.g. as to whether the animals are to be simply identified, counted and then preserved or discarded or whether aimals are being collected for DNA analysis. Other factors include possible evaporation or dilution by rain, depending upon location and trap design. Consultation with a few people who do trapping gives various answers including 30% propylene glycol, alcohol (alcohol e.g. B&Q bio-ethanol) but also white vinegar (makes specimens brittle and no good for DNA) and saturated salt solution (conflicting opinions about its usefulness). Foxes or dogs might try to dig traps up and slugs can make everthing slimy.



Pitfall trap described by H. S. Barber for collecting cave-inhabiting insects (after Barber, 1931 from Skvarla et al. 2014)

A bit of history

Pitfall traps are sometimes called “Barber traps” after H. S. Barber (no relation) who described them for use in cave studies. Many variations have been made to deal with such issues as preventing the entry of rain and of leaves, stopping larger animals such as small mammals gaining entry, making entry easy, stopping animals from escaping once trapped, traps for use under snow, making the traps easier to empty, etc. They have been used to trap a variety of animals including scorpions, isopods, millipedes, centipedes, symphylans, spiders, mites, ants, springtails, beetles, terrestrial amphipods and decapods.



Pitfall trap modified with entrances in the side of the collection cup, which discourages vertebrates from entering the trap and allows the use of an integrated rain cap. Modified from Nordlander (1987) with permission.

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Skvarla, M. J., Larson, J. L. & Dowling, A.P.G. (2014) Pitfalls and Preservatives: a review. *J.ent.Soc.Ont.* **145**: 15-43.

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Tony Barber

Pauropods – moving into the limelight?

The Pauropoda are a very neglected group of myriapoda, always over-shadowed by their much larger and more conspicuous relatives the millipedes and centipedes. They were first discovered in the 1860s by Sir John Lubbock who erected a new class, Pauropoda, to accommodate his description of *Pauropus huxleyi*, which neither fitted a millipede nor a centipede. They were widely studied by Richard S. Bagnall in the early 20th century and later by others in the mid-20th century. However, both Tony Barber (BMIG Newsletter 37) and I (BMIG Newsletter 38) have highlighted the paucity of recent observation of Pauropods in Britain and Ireland. This is perhaps not surprising since they are by far the most diminutive of the Myriapod classes, often barely a millimetre or so in length, and notoriously elusive unless specifically searched for. Their segmented body bears just 9 to 11 pairs of legs as adults (fewer in immatures), but a characteristic feature is the presence of striking forked antennae. An introduction to Pauropods and a key to the genera of known British and Irish species is given in Barber, Blower & Scheller, 1992. This can be downloaded at:

https://www.bmig.org.uk/sites/www.bmig.org.uk/files/bulletin_bmg/BullBMG8p13-23_Barber-etal_Pauropoda.pdf

Recently there has been a relative flurry of Pauropod observations on BMIG's Facebook group mainly due to the activities of Dawid Martyniuk. At the end of November Maico Weites started the ball rolling with after finding "a bunch of them in a piece of deadwood". Soon after Dawid posted images of a 0.3 mm long 6 legged immature that, but for the leg claws and forked antennae, bore more than a passing resemblance to a tardigrade! Throughout December Dawid posted several additional sighting of Pauropods that he'd found in Kent or Reading, Berkshire. This includes some *Allopauropus*/ *Pauropus* species and a group of *Stylopauropus* found under a log, with the comment "Quite interesting behaviour with many young around a large adult and some juveniles hanging around nearby". Then in February, armed with a new camera lens Dawid posted some close images of a *Pauropus* species including a stunning stacked image of the characteristically forked Pauropod antennae. See Dawid's images at:

https://www.facebook.com/groups/407075766387553/posts/1385436561884797

Not to be outdone Frank Ashwood also posted a striking macro-image of a Pauropod with the comment "I've been getting more and more into Pauropods lately (I see them a lot doing macrophotography, and the occasional one pops up in my soil mesofauna research sample"). Frank's image can be seen at:

https://www.facebook.com/groups/407075766387553/posts/1374153866346400/

Both Dawid and Frank were wondering if there is a national recording scheme. Alas not at the moment. Pauropods are regrettably and woefully neglected even within BMIG. There are at least 23 British species (14 in the genus *Allopauropus*) and these, the smallest of our myriapods, need a champion to push them into the limelight. Perhaps this may happen in the near future.

Steve Gregory

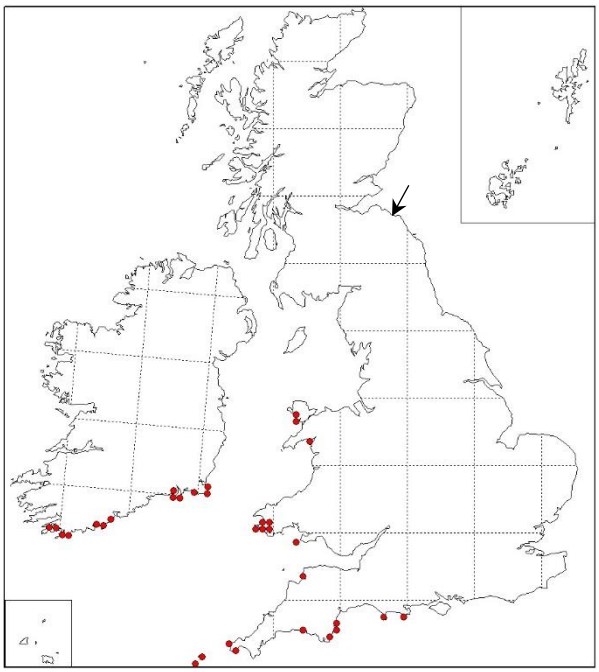
Campecopea hirsuta on the Berwickshire coast

Campecopea hirsuta (Montagu, 1804) is a small (up to 4 mm), distinctive marine isopod exhibiting marked sexual dimorphism that can be found in the intertidal zone. For details, see:

www.bmig.org.uk/species/campecopea-hirsuta

The species has been recorded on south-western shores in the British Isles, in Britain from Dorset to

Anglesey, and in Ireland from Wexford to south-west Cork (Harvey 1968; McGrath 1982).



Distribution of Campecopea hirsuta *based on National Biodiversity Network data and records on iRecord and in McGrath (1982).*

This distribution indicates the species' preference for warmer sea temperatures, also reflected in its occurrence in northern France but not further north on European coasts. It is most easily located amongst barnacles and in the intertidal lichen *Lichina pygmaea* (Lightf.) C. Agardh, 1817 between mid tide and high water neap. There is a single 19th century record of the species from Banffshire in north-east Scotland (Edward, 1876), but how this should be interpreted is uncertain given the presence of other species on the same list of a southerly distribution, such as *Halophiloscia couchii* (Kinahan, 1858).

In early October 2021, the author visited the north Berwickshire coast in south-east Scotland, between Greenheugh and Siccar Points (hectad NT87, indicated by the arrow on the distribution map), to gather marine and other isopod records. The species recorded were: *Athelges paguri*, *Idotea balthica*, *Idotea granulosa*, *Idotea neglecta*, *Jaera albifrons* (s.s.), *Jaera ischiosetosa* and *Jaera nordmanni*, as well as the woodlice *Ligia oceanica*, *Haplophthalmus mengii* (s.s.), *Trichoniscoides saeroeensis*, *Trichoniscus pusillus* (agg.), *Philoscia muscorum*, *Oniscus asellus* and *Porcellio scaber*. In addition, scrapings of the barnacle *Semibalanus balanoides* (Linnaeus) were taken from around mid-tide to check for the parasitic isopod *Hemioniscus balani* Buchholtz, 1866, which had been previous recorded by the author in the neighbouring hectad at Torness in East Lothian. An examination of the barnacle scrapings revealed no evidence of *H. balani*, but did turn up a very surprising result: a single, somewhat damaged female *Campecopea hirsuta*. Despite its condition, the specimen was readily identifiable, exhibiting the characteristic shape of the species (and lacking the long projection from pereonite 6 found on males) and its single uropod ramus (intact on one side only).

Female C. hirsuta *found amongst barnacles in Berwickshire, October 2021 (photo by W. Maguire).*

Given the far south-westerly distribution of the species in the British Isles, this record of *C. hirsuta* on the cold north-eastern shores of Britain is extremely unexpected. It has not yet been possible to return to the location to look for further evidence of the species, though it is hoped that a return visit will happen soon. It is unlikely that a small, random barnacle sample from the area would capture the only vagrant in the area, so it is probable that there may have been more individuals present. But how the species ended up on the Berwickshire coast and what the nature of any population is remain unknown. The occurrence of this warm-water

species in the area is not without parallels, however. In 2009, two records of *Dynamene bidentata* (Adams, 1800), a species otherwise known only from southern and western shores, were gathered on the Porcupine Marine Natural History Society fieldtrip in at Coldingham, also in Berwickshire (Crouch, 2010). It has been suggested that these records are the result of stranding rather than indicating a resident population (Vieira et al. 2016).

It seems possible that *C. hirsuta* could be subject to the same process and that the absolute distribution of some intertidal marine isopods may be subject to considerable variation of this kind even when their normal ranges are restricted. Perhaps this is also the explanation for Edward's 19th century record in Banffshire. Further work is needed to determine if *C. hirsuta* is more widely present on the Berwickshire coast, and fieldworkers elsewhere in Britain and Ireland should check for the species outside of its core range in case it is present at low levels in other areas.

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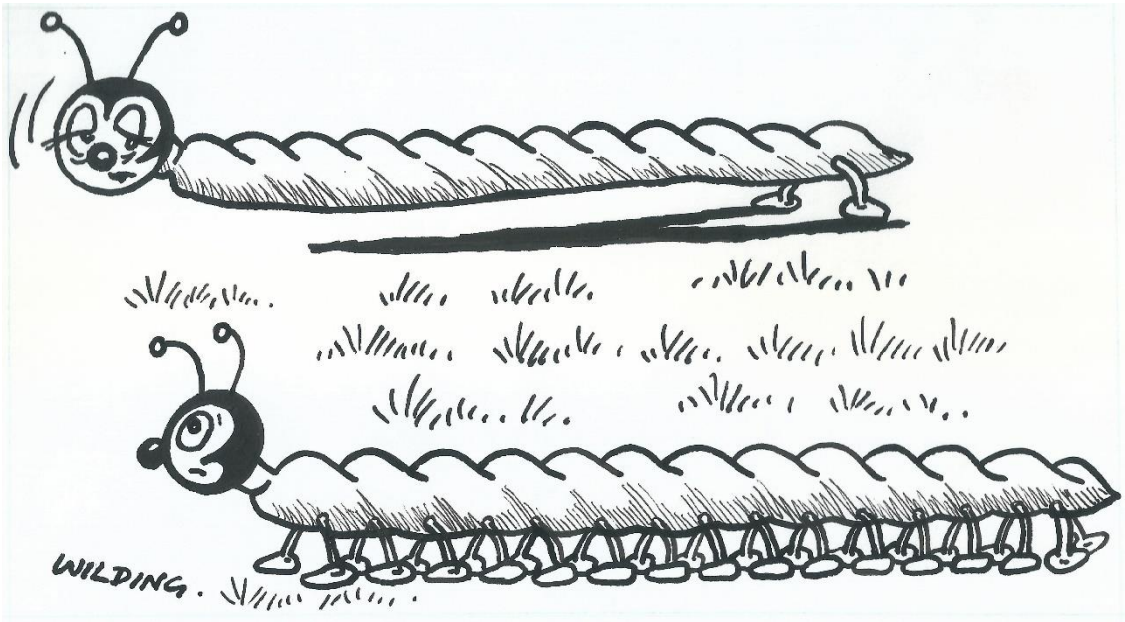
Warren Maguire



"Tired?" "I feel as though I am on my last legs!" ('Centipede on Last Legs' by Ivan Wilding)

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