British Myriapod and Isopod Group

Newsletter

No 40 Spring 2020

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You may notice that the delivery of this newsletter was a little different to normal. Instead of arriving via email from BRC, you received notification in a Mail Chimp email from me c/o BRC and clicked on a link which took you to the website to download it—at least I hope it worked like this! The reason for this change is that, in the last few weeks, we have transferred the mailing list to Mail Chimp. This should help us manage it more easily and will enable you to update your details yourself and new members to join up directly from the website. You can of course continue to let me know any changes to your details if you prefer. Mail Chimp also enables us to send out additional information from time to time between the formal newsletters, something we are not planning to do a lot but for example, we can let you know that that the Bulletin has been published.

This newsletter is hopefully a one-off for me, I'm standing in as 'guest editor' for Rachel while she is busy moving house. Thank you to everyone who contributed, please send items for the next newsletter to Rachel by Monday 7th September.

Helen Read

BMIG AGM and Field Meeting 2020

The annual field meeting is being held this year in Somerset. Within easy reach of the coast as well as the Quantock Hills, Mendips and the Somerset Levels. This year we are delighted to be welcoming Professor Liz Hornung from Hungary to the meeting. Liz works on woodlice and has studied the urban woodlice in Budapest, a subject she will be talking about after the formal business of the AGM is over. The format will follow the usual plan for field meetings with field work during the day followed by talks, opportunities for identification and no doubt some socialising in the evenings. Anyone living locally is welcome to come along and join us either during the day or in the evenings . Please let Paul Harding (pha@ceh.ac.uk) know in advance if you wish to do so.

BMIG Facebook group

Don't forget that BMIG now has an official Facebook Group, Isopods and Myriapods of Britain and Ireland - https://www.facebook.com/groups/407075766387553/

AGM notice

All BMIG members are invited to attend the 20th AGM of BMIG to be held at Cannington College, Bridgwater on Friday 17th April 2020 at 8pm.

See page 2 for more information

AGM & Officer Elections

BMIG has a small but stalwart Committee and several of our Committee members wear several hats. We would really like to have an injection of new enthusiasm and experience and would call on anyone who would like to get more involved to come and join us. You don't need to be an expert on myriapods or isopods but some of the positions would help you build up your knowledge. We would be especially pleased to hear from people with social media skills, interested in being librarian or collection curator (both stored near Reading) or perhaps interested in leading specific projects or conservation initiatives. The Committee only meets twice a year, one meeting co-incides with the spring field meeting and other other is held in the autumn, at a venue that seems most accessible to those attending. Contact Helen for more information about any of these roles – we would love to hear from you.

The AGM will be held at 8pm on Friday 17 April.

All existing officers that are coming up to the end of their three year term are eligible for re-election and we have a range of roles (see below) that members could volunteer for, some are vacant at the moment and there is scope for the post holder to influence the roles. We ask ideally that any nominations are sent to the Secretary, Helen Read beforehand (see committee contacts page 8) but nominations can be made from the floor at the AGM., you don't have to attend the AGM to stand for election.

Officers to be elected during the AGM are:

1. Secretary
2. Librarian and Collections Manager
3. Field Meeting Co-ordinator – Although a vacant role, we currently have a member handling bookings.
4. Social Media Manager
5. Projects Officer
6. Conservation Officer – Although a vacant role, the chair and vice-chair have so far fulfilled the requirements between them. We would welcome someone giving the role their full attention.
7. BENHS representative

AGM agenda

1. Apologies
2. Minutes of the 19th AGM
3. Matters arising
4. Secretary's Report
5. Treasurer's Report
6. Recording Scheme Reports (woodlice, millipedes and centipedes)
7. Librarian & Collection update
8. Election of Officers
9. Future meetings
10. Any other business
11. Records from the meeting
12. Thanks to meeting organiser

The AGM will be followed by a talk by Liz Hornung from Budapest entitled: Diversity and composition of urban isopod fauna.

BMIG Chairman Paul Lee sieving for tiny white millipedes! Photograph Helen Read

Ophyiulus germanicus, with Laboulbeniales fungus, from Channel Islands

In January Andy Marquis posted images of a possible *Leptoiulus* species collected from wet woodland on Guernsey (Channel Islands) on the BMIG's *Isopods and Myriapods of Britain and Ireland* group. Andy's images can be seen at: https://www.facebook.com/groups/407075766387553/permalink/853895361705589/. It was a male and the images included a close up of the front leg pairs, which bear important characters for separating the various species of *Leptoiulus* and *Ophyiulus*. The sharply 'hooked' first leg pair suggested an *Ophyiulus*, but there seemed to be a distinct bulge on the anterior margin bearing several stout spines (gently curved with a single spine in *O. pilosus*) and prominent finger-like processes could be seen projecting from the coxae of the second leg pair (absent in *O. pilosus*). In addition, the anterior legs appeared to bear tufts of 'fluff' reminiscent of the Laboulbeniales fungus *Rickia laboulbenioides* which is host specific to various *Cylindroiulus* species. This potentially very interesting specimen was sent to Henrik Enghoff in Denmark, who identified the millipede as *Ophyiulus germanicus* (Verhoeff) (as we suspected) and confirmed the presence of a Laboulbeniales fungus (as we hoped), possibly a *Troglomyces* sp.

The distribution of *Ophyiulus germanicus* is centred on the Apennine Mountains of Italy where it is mainly associated with deciduous woodland. It has been reported as a probable introduction at single sites in Spain and Germany and in 2015 was first reported in the UK from a site in Oxford city. Subsequently, Roy Anderson and Willson Gaul have reported several sites in eastern Ireland (records submitted to iRecord). In Italy the fungus *Troglomyces rossii* Santamaria, Enghoff & Reboleira 2014 is known to infect *Ophyiulus* millipedes, including *O. germanicus*. It may be that this same species of fungus has been introduced along with its host millipede on to the island of Guernsey. Andy's specimen has been forwarded to Sergi Santamaria in Spain (a specialist in Laboulbeniales) and we eagerly await his opinion on the fungus.

Steve Gregory

Melogona voigtii confirmed new to England

In the last newsletter I reported that a possible female specimen of *Melogona voigtii* (Verhoeff) had been collected by Nicola Garnham from a site in West Lancashire (VC60), in north-west England. Previously *M. voigtii* was recognised as a British species on the basis of specimens collected from four sites in Scotland some 200km further north. The specimen was tentatively ascribed to this species on the basis of the shape of the bursal sclerite; a character first recognised and figured in the BMIG Bulletin by Henrik Enghoff in 2016.

Melagona voigtii (Photograph Nicola Garnham)

In November Nicola returned to Dalton Crags to look for additional specimens by collecting bags of leaf-litter to sieve and sort back in the comfort of

her own home (very sensible given the time of year). To cut a long story short, one of the samples contained a male and female *Melogona* specimen that appeared to have 30 body rings and images of the male were posted BMIG's *Isopods and Myriapods of Britain and Ireland* group – see https://www.facebook.com/groups/407075766387553/permalink/794273921001067. When placed side by side the specimens were noticeably more heavily pigmented and larger than specimens of *M. scutellaris* collected from the same site and the male specimen lacked the prominent three-lobed paragonopod (modified leg pair 11) that is typical of *M. gallica*. Thus, Nicola forwarded the two specimens to me for closer examination. Examination of the male revealed the weakly bilobed posterior paragonopods (modified leg pair 11) and the coxa of leg pair 12 (visible leg pair 7) bearing a prominent projection much larger than that on the trochanter. This is the reverse to that seen in *M. gallica* where the projection on the trochanter is much larger than that of the coxa. Thus, the occurrence of *M. voigtii* in England is confirmed. An article has been submitted to the BMIG Bulletin.

Steve Gregory

Luminous centipedes

One of the old names used for geophilomorph centipedes (along with "wireworms") was apparently "glow-worms", referring to the fact that various of them have been seen to luminesce including *Geophilus carpophagus* sl. John Lewis advises that he certainly saw this phenomenon in the "long form" (i.e. *Geophilus carpophagus* ss) when he was living in Kent.

At the beginning of December, Di Milner of Clyst Hydon in East Devon contacted me to report that she had seen a centipede glowing greeny-white along the length of its body amongst debris in a narrow lane at 11pm whilst on her nightly dog walk and a quick Internet search suggested to her that it might be *Geophilus easoni*. This is quite likely as that species is also known to show bioluminescence and this is a rural area.

Back in May 2012, whilst conducting a glow-worm - the beetle sort - survey in Sherwood Forest, Trevor & Dilys Pendleton noted a glowing centipede. It was the first time Trevor had ever seen this and as, he wrote, "I was not prepared for what I witnessed" and reported it on their eakringbirds web page.

In April the following year they made contact again to describe how another luminous centipede was found accidentally by treading on it and causing it to produce bioluminescent fluid, more of which was produced when it was squeezed. The specimen was identified by Keith Lugg as *G. easoni*.

Subsequently, during a glow-worm survey they found three more centipedes which glowed when pressed – glowing bodily rather than releasing luminous fluid. The glow seemed brighter and lasted

Geophilus easoni (Photograph Paul Richards)

between 10 and 20 seconds per specimen. Again, they seemed to be *G. easoni* & I confirmed this by examination of two specimens, both females.

There are other species that are said to show bioluminescence but the literature is scattered and modern British records are scanty so, please, if you see this phenomenon, do try to identify or get a good photograph of any such animals.

Postscript:
There have been many references to bioluminescence in centipedes over the years, one of the classic ones was by Dr Brade-Birks in his Notes on Myriapoda XX: Luminous Chilopoda with special reference to *Geophilus carpophagus* Leach (1920). A more recent review, *Luminescent myriapoda – a brief review* by J.Rosenberg & V.B.Meyer-Rochow in *Bioluminescence in Focus* (2009) can be read on line.

Tony Barber

First record of a 'pocket centipede?

Pocket gophers are a group of rodents endemic to the Americas and, apparently (Wikipedia), "pocket pets" refers to pocket size mammals, notably rodents, kept as household pets.
Recently, Becky Parish of Alderton, Gloucestershire e-mailed me a photo of a two inch long centipede found one evening in the pocket of a wool jacket which she had last worn in Brockworth a few days before. Although some species of centipedes are regularly found in houses, this is the first record I have come across of one actually turning up in a pocket. The house is an old one with parts dating back to 1700 so finding a live centipede is not too unexpected and presumably this one found a sheltered spot in clothing.
At first sight, I thought I could see a rather greyish geophilomorph with what looked like a not too clear pale dorsal line and guessed it was *Henia vesuviana* which, at one time, was being reported from a bathroom in Lancashire on a regular basis but it seems the photo, being made with the animal on a shiny surface misled me. Steve Gregory, on the other hand suggested it could well be *Geophilus carpophagus* sensu strictu and when I received the live animal (subsequently released) it was clear that he was right. The apparent longitudinal stripe was obviously an artefact caused by reflection by the need to take the photo in a confined space & the animal was reddish brown. Examination of sternites, etc showed that we had a female *G. carpophagus* ss. It also showed the characteristic ability to "stick" to the skin of my hand.

Geophilus carpophagus (photograph Paul Richards)

Probably no real potential in biological control of clothes moth with pocket centipedes but an interesting record nevertheless – and from Ted Eason county too.

Tony Barber

Bye Bye *Ligia*

An interesting article which examines the phylogenetic (evolutionary) relationships within the Oniscidea (terrestrial woodlice) was recently published in Nature's Scientific Reports (Dimitriou, Taiti & Sfenthourakis, 2019). According to current taxonomy, Class Isopoda comprises 11 suborders. Of these Oniscidea is the only terrestrial one and the most diverse with about 3,700 described species. Currently our understanding of the phylogenetic position of Oniscidea within Isopoda has been based mainly on morphological traits. Within the Oniscidea five clades have been generally accepted: Diplocheta (two UK 'Slaters'), Microcheta (non-British), Tylida (non-British), Synocheta (the Pygmy Woodlice) and Crinocheta (other Woodlice). However, the monophyly of the Oniscidea (have they really evolved from a common ancestor?) has

been widely debated. Neither morphological traits nor molecular markers have definitively resolved phylogenetic relationships among Oniscidea clades or established its monophyly.

In an attempt to address the phylogenetic relationships the authors examined (for the first time in Oniscidea) the evolutionary highly conserved nuclear protein-coding genes for Sodium-potassium pump (NAK) and Phosphoenolpyruvate Carboxykinase (PEPCK) (in addition to the traditionally used 18 s and 28 s ribosomal RNA genes). The study included 34 Oniscidea species, representing 30 genera within 14 families. A number of non-Oniscidea species, including representatives from suborders Valvifera (*Idotea sp.*), Sphaeromatidea (*Sphaeroma sp.*) and Asellota (*Asellus aquaticus*) were also examined. Alas, the results indicate that Oniscidea isn't monophyletic after all (i.e. there is not a common ancestor to all woodlouse species). Although Tylida, Microcheta, Crinocheta and Synocheta form monophyletic sister clades. However, the Diplocheta is shown to be polyphyletic with genus *Ligidium* forming a basal clade within Oniscidea, while genus *Ligia* is grouped separately and appears to form a distinct clade more closely related to marine isopods of suborders Valvifera and Sphaeromatidae (see Fig. 5 in the paper). The implication for our UK fauna is that our familiar Sea Slater, *Ligia oceanica*, would no longer be considered a terrestrial 'woodlouse', but a marine isopod.

The authors also highlight a number of other anomalies within their analysis; including family Trichoniscidae being polyphyletic; family Porcellionidae forming a well-supported clade, but including Trachelipodidae and part of Agnaridae; family Armadillidiidae, traditionally considered sister-group of the Porcellionidae, is grouped with Cylisticidae and part of Agnaridae; and genera *Platyarthrus* and *Trichorhina*, presently included in the family Platyarthridae, do not seem to be related.

This revised phylogeny has important implications for oniscidean systematics, as it undermines the validity of several morphological characters traditionally used in terrestrial isopod taxonomy. Thus, the authors conclude that the systematics of Oniscidea, as it currently stands, is in urgent need of extensive revision, and needs to take into account robust molecular evidence. Interestingly, they note that the monophyly of suborder Oniscidea may be saved if genus *Ligia* is excluded and to this end they propose the erection of a new family Ligidiidae to include *Ligidium* and allied genera (i.e. within Oniscidea), with Ligiidae retained for *Ligia* (non Oniscidea).

Ligia oceanica (Photograph by Keith Lugg)

In addition, the authors also highlight that this revised phylogeny has potential implications for our understanding of the transition of isopods from the marine to the terrestrial environment. A number of unique adaptations to terrestrial life have led previous authors to assume that the Oniscidea underwent a single transition on to land. If the sea slaters (*Ligia* sp.) are nested in a clade with marine isopods they must represent a completely separate invasion of the land. It may be that several clades of terrestrial isopods made independent transitions from the marine environment, which if supported by further molecular evidence, would undermine the

monophyly of the Oniscidea. More data needed, but in the meantime looks like bye bye *Ligia*.

Reference: Dimitriou, A.C., Taiti, S. & Sfenthourakis, S. (2019) Genetic evidence against monophyly of oniscidea implies a need to revise scenarios for the origin of terrestrial isopods. *Scientific Reports* **9**: 18508. doi.org/10.1038/s41598-019-55071-4

Steve Gregory

Leptoiulus belgicus down sauf

The millipede *Leptoiulus belgicus* is relatively large and well pigmented, and often readily identified by the thin yellowish line running along the entire length of the body. Until the 1990s records were restricted to southwest England and south Wales (Preliminary Millipede Atlas, BMG, 1988), but the Millipede Atlas (Lee, 2006) hints at a wider distribution, with single records from north Wales, Kent and Norfolk, and an isolated record from the island of Eigg off the Scottish west coast. In 2007 and 2010 several additional sites were discovered in western Scotland during BMIG field meetings, and more recently from west Lancashire (BMIG Newsletter No.38) and other scattered localities. Many of these earlier records are from coastal areas, but since 2010 Paul Richards and Derek Whiteley have discovered several sites in t'North, in Yorkshire and Derbyshire, about as far from the coast as it's possible to get (BMIG Newsletters No.21 and No.36).

On 28th October 2019 images of a millipede photographed in a domestic garden in Popley, Basingstoke, Hampshire (SU6453, VC 12) were posted online. The specimen seemed too slender to be the ubiquitous *Tachypodoiulus niger* and there appeared to be a thin yellow dorsal line. Following a plea for more images from various angles these were promptly added and there is little doubt that the specimen photographed is *Leptoiulus belgicus*, a new county record. Then, on 2nd November I was leading a snail identification course at The Basin (Local Wildlife Site), north-east of Whitchurch, in south Oxfordshire (SU6477, VC 23). Whilst searching for snails I encountered a rather pale '*Ophyiulus*' under a log at the base of a chalky wooded slope. It looked 'odd' so I collected it. Upon close examination under a microscope the thin yellow dorsal line and striking pale flanks were apparent – a female *Leptoiulus belgicus* – another new county record.

Leptoiulus Belgicus (photograph Paul Richards)

It appears that the expansion of *Leptoiulus belgicus* across much of England is ongoing and I would urge all to look out for this fairly distinctive millipede.

Steve Gregory

Woodlice with Iridovirus Wanted

Dr Sam Jones at University of Manchester is interested in studying the iridovirus that infects woodlice and which turns them purple (see Keith Lugg's image at http://www.bmig.org.uk/species/Trichoniscus-pusillus). Ideally he would like live or recently dead woodlice (any species) in which the virus is likely to remain infective (preservation in alcohol or formaldehyde will kill the virus). Some details of his interesting work can be seen at https://broadspectrumantivirals.com/. If you find a purple iridovirus infected woodlouse, please do keep it, and email Sam samuel.jones-4@manchester.ac.uk or ask Steve Gregory for his postal address.

Millipede workshop

Paul Richards is leading a Millipede workshop for the Tanyptera/North West Invertebrates Project at the World Museum, Liverpool on 17-18 October 2020. Information when available will be advertised on their website: http://www.northwestinvertebrates.org.uk/events/category/workshops/

BMIG Bulletin

The editors are currently working on the next volume which will be posted on the website when available. It includes articles on *Philoscia affinins* and upland centipedes and a review of green house species of all our groups as well as reviews of recently published books.

The 19th International congress of Myriapodology

The next congress will be held in Montenegro in Colombia 1-6 August 2021. Montenegro is located in the Quindio region which is a famous coffee growing area in the mountains. Further information will be available from the CIM website https://myriapodology.org/

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