

# Newsletter

No. 45, Autumn 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.

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Cover photo: Tom Hughes, Annie Northfield, Gary Farmer and Warren Maguire looking for *Hyloniscus riparius* under riverside debris along the river Avon in Worcestershire on the BMIG field-meeting in April 2022 (photo © Steve Gregory).

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### Jean-Paul Mauriès

As this Newsletter was 'in press' we learnt the sad news of the death of Jean-Paul Mauriès at the beginning of October. An active participant of CIM (Centre International de Myriapodologie) from its foundation in 1968, Mauriès was a very prolific researcher on several millipede orders, notably chordeumatidans and documented many new species from Spain and France, particularly in the Pyrenees. The next volume of the BMIG *Bulletin* will contain a more extended tribute.

**Bulletin Editors** 

## BMIG residential field weekend and AGM, 13<sup>th</sup> to 16<sup>th</sup> April 2023

BMIG's annual gathering in 2023 will be based near Bridgwater in Somerset. We have not visited this county for over 30 years. Bridgwater is ideally placed for easy access to the Somerset coast and to areas of varied geology and topography – Mendip Hills, Somerset Levels, Polden and Quantock Hills. Further west is Exmoor National Park and to the south is the Blackdown Hills AONB.

We have block-booked accommodation at the Cannington Campus of Bridgwater & Taunton College, with single en-suite rooms, full catering and a meeting room. The Campus is about 5 miles west of Bridgwater. The total cost (Thursday pm to Sunday am) will be £255 per person including VAT.

Full booking details and a booking form will be posted soon on the BMIG website and via social media, but any immediate enquiries regarding bookings can be sent to Paul Harding (*pha@ceh.ac.uk*).

Kevin Clements will be organising the programme for the weekend and site visits so if you are familiar with the area and know of any sites worth surveying please do let him know (kevin.clements@blueyonder.co.uk).

Thank you to those who have submitted their records from this year's Preston Montford Field Weekend. Could anyone who has not yet done so please forward them to Kevin as soon as possible.

## Tanyptera Trust millipede ID workshop

Paul Richards will be leading a millipede identification workshop for the Tanyptera Trust on 18<sup>th</sup>/19<sup>th</sup> March 2023. As we go to press the details are not yet confirmed, but it will probably take place at Marbury Country Park, Northwich. Check the website nearer the time (or keep an eye on the BMIG Facebook group for further details):

https://www.northwestinvertebrates.org.uk/

### **BMIG notices**

We had a very successful spring field meeting from the 21<sup>st</sup> to the 24<sup>th</sup> of April at Preston Montford in Shropshire this year. See *'Hyloniscus riparius*: a pygmy woodlouse new to Britain' and the two field meeting reports below for details.

*Bulletin*: This year's Bulletin is available on the BMIG website:

www.bmig.org.uk/view/resource/bmig-bulletin

Items for the next issue should be sent to Helen Read by 1<sup>st</sup> February 2023.

*Newsletter*: Spring Newsletter items to Warren Maguire by 1<sup>st</sup> March 2023.



## *Hyloniscus riparius*: a pygmy woodlouse new to Britain

The trichoniscid pygmy woodlouse *Hyloniscus riparius* is widespread across central and eastern Europe and has been introduced into North America. In Europe it appears to have been expanding its range in recent decades and, for example, was first recorded in the Netherlands in 1993. In light of this discovery, David Bilton (the previous organiser of the Non-marine Isopod Recording Scheme) suggested "a strong possibility that the species may be 'hiding' in the UK" (1993, BISG *Newsletter* No. **36**, pg. 2). Despite a false alarm along the River North Esk in Scotland in 2010, which turned out to be an unexpected outlying population of *Oritoniscus flavus*, there have been no reported sightings in Britain nor Ireland.



Female H. riparius found by the River Avon in Worscestershire (photo by W. Maguire).

In mid-April I received an email from Gary Farmer with images of a dark purple trichoniscid woodlouse with the eye clearly comprising a single ommatidium, with the comment that they have the "ability to move VERY quickly". These were found under flood debris adjacent to the river Avon in Worcestershire. In the current identification guides (Hopkin's 1991 AIDGAP key and Oliver & Meechan's 1993 *Woodlice Synopsis*) these readily keyed to *Oritoniscus flavus*, but both Warren Maguire (to whom I forwarded the images) and myself thought that they didn't look quite right and perhaps finally these could be examples of *H. riparius*. Thus, an excursion to the site was hastily organised during the BMIG field meeting that was to be held in the adjacent county of Shropshire the following week. Warren and I, in the company of Thomas Hughes and Annie Northfield, were shown around the site by Gary and we were successful in collecting several male specimens to confirm the species' identity. These did indeed prove to be *H. riparius*, the first recorded occurrence of this woodlouse in Britain.

It is perhaps unexpected that the first recorded occurrence of this central European woodlouse is in central England, well away from the more likely colonisation routes via the south and east coasts and the Thames valley. It is also of great interest that this site, and several other nearby sites along the Avon, also support an outlying population of *Trachelipus rathkii*, which is otherwise mainly known from the Thames and Severn catchments.

Both species are often found together in flood plain habitats across Europe so presumably share the same source of colonisation in Worcestershire. However, the origin of this population is unclear, whether a natural colonisation or an unintentional introduction. A formal report of this discovery is being prepared for the BMIG Bulletin.



7<sup>th</sup> pereopod of male H. riparius, collected on the BMIG spring field-meeting, April 2022 (photo by W. Maguire).

#### Steve Gregory



## BMIG Spring Field Meeting Report (Steph Skipp)

This year the BMIG annual field meeting was based at Preston Montford in Shropshire, an area relatively little recorded for myriapods and isopods. On our first evening at the field station, we were presented with the wide range of possible sites to visit. These represented a diverse selection of habitats, including urban areas, woodlands, rivers with riparian opportunities, limestone quarries and more. The choice of how best to fill our weekend was made very difficult!

During the evening we also learned that our specimens from the field meeting could end up contributing to the groundbreaking Darwin Tree of Life project currently running at the London Natural History Museum. For this reason, we were tasked with collecting specimens alive, so that they might be flash frozen in a portable dry-ice container for optimal DNA preservation.



Looking for Porcellio spinicornis at Preston Montford (photo by Steph Skipp).

On Friday, I joined a group headed to the UNESCO world heritage site, Ironbridge. Here we largely focused our efforts on the nearby woodland at Lincoln Hill and, once we had had our fill of turning logs and sifting through litter, we progressed to Smalley Hill Nature Reserve and later to the Wrekin. My favorite find of the day was the impressive striped millipede, *Ommatoiulus sabulosus* which was new to me.

At the end of the day, everyone gathered for the evening meal and exchanged stories of their exploits at the various sites. The most exciting story was that of Steve Gregory, Warren Maguire, Tom Hughes and Annie Northfield, who had ventured outside of Shropshire to Worcestershire, following an intriguing lead of a potential new woodlouse species to Britain. Their trip had been successful and, as a result, *Hyloniscus riparius* can now be added to the UK list (and, as an added bonus, they also found the uncommon woodlouse *Trachilepus rathkii* in the same area).

After sharing this news, we gathered again for the AGM in the evening. Tony Barber told us of some recent exciting centipede records and updates were given from the isopod recording schemes. We then learned about Helen Read's efforts in updating the *Linnean Synopsis of Millipedes*. Helen is working to incorporate ever changing taxonomic knowledge, consistent species descriptions and conservation information of >83 UK millipede species into the newest version of this important piece of scientific literature.



Porcellio spinicoris (photo by Steph Skipp).

When the meeting drew to the close, the evening was not yet over. A group led by Steve Gregory headed over to a section of wall within the Preston Montford grounds which was said to be home to *Porcellio spinicornis*. I had never seen this species



before and was excited to join the night-time trip. Sure enough, the wall was covered in pretty, yellowflecked woodlice. However, the most remarkable sight was that of the group carefully inspecting this seemingly innocuous wall by torchlight. It was certainly surreal!

On Saturday, I accompanied a party heading to Wenlock Edge. On arrival, we headed off in search of the main quarry area and, on the way, encountered a gigantic manure pile next to an abandoned barn. This incited a glint in the eye of the isopodologists, with the prospect of finding such manure-loving species as *Porcellio dilatatus* and *Porcellionides pruinosus*. The barn also seemed to have potential for the synanthropic *Scutigera coleoptrata* (which Tony Barber had promised the reward of a beer in exchange for!). Unfortunately, no such woodlice or centipedes were found in the area, although the manure heap did produce an interesting selection of beetles.

When we found the quarry, we were faced with an impressive expanse of bluish grey rock. Everyone immediately started turning stones and we found the woodlice species, Armadillidium nasatum, Androniscus dentiger and Platyarthrus hoffmannseggii. Other non-isopod offerings of the quarry included newts and glow worms. With the help of Steve Gregory, I encountered two species new to me in the quarry. These were the millipede, Macrosternodesmus palicola and the woodlouse, Trichoniscus pygmaeus, both of which are some of the smallest representatives of their respective groups in Britain. Steve must have good eyesight!

After the site visits, everyone gathered back at the field station to listen to presentations. These included an update on the Darwin tree of life by Dominic Phillips and an overview of isopod genomics from Jess Thomas Thorpe.

Overall, my first BMIG field was a very interesting and enjoyable experience. I was pleased to have encountered several species new to me and it was encouraging to spend time with such an enthusiastic and friendly group of people.



Macrosternodesmus palicola (photo by Steph Skipp).

Steph Skipp

## BMIG Spring Field Meeting Report (Dawid Martyniuk)

By the time I decided to take part in the BMIG 2022 field meeting, my experiences with other myriapod enthusiasts and the ways in which we study myriapods were limited, with my only connections being through the BMIG Facebook group (where I met Steve Gregory), mainly to confirm identifications and share photographs.

During my time in Shropshire, I was able to make many new contacts, most of which were key in the successes I've had since the event, so it would not be an exaggeration to say that the field meeting was a very important milestone in my study of Myriapoda. It was thanks to Helen Read, that I was able to get a lift to Shropshire from my accommodation in Reading, and also recently have one of my Pauropoda photographs published in the British Wildlife magazine for which I am very grateful. Let us not forget about Tony Barber, who I was excited to meet having read his AIDGAP *Key to British Centipedes* and was impressed that he has been working on centipedes for more than twice as long as I've been alive. It was thanks to him that I



was able to get access to many papers on Pauropoda that will be very important for my future work.



Decapauropus gracilis (photo by Dawid Martyniuk).

The locations we visited were quite intriguing, especially Dolgoch Quarry NR where the forest floor was littered with rotting wood covered in moss and ferns, a typical characteristic of Welsh temperate rainforests. There I found many species I have never found in the UK before such as the millipedes Julus scandinavius and Brachyiulus pusillus, and the centipede Geophilus impressus, which I photographed for my British myriapod species library, a collection of photographs on my computer of every myriapod species I encounter to help me in future identification. Some individuals were even handed over to Dominic Phillips, who was acquiring specimens during the field meeting for the Darwin Tree of Life Project.

Six species of Pauropoda were found during the field meeting, all more than likely never found in Shropshire before, and some were present in all locations visited (even at the FSC Preston Montford). Decapauropus gracilis and Decapauropus broelemanni were most abundant, which is to be expected as they are the two most common and most generalist pauropod species I encounter in the UK, most specimens being collected from moist wood chunks within a pile of wood pieces located west of the FSC Preston Montford car park. This is where I met Thomas Hughes and Annie Northfield, who I taught how to find pauropods while I was collecting them. To my

surprise, Thomas came back to me the next day from Tiddesley Wood NR in Worcestershire having collected a colony of *Trachypauropus britannicus* for me, Britain's most recognized and distinct species of pauropod. This was a species I had been wanting to find ever since I began searching for pauropods almost half a year ago and seeing them myself for the first time would make it easier to locate them next time I go looking for pauropods.

However, the most important specimens came from Dolgoch Quarry. The base of the limestone cliffs consisted of many flat limestone rocks buried shallowly in the soil. The surface slabs mainly accommodated pseudoscorpions, woodlice, and springtails due to the dry conditions, but wetter slabs deeper within the soil (~5cm) had many pauropods which turned out to be a colony of Decapauropus vulgaris, another species I had not come across before. Among them was a single individual of Decapauropus helveticus, a species only found once before in the UK in Somerset 1954. A relatively common species, Stylopauropus pedunculatus, was found under a log in the Dolgoch Quarry woodland along with a few colonies of D. gracilis.



Trachypauropus britannicus (photo by Dawid Martyniuk).

I very much look forward to next year's BMIG field meeting, I certainly had a lot of fun, met many interesting people, and saw many species I haven't seen before. Since the event, I've become even more connected with the scientific community, meeting many who specialise in mesofauna or work at the



Natural History Museum. This has opened many opportunities which have allowed me to do things I've wished for at a young age, and I hope similar opportunities continue to come up.

Dawid Martyniuk

## Isopods & Myriapods and the Darwin Tree of Life Project

Those of you who attended the BMIG field meeting at Preston Montford FSC in April might remember Dominic flash-freezing various species collected there into a large blue container of liquid nitrogen for the Darwin Tree of Life Project (DToL). We collected a total of 45 different species across Myriapoda, Isopoda and Hexapoda over the weekend, and these are now in the queue to have their genomes sequenced at the Wellcome Sanger Institute (based at Hinxton, near Cambridge)! For those of you who haven't heard of DToL, the project is a partnership of 10 organisations: Sanger, the Natural History Museum in London, the Royal Botanic Gardens at Kew and Edinburgh, the Marine Biological Association in Plymouth, Oxford, Cambridge and Edinburgh Universities, the Earlham Institute in Norwich, and the European Bioinformatics Institute. Prof. Mark Blaxter heads the project at Sanger, where I work. DToL is aiming to sequence the genomes of ~70,000 eukaryotic organisms across the UK and Ireland over a decade... no mean feat! So far, DToL has just assembled their 500th genome and has published accompanying Genome Notes for over 130 species with 3,781 species' genomes currently in progress. See the DToL Data Portal and the Tree of Life Gateway at Wellcome Open Research for regular updates (<u>https://portal.darwintreeoflife.org/</u>).

There are still many to go (as yet we don't have a genome published for any isopod or myriapod!) and DToL always welcomes expert help collecting. Unlike standard sequencing methods, where

samples can be collected in ethanol, the genome sequencing methods for DToL require samples to be frozen to -80 degrees as soon as possible after death (e.g. dropping them into liquid nitrogen) - as this preserves the ultra-long pieces of DNA, RNA and chromatin binding information in each cell, essential for the lab methods DToL use to create chromosomal-level high quality, genome assemblies. As such DToL requires live, ID'ed samples (approx. 10 'woodlouse sized' individuals per species) in the post (or delivered in person), if you think you can help us collect them, please get in touch (contact info below).



DToL at work (photo by Jessica Thomas Thorpe).

I'm a post-doc at Sanger, studying the genomics of Isopoda, and co-ordinating the collection of this group. So far, we have 43 of the ~240 species of UK isopods, across 24 families, including representatives from each of the 11 superfamilies of UK Isopoda. For the terrestrial isopods, we have collected representatives of each UK family, except four: Cylisticidae, Halophiloscidae, and non-natives Styloniscidae and Armadillidae. If anyone knows of a site where members of these families can be collected, or even better, could collect them for the project, let us know. For marine isopods, we still need many of the deeper water isopods, including cirolanids, and we are lacking most of the parasitic Epicaridea. Any contacts for these species would be very welcome.



For the myriapods, collection is also going well. There are now at least\* 24 centipede species in the NHM and Sanger collections, covering all UK families except three: Scolopendridae, Mecistocephalidae, and Scutigeridae. This means all major groups except Scutigeromorpha have been collected for the project. For the millipedes, at least\* 34 species have been collected so far. We are still missing specimens from Polyzoniida and Spirobolida, as well as the families Anthogonidae, Anthroleucosomatidae, Haplodesmidae and Oniscodesmidae.

Samples can be sent to the NHM, but please email darwintreeoflife@nhm.ac.uk and arrange with the team before sending live samples. And as the collections aren't manned at the weekend, please only send things towards the beginning of the week. Collectors will need to fill out a Materials Transfer Agreement (available from NHM) and a collection spreadsheet, with the following information (which is crucial if the specimen can be submitted to the project): Date of collection, Collector Name, Identifier Name, Species Name and Collection Location. The address for all DToL submissions is: Darwin Tree of Life Project, Natural History Museum, Cromwell Road, SW7 5BD. Additionally, if you are sending in isopods, I would also love to know! My email is it30@sanger.ac.uk.

\*If you know that you have collected any of these groups recently for DToL, not to worry, the NHM inventory can take a bit of time to update. For example, I know we also have specimens of Pauropoda collected for DToL, but these haven't reached the Sanger database yet! All in all, it's very exciting that we are getting so many species collected and hopefully it won't be long before we start sequencing, assembling and releasing their genomes!

Jessica Thomas Thorpe, Wellcome Sanger Genome Institute

## A millipede, or two, new to Britain – an update

Last year I reported the discovery of *A millipede, or two, new to Britain* (BMIG *Newsletter* No. **42**, pg. 5) following my visit to Lamorran House Gardens in St. Mawes, Cornwall in September 2020. Here I provide a brief update.

Following much detective work, including DNA bar-coding by Leif Moritz and Thomas Wesener at the Leibniz Institute for Animal Biodiversity, the polyzoniidan 'pin-head' millipede was eventually identified as a species of Siphonethus, a genus endemic to New Zealand. This is perhaps not unexpected since it was found among the collection of New Zealand and Australian tree ferns. However, it didn't fit the two previously known described species so it has been formally described as a new species named Siphonethus dudleycookeorum in honour of the owners of the garden (the Dudley-Cookes) in a paper published in May 2022 by Moritz, Gregory and Wesener entitled A pinhead millipede astray: a new polyzoniidan millipede from New Zealand in Great Britain. In addition, during the course of examining specimens for this work two additional 'new species' of Siphonethus were also discovered in preserved collections held in New Zealand and these are also formally described in the paper. It is open access and can be downloaded from https://www.tandfonline.com/doi/full/10.1080/00 779962.2022.2071001.

Regarding confirmation of the possible Polydesmus asthenestatus (which at the time would have been the first British record) I returned to Lamorran House Gardens at a much more sensible time of year in November 2021 to search for adult specimens of this winter active millipede. This excursion proved successful with several males being collected, the second confirmed British locality for this millipede (the other site being a cave in Devon; BMIG Newsletter No. 42, pg. 6). However, it appears that inadvertently I may have collected a second slightly larger species of Polydesmus on that day. This has been provisionally identified as



*Polydesmus cf. taranus* by Per Djursvoll at the University Museum of Bergen from images of male gonopods, but this is yet to be confirmed. Whatever species it proves to be it will be another millipede new to Britain.

I remain indebted to the owners of Lamorran House Gardens for allowing unrestricted access to their gardens.

Steve Gregory

## On the predation of Landhoppers, Myriapods and Isopods by European Robins

Since August 2020 I have made frequent observations on the diet of a tame male Robin (Erithacus rubecula) as well as its mates and offspring. For at least the past 2 years it has held a territory comprising a young deciduous woodland plantation and part of an allotment at Bath City Farm. The Landhopper (Arcitalitrus dorrieni) is abundant within the territory, frequently found in leaf litter and under objects such as stones and Soon after plastic sheeting. making its acquaintance, I discovered that this Robin had developed a taste for Landhoppers, and seeks them out unassisted in leaf litter by turning over leaves with its bill. Upon lifting an object likely to be concealing Landhoppers or other prey items, it usually comes over to investigate. Any Landhoppers present immediately start hopping the moment an object is lifted. The Robin's strategy usually involves waiting for the Landhoppers to land and then swiftly grabbing them in its bill, and will then often catch a couple more in the process of burying themselves. By this method it is often able to catch up to ten Landhoppers in the space of 30 seconds, by which time any remaining Landhoppers have usually either left the area or successfully hidden from the Robin. Landhoppers likely form a considerable portion of its diet, and it frequently

consumes them before any other food items within the vicinity. Its mate in Spring 2021 was a very shy bird, however in December 2022 he paired up with a female that soon became as tame as the male. At first she ignored the Landhoppers entirely, but would often watch the male catch them. By February 2022, she was as adept at catching them as the male. By March, the male would often catch them and feed them to its mate as part of their courtship feeding, which continues throughout the breeding season. During spring/summer 2022, I observed two tame fledgling Robins in the same territory. Although they shared similar feeding habitats to the adults and capable of finding food for themselves, they were largely disinterested in Landhoppers. Occasionally one would catch one, but then discard it. On several occasions they were offered Landhoppers in a familiar food dish usually containing mealworms and did not consume them.



Robin with Cryptops sp. (photo by Mike Williams).

This suggests that predation of Landhoppers is a behaviour acquired later, perhaps during the first winter when other prey items are generally scarce. As the Landhopper continues to expand in range, given their palatability to Robins (and potentially other ground-feeding birds) and their high abundance where they occur, it is possible that they may in future become an important food source for birds, in particular in the winter months when other prey items are scarce. Although a non-native species, their presence in the UK might have an overall positive effect on bird populations.



I have also frequently observed the predation of myriapods and the occasional isopod by the Robins. Centipedes are among their preferred food items.

Within their territory, the most frequent centipedes are Haplophilus subterraneus and Cyptops parisi, both of which are readily eaten by the Robins, used in courtship feeding and fed to their young. Usually the Robins kill the larger Cryptops by biting them several times before consumption or taking to a mate or chick, however smaller centipedes are often swallowed live. On occasion, I have observed them eating adult Polydesmus sp. (P. coriaceus is the only species recorded from the site) and occasionally smaller Julidae, however these are frequently ignored. On one occasion, a Robin caught a large Tachypodoiulus niger, only to discard it moments later, however on another occasion the Robin ate it whole. Despite being frequent in their territory, on no occasion have the Robins paid any attention to Glomeris marginata. Occasionally the male Robin catches a woodlouse (usually Philoscia muscorum or Oniscus asellus), only to discard it, never swallowing. However, its mate of 2022 frequently caught and ate Oniscus asellus readily, even in the presence of other food items. Despite never eating them, the male would often catch woodlice and offer them to the female during courtship feeding. This difference in feeding preferences is perhaps due to the increased calcium requirement of the female during the production of eggs in the breeding season - woodlice being a rich source of calcium.

#### Mike Williams

#### 'Doubtful' centipedes?

Over the years a number of centipede species have been recorded from Britain and Ireland whose status here still remains unclear. This is in addition to the odd "giant centipedes" and others which have been reported as coming in with plant material/fruit/etc. and, in some instances, have finished up in local museums. The following have been reported at various times from various locations and it would seem to be useful to list them. It is difficult for us today with our various keys and available species lists to appreciate how much more difficult it would have been using original descriptions, mostly non-British sources and contacts in various parts of Europe when looking at a specimen of what seemed to be a species we had not seen before. In addition, there was also the possibility of immature animals not being recognised and being described as new species and in addition there were also definite nomenclatural issues in some cases. Small wonder then that maybe some species, especially if voucher material has not survived, remain "doubtful".

Readers are referred to the forthcoming *Atlas of the Centipedes of Britain and Ireland* for more detail and references.



#### GEOPHILOMORPHA

#### Dicellophilus carniolensis

Referred to as *Mecistocephalus carniolensis*, this was recorded from Newcastle and Glasgow (R.S.Bagnall, 1913) and Edinburgh (W.Evans, 1919), mostly, if not entirely, from greenhouses. Searches in greenhouses at the Royal Botanic Garden Edinburgh in more recent years have failed to rediscover it. It is a Central European species.

#### Mecistocephalus maxillaris

Although never specifically recorded for Britain or Ireland, this was reported from NH museum in Paris. However, interestingly, it seems that the



description by H. W. Brolemann (1930) actually refers to *Mecistocephalus guildingii*, now known from the Eden Project in Cornwall.

#### Mecistocephalus punctifrons

This was reported from Kew by R. I. Pocock (1906) in his account of the *Wild Fauna and Flora of the Royal Botanic Gardens*, Kew where he described it as "Imported probably from India". The only mecistocephalid centipede recorded from hothouses at Kew in recent years is *Tygarrup javanicus* and the precise identity of Pocock's animal is uncertain.

#### Schendyla monoeci

F. A. Turk (1944) reported this as two 14mm specimens from a greenhouse at Tuckingmill, Cornwall. Dr Turk commented that though they seemed to have slight differences from Brolemann's 1930 description he had no doubt about their identity. A slide, in rather poor condition, that has survived, has been examined by Dr Lucio Bonato who remarked that it was certainly not this species but a geophilid possibly a juvenile *G. osquidatum* or *G. seurati* (both of which are known from Cornwall).

*S. monoeci* has been recorded from the littoral Alpes-Maritimes in France and from Italy, Monaco and Romania

#### Schendyla zonalis (S.carniolensis)

R. S. Bagnall (1935) recorded this from the coasts of Devon and Dorset without naming any specific locality but there have been no subsequent British records.

The species differs from *S. nemorensis* in the presence of 1–3 spines on the claws of the second maxillae. Quite possibly it was recorded in error or has been overlooked. It has an exclusively southern distribution in France and is also known from Austria, Italy, Romania, Serbia and Slovenia.

#### Geophilus algarum

Reported by Bagnall (1917) from Grange-over-Sands, Cumbria, the specimens were submitted to Dr Brolemann who referred them to this species, one of two halophiles described by him from the French shores. However, some of Bagnall's material was examined by E. H. Eason (1961) who concluded that the specimens were not referable to *G. algarum* but probably immature *Strigamia maritima*.

*G. algarum* is, in fact, recorded from the French Atlantic Coast and J. G. E. Lewis (1962) suggested that *G. algarum/fucorum* was probably a polytypic species. He also suggested that Bagnall's Devon records were probably *G. fucorum seurati* (= *G. seurati* as currently known). Examination of more material of this group of littoral geophilids from both sides of the Channel (and possibly the Channel Islands) is desirable.

#### Other species

In his 1961 paper ('On the synonymy of some British centipedes', *Ann.mag.Nat.Hist* **13(4)**: 385–391), Dr Eason clarified the position regarding several other species names that had become included in the then British list:

Geophilus pusillimus Bagnall, 1935 (= Geophilus truncorum), Geophilus anglicanus Bagnall, 1935 (= Geophilus insculptus now known as *G. impressus*) and Geophilus scillyensis Verhoeff, 1928 (= Geophilus osquidatum).

The name *Stigmatogaster gracilis* (Meinert) had been included as British due to a confusion of nomenclature and a specimen in the NHM determined by Bagnall as *Stigmatogaster gracilis occitanica* Rib. was, in fact, *Stigmatogaster subterranea* (*Haplophilus subterraneus*).



#### LITHOBIOMORPHA

#### Lithobius agilis

Records of this were made by W. F. Johnson (1913) for Coolmore, East Donegal and Acton Wood, Armagh but, according to M. Cawley (2010), there are no voucher specimens in the National Museum of Ireland and no subsequent Irish records. F. A. Turk (unpublished notes) recorded the same species from Reskadinnick near Camborne, Cornwall in 1944 and St. Mary's, Isles of Scilly in 1945 but there have been no other British records and intact examples of Dr Turk's specimens are not available.

In the circumstances, it is probably best to regard *L. agilis* at present as a doubtful member of our fauna. It has been suggested (Eason, 1965) that what had been seen might possibly have been the similar *Lithobius tricuspis*, listed as British in Brolemann's *Faune de France* volume (1930) but not actually found and reported in Britain until the 1960s. *L. agilis* is widespread in central and eastern Europe.

#### Lithobius erythrocephalus

This is a widespread European species first reported in Britain by R. S. Bagnall from near Wooler, Northumberland in 1913 and from Corstophine Hill Woods, Midlothian in 1925 (Bagnall, 1930). It was also reported from soil near Aberystwyth by N. Thompson (1924) but there have been no modern records of what is a fairly distinctive species, one of the few on our list with the leg-spine 15VaC, so that its present status in Britain is uncertain. Possibly, it is a rare species in Britain, has been a chance introduction or that one or more of the records are the result of misidentification.

Elsewhere in Europe *L. erythrocephalus* occurs across southern Scandinavia and has been reported from Iceland. It is recorded with certainty from only one French département (Alpes-Maritimes), there are no Belgian records but, however, scattered ones from across the Netherlands. It is a very common species of most Nordic areas, found in many habitats. Other European records are from Albania, Austria, Bosnia- Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia, Switzerland, Ukraine and Western Russia.

#### Lithobius piceus brittanicus

This was described by Bagnall (1913), recording what he named as *Lithobius piceus britannicus*, distinguished by its bright yellow tibiae, from Co. Durham and Northumberland. He wrote that "Dr Brolemann, to whom I submitted specimens, considers it advisable to describe it as a form of *piceus* (a species not yet recorded as British) though it may ultimately prove to be a new species". A number of visits to this same area from which he recorded it made in more recent years have failed to rediscover the same species or to throw any further light on what it might have been.

Whatever their status, Bagnall's records remained the only ones for *Lithobius piceus* in Britain for more than forty years until S. Vaitilingham (1960), in his studies on the centipedes of Hampshire woodlands, found specimens of what was very definitely *Lithobius piceus* (*L. piceus piceus*) at Chilworth Common. It has been subsequently reported elsewhere in SE England (Hampshire, Surrey, Sussex) and more recently in South Wales.

#### Lithobius tenebrosus (L. nigrifrons)

This species was tentatively reported by Bagnall (1913) on the basis of two specimens from Gibside identified by Mr Edv. Ellingsen of Kragerö with some hesitation as *L. nigrifrons*. Elsewhere, he describes them as two mutilated specimens from a field and writes of his hope of securing further examples.

Although widespread in Scandinavia (Andersson et al., 2006) and, presumably familiar to Ellingsen, we now know that this is certainly not the situation in Britain so, given the damaged nature of the



specimens, it would be wise to treat the record with some doubt. There was a subsequent British record from Reskadinnick, nr Camborne, Cornwall (Turk,1945). Unfortunately, although the author reported that the specimens agreed well with Brolemann's (1930) description (including the presence of both projections on tergites 9, 11 and 13 and a single claw on the last legs), intact specimens are no longer available for examination.

If this had been all the British records, then *L. tenebrosus* would certainly have been one of our "doubtful centipedes". However, in 1988 a single 9.5 mm female of *L. tenebrosus* was found in a crevice at 10 m above sea level in a sea cliff at Aberystwyth in mid Wales by A. N. Keay and examined, amongst others, by Dr Eason (Keay, 1989). There have been no subsequent reports and the Aberystwyth specimen is no longer available.

*L. tenebrosus* is only recorded from two French départements, is rare in Belgium and there appear to be no Netherlands records. In the Nordic countries, although widespread in southern areas of Norway, Sweden and Finland it has not been found in Denmark. It is also known from Albania, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Greece, Germany, Italy, Montenegro, Slovenia and Switzerland.

**Tony Barber** 

## iNaturalist observations and BMIG recording schemes

Species observations, which include images, posted on the iNaturalist (iNat) site, <u>www.inaturalist.org</u>, now feed automatically into iRecord once they reach 'Research Grade'. This is defined as a 2/3 majority regarding species identification as deemed by anyone, from a complete novice to an experienced international specialist so the identifications are not always correct! However there are several active 'experts' on iNat so the correct name is usually allocated. Once in iRecord the records can be verified, or the identification corrected, by the respective scheme organisers and thus entered into the National Recording Scheme datasets. Most users of iNat are generalist naturalists, so their observations are heavily biased to the big, the obvious and/or the ubiquitous. Small and/or elusive species are rarely observed. In addition some species are more difficult to identify from images than others. Nonetheless there are now far more records coming into the BMIG recording schemes, albeit with several limitations highlighted below.

**Isopods**: In the case of woodlice most species can be readily identified from a half decent habitus image. Thus, 93% of all Oniscidea postings on iNat (in early September 8281 posted on iNat, 7674 verified in iRecord) have been accepted by the recording scheme. With marine isopods 100% of observations (425) of *Ligia oceanica* have been verified and accepted, 87% of Idoteidae species (94 observations, 82 verified), whereas just 50% of Sphaeromatidae (34 observations, 17 verified), a group which are more difficult to identify from an image, have made it through the system.

**Centipedes**: It has only proved possible to accept a third of all observations of centipedes (2489 posted, 833 verified) with a distinct bias to the few species that readily identifiable from an image. For example, all observations of the common *Lithobius variegatus* (214) and the Nationally Scarce *Henia vesuviana* (21) have been accepted by the recording scheme. In contrast, of the 366 observations of *'Lithobius forficatus'* less than a third have been accepted. The other 265 observations may or may not be this species, but it is not possible to tell from the images. In the case *Cryptops* spp. it has only proved possible to verify just 3% of observations (10 of 306). These are mainly *C. anomalans* due to the presence of the diagnostic 'X' suture on T1.

**Millipedes**: It's a similar picture with millipedes where again a third of observations (3779 posted, 1205 verified) have been accepted by the recording



scheme. All observations of species readily identified from images, such as *Glomeris marginata* (346 in total), *Ommatoiulus sabulosus* (236) and *Leptoiulus belgicus* (14), have been verified and accepted. But, of the 325 observations of *Tachypodoiulus niger* only 271 with the most clear images have been accepted. In fact many of the 2238 postings of 'Julida' were initially identified by observers as *T. niger*, before BMIG began amending the identifications.

iNat's AI: iNat has an inbuilt artificial intelligence (AI), an algorithm, that generates a suggested identification for all posted images to assist users with limited experience of species identification. Although it can be easily over-ruled by the observer, many people don't and just accept the suggestion (no matter how ridiculous!). Thankfully, anyone else can enter the correct (or even an additional incorrect!) identification. The AI does seem to work well with woodlice, although I have seen a Neuroptera lacewing larva mis-identified as Androniscus dentiger (!) and a dytiscid water beetle larva as Asellus aquaticus. I'm not as familiar with the situation with marine isopods, but have noticed that many observations of Idotea spp. are identified by iNat's AI as North American genera and/or species. The AI also doesn't fare so well for millipedes. All black millipedes are identified as Ommatoiulus moreleti (a millipede only known in the UK as an accidental introduction at a few sites in south Wales) and anything brown and 'flatbacked' (even Nanogona polydesmoides) comes out a Polydesmus angustus, despite microscopic examination required to determine the actual species. In the case of centipedes it seems that all Lithobiomorpha are simply 'named' Lithobius forficatus and as for the Geophilomorpha... No comment. I suspect this is simply a reflection of the ease, or difficulty, of identifying these groups from 'habitus' images. In my opinion, the iNat AI gives the misleading impression that all species can be identified from a photo and can be a hindrance, rather than a help, to novice recorders in cases where this is not the case.

Spatial resolution: The majority of observations come with an accurate 100m (or better) grid reference and a site name. However, iNat comes with an option to blur the location in a random position within a defined area. A few records simply specify an Ordnance Survey 100 km square and a few have been blurred to as much as  $\pm$  433 km,  $\pm$ 1602 km or in one extreme case to  $\pm$  2753 km (!). This latter example comprises a circle that includes Greenland, all of continental Europe including Scandinavia and the northern part of Africa! In addition a vague site name is often also given, such as 'Yorkshire' or even 'England' so it is not possible to work out a more accurate grid ref. Obviously, this is totally useless for biological recording, although in the latter example a site name was specified so it was possible to track down the actual grid reference.

**Habitat details**: There seem to be no options for adding habitat information, but it is possible to record whether alive or dead! In the case of 'interesting' observations I have had to message the observer to ask for the details of where the specimens were found, for example in the case of the 'indoor' species *Oxidus* and *Scutigera*. Typically most people are very helpful when asked.

**Repetitive records**: A few recorders record the same species from the same sites repeatedly. For example of the 40 observations of *Geophilus carpophagus* 30 were made by the same person from same site, albeit over the course of years (potentially useful phenology data).

**Geographic scope**: Only iNat observations from the UK feed into iRecord. Those made in the Republic of Ireland, which is also included within BMIG's remit, do not.

**The positives**: There are some! For species that are relatively easy to identify from an image then there are plenty of records from across the full extent of the UK, which despite the usual south-eastern bias, includes records from Northern Ireland, the Scottish Western Isles, Orkney and Shetland. It also includes several records of 'uncommon' species



such as the centipedes *Henia vesuviana* and *Scutigera coleoptrata*, the millipedes *Leptoiulus belgicus* and *Stosatea italica*, the woodlouse *Philoscia affinis* and the inter-tidal isopods *Anilocra* sp. and *Stensoma lancifer*.

I thank John Bratton, Victoria Burton, Warren Maguire, Steve McWilliam, Franck Noël, Jaromir Papez, Sam Rice and Matthew Vosper, among others, for their help with 'nudging' iNat observations to reach 'Research Grade' and hence into the national recording schemes.

Steve Gregory

## Soil Barcode Bioblitz, 7<sup>th</sup> September 2022

While collecting myriapods, especially the tiny Pauropoda, I often come across many other small soil dwelling organisms, either accidentally collected, or crawling around under the same piece of rotting wood. I consider it good practice to familiarize myself with at least some of the other mesofauna since they also spark my curiosity and I see them so often. As I was quite new to some of these groups such as Acari and Collembola, I looked for ID confirmations on the 'UK soil biodiversity' Facebook group, and Twitter. This allowed me to get to know some of the experts in soil ecology such as Matthew Shephard (expert in mites), who organised the 2022 Soil Bug Barcode Bioblitz. I found out about the project through his Twitter, and upon seeing the geographic distribution and number of participants on a map posted by Frank Ashwood, I decided it would be a good idea to contribute to the project.

The Soil Bug Barcode Bioblitz involved setting up Tullgren funnels to extract the mesofauna and attending one of the 'hubs' (the Natural History Museum in my case) where we would identify the organisms using high quality microscopes and keys. I was excited about this as I was always curious about Tullgren funnels, but I never had much of a reason to make them as I did not think they would be very effective for organisms with sparse populations such as pauropods. Although we were only expected to collect two samples, I did not think this would be a good representation of mesofauna biodiversity in my region, especially considering the incredibly dry conditions that week, and the wide range of habitats. Therefore, I collected six samples from three woodlands and different habitats including deciduous woodland. coniferous woodland, riverbank, etc. Each sample dried in my DIY Tullgren funnels, with the organisms collected in the molecular grade ethanol we were given.



Tullgren funnel (photo by Dawid Maryniuk).

On the 7th of September, I arrived at the Natural History Museum and met Florin Feneru, the hub captain, who showed me the lab we were working in. The rest of the day was spent identifying the organisms we collected and transferring the individuals into separate tubes to be sent off for genetic barcoding. I was amazed by the number of



organisms in some of my samples, especially the many springtails and mites, which were of all different shapes and sizes. The identification process certainly humbled me, as despite the extensive keys, and Peter Shaw (expert in Collembola) attending this hub, it was difficult for me, and I could only identify some mites and springtails to Family. This forced me to focus on the other groups of mesofauna such as Diplura and Myriapoda that I had experience identifying before. By the end of the day, our hub had identified 30 specimens, many with complementary photographs that will be useful for confirming the identifications. I segregated all my remaining unidentified mesofauna into Eppendorf tubes which I took home, perhaps for identification in the future.

One sample I did not have time to look at contained mesofauna from a moist woodchip pile from Reinden Wood, so I viewed it under my own microscope the following day. This sample had the most organisms, and even had a few immature millipedes (*Brachydesmus superus*) and four pauropods (*Decapauropus broelemanni*). I do not think anyone else has found these in their samples, so I am certainly looking forward to sending them off to join the rest of the samples for barcoding.

I enjoyed taking part in the project, I was very happy to work in the labs at the NHM again and meet many nice and helpful people in the field of soil ecology. I will certainly set up Tullgren funnels again as they are effective at extracting a wide range of mesofauna, even pauropods! The mites and springtails acquired from them will be good as practice for the mesofauna identifications I struggled with during the Bioblitz.

#### Dawid Martyniuk





#### **BMIG Newsletter 45**

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