

Report on the 18th International Congress of Myriapodology

25-31 August 2019

Budapest Hungary

The 18th Congress was hosted by Zoltán Korsós at the relatively new Hungarian Natural History museum close to the centre of Budapest. It followed the usual format of four days of presentations and a full day excursion in the middle. On two evenings there were poster sessions with a large number on display.

With nearly 100 delegates from over 30 countries it was a large and truly international gathering. Every continent except Antarctica was represented including of course plenty from Europe. Sadly, like the last congress, the UK was poorly represented, with just Greg Edgecombe and myself. It was sad that no one else made the trip, they missed out on a great opportunity to meet other like-minded people. As Henrik Enghoff remarked when accepting his honorary membership of CIM it is a very friendly community; and others also commented that people are very willing to share ideas and data and be supportive of others, clearly unlike some other similar societies.

I was able to catch up with several people well known to the British myriapod community, including Thomas Wesener who attended our field meeting in 2018 and Karin Voigtländer, Hans Reip, Norman Lindner and Per Djursvoll who travelled with us to collect in northern Spain in 2009.

The scientific sessions included many papers presenting genetic analyses which contributed to the taxonomy of various groups, including a phylogenetic analysis of the pill millipedes by Jan Philip Oeyen which included *Adenomeris* collected for him by BMIG members a few years ago.

Each day started with a longer, keynote lecture, where we learnt about the diverse millipedes of the Eastern Arc Mountains of Tanzania (Henrik Enghoff) and China (Sergei Golovatch) while Greg Edgecombe spoke about the timing of myriapod terrestrialization including a discussion about the fossils from Scotland.

Fossil myriapods were well represented and Thomas Wesener showed some stunning pictures of a small group of millipedes from a single piece of Burmese amber that showed all the characteristics of the order Cowiedesmida only previously known from fossils and therefore considered extinct. Micro computer tomography enabled incredibly clear views of one specimen, including its gonoods.

There were several presentations on cave myriapods including the especially rich Balkan area. Varpu Vahtera gave a fascinating insight into the Movile Cave in Romania, completely isolated from the outside environment and an ecosystem dependent on methane and sulphur oxidising bacteria. Three species of myriapods were found, *Archoboreoiulus*, *Symphynella* and a species of *Cryptops*. Her presentation concerned the *Cryptops* which looks morphologically like *C. anomalans* but molecular study indicates that it is a separate species.

Faunistic papers included a review of the Hungarian millipede fauna (Zoltán Korsós) and Aegean centipedes (Stylianos Simaiakis who attended the BMIG field meeting some years ago) as well as Tasmania (Bob Mesibov who attended the BMIG meeting in Scotland in 1994).

As in the last Congress, ecological presentations were in a minority. Jean-Francois David presented results of a study comparing the fauna of different forest stand types from Finland to Italy, finding the species richness did not differ significantly between coniferous and deciduous stands and reached its greatest where there was a mix of both tree types (in Romania and Poland). Other ecological presentations included impacts of nitrogen deposition on millipedes in soil microbial food webs. Millipedes significantly altered the microbial communities in soil/leaf litter.

Irina Semenyuk looked at trophic niches in tropical millipedes of Vietnam where she found that a species found year-round switched from being a leaf litter feeder to a diet containing more algae during the time of the year when a different seasonal species became abundant.

Julian Bueno-Villegas showed photographs and SEM of Siphoniulids found recently, 125 years after the original discovery of a female (Sumatra in 1894). It was discovered in Mexico a couple of years ago in soil samples but only known from dead specimens until recently. Extensive searching eventually proved fruitful so the male is now known and there is video footage of the live animals.

Bojan Ilić spoke about the defensive secretion of *Megaphyllum unilineatum*, a relatively common European species, on zebra fish embryos. Even at relatively low concentrations it was toxic to the fish and caused malformed development and Bojan entreated us to wear gloves when collecting.

Manoela Karam-Gemael had carried out a desk-based review of Red Data Book myriapods worldwide, including a comparison of country based lists and global lists. 11 countries responded to her plea for information about red listing (including the UK). None of the national/regional lists are in the IUCN database and some countries use different criteria which is unhelpful. Manoela concluded that only 50% of all myriapod species known have actually been assessed for their status. She made a plea for the setting up of an IUCN specialist group on myriapoda as there is not one currently. An interesting discussion followed with examples given of where listing has helped get money for the conservation of species, such as the giant pill millipedes from Madagascar which Thomas Wesener spoke about at our field meeting last year.

Peter Decker spoke about EDAPHOKEYS, a web-based portal to help recording millipedes, centipedes and woodlice. Interactive keys on line will allow the quick identification through the narrowing down of options using characters that are easily seen and distinguished rather than a conventional dichotomous type key. Peter gave an example that typically using these keys you can identify a specimen after 4-5 questions rather than the 20 or so more usual in a dichotomous key. The project was aimed largely at citizen science and intended to stimulate future scientists by being beginner friendly with lots of images. The website will initially be in German but it is intended to translate it to English, it covers a range of European countries, not just Germany. The project also includes the setting up of a verifier system and a link to a database.

There was a prize for the best poster, a competition that must have been difficult to judge due to the number and quality. The prize was won by Leif Moritz, one of Thomas Wesener's students for a poster showing micro CT scans of the gonopods of fossil Chordeumatids from amber.

Sadly, there was not an Onychophora session at the congress. Traditionally Onychophora have been treated as honorary myriapods but it seems there were no offers of papers this time. Although we have no Onychophora in the UK it is usually a fascinating session and an opportunity to learn more about a 'classic' biological study organism.

It is planned that the proceedings will be published, probably split into two special volumes, one of Zootaxa and one of Crepuscula Biologica which is published by the Hungarian Natural History Museum.

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