

# The Gloucester Mecopteran

Celebrating our Scorpionflies

Prehistoric Edition !

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## Editorial:

Journals and newsletters generally try to provide their readers with up to date content, but on this occasion *The Gloucester Mecopteran* makes no apology for stepping back through a few hundred million years.

Any sensitive mecopterist must surely regret the sticky fate of the ancient scorpionfly relative in our front page image. However, this individual misfortune has preserved for us a glimpse into the long, significant history of a noble hexapod clan.

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*Hylobittacus fossilis?* in Baltic Eocene amber  
© Marius Veta (Lithuania)

## A brief history of scorpionflies

Quite recently, but before a climate change triggered the Ice Ages that shaped our modern world, a warm forest stretched across Northern Europe. Resin oozing from the trees trapped many insects, creating a legacy of fossils in amber. The stunning portrait above is a reminder that delightful species of Mecoptera were scavenging for food through a succession of geological ages, all very different from our own times.

The first known Mecoptera lived much earlier, in the Permian, the last period of the Palaeozoic era which ended with a massive extinction event. This was an age of large amphibians and strange non-flowering plants including the earliest conifers. Some early mecopterans may have become pollen and nectar feeders, and pollinators, while others remained scavengers.

During the first Mesozoic period, the Triassic, the impoverished fauna slowly recovered and diversified, and recognisably 'modern' scorpionflies enlivened the landscape. Dinosaurs became prominent during the next period, the Jurassic, but ancestral birds and

placental mammals were also alive. Taxonomists place Mecoptera close to the roots of a group of insect orders including caddisflies, butterflies and moths, fleas and true flies that first appeared in the Mesozoic. It was probably creatures very like our familiar scorpionflies that gave rise to this diverse range of descendants.

The last Mesozoic period, the Cretaceous, is most famous for its catastrophic end, marked by the extinction of the dinosaurs, but it also saw the first flowering plants and the continents beginning to take their modern shapes. Circumstances began to favour those insects that are most familiar today, and the Mecoptera began a slide into relative obscurity.

Scorpionflies in Gloucestershire are modest descendants of a lineage that has passed through mass extinctions, drastic climate change and the competition of other insects descended from its own ancestral stock.

## Book Review

**Fossil Insects: D. Penney & J.E. Jepson**  
(Siri Scientific Press, 2014)

What a pity that the 'Lost Worlds' of insect prehistory are so extensive that in this richly illustrated book only a couple of pages can be devoted exclusively to our favourites, the Mecoptera, but, to be fair, rather a lot of other orders have to be included. As well as groups familiar today there are strange creatures such as Titanopterans, Diphanopterans, Chimera Wings and the giant Griffinflies, all of which, I must admit, are quite interesting in their own ways.

Anyway, this book is much more than a dictionary of extinct life forms. The sequence of geological ages, the processes of fossilisation, techniques for revealing fossil insects, and problems of identification and taxonomy are all explained, and followed by descriptions of the world's most significant sites for fossil insect finds. Illustrations by Richard Bizley depict live action from several prehistoric periods (and a pretty scorpionfly appears in his Triassic scene).

After a detailed systematic account of the huge range of fossil insects there is some fascinating stuff about aspects of prehistoric insect behaviour and ecology that can be deduced from fossil evidence. Finally, the authors explain how you can become a palaeoentomologist (but not how you say it).

I wish I had been allowed the space to say more (*Just doing my job - Ed*) but now I can get on with studying **Fossil Insects of the Purbeck Limestone Group of Southern England** by **Robert A. Coram and James E. Jepson**. This is the snappy title of another great book from Siri Scientific Press which explores some productive Cretaceous fossil sites not a thousand miles from our Gloucestershire homes.

Much as I love living scorpionflies, I must make a note to ask Uncle Jack if he'll buy me a geological hammer for my birthday...

*A. Reeder (Miss)*

*Full details of these books and others published by Siri Scientific Press can be found on their website: <http://www.siriscientificpress.co.uk>*



*Protorthophlebia* sp., A Cretaceous Mecopteran from Dorset  
© Robert A. Coram and James E. Jepson

## Scorpionflies on the web

**Influence of Nutrition on Courtship and Mating in the Scorpionfly *Panorpa cognata*** by **Leif Engqvist and Klaus Peter Sauer** may sound long-winded, but if you yearn to know all about the courtship behaviour of the Scarce Scorpionfly, this is for you. The males can make use of pheromones, salivary secretions and offers of dead, but edible, prey to secure mates, but the details of courtship vary between observed encounters. If you want to study this fascinating (18 page) paper in depth you can find it, in English, at:  
[pub.uni-bielefeld.de/download/2395734/2496949.pdf](http://pub.uni-bielefeld.de/download/2395734/2496949.pdf)

If you've only got ten minutes to spare, and you're not squeamish about these things, search **YouTube** for '*Fighting males of Japanese Scorpionfly*' in which the two antagonists are seen tussling for possession of a dead crane fly, and '*Insects: Japanese Scorpionfly*' which shows the insect nibbling a rather large, dead fish.

The website **Mécoptères de France** is a compilation of basic information about European scorpionflies and their relatives. It has photographs of most of the European species, and distribution maps of those found in France. If you studied French at school you probably won't need a dictionary. The site address is [mecoptera.free.fr](http://mecoptera.free.fr)

**Mecoptera of Ontario** by **David K.B. Cheung, Stephen A. Marshall and Donald W. Webb** covers almost all the Canadian Mecoptera, and has excellent photographs of the wings and male genital capsules of the scorpionflies. This excellent and accessible introduction to North American Mecoptera can be found at:  
[cjai.biologicalsurvey.ca/cmww01/cmww01.pdf](http://cjai.biologicalsurvey.ca/cmww01/cmww01.pdf)

## Flight and fleas

Seeking out a distinctive identity for the intriguing insect order that includes our beloved scorpionflies, scientists in days of yore settled on the name Mecoptera, derived from two Greek roots: *meco*, meaning 'long' and *pter* meaning 'wing'.

Three families of Mecoptera have been found in Europe. Those 'long wings' are obvious in the family Panorpidae, to which our three winged scorpionflies belong, and also in the hangingflies (family Bittacidae) that look like four-winged crane flies and have not been found in the British Isles.

However, the Boreidae are small and wingless. Adults of *Boreus hyemalis* (Snow Flea or Snow Scorpionfly) are active during the winter. They possibly occur in Gloucestershire, but *The Gloucester Mecopteran* knows of no recent records. This insect's resemblance to a flea may reflect a real relationship. Some recent research implies that fleas may really be a specialised group within the Mecoptera and not a separate order, but mecopterists do not seem particularly keen to take ownership of these rather irritating insects.