

The Newsletter of the British Isles Lacewing and Allies Recording Scheme

WELCOME

Welcome to the re-launched British Isles Recording Scheme for Lacewings and their allies (Neuroptera, Raphidioptera, Megaloptera and Mecoptera).

One of the biggest tasks has been updating the mailing list for this first newsletter. Many people on the original list may have moved on or else changed their contact details. It would help us enormously if you could let us know:

- if you want to receive future issues at the address that we have used
- if you want to update your e-mail address
- if someone forwarded this to you and you want to be added to the mailing list
- if you can tell us of someone who wants to receive it but has not done so.

Please feel free to forward this newsletter to your local contacts and groups of all kinds.

It will not escape the reader's notice that this newsletter is edited by someone other than myself! May I introduce you all to Dr James E. Jepson who is now joining me to help revitalise the recording scheme – in particular by producing this newsletter. Please give him your support by sending in articles for the next issue. James has also been updating the old website which, so my offspring advise me, has something to do with computers and technology (areas with which I have no great experience or interest, although I grudgingly use a computer to maintain the lacewing database). I shall not dwell on details here – I am sure that James will mention it all below.

What has not changed is my position as National Recorder. Throughout the admittedly fairly silent past twenty or so years, I have remained as up to date as possible with the literature and have been receiving a small but steady trickle of records from various entomologists. The National Neuropterida Database is now housed on my own home computer. For security reasons it sits in a "stand-alone" environment, but can be linked to the outer world by the Map Mate recording program.

There are 26,323 records in the database. Of these, however, only 3,915 (15%) relate to the current millennium (1st January 2000 to 31 August 2021) and so it is clear that we have some catching up to do – both in updating old map dots and adding where new records are available.

AUTUMN 2021

ISSUE 1 (3RD SERIES)

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If you have any content for the newsletter, this can be anything from articles, observations, or just a nice photograph, please send via email to the newsletter editor James E. Jepson at LacewingRS@gmail.com.

Archive editions of Neuro News are being added to the recording schemes website:

<https://lacewings.myspecies.info/newsletter>

Are you on the mailing list for the newsletter? If not and you would like to be, please drop the editor an email, at LacewingRS@gmail.com, and you will be added to the list. Also, if you want to be removed from the mailing list, again please email the editor.

Although there are not too many obvious changes in distribution maps since the provisional atlas was published, the low number of records may well be inadequate to identify any changes. Our starting priority is to update the maps with available data that people have been sitting on for the past twenty years. We then plan to put updated distribution maps on the web site (and possibly also here in the newsletter for the benefit of dinosaurs like myself) and so now would be a good time to send me your outstanding data!

Colin W Plant
14 West Road
Bishops Stortford
Hertfordshire
CM23 3QP

colinwplant@gmail.com

What to send where

- Records should still come to me for entry into the database. However, data sent to James will reach me in due course, so there is no need to duplicate it to me.
- Material for identification or confirmation is welcomed both by myself and by James, but if there is a lot of it please talk to us first. Please note that the default position is that material may not necessarily be returned after we have examined it – such examination may be destructive. If you want material back please say so, and we will then treat it with greater respect (though it is still likely to be dissected). Unless otherwise agreed, it would be considered courteous if return postage stamps were enclosed with material
- Items for the newsletter or comments on the website should go to James (LacewingRS@gmail.com)
- Most other matters can be dealt with by either of us as you prefer

How to send material

It makes no difference to us if samples are wet (alcohol) or dry, pinned or otherwise. The only condition is that every sample must bear **collecting locality, date of collection and collectors name** (ideally plus a **grid reference** if known). Unlabelled material will not be examined – I have far better things to do.

Material from light traps can be pooled into weekly samples if preferred and stored in paper envelopes until a batch is ready to send. Do remember, however, that pooled, dried lacewings are highly likely to get damaged so this is not an ideal method for material that needs to be returned. If you hope to examine and learn from sent

material after it is returned, you really need to be treating each specimen individually. Always feel free to contact one of us for advice.

Record format

In due course we may be able to accept material via the website. For now we prefer direct submission to one of us (only – we don't want duplication). Simple site lists are acceptable in most cases, but for larger submissions please try to use an Excel spreadsheet, following the format shown in the box at the bottom of this page, which is designed for direct import to MapMate.

We do not accept records via the Map Mate sync process. This is simply because that process marks records as your personal property and so prevents us from editing them. We need the capability of editing records – otherwise our only course of future action would be to delete them and ask you to resubmit an edited version. Life is too short.

Colin Plant

Recording species using iRecord

As mentioned above the ideal way to get your records to us is to send them either directly to Colin (colinwplant@gmail.com), or to me (LacewingRs@gmail.com), but please choose one of us only to avoid duplication. If you find anything unusual or anything that requires confirmation please retain the specimen and send it to us, so we can help confirm your identification.

If you are an iRecord user, when recording your specimen please ensure that you take good quality photographs from many angles, if possible, to allow verification (check out Colin's 1997 key for where the diagnostic characters are found in each group). Lacewings and their allies are notoriously difficult to identify from photographs, with the exception of a handful of species. Therefore species records with images that do not show the diagnostic characters may not always be able to be verified.

If you have identified the insect to species level by examining the specimen, e.g. wing venation, genitalia, or by using a key, please note this in the comments section of your iRecord record. This will help the verifier to assess the accuracy of your identification.

If you send your record to iRecord and then send it to us, please make sure you mention this in the email, to avoid us getting duplicates.

James E. Jepson

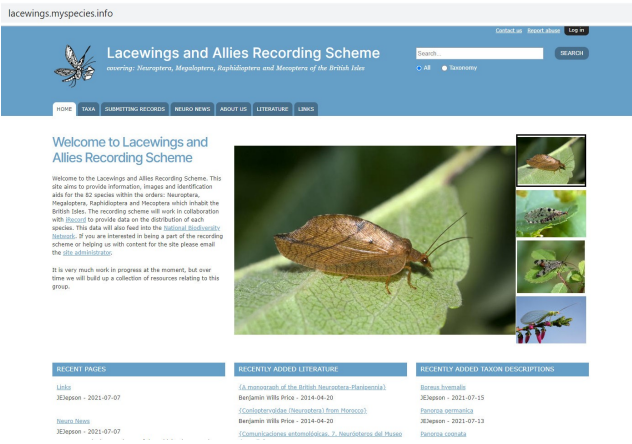
Record Format: Excel spreadsheet preferred format:

Taxon	Site	GridRef	VC	Recorder	Determiner	Date	Quantity	Method	Sex	Stage	Comments
Species binomial	Ideally one featured on an OS map. Sites like "my garden" are not acceptable.	Min 4 figs	As a number	Name	Name of highest authority involved	dd/mm/yyyy separated by obliques as here	Number	How was it collected	M, F or U (unknown)	Adult, Larval etc	Free text

News and Updates

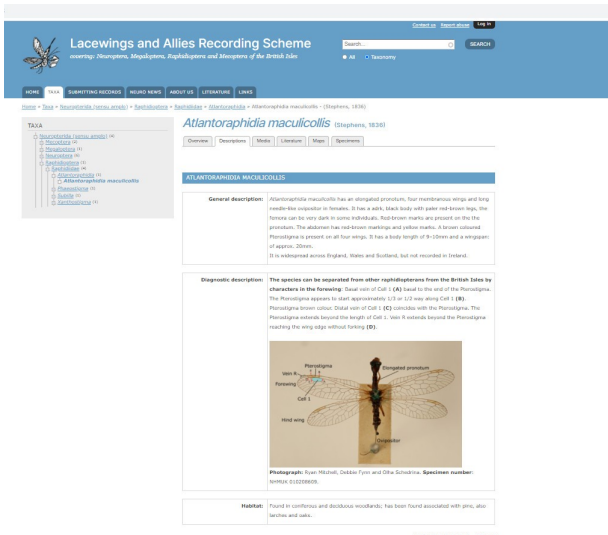
Website

As part of the relaunch of the recording scheme the website (<https://lacewings.myspecies.info/>) will be updated.



Updated front page of the website

The update will include new sections, for example how to identify specimens, in addition to expanded species information. The expanded species information will include, diagnostic characters complete with illustrations, images and information on habitats. Throughout the site more images of the fauna from the British Isles will be included. An archive of past NeuroNews newsletters are currently being made available for download on the website.



Updated species page with diagnostic information

Recent taxon pages that have been updated with diagnostic character information are:

- Panorpa germanica* Linnaeus, 1758
- Panorpa communis* Linnaeus, 1758
- Panorpa cognata* Rambur, 1842
- Boreus hyemalis* (Linnaeus, 1767)
- Sialis lutaria* (Linnaeus, 1758)

- Sialis fuliginosa* F.J. Pictet, 1836
- Sialis nigripes* A.E. Pictet, 1865
- Phaeostigma notata* (Fabricius, 1781)
- Atlantoraphidia maculicollis* (Stephens, 1836)
- Xanthostigma xanthostigma* (Schummel, 1832)
- Subilla confinis* (Stephens, 1836)

James E. Jepson

Requests

Can you help us? Request for Images

With the relaunch of the scheme, we are in need of good quality images of identified lacewings, snakeflies, aldeflies and scorpionflies from the British Isles. These will be used on the website for identification guides and social media for publicising the scheme. All images will be fully credited to the photographer on all the platforms that they will be used on. If you have images of eggs and larvae (especially identified species) these would be greatly appreciated. If you have some images that you would like to send for use by the scheme, please can you email them to the editor at LacewingRS@gmail.com stating that you are happy for us to use the images for the recording scheme.

James E. Jepson

Help build DNA resources for lacewings and allies!

Two projects are working together to build gold standard reference libraries for all UK species (around 75,000) and they need your help!



Both projects rely on expertly identified specimens, but differ in their DNA sequencing targets. The first, the UK Barcode of Life (<http://ukbol.org/>) aims to build a DNA barcode reference library by sequencing a short fragment of DNA (essentially a DNA fingerprint), which is very useful for identifying species from difficult life-stages, tissue fragments or even environmental DNA traces, while the second, the Darwin Tree of Life project (<https://www.darwintreeoflife.org/>) aims to sequence entire genomes for each species which will unlock a tremendous amount of knowledge. As you can imagine, sequencing a small bit of DNA is relatively simple and uses dry or spirit preserved specimens, however whole genome sequencing is rather complex and requires flash frozen specimens (ie from live to immediately below -80C, so typically posted to NHM live). If you can contribute specimens to either project please contact Ben Price (b.price@nhm.ac.uk) for more details.

Ben Price

XIII International Symposium of Neuropterology, Laufen, Germany, 2018

Back in June 2018, I attended the International Symposium of Neuropterology in Laufen, Germany, based in a beautiful monastery (Kapuzinerhof), which has been converted into a conference centre. The symposium was attended by neuropterologists from 16 countries, including Brazil, South Korea, China, UAE, and the USA, as well as countries throughout Europe. The programme was a great mixture of different themes, such as taxonomy, phylogeny, conservation, ecology, biogeography and palaeontology - these were delivered in over 30 talks, including keynote lectures, in addition to poster presentations. A mid-symposium field excursion was also undertaken visiting two sites in south-eastern Bavaria at the Nature Reserve Weitsee-Lödensee, finishing with a barbecue and light trapping at Schönramer Filz. Collecting was also undertaken in the gardens of the conference centre.

After the scientific sessions had closed a good number of the symposium delegates left Laufen to embark on the post-symposium field trip. For the trip we were based at a hostel near the Czech republic border at Handmühle-Frauenberg, from there we ventured out into the Bavarian Forest National Park, and the Nature Reserve 'Donauleiten von Passau bis Jochenstein'. Thirty-seven species were collected throughout the symposium and post symposium field trips, they were represented by Raphidioptera (1 species), Megaloptera (1 species) and Neuroptera (35 species). Neuroptera comprised of 14 species of Chrysopidae, 7 species of Coniopterygidae, 10 of Hemerobiidae, 1 of Myrmeleontidae, 1 of Osmyliidae and 2 of Sisyridae (see Jones et al.'s 2019 paper in the proceedings for more details).

This was a thoroughly enjoyable symposium, it was great to catch up with friends, meet people I've only communicated with via emails, or known from their publications, meet new people, and find out what new interesting neuropterological research is taking place.

If you are interested in reading the proceedings of the German symposium, it can be downloaded for free online at:

<https://zenodo.org/record/3572321#.YQvca-d7kaE>

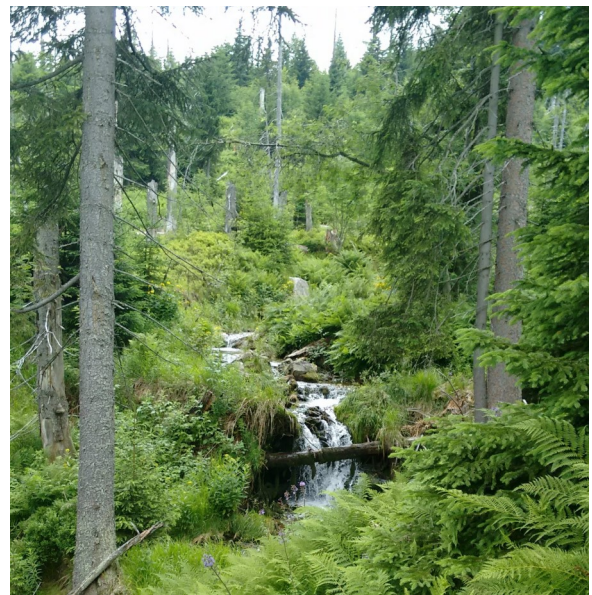


The 14th International Symposium of Neuropterology is scheduled for May 22nd-27th 2022, this will be held at the Universidade Federal de Lavras (UFLA), Minas Gerais state, in southeastern Brazil.

James E. Jepson



The symposium venue, the converted monastery (Kapuzinerhof)



Post symposium field trip in Bavarian Forest National Park



Proceedings of the symposium

Recording fossil lacewings and their allies

For most of my career my research has been focussed on fossil insects. In particular fossil neuropterids of the Cretaceous of Britain, which was the theme of my PhD research.

When people are asked about fossil insects, they tend to only think about those preserved in amber, possibly due, in part, to the Jurassic Park films. They are often surprised to find out that fossil insects are not just preserved in amber, and that there are in fact vast numbers preserved in rock.

The fossil record of insects stretches back over 400 million years ago to what is called the Devonian, with the oldest potential fossil insect, *Rhyniognatha hirsti*, being found in Scotland; this species is represented by a partially preserved head with mandibles. Fossil insects are found throughout geological time, including the famous giant dragonfly-like insects of the Carboniferous (359-299 million years ago), a great diversity of insects at the time of the evolution of the flowering plants in the Cretaceous (145-66 million years ago), and the insects of the amber producing forests of the Eocene (56-34 million years ago).

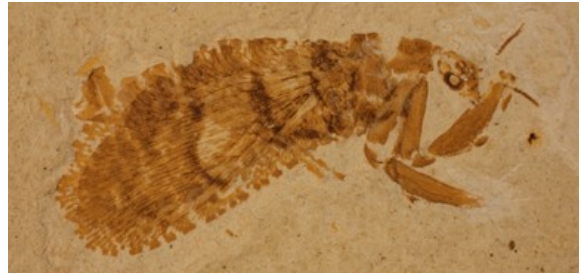
With regards to Lacewings and their allies, Neuroptera and Mecoptera are first recorded in the Permian (299 – 252 million years ago), while Raphidioptera and Megaloptera are first found in the Jurassic (201-145 million years ago). All these orders are found in fossil deposits from around the world, and all of these groups especially Neuropterida (Neuroptera, Raphidioptera, Megaloptera) were much more diverse and widespread in the geological past, especially in the Cretaceous. It has been suggested that the circumstances that caused the extinction of the dinosaurs, such as the meteorite impact, could have had an effect on Neuropterida, especially with regard to the raphidiopterans, who in the Cretaceous had species that lived in hot tropical areas, which become extinct after the extinction event (extant raphidiopterans require a period of cold to complete their development).



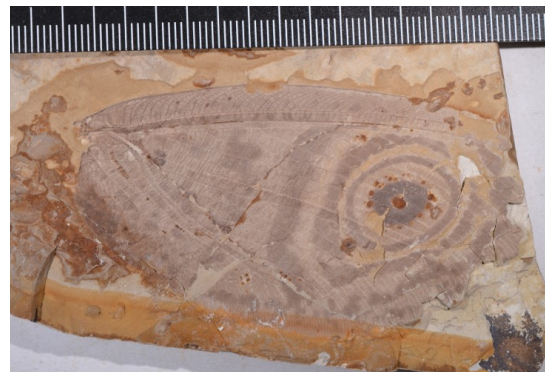
Fossil Raphidioptera from the Cretaceous of Brazil

The British Isles are well studied with regards to its ge-

ology, and there are many locations found throughout these islands where fossils can be found. Insect fossils are predominantly found in the southern parts of Britain with major deposits in the Weald, south east England, Dorset, and the Isle of Wight.

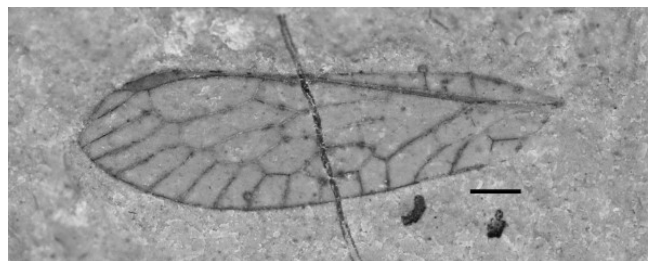


Fossil Mantispidae from the Cretaceous of China



A wing of the extinct family Kalligrammatidae, with the butterfly-like eyespots from the Jurassic of China

The British fossil record has families of Neuroptera present that are not present here today, these include Berothidae (beaded lacewings), Ithonidae (moth lacewings), Psychopsidae (silky lacewings), Nymphidae (split-footed lacewings) the raptorial forelegged Mantispidae (Mantisflies), and the Nemopteridae (spoonwings), showing that these families had a more extensive range in the past than what they do today. In addition to these families, there are some extinct families present, such as the large butterfly-like Kalligrammatidae.



A fossil Raphidioptera wing from the Cretaceous of Britain

Over the next few newsletters I'll write about each British fossil deposit and the lacewings and their allies that are found preserved within, giving a checklist for the extinct fauna of British Isles lacewings and their allies.

James E. Jepson

Records and Observations

Predacious lacewing larvae

As an amateur naturalist studying the Swallowtail butterfly *Papilio machaon* at my local nature reserve ('Wheatfen' – Ted Ellis Trust) in Norfolk, I have come across various predacious insects and their larvae/nymphs attacking and feeding on the caterpillars of this butterfly over the past few years. In the majority of these cases the 'culprit' has been either the adult or nymph of the Spiked Shield-bug *Picromerus bidens*, or the larva of the Harlequin Ladybird *Harmonia axyridis*. However, on 18 July 2020, I came across a Lacewing larva (*Chrysopa* species?) predated a small, early 3rd-instar, Swallowtail caterpillar (see images below and to the right).

Although possibly not of common occurrence – I've not witnessed other instances of Swallowtail caterpillars being predated by Lacewing larvae – It does illustrate that the larvae of the *Chrysopa* species will prey on larger, and rarer, things than aphids – for which they are sometimes used in the 'biological-control' of pest species!

Kevin Radley



Drepanepteryx phalaenoides from an orchard

This summer I have been recording invertebrates from a number of orchards across the east of England as part of a project called "Orchards East". The aim of the project is to examine the wildlife utilising traditional orchards (typically large trees rather than modern dwarf stock). This entailed sampling the invertebrates on the foliage of four selected trees at each site, primarily by using a beating tray. On 29th July I visited a smallholding in Cow Lane, Tring. One of the trees sampled was a plum of unknown variety and this yielded a specimen of *Drepanepteryx phalaenoides*.

Adrian Knowles



Name changes, Recent records and Checklist

Below are tables listing recent name changes of species found in the British Isles and newly recorded species, in addition to an updated checklist of the lacewings and allies of the British Isles. The checklist has the recent synonyms of the species whose names have changed since previous publications. A full synonymic checklist will be added to the website soon.

The current total count of British Isles lacewings and their allies is 10 families, 32 genera, and 83 species.

Neuroptera: 6 families, 25 genera, and 72 species

Raphidioptera: 1 family, 4 genera, and 4 species

Megaloptera: 1 family, 1 genus, and 3 species

Mecoptera: 2 families, 2 genera, and 4 species

Recent name changes

<i>Plant, 1993</i>	<i>Plant, 1997</i>	<i>NeuroNews 2014</i>	<i>New names</i>	<i>References dealing with name changes</i>
-	<i>Cunctochrysa bellifontensis</i>	-	<i>Cunctochrysa cosmia</i> (Navás, 1918)	Monserat, V. J.; Acevedo, F.; Pantaleoni, R. A. 2014. Nuevos datos sobre algunas especies de crisópidos de la Península Ibérica, Islas Baleares e Islas Canarias (Insecta, Neuroptera, Chrysopidae). Graellsia. 70(e002), 1-38
<i>Sisyra fuscata</i> (Fabricius, 1793)	<i>Sisyra fuscata</i> (Fabricius, 1793)	<i>Sisyra fuscata</i> (Fabricius, 1793)	<i>Sisyra nigra</i> (Retizus, 1783)	Leraut, P. 1980. Liste des Planipennes de France [Neuroptera]. Bulletin de la Société Entomologique de France. 85, 237-253.
<i>Mallada flavifrons</i> (Brauer, 1850)	<i>Dichochrysa flavifrons</i> (Brauer, 1850)	<i>Dichochrysa flavifrons</i> (Brauer, 1850)	<i>Apertochrysa flavifrons</i> (Brauer, 1850)	Breitkreuz, L.; Duelli, P.; Oswald, J. D. 2021. <i>Apertochrysa</i> Tjeder, 1966, a new senior synonym of <i>Pseudomallada</i> Tsukaguchi, 1995 (Neuroptera: Chrysopidae: Chrysopinae). Zootaxa. 4966, 215-225
<i>Mallada prasina</i> (Burmeister, 1839)	<i>Dichochrysa prasina</i> (Burmeister, 1839)	<i>Dichochrysa prasina</i> (Burmeister, 1839)	<i>Apertochrysa prasina</i> (Burmeister, 1839)	
<i>Mallada ventralis</i> (Curtis, 1834)	<i>Dichochrysa ventralis</i> (Curtis, 1834)	<i>Dichochrysa ventralis</i> (Curtis, 1834)	<i>Apertochrysa ventralis</i> (Curtis, 1834)	
<i>Hemerobius fenestratus</i> Tjeder, 1932	<i>Hemerobius fenestratus</i> Tjeder, 1932	<i>Hemerobius fenestratus</i> Tjeder, 1932	<i>Hemerobius striatus</i> Nakahara, 1915	Dobosz, R.; Makarkin, V. N.; Sergeev, M. E. 2019. Contributions to the knowledge of the entomofauna of the Sikhote-Alin Biosphere Reserve. I. Neuropteroid insects: alderflies (Megaloptera: Sialidae), snake-flies (Raphidioptera) and lacewings (Neuroptera). Rocznik Muzeum Górnoslaskiego w Bytomiu, Entomologia. 28, 1-30.
<i>Coniopteryx parthenia</i> (Navas & Marcet, 1910)	<i>Coniopteryx pygmaea</i> Enderlein, 1906	<i>Coniopteryx pygmaea</i> Enderlein, 1906	<i>Coniopteryx pygmaea</i> Enderlein, 1906	Günther, K. K. 1993. Welche Art muß <i>Coniopteryx pygmaea</i> Enderlein, 1906 heissen? (Neuroptera, Coniopterygidae). Deutsche Entomologische Zeitschrift, Berlin (N.F.). 40, 167-171.

Newly recorded since Plant, 1997

Neuroptera		
Family	Species	First recorded
Chrysopidae	<i>Chrysoperla pallida</i> Henry, Brooks, Duelli & Johnson, 2002	1995
	<i>Nineta pallida</i> (Schneider, 1846)	2006
	<i>Peyerimhoffina gracilis</i> (Schneider, 1851)	1999
Hemerobiidae	<i>Hemerobius handschini</i> Tjeder, 1957	1998
	<i>Sympherobius klapeleki</i> Zeleny, 1963	1999
Myrmeleontidae	<i>Myrmeleon formicarius</i> Linnaeus, 1767	2013

Checklist of the lacewings and their allies of the British Isles

Names in blue are those that have recently changed

Names in green are recently recorded species

NEUROPTERA Linnaeus, 1758

CONIOPTERYGIDAE Burmeister, 1839

CONIOPTERYGINAE Burmeister, 1839

CONWENTZIA Enderlein, 1905

Conwentzia pineticola Enderlein, 1905

Conwentzia psociformis (Curtis, 1834)

CONIOPTERYX Curtis, 1834

Subgenus *Coniopteryx* Curtis, 1834

Coniopteryx borealis Tjeder, 1930

Coniopteryx tineiformis Curtis, 1834

Coniopteryx pygmaea Enderlein, 1906

Synonym: *Coniopteryx parthenia* (Navás & Marcet, 1910)

Subgenus *Metaconiopteryx* Kis, Nadler & Mandru, 1979

Coniopteryx esbenpeterseni Tjeder, 1930

Coniopteryx lentiae Aspöck & Aspöck, 1964

SEMIDALIS Enderlein, 1905

Semidalis aleyrodiformis (Stephens, 1836)

Semidalis pseudouncinata Meinander, 1963

PARASEMIDALIS Enderlein, 1905

Parasemidalis fuscipennis (Reuter, 1894)

ALEUROPTERYGINAE Enderlein, 1905

ALEUROPTERYX Enderlein, 1905

Aleuropteryx juniperi Ohm, 1968

HELICOCONIS Enderlein, 1905

Helicoconis hirtinervis Tjeder, 1960

CHRYSOPIDAE Schneider, 1851

CHRYSOPINAE Schneider, 1851

CHRYSOPA Leach, 1815

Chrysopa abbreviata Curtis 1834

Chrysopa pallens (Rambur, 1838)

Chrysopa perla (Linnaeus, 1758) nec Stephens, 1836, nec Evans, 1848

Chrysopa phyllochoma Wesmael, 1841

CHRYSOPERLA Steinmann, 1964

Chrysoperla carnea (Stephens, 1836)

Chrysoperla lucasina (Lacroix, 1912)

Chrysoperla pallida Henry, Brooks, Duelli, & Johnson, 2002

CHRYSOPIDIA Navás, 1910

Chrysopidia ciliata (Wesmael, 1842)

CUNCTOCHRYSA Hölzel, 1970

Cunctochrysa albolineata (Killington, 1935)

Cunctochrysa cosmia (Navás, 1918)

Synonym: *Cunctochrysa bellifontensis* Leraut, 1988

APERTOCHRYSA Tjeder, 1966

Apertochrysa flavifrons (Brauer, 1850)

Synonym: *Mallada flavifrons* (Brauer, 1850)

Synonym: *Dichochrysa flavifrons* (Brauer, 1850)

Synonym: *Pseudomallada flavifrons* (Brauer, 1850)

Apertochrysa prasina (Burmeister, 1839)

Synonym: *Mallada prasina* (Burmeister, 1839)

Synonym: *Dichochrysa prasina* (Burmeister, 1839)

Synonym: *Pseudomallada prasina* (Burmeister, 1839)

Apertochrysa ventralis (Curtis, 1834)

Synonym: *Mallada ventralis* (Curtis, 1834)

Synonym: *Dichochrysa ventralis* (Curtis, 1834)

Synonym: *Pseudomallada ventralis* (Curtis, 1834)

NINETA Navás, 1912

Nineta flava (Scopoli, 1793)

Nineta vittata (Wesmael, 1841)

Nineta inpunctata (Reuter, 1894)

Nineta pallida (Schneider, 1846)

NOTHOCHRYSINAE Navás, 1910

NOTHOCHRYSA McLachlan, 1868

Nothochrysa capitata (Fabricius, 1793)

Nothochrysa fulviceps (Stephens, 1836)

PEYERIMHOFFINA Lacroix, 1920

Peyerimhoffina gracilis (Schneider, 1851)

OSMYLIDAE Leach, 1815

OSMYLUS Latreille, 1802

Osmylus fulvicephalus (Scopoli, 1793)

SISYRIDAE Handlirsch, 1908

SISYRA Burmeister, 1839

Sisyra dalii McLachlan, 1866

Sisyra nigra (Retzius, 1783)

Synonym: *Sisyra fuscata* (Fabricius, 1793)

Sisyra terminalis Curtis, 1854

MYRMELEONTIDAE Latreille, 1803

MYRMELONTINAE Latreille, 1803

MYRMELEONINAE Latreille, 1803

EUROLEON Esben-Petersen, 1918

Euroleon nostras (Fourcroy, 1785)

MYRMELEON Linnaeus, 1767

Myrmeleon formicarius Linnaeus, 1767

HEMEROBIIDAE Latreille, 1802

PSECTRA Hagen, 1866

Psectra diptera (Burmeister, 1839)

MICROMUS Rambur, 1842

Micromus variegatus (Fabricius, 1793)

Micromus angulatus (Stephens, 1836)

Micromus paganus (Linnaeus, 1767)

DREPANEPTERYX Leach, 1815

Drepanopteryx phalaenoides (Linnaeus, 1758)

HEMEROBIUS Linnaeus, 1758

Hemerobius humulinus Linnaeus, 1761

Hemerobius perelegans Stephens, 1836

Hemerobius simulans Walker, 1853

Hemerobius stigma Stephens, 1836

Hemerobius atrifrons McLachlan, 1868

Hemerobius pini Stephens, 1836, nec Leach

Hemerobius contumax Tjeder, 1932

Hemerobius striatus Nakahara, 1915

Synonym: *Hemerobius fenestratus* Tjeder, 1932

Hemerobius nitidulus Fabricius, 1777

Hemerobius micans Olivier, 1792

Hemerobius lutescens Fabricius, 1793, nec auctt.

Hemerobius marginatus Stephens, 1836

Hemerobius handschini Tjeder, 1957

WESMAELIUS Krüger, 1922

Subgenus *Kimminsia* Killington, 1937

Wesmaelius malladai (Navás, 1925)

Wesmaelius mortoni (McLachlan, 1899)

Wesmaelius ravus (Withycombe, 1923)

Wesmaelius balticus (Strøm, 1788)

Wesmaelius nervosus (Fabricius, 1793)

Wesmaelius subnebulosus (Stephens, 1836)

Subgenus *Wesmaelius* Krüger, 1922

Wesmaelius concinnus (Stephens, 1836)

Wesmaelius quadrifasciatus (Reuter, 1894)

SYMPHEROBIUS Banks, 1904

Symphorobius elegans (Stephens, 1836)

Symphorobius pygmaeus (Rambur, 1842)

Symphorobius pellucidus (Walker, 1853)

Symphorobius fuscescens (Wallengren, 1863)

Symphorobius klapaleki Zelený, 1963

MEGALOMUS Rambur, 1842

Megalomus hirtus (Linnaeus, 1761)

RAPHIDOPTERA Handlirsch, 1908

RAPHIDIIDAE Latreille, 1810

SUBILLA Navás, 1916

Subilla confinis (Stephens, 1836)

XANTHOSTIGMA Navás, 1909

Xanthostigma xanthostigma (Schummel, 1832)

ATLANTORAPHIDIA Aspöck & Aspöck, 1968

Atlantoraphidia maculicollis (Stephens, 1836)

PHAEOSTIGMA Navás, 1909

Phaeostigma notata (Fabricius, 1781)

[note: some authors list as *Phaeostigma notatum*]

MEGALOPTERA Latreille, 1802

SIALIDAE Leach, 1815

SIALIS Latreille, 1803

Sialis fuliginosa F.J. Pictet, 1836

Sialis lutaria (Linnaeus, 1758)

Sialis nigripes A.E. Pictet, 1865

MECOPTERA Packard, 1886

BOREIDAE McLachlan 1868

BOREUS Latreille, 1825

Boreus hyemalis (Linnaeus, 1767)

PANORPIDAE Leach, 1815

PANORPA Linnaeus, 1758

Panorpa cognata Rambur, 1842

Panorpa communis Linnaeus, 1758

Panorpa germanica Linnaeus, 1758