Bull. Soc. Nat. luxemb. 102 (2001) p. 91-96

Revision and additions to the list of lacewings (Megaloptera, Neuroptera, Raphidioptera) and scorpion flies (Mecoptera) of Luxembourg

by

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Abstract: The list of Neuropteroidea (Megaloptera, Neuroptera, Raphidioptera) and Mecoptera from the Grand-Duchy of Luxembourg now contains 54 species. Seven are recorded here for the first time in Luxembourg.

Résumé: La liste faunistique des Névroptéroides (Megaloptera, Neuroptera, Raphidioptera) et des Mécoptères (Mecoptera) du grand-guché de Luxembourg comporte à présent 54 espèces. Sept espèces sont ici mentionnées pour la première fois au Luxembourg.

1. Introduction

Several surveys of the Neuropteroidea and Mecopteran fauna of the Grand-Duchy of Luxembourg have been carried out. Hoffmann (1962, 1966) presented a list of 47 species. Since then, there has been much taxonomic revision in the Neuropteroidea in particular (Aspöck et al. 1980) so that a revision of the fauna is long overdue. There have also, inevitably, been a number of changes to the Luxembourg fauna, as various species have expanded or contracted their ranges. This has resulted in a number of new species occurring in Luxembourg and these are reported here.

2. Methodology

The faunistic records in this revised list are based on the material from the following sources: a research project by the National museum of natural history, under the coordination of M. Meyer, entitled "Etudes écosystématiques concernant les chaînes alimentaires dans les réseaux d'habitats de prédateurs insectivores menacés: chiroptères-entomologie (1997-1999)"; and a research project by the National museum of natural history, under the coordination of M. Meyer, entitled "Inventaires faunistiques et floristiques d'une forêt de ravin: Berdorf, Schnellert" (1998-1999).

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3. Results

3.1. List of Neuropteroidea and Mecoptera new for Luxembourg

A total of seven species of Neuroptera are added to the Luxembourg fauna. The identifications of these have been verified by C. Plant (UK).

Key to abbreviations used in the list: BSE = emergence trap around tree; GL = Gauss-Luxembourg / geographical coordinates system; l. trap auto. = automatic light trap (Fritz Weber Gmbh); l. trap. active = active light trap; MnhnL = National Museum of Natural History Luxembourg; net = collected using an entomological net; ring = sticky ring around dead tree.

Hemerobiidae

Hemerobius (***Hemerobius***) ***pini*** (Stephens, 1836)

Luxembourg, Altwies, Duelesbur (GL: 86.1/64.7), l. trap auto., 09/08/1997, 1 male, (coll. MnhnL); Luxembourg, Bous, Keionner (GL: 92.0/71.2), l. trap auto., 12/08/1998, 1 female, (coll. MnhnL); Luxembourg, Wellenstein, Scheierdellen (GL: 91.5/66.2), l. trap auto., 11/08/1998, 1 female, (coll. MnhnL); Luxembourg, Remich, Zeng Muergen (GL: 93.4/66.5), l. trap auto., 14/08/1998, 1 female, (coll. MnhnL).

Micromus (***Nesomicromus***) ***paganus*** (Linnaeus, 1767)

Luxembourg, Heisbourgerhof, Heesberboesch (GL: 90.2/71.2), l. trap auto., 16/08/1996 21h00-23h59, 1 female, (coll. MnhnL); Luxembourg, Ellange, Kupp (GL: 90.9/65.4), l. trap active, 12/06/1997, 1 female, (coll. MnhnL); Luxembourg, Wellenstein, Scheirdellen (GL: 91.5/66.1), l. trap active, 12/06/1997, 1 male, 1 female, (coll. MnhnL); Luxembourg, Ellange, Stachefeld (GL: 88.7/65.0), l. trap auto., 06/08/1997, 2 females, (coll. MnhnL); Luxembourg, Welfrange, Stengenerboesch (GL: 09/06/1998), l. trap active, 1 male, (coll. MnhnL); Luxembourg, Altwies, Duelesbur (GL: 86.1/64.7), l. trap active, 07/07/1998, 2 females, (coll. MnhnL); Luxembourg, Heisbourgerhof, Heesberboesch (GL: 90.7/70.3), l. trap auto., 11/08/1998, 1 female, (coll. MnhnL); Luxembourg, Bous, Keionner (GL: 92.0/71.2), l. trap auto., 12/08/1998, 3 males, (coll. MnhnL); Luxembourg, Berdorf, Schnellert (GL: 91.4/97.0), ring, for 03/06/1998 to 03/07/1998, 3 males, (coll. MnhnL); Luxembourg, Berdorf, Schnellert (GL: 91.4/96.9), l. trap auto., 15/06/1999, 1 male, (coll. MnhnL); Luxembourg, Berdorf, Schnellert (GL: 90.9/95.7), l. trap auto., 15/06/1999, 1 male, (coll. MnhnL).

Sympherobius (***Sympherobius***) ***pygmaeus*** (Rambur, 1842)

Luxembourg, Bous, Keionner (GL: 92.0/71.2), l. trap auto., 12/08/1998, 1 female, (coll. MnhnL); Luxembourg, Scheuerberg, Scheierbierg (GL: 92.3/67.0), l. trap auto., 13/08/1998, 1 female, (coll. MnhnL); Luxembourg, Wellenstein, Kurchels (GL: 92.3/65.6), l. trap auto., 21/07/1998, 1 female, (coll. MnhnL); Luxembourg, Wellenstein, Bierchels (GL: 91.6/65.6), l. trap active, 09/06/1997, 1 male, (coll. MnhnL).

Sympherobius (***Sympherobius***) ***fallax*** (Navás, 1908)

Luxembourg, Wellenstein, Scheierdellen (GL: 91.9/66.4), l. trap auto., 26/08/1998, 1 male, (coll. MnhnL).

Coniopterygidae

Coniopteryx (***Coniopteryx***) ***borealis*** Tjeder, 193

Luxembourg, Berdorf, Schnellert (GL: 91.2/96.8), l. trap auto., 19/08/1998, 1 male, (coll. MnhnL); Luxembourg, Berdorf, Schnellert (GL: 91.7/97.3), l. trap auto., 19/08/1998, 1 male, (coll. MnhnL).

Chrysopidae

Hypochrysa elegans (Burmeister, 1839)

Luxembourg, Berdorf, Schnellert (GL: 91/96), net, 19/04/1998, 2 females, (coll. MnhnL).

Chrysoperla mediterranea (Hölzel, 1972)

Luxembourg, Berdorf, Schnellert (GL: 90.8/96.5), BSE, from 04/12/1998 to 08/01/1999, 2 males, (coll. MnhnL).

3.2. A revised list of the Raphidioptera, Megaloptera, Neuroptera and Mecoptera of Luxembourg

The species nomenclature used for the Neuropteroidea in this list follows that of Aspöck et al. (1980) and subsequent revisions given by Plant (1997). Nomenclature for the Mecoptera follows Hoffmann (1966). The designation "In the collection of" (abbreviated to "coll."), is used where I have been able to locate and re-examine a particular specimen. However, where records are cited from the literature without further comment it has not been possible to examine voucher specimens.

Megaloptera

Sialidae

Sialis lutaria (Linnaeus, 1758); Hoffmann (1962) (as *Sialis flavilatera,* Linnaeus).

Sialis fuliginosa Pictet, 1836; Hoffmann (1962).

Raphidioptera

Raphidiidae

Raphidia (Raphidia) ophiopsis Linnaeus, 1758; Hoffmann (1962) (as *Raphidia ophiopsis* Linné). The species *ophiopsis* is now divided into three sub-species; *ophiopsis* (Linnaeus, 1758), *mediterranea* Aspöck et al. 1977 and *alcoholica* Aspöck & Aspöck, 1970

Raphidia (Raphidia) ophiopsis o*phiopsis* Linnaeus, 1758; coll. MnhnL. Only the subspecies *ophiopsis* is contained in the collection of the MnhnL.

Raphidia (Phaeostigma) notata Fabricius, 1781; Hoffmann (1962) (as *Raphidia notata* Fabricius); coll. MnhnL.

Raphidia (Magnoraphidia) major Burmeister, 1839; Hoffmann (1962) (as *Raphidia major* Burmeister).

Raphidia (Subilla) confinis Stephens, 1836; Hoffmann (1962) (as *Raphidia cognota* Rambur).

Raphidia (Atlantoraphidia) maculicollis Stephens, 1836; Hoffmann (1962) (as *Raphidia maculicollis* Stephens).

Raphidia (*Xanthostigma*) *xanthostigma* Schummel, 1832; Hoffmann (1962) (as *Raphidia xanthostigma* Schummel).

Neuroptera

Coniopterygidae

Aleuropteryx loewii Klapalek, 1894; Hoffmann (1962) (as *Aleuropteryx loewi* Klapalek).

Coniopteryx (Coniopteryx) tineiformis Curtis, 1834; Hoffmann (1962); coll. MnhnL.

Coniopteryx (Coniopteryx) borealis Tjeder, 1930; coll. MnhnL.

Semidalis aleyrodiformis (Stephens, 1836); Hoffmann (1962) (as *Semidalis aleurodiformis* Stephens).

Conwentzia psociformis (Curtis, 1834); Hoffmann (1962).

Conwentzia pineticola Enderlein, 1905; Hoffmann (1962).

Osmylidae

Osmylus fulvicephalus (Scopoli, 1763); Hoffmann (1962) (as *Osmylus chrysops* Linné).

Sisyridae

Sisyra fuscata (Fabricius, 1793); Hoffmann (1962); coll. MnhnL.

Sisyra terminalis Curtis, 1854; Hoffmann (1962); coll. MnhnL.

Hemerobiidae

Drepanepteryx phalaenoides (Linnaeus, 1758); Hoffmann (1962) (as *Drepanopteryx phalaenoides* Linné); coll. MnhnL.

Wesmaelius (Kimminsia) nervosus (Fabricius, 1793); Hoffmann (1962) (as *Boriomyia nervosa* Fabricius); coll. MnhnL.

Wesmaelius (Kimminsia) subnebulosus (Stephens, 1836); Hoffmann (1962) (as *Boriomyia subnebulosa* Stephens); coll. MnhnL.

Hemerobius (Hemerobius) humulinus Linnaeus, 1758; Hoffmann (1962) (as *Hemerobius humuli* Linné); coll. MnhnL.

Hemerobius (Hemerobius) stigma Stephens, 1836; Hoffmann (1962) (as *Hemerobius stigma* Mc Lachlan); coll. MnhnL.

Hemerobius (Hemerobius) pini Stephens, 1836; coll. MnhnL.

Hemerobius (Hemerobius) atrifrons Mc Lachlan, 1868; Hoffmann (1962) (as *Hemerobius atrifrons* Mc. Lachlan).

Hemerobius (Hemerobius) nitidulus Fabricius, 1777; Hoffmann (1962) (as *Hemerobius nitidulus* Fabricius); coll. MnhnL.

Hemerobius (Hemerobius) micans Olivier, 1792; Hoffmann (1962) (as *Hemerobius micans* Olivier); coll. MnhnL.

Hemerobius (Hemerobius) lutescens Fabricius, 1793; Hoffmann (1962) (as *Hemerobius lutescens* Fabricius).

Micromus (Micromus) variegatus (Fabricius, 1793); Hoffmann (1962) (as *Micromus variegatus* Fabricius); coll. MnhnL.

Micromus (Nesomicromus) angulatus (Stephens, 1836); Hoffmann (1962) (as *Micromus angulatus* Stephens); coll. MnhnL.

Micromus (Nesomicromus) paganus (Linnaeus, 1767); coll. MnhnL.

Sympherobius (Sympherobius) pygmaeus (Rambur, 1842); coll. MnhnL.

Sympherobius (Sympherobius) elegans (Stephens, 1836); Hoffmann (1962) (as *Sympherobius elegans* Stephens); coll. MnhnL.

Sympherobius (*Sympherobius*) *fallax* Navás, 1908; coll. MnhnL.

Chrysopidae

Nothochrysa fulviceps (Stephens, 1836); Hoffmann (1962).

Hypochrysa elegans (Burmeister, 1839); coll. MnhnL.

Nineta flava (Scopoli, 1763); Hoffmann (1962) (as *Chrysopa flava* Scopoli).

Nineta vittata (Wesmael, 1841); Hoffmann (1962) (as *Chrysopa vittata* Wesmael).

Chrysopa perla (Linnaeus, 1758); Hoffmann (1962); coll. MnhnL.

Chrysopa septempunctata Wesmael, 1841; Hoffmann (1962).

Dichochrysa flavifrons (Brauer, 1850); Hoffmann (1962) (as *Chrysopa flavifrons* Brauer*)*; coll. MnhnL.

Dichochrysa prasina (Burmeister, 1839); Hoffmann (1962) (as *Chrysopa aspersa* Wesmael*)*; coll. MnhnL.

Dichochrysa ventralis (Curtis, 1834); Hoffmann (1962) (as *Chrysopa ventralis* Curtis*)*; coll. MnhnL.

Chrysoperla carnea agg. In recent years, it has been realised (Henry et al. 1996, 1999, in press) that what we currently understand as *Chrysoperla carnea* is in fact a complex of five cryptic species in Western Europe. They can be segregated on the basis of their unique substrate-borne courtship 'songs', and the morphology of the genital lip at the apex of the male abdomen. Of these, three currently affect Luxembourg: *C. lucasina, C. mediterranea* and one other. The taxonomy of this third species has only recently been determined and is currently not published; therefore, this species is referred to here as species A. It is likely that at least one other segregate will be discovered in the country.

Chrysoperla mediterranea (Hölzel, 1972); coll. MnhnL.

Chrysoperla lucasina; coll. MnhnL.

Chrysoperla species A. This is the "motorboat" song morph sensu Henry (Henry et al. 1996, 1999, in press) and *C. kolthoffi* sensu auctorum; coll. MnhnL.

Cunctochrysa albolineata (Killington, 1935); Hoffmann (1962) (as *Chrysopa tenella* Schneider); coll. MnhnL.

Myrmeleontidae

Myrmeleon (Myrmeleon) formicarius Linnaeus, 1767; Hoffmann (1962) (as *Myrmeleon formicarius* Linné).

Euroleon nostras (Fourcroy, 1785); Hoffmann (1962) (as *Myrmeleon europaeus* McLachlan).

Mecoptera

Panorpidae

Panorpa cognata Rambur, 1842; Hoffman (1966) (as *Panorpa cognota* Rambur); coll. MnhnL.

Panorpa communis Linnaeus, 1758; Hoffman (1966); coll. MnhnL. Hoffmann (1966) mentioned *P. vulgaris* a wing's coloration variety of *communis*, as "forme II de Esben-Petersen 1921; type *Panorpa vulgaris* Imhoff et Labram, 1845".

Panorpa germanica Linnaeus, 1758; Hoffman (1966); coll. MnhnL.

Panorpa alpina Rambur, 1842; Hoffman (1966).

Bittacidae

Bittacus italicus O. F. Muller, 1766; Hoffman (1966).

Boreidae

Boreus hyemalis (Linnaeus, 1767); Hoffman (1966); coll. MnhnL.

Acknowledgements

First I wish to thank C. Plant (UK) for looking at all the new species for Luxembourg, and for his personal help and support. I thank M. Meyer (Musée national d'histoire naturelle) for his support.

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