



What species of owlflies (Neuroptera: Ascalaphidae), an extinct family in Poland, have occurred in Poland in the past?

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Abstract. Literature data on Ascalaphidae in Poland are critically discussed. *Libelloides macaronius* has never been found in the present-day territory of Poland. *Libelloides coccajus* most likely occurred in Poland at the end of the 18th century. Evidence for this statement comprises a drawing and a note in a manuscript of Charles de Perthées from 1802–1803.

Key words: Neuroptera, Ascalaphidae, *Libelloides coccajus*, *Libelloides macaronius*, Poland, distribution, extinct species.

The intensive research on the Neuropterida carried out in Poland up to the end of 1980's revealed several species new to the Polish fauna. Nevertheless, most of the faunistic data available come from papers written 50 or even 100 years ago. Even if the data from papers published after the end of the Second World War are not to be doubted, the information from earlier times is difficult to verify. The reasons are: lack of voucher specimens and unclear data on specimens mentioned in the papers or presented on the labels. These problems mounted enormously following changes to the borders of Poland due to political and historical changes. Therefore, besides a revision of the scarce specimens and collections available, a review of the bibliographical data presented in this paper, both Polish and non-Polish, must be undertaken before the number and a list of species recorded within borders of Poland up to the Second World War can be presented. Such data were often presented as very poor and general, with numerous misspellings and language errors, which in some cases make the interpretation very difficult, or even impossible.

The limits of distribution of several species of plants and animals are known to be in the area of Poland. Therefore such faunistic data are very important for zoogeographical analyses. Special attention must be given to the topographic data comprised in the old, historical collections, which are frequently invaluable for the interpretation of transformations of the flora and fauna of the Western Palaearctic over the last few centuries. Dynamic changes of climatic and biotic conditions resulted in numerous temporary migrations of numerous organisms, insects in particular.

The most recent list of Neuropterida of Poland (Czechowska 2007) contains erroneous data about the probable presence in Poland of *Libelloides macaronius* (Scopoli, 1763) of the family Ascalaphidae. This data was based on the report of Pongrácz (1919). In the materials regarding the status of neuropteroid species of Poland Pongrácz pointed out that "...Ohne nähere Fundorte. In Galizien vereinzelt, selten...", i.e. rarely in Galicia. *Ascalaphus kolyvanensis* (Laxmann, 1770), a synonym of *L. macaronius*, had been recorded by Pongrácz. These times, the term "Galizien" referred to an area that is now outside of the borders of Poland. In all formerly published papers and reports, citations of the localities of this species do not refer to

sites within the current borders of Poland; however, some localities are close to these borders. The most interesting data, in terms of knowledge of Polish fauna, are the localities given in the Red Data Books of the former Soviet Union and Ukraine (Kochetova 1985; Ermolenko 1994). Some of these localities are found close to the south-eastern border of Poland. The localities of this species are poorly documented in Slovakia, or doubtful (Zelený 1992, 2005; Jedlička 2001). The Red Data Books are by nature compendia rather than critical analyses of scientific reports. Zakharenko (1994), in a critical review of the neuropterofauna of Ukraine, pointed out that the localities of *L. macaronius* in the western part of Ukraine currently do not exist.

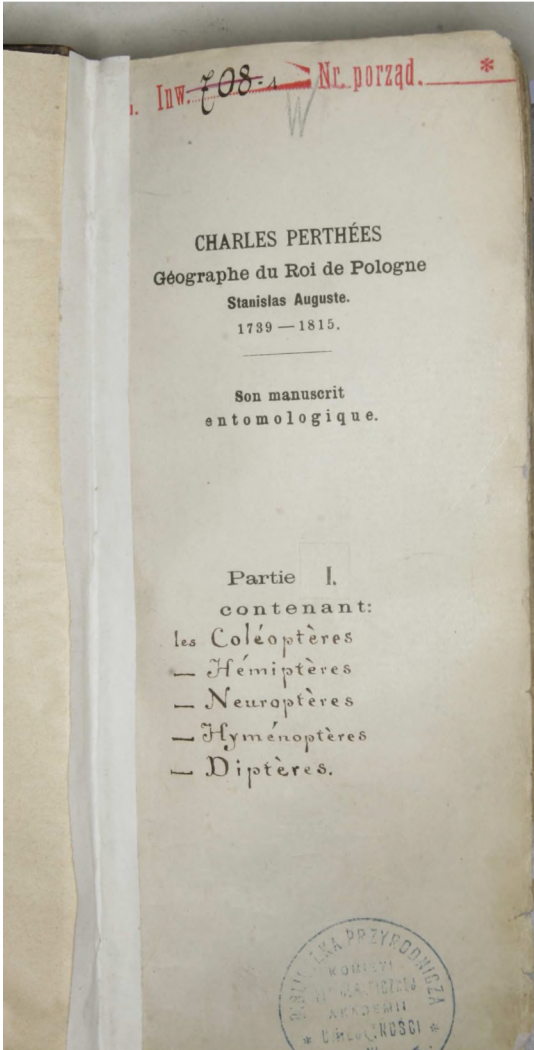


Fig. 1. Title page of the first volume of the manuscript of Charles de Perthées (thanks of the courtesy of the Library of Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków).

Another species potentially present in the area of Poland is *Libelloides coccajus* (Denis et Schiffermüller, 1775). At present, this species is relatively widely distributed (Aspöck et al. 2001). The localities of this species that are currently closest to Poland are known in Germany and Czech Republic (Röhrlich & Tröger 1998, Zeleny 2005), while the presence of this species in Slovakia is doubtful (Jedlička 2001; Jedlička et al. 2004; Zeleny 1977, 1992).

One of the oldest and most comprehensive elaborations containing faunistic data from Poland is the manuscript of Prince Józef Poniatowski's court cartographer – Charles de Perthées (1739–1815). This researcher, endowed with impressive drawing abilities, in addition to insect collecting, presented notes on numerous species enriched with perfectly detailed drawings. In numerous cases, thanks to his drawings, we have evidence for the presence of particular species, species of particular interest for the study of the origins of Polish fauna (Pawłowski 1991). Unfortunately, his rich collection disappeared or was destroyed, and its fate has remained unclear (Pawłowski 2003). The history of the destroyed collections and the nine preserved volumes of the manuscript has been stormy and particularly interesting. This story was described in detail by Pawłowski (2003, 2005). For neuropterologists, the first volume (Fig. 1) is the most interesting. It was prepared in the years 1802–1803, in which together

with a few drawings of Neuropterida, the details of the collection sites were given. Charles de Perthées made mistakes in the identification of some species, but his detailed drawings are

unusual perfect documentation of the morphology of the insects, and it is easier to identify the species based on these drawings than based on the imperfect description. Some groups of insects presented by Perthées were described and discussed in a more detailed manner. The Neuropterida were rarely mentioned, but the descriptions included that of *Ascalaphus* (recently *Libelloides*, see Pawłowski 1991), very important for the knowledge of neuropterofauna of Poland, and a general discussion of the order (Pawłowski 2003). The first species mentioned is unusual for the Polish fauna of owlflies. It was named *Ascalaphus barbarus*. *Ascalaphus barbarus* is now a North African species (typus generis of *Ascalaphus*) with transparent wings. It is different from the species of *Libelloides* with coloured wings, but at the turn of the 19th century the name *Ascalaphus barbarus* was used for European species with coloured wings different from *Libelloides coccajus* (Pantaleoni & Letardi 2002) or for the real *L. coccajus*. On the other hand, a comparison of the drawing from de Perthées with drawings of Ascalaphidae species known from Central Europe, will exclude *L. macaronius*, the most probable species for the Polish fauna. The characteristic black markings at the base of the hind wings doubtless indicate the second species supposed to be present in Poland, i.e. *L. coccajus*. The more detailed data on the date and place of collection of the specimens are not exhaustive. Fortunately, together the drawing of the specimen of '*Ascalaphus barbarus*' is accompanied with a relatively long note (Fig. 2). It is written, as most of the manuscript, in poor French, with numerous abbreviations and mistakes, in numerous cases in Polish.

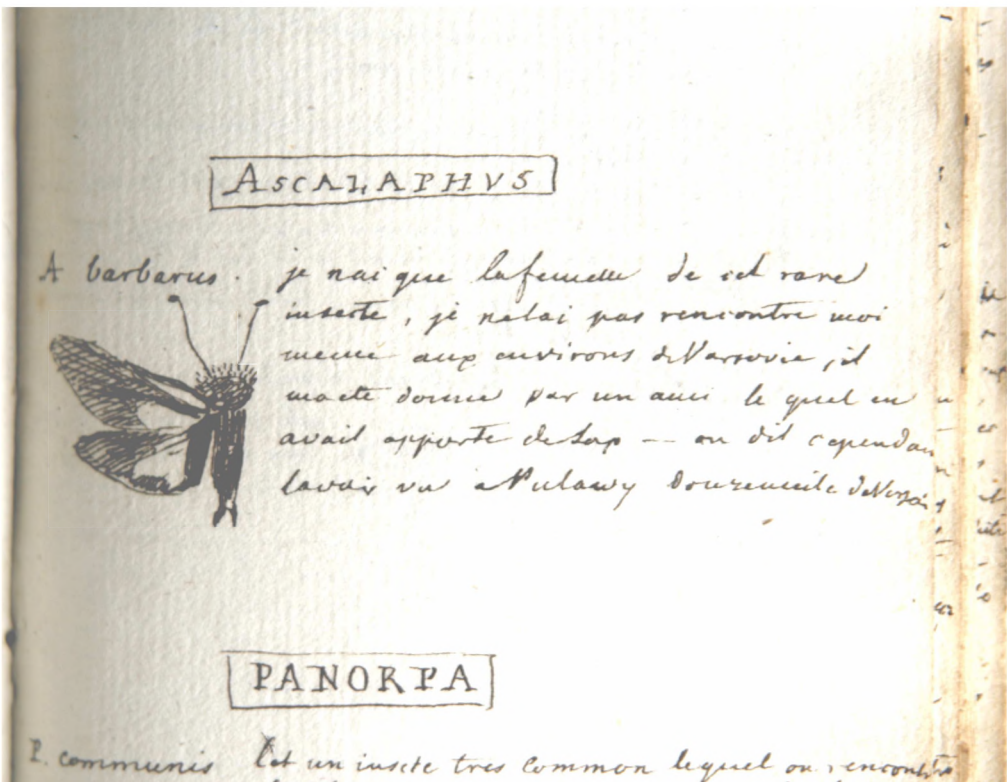


Fig. 2. Drawing of '*Ascalaphus barbarus*' with a note (page 214 from the first volume of Charles de Perthées manuscript). Courtesy of the Library of Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków.

Below is the free translation by Professor Jerzy Pawłowski of the original text:

“*Ascalaphus barbarus* – I have only a female of this rare insect. I did not find it myself in the vicinity of Warsaw. The specimen was offered to me by one of the friends, who collected [it] in the vicinity of Puławy, thirty miles from Warsaw”.

Considering the recent distributional pattern of this species in Europe, the data from Poland collected at the turn of the 19th century are surprising. On the other hand, taking into consideration the climatic changes and examples from the other groups of insects, such fluctuation of the range is probable and possible. It could be stated with high probability that the limit of range of this species was once in Poland, maybe related to the habitats of the Vistula river valley. Collecting insects in central Poland to its southern parts, Charles de Perthées found numerous interesting species, with limits distinctly shifted now, e.g. *Scarabaeus sacer* L. (Coleoptera: Scarabaeidae), *Purpuricenus budensis* (Götz) (Coleoptera: Cerambycidae). He collected in the vicinities of Warsaw such species as: *Mantis religiosa* (L.) – Mantodea, *Pericalia matronula* (L.), *Parnassius mnemosyne* (L.) and *Parnassius apollo* (L.) – Lepidoptera, whose current ranges are distinctly more southwards.

One of the reasons for such shifts of ranges was climatic changes. The turn of the 19th century was a time of a distinct decrease in annual temperatures in most of Europe, especially in Central Europe. An example of such changes is reports of freezing of the Baltic Sea during a dozen or so years. Very probably, changes of limits of numerous species took place at that time, especially those with narrow ecological tolerance, particularly thermal tolerance. Particularly distinct and dynamic changes could have taken place in Central Europe (Pawłowski 1991). Of course, we cannot also exclude the role of increasing anthropopression and the associated degradation of natural habitats.

CONCLUSIONS

The results of the investigations proved that at present there are no representatives of Ascalaphidae in Poland. There is no doubt that in the past *L. coccajus* was present in the area of Poland. Anyway, we have no data to confirm the presence of *L. macaronius* within the present borders of Poland in the past and now.

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STRESZCZENIE

[Jakie gatunki z żupalkowatych (Neuroptera: Ascalaphidae), zanikłej w Polsce rodziny, występowały u nas w przeszłości?]

Autor krytycznie analizuje dane literaturowe dotyczące występowania na obszarze współczesnej Polski dwóch gatunków sieciarek z rodziny żupalkowatych (Ascalaphidae) *Libelloides macaronius* (Scopoli, 1763) i *Libelloides coccajus* (Denis et Schiffermüller, 1775).

W opublikowanym w ostatnich latach wykazie owadów siatkoskrzydłych (Czechowska 2007) znalazła się informacja o prawdopodobnym występowaniu na terenie Polski *Libelloides macaronius*. Podstawą do włączenia tego gatunku w skład fauny Polski była praca Pongrácza (1919). Autor ten w swoim przyczynku do znajomości owadów siatkoskrzydłych Polski podaje informację o występowaniu tego gatunku w Galicji. Termin Galicja dotyczył w znacznej części obszaru znajdującego się poza współczesnymi granicami naszego kraju. We wszystkich wcześniejszych pracach (cytowanych przez Pongrácza) stanowiska tego gatunku znajdują się poza terytorium obecnej Polski, choć niektóre znajdują się stosunkowo blisko naszych granic. Stanowiska te nie zostały współcześnie potwierdzone (Zakharenko 1994).

Jest natomiast wielce prawdopodobne, że w Polsce występował pod koniec XVIII wieku *Libelloides coccajus*. Świadcą o tym notatka i rysunek zamieszczony w manuskrypcie nadwornego kartografa Księcia Józefa Poniatowskiego – Edmunda Perthéesa. Współczesne stanowiska tego gatunku, najbliższej naszych granic, znajdują się w Niemczech i Czechach (Röhricht & Tröger 1998, Zeleny 2005).

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