

## Paoliida, a putative stem-group of winged insects: Morphology of new taxa from the Upper Carboniferous of Poland

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New representatives of a stem group Paoliida attributed to family Paoliidae (Insecta: Protoptera) are described from the Upper Carboniferous (Langsettian) sphero–sideritic concretions of the Upper Silesian Coal Basin (USCB) in Poland. *Zdenekia silesiensis* sp. nov. is based on forewing venation and supplemented by material of isolated hindwing similar in venation pattern. *Darekia sanguinea* gen. et sp. nov. differs from all other paoliid genera by the presence of a short contact between veins MP and CuA behind the division CuA and CuP. Composition of insect fauna exhibits high abundance of paoliid insects in the early Late Carboniferous ecosystems known also from other European localities such as Hagen Vorhalle in Ruhr Basin (Germany), and South Limbourg (Belgium and the Netherlands). It is the first record of true paoliids from the Polish part of paralic USCB supplementing a single historical record of *Stygne roemeri* considered as a taxon closely related to Paoliidae. The high abundance of paoliid insects from sphero–sideritic concretions in Sosnowiec and coal deposits previously known from the Czech part of Upper Silesian Coal Basin indicates considerable similarity of both faunas supported as well by their close stratigraphical correlation. Morphology of basal wing parts with remnants of articular sclerites preserved supports neopteran relationships of paoliids. Discovery of the first paoliid immature wing is reported suggesting similar living habitat for larvae and adults.

**Key words:** Insecta, Neoptera, Protoptera, Paoliidae, wing articulation, Langsettian, Upper Silesian Coal Basin, Poland.

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