

A fossil insect in a drilling core sample – cockroach *Kridla stastia* gen. et sp.nov. (Blattulidae) from the Cretaceous of the Verkhne-Bureinskaya Depression in Eastern Russia

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VRŠANSKÝ, P. 2005. A fossil insect in a drilling core sample – cockroach *Kridla stastia* gen. et sp.nov. (Blattulidae) from the Cretaceous of the Verkhne-Bureinskaya Depression in Eastern Russia *Entomol. Probl.* 35(2): 115–116. – An excellently preserved hindwing of a cockroach family Blattulidae from the Albian or Cenomanian of Verkhne-Bureinskaya Depression is described as *Kridla stastia* gen. et sp.nov. The fossil was a good flier retaining some plesiomorphic characters indicating an early, most probably the Upper Jurassic origin of the genus, from taxa close to *Blattula*.

Key words: drilling core sample, insects, cockroach, new genus, new species, Blattulidae, Late Cretaceous.

Introduction

Insects in core samples are rare – except for the below described cockroach, a single beetle, one scorpion-fly and one fly were obtained in the Verkhne-Bureinskaya depression. The present fossil belongs to a common Mesozoic family Blattulidae which was described by VISHNIAKOVA (1982). The family originated in the Late Triassic and they presented dominant cockroach family in many sites ranging from the Early Jurassic to the Early Cretaceous (VRŠANSKÝ et al. 2002), i.e., for more than 100-million-years. The more surprising is its low generic diversity – only 12 genera are known through its long history.

Material and Methods

A hindwing was obtained from a core sample 22–23, Bed 8, depth 151.9–162.5m, the Albian or Cenomanian Upper Cretaceous (ZHERIKHIN 1978) of the Kyndalskaya svita (= Kyndal Formation) on the river Urgal (left inflow of the river Burei) in the Verkhne-Bureinskaya depression, Khabarovsk territory, by the MGU expedition 1966 (V. Ščerbakov, the head).

The material is deposited at the Paleontological Institute, Russian Academy of Sciences (PIN).

It has been photographed using Nikon binocular, drawn using Rotring 0.18–0.5 mm pens and digitally improved.

Systematic palaeontology

Blattaria LATREILLE, 1810

Blattuloidea VISHNIAKOVA, 1982

Blattulidae VISHNIAKOVA, 1982

Kridla gen.nov.

Type species: *Kridla stastia* sp.nov

Diagnosis. Hindwing with secondarily branched R1, distinct pterostigma and apparent coloration of apex.

Description. Sc simple; R differentiated into R1 and RS with pterostigma overlapping R1 up to the next intercalary; M simplified; CuA rich (6), CuP simple. A1 arcuated, branched (A2 branched in holotype). Intercalaries and cross-veins apparent, apex distinctly colored.

Remarks. Colored hindwing is unique apomorphy within the family. Pterostigma, indicating improved flight abilities is rarely retained (plesiomorphy) in some Upper Jurassic species belonging to an undescribed genus closely related to *Blattula*. Combination of these features allows discrimination of a new genus, also indicating advanced taxa of the family in the Upper Cretaceous. During the terminal Cretaceous, the family was still dominant.

Strong plesiomorphies such as branched R1 and A2 indicate the Late Jurassic origin of the genus. The Early Cretaceous *Elisama*, *Tarakanula* etc. lack pterostigma.

Etymology: after kridla (wings in some slavic languages). Gender: feminine.

Kridla stastia gen. et sp.nov.

Figs 1–3

Holotype. PIN 2708/1±. Hindwing. Verkhnebureinskaya Depression, core sample 22-23, Bed 8, depth 151.9-162.5m. Upper Cretaceous.

Description. Sc 1; R1 with 7 branches (2nd dichotomised), RS with 4 branches, pterostigma distinct; M with

2 branches; CuA 6, CuP simple. A1 arcuated, branched (3), A2 branched. Intercalaries and cross-veins apparent, coloration as in figures. Length 8.1 mm.

Remarks. Branched A2 is rather unusual character in Blattulidae, thus it might have present a taxonomically dependent character. Nevertheless it might also present unusual character within the variability of the species.

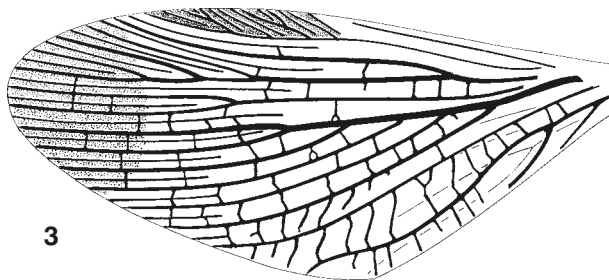
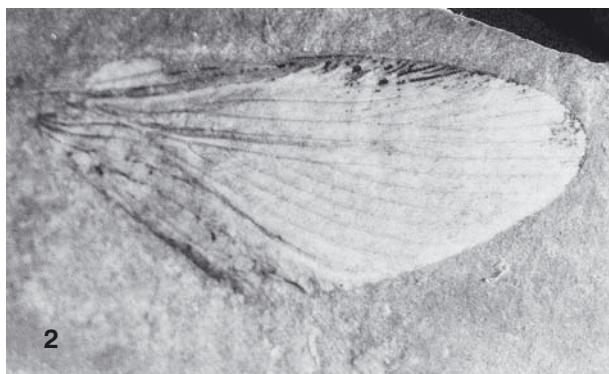
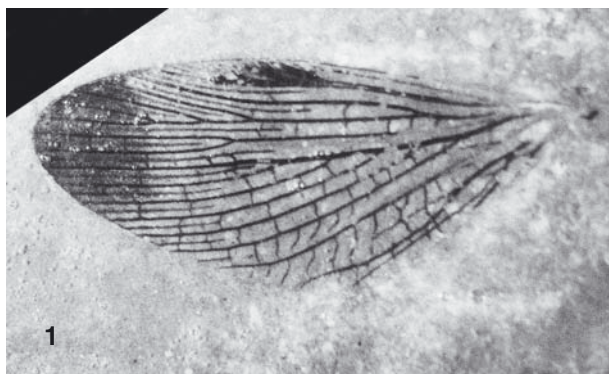
Etymology: after stastie (happiness in some slavic languages).

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References

- VIŠNIAKOVA, V.N. 1982. [VISHNIAKOVA, V.N.] Jurskie tarakanovie semejstva Blattulidae fam. nov. (Insecta: Blattida). *Paleontol. J.* (2): 69-79. [in Russian]
- VRŠANSKÝ, P., VISHNIAKOVA, V.N. & RASNITSYN, A.P. 2002. 2.2.2.1.1. Order Blattida Latreille, 1810. The cockroaches (=Blattodea Brunner von Wattenvill, 1882). pp 263–270. In: Rasnitsyn, A.P. & Quicke, D.L.J (eds.). *History of Insects*. Kluwer Academic Publishers, Dodrecht.
- ŽERICHIN, V.V. 1978. [ZHERIKHIN, V.V.] Development and changes of the Cretaceous and Cenozoic faunal assemblages (Tracheata and Chelicerata). *Trans. Paleontol. Inst. Acad. Sci. USSR* 165. Nauka Press, Moscow: 198pp. [in Russian]



Figs 1–3. *Kridla stastia* VRŠANSKÝ, sp.nov. Holotype. PIN 2708/1±. Hindwing. Verkhne-Bureinskaya Depression, core sample 22–23, Bed 8, depth 151.9–162.5 m. Upper Cretaceous.

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