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Leuctra hansmalickyi (Insecta: Plecoptera), a new species from the Rila Mountains in Bulgaria[1]

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A b s t r a c t : A new micropterous *Leuctra* species, *Leuctra hansmalickyi* nov.sp., from Bulgaria is described and illustrated.

K e y w o r d s : *Leuctra*, new species, Bulgaria, Rila Mountains.

Introduction

Within the genus *Leuctra*, BRAASCH (1972) and BRAASCH & JOOST (1977) described the apterous species *Leuctra helenae* and *L. kumanskii* from Bulgaria, from Stara Planina and Pirin Mountains respectively. Recently a new micropterous *Leuctra* species was discovered in the Rila Mountains, which is described below.

Leuctra hansmalickyi nov.sp. GRAF, 2010 (Figs 1-3)

H o l o t y p e ♂ from Bulgaria, near Belovo, 42°07'41.3''N/23°47'33.5''E, 1880 m, 8 June 2008, leg. P. Neu & M. Bálint. P a r a t y p e s : Bulgaria: type locality, same date, 6♂♂, 1♀; holotype deposited at the Linzer Landesmuseum, paratypes at the collection of W. GRAF, Vienna;

D e s c r i p t i o n . Small sized species, general colour of body and appendages dark brown. Length of body 3.8 – 4.5 mm in males and 5.2 mm in female. Length of forewing 1.3 – 2.2 mm. All specimens are micropterous, the wings do not exceed the posterior edge of segment IV.

Male (Figs 1 and 2). All tergites with dense pilosity. Tergites I-VII simple, caudal part of tergite VII weakly sclerotised. Anterior edge of tergite VIII entirely sclerotised, slightly lowered medially. Median process slender, approximately as broad as one fourth of the segment's width, bearing a pair of slightly diverging, pointed spine-like projections. Width between projections equal to their length. Median process connected with lateral sclerites forming a broad band across the anterior half of the segment. Process reaching the anterior margin of segment IX. Antecosta of tergite IX interrupted for half of tergite's width, free ends sharp, tergite largely membranous medially. Tergite IX mostly membranous with one large, nearly quadratic dark area, which covers more than half of the tergite's width. Tergite X with

[1] This paper is dedicated to Prof. Dr. Hans Malicky on the occasion of his 75th birthday.

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one sclerite connected to the posterior margin, which is slightly notched. Epiproct large, mushroom-shaped, covering two thirds of the tergite.

Figs 1-2: *Leuctra hansmalickyi* nov.sp., male abdomen; (**1**) segments 6-10 dorsal; (**2**) paraprocts, caudal view.

Cerci simple, cylindric, with strong pilosity. Sternite IX with a small racket-shaped vesicle. Paraprocts curved. Specilla slightly longer than styles and rounded apically in lateral view. Styles thin and straight in posterior view, ending in a sharp point. Lateral lobes of paraprocts rectangular, as long as wide.

Female (Fig. 3). Sternites I – VII simple, sternites I –V with additional paired, small caudal sclerotisations. Abdominal tergites II-VII mostly membranous with tiny, elongated dark patches medially. Tergite VIII with a large rectangular dark marking, covering two thirds of the tergite. Tergite IX and X fully sclerotised.

Sternite VIII: subgenital plate triangular, ending in two blunt lobes which overlap the anterior margin of segment IX. A median less-pigmented area divides the lateral parts.

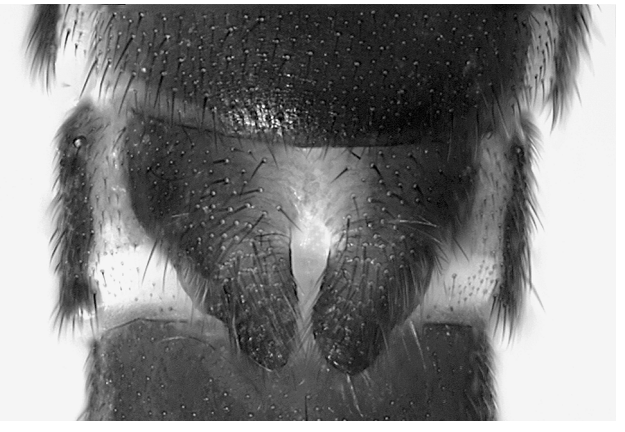

Fig. 3: *Leuctra hansmalickyi* nov.sp., female subgenital plate.

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Nymph. Unknown.

Habitat. The spring-near small to mid-size stream is running in a coniferous forest, with adjacent swampy areas. The substrate is formed of large rocks in the fast sections and fine organic matter in slow parts (light-brownish water).

D i a g n o s i s . *L. hansmalickyi* nov.sp. seems to be a member of the *Leuctra prima* subgroup within the *L. hippopus* group according to RAVIZZA & VINÇON (1998) and RAVIZZA (2002). This species is distinguished from other *Leuctra* species by the relatively long, slender and pointed processes of the male tergite VIII in combination with the large rectangular sclerite of tergite IX. The epiproct is exceptionally large. The female is characterised by a triangular subgenital plate with two, blunt ending lobes, which protrude the anterior margin of segment IX and resembles *L. torrenticola* ZHILTZOVA, 1960. Both sexes are micropterous.

Within the *L. prima* subgroup only in two species, *L. ligurica* AUBERT, 1962 and *L. istenicae* SIVEC, 1982, males have comparable pointed projections on the VIIIth segment. In *L. ligurica* they are shorter than in *L. hansmalickyi* nov.sp. and do not reach the anterior margin of segment IX. Further, segment VII is mostly membranous while in *L. hansmalickyi* nov.sp. only the caudal margin is not sclerotised. The sclerotised area on tergit IX is smaller and rectangular. In *L. istenicae* the median process is broader than in the new species and covers approximately one half of the VIII segment's width. Both species are apterous and are distributed within a relatively small area: *L. ligurica* from the western edge of the Ligurian Apennines to the eastern margin of the Ligurian Alps (RAVIZZA 2002), *L. istenicae* in the Pohorje Mountain of Slovenia (SIVEC 1982) and the adjacent Austrian mountain ranges Koralpe and Soboth (GRAF 1999). The females of these species have distinctly different genitalia and show prominent sclerotisations on the abdominal tergites.

E t y m o l o g y . The species is dedicated to Prof. Dr. Hans Malicky in gratitude for his personal guidance and help through many years as well as for his lifelong activity in taxonomic research.

D i s c u s s i o n . Within the genus *Leuctra* a number of species with wing modifications from aptery to brachyptery are known in Europe (e.g. *L. helenae* BRAASCH, 1972, *L. kumanskii* BRAASCH & JOOST, 1977, *L. ligurica* AUBERT, 1962, *L. istenicae* SIVEC, 1982, *L. clerguae* VINÇON & PARDO, 1994, *L. jahorinensis* KAĆANSKI, 1972, *L. gardinii* RAVIZZA, 2005, *L. aptera* KAĆANSKI & ZWICK, 1970, *L. wilmae* ILLIES, 1954, *L. besucheti*, AUBERT, 1962, *L. astridae* GRAF, 2005, *L. joani* VINÇON & PARDO, 1994, *L. dylani* GRAF, 2007, *L. microstyla* VINÇON & RAVIZZA, 2000, *L. brevipennis* RAVIZZA, 1978, *L. vesulensis* RAVIZZA & RAVIZZA-DEMATTEIS, 1984, *L. vinconi vinconi* RAVIZZA & RAVIZZA-DEMATTEIS, *1993*, *L. vinconi aubertorum* RAVIZZA & RAVIZZA DEMATTEIS, 1994, *L. canavensis* RAVIZZA & RAVIZZA-DEMATTEIS, 1992). Many of these species are restricted to small areas, often called glacial refugia; ecologically they are typical inhabitants of mountainous springs and little streams underlining the importance of spring areas for biodiversity.

Besides some exceptions aquatic insects with shortened wings generally tend to be locally distributed. Although some species might have wing-length variations within one population (in Austria e.g. *Arcynopteryx compacta* (MCLACHLAN, 1872), *Perlodes microcephalus* (PICTET, 1833), *Isoperla difformis* (KLAPÁLEK, 1909)), in the few specimens of *L. hansmalickyi* nov.sp. investigated so far, no such phenomenon did occur. Therefore we conclude preliminarily that the species is one more microendemic species of aquatic insects in the Rila Mountains.

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Zusammenfassung

Leuctra hansmalickyi nov.sp., eine microptere Steinfliegenart, wird aus dem Rila Gebirge in Bulgarien beschrieben und abgebildet.

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