



LEUCTRA ASTRIDAE, A NEW SPECIES OF PLECOPTERA FROM THE AUSTRIAN ALPS.

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ABSTRACT

Leuctra astridae sp. n., a member of *Leuctra hippopus*-group, *occitana*-subgroup from Styria, Austria, is described and illustrated. Differences to its closest relative, *Leuctra festai*, are given.

Keywords: Plecoptera, Austria, *Leuctra*, new species

INTRODUCTION

Among the *Leuctra* in Central Europe, *Leuctra festai* is somehow isolated belonging to a species-group known from Southwestern Europe and Northern Africa. It was described from Monte-Bo (Val Chiobba, Piemont) at 2400 m a.s.l. (Aubert 1954). Until now the species is known from few localities in the Sesia valley, Northwestern Italy (Aubert 1957, Ravizza & Ravizza Dematteis 1980, 1990, 1991, 1993) and Southern Switzerland (Wallis: Simplon-Susten- and Gotthardpass, Lubini in litt.). Aubert (1957), Ravizza & Ravizza Dematteis (1980, 1990, 1991, 1993) and Ravizza (2002) characterise the species as a microendemic of the Pennine Alps, as strictly rheophilous and restricted to high altitudes between 1850 m and 2400 m a.s.l..

Recently, some 450 km as a crow flies northeast of the range of *L. festai*, a similar species was found in a single spring within the Styrian Limestone Alps. Comparison with specimens from type localities (Oropa Valley, Mucrone, 1900 m a.s.l., leg. & det. C. Ravizza & E. Ravizza Dematteis and Lys Valley, Nestio, 2550 m a.s.l., 20.7.03, leg. & det. G. Vinçon) resulted in the description of the new species.

DESCRIPTION

Leuctra astridae, sp. n. (Figs. 1-4)

Material examined. Holotype ♂ from Austria, Styria, Ennstaler Alpen, Gesäuse, 1570 m a.s.l., Paratypes: 12 ♂, 4 ♀, 24.8.04, leg. E. Weigand; 28 ♂, 28 ♀, 23.7.05, leg. A. Schmidt-Kloiber, E. Weigand & W. Graf; all material in coll. W. Graf, Vienna, except 1 ♂ and 1 ♀

paratypes, deposited at the Linzer Landesmuseum, Linz.

Adult habitus. General colour of body and appendages dark brown. Length of body 5.5-6.9 mm. Length of forewing 3.5-3.9 mm.



Fig. 1. *Leuctra astridae* sp. n. male abdomen, dorsal view.

Male. Tergites I-V simple, caudal part weakly sclerotized. Anterior edge of tergites VI and VII entirely sclerotized, with a largely membranous central area, which takes a rectangular form in tergite VI, tergite VII with an additional semicircular area anteromedially. Antecosta of tergites VIII and IX interrupted for one third of tergite width, free ends sharp, tergites largely membranous medially. Tergite IX mostly membranous with two connected subtriangular dark areas posteromedially which cover half of the tergal width. Anterior margin of

tergite X bilobed, posterior margin trapezoidally notched. Epiproct mushroom-shaped with a broadly pigmented stalk in the form of two half-moons (Fig. 1). Cerci simple, cylindrical. Sternites simple, sternite IX with vesicle. Specilla slightly longer than paraproct styles and rounded apically in lateral view. Paraproct styles thin and straight in posterior view, basal outer margins of paraproct slightly convex. Lateral lobes of paraprocts significantly elongated dorsally (Fig. 2).



Fig. 2. *Leuctra astridae* sp. n. male abdomen, dorsal view, paraprocts.

Female. Sternites I-V simple, with paired, small caudal sclerotizations. Sternite VIII rectangular and large, divided posteriorly for two third of its length by a well delimited, narrow notch, which separates two conical, short lobes (Fig. 3). A transversal pigmented area exists below the subgenital plate similar to *L. festai*.

Both sexes are brachypterous, the wings do not exceed the posterior edge of segment VII (Fig. 4).

Armature of spermatheca seems to be very similar to *L. festai* (Ravizza & Ravizza Dematteis 1980).

Affinities. *Leuctra astridae* as well as its congener, *Leuctra festai* both belong to *Leuctra hippopus*-group, *occitana*-subgroup which can be characterised as

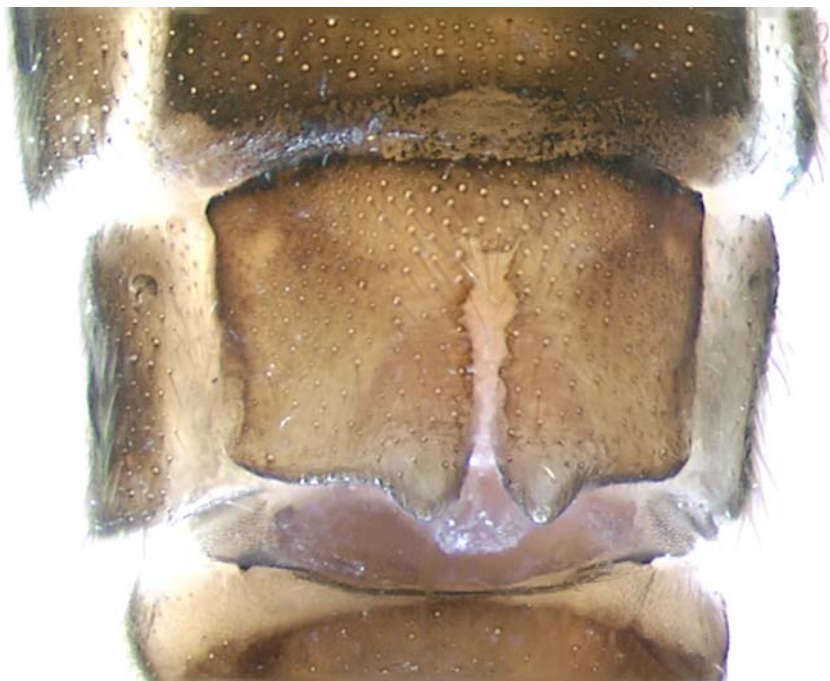


Fig. 3. *Leuctra astridae* sp. n. Subgenital plate of female .

follows: male either with two paired processes or lacking any processes (Ravizza 2002). The following southwestern distributed species can be associated with it: *L. cyrnea cyrnea* CONSIGLIO & GUIDICELLI, 1975 (Corsica), *L. cyrnea incudensis* VINÇON & RAVIZZA, 2000 (Corsica), *L. khroumiriensis* VINÇON & PARDO, 1998 (Tunisia), *L. maroccana* AUBERT, 1956 (Ibero-Maghreb), *L. medjerdensis* VINÇON & PARDO, 1998 (Tunisia), *L. occitana* DESPAX, 1930 (Southern France, Iberia, Pyrenees), *L. sartorii* VINÇON & PARDO, 1998 (Tunisia), *L. thomasi* ZWICK & VINÇON, 1993 (Pyrenees), *L. vaillanti* AUBERT, 1956 (Morocco).

Males of *Leuctra festai* and *L. astridae* lack any processes and both species differ in the following features:

The male of *L. astridae* has lateral lobes of paraprocts which are dorsally elongated and which are two and a half times longer than wide. The lateral lobes of *L. festai* do not exceed the paraproctal base. The outer margins of the paraprocts are slightly curved in *L. astridae*, whereas they are rectangular and more straight in *L. festai* (Fig. 5). In females, *L. astridae* has a deeply notched subgenital plate which is rectangular; the lobes are conical and finger shaped. *L. festai* has a short cleft dividing the smaller

and more plain lobes. Its subgenital plate is obtuse-angled (Fig. 6). Both sexes are brachypterous in *L. astridae*, in *L. festai* the wings are longer and reach the tip of the abdomen.

DISCUSSION

The new species was found in one single crebral area in the Ennstaler Alps (Styria) although several springs in the surrounding were intensively investigated as well as adjacent parts of Upper Austria. Its local and restricted occurrence may be seen in the context of the tendency to reduced wings and its limited dispersal capacity which can be observed frequently in crenophilous species of mountainous areas.

The quite wide disjunction of the *L. festai* and *L. astridae* is probably due to glacial phenomena, the recent occurrence seems to be a refugia of a once widespread ancestral species. Future studies along the northern and western edge of alpine regions might reveal more isolated populations which could clear the taxonomic status of *L. astridae* as an allopatric race of *L. festai*. At present interbreeding between the two species is very improbable.



Fig. 4. *Leuctra astridae* sp. n. Adult habitus.

Etymology. The new species is dedicated to Astrid Schmidt-Kloiber, my partner in life.

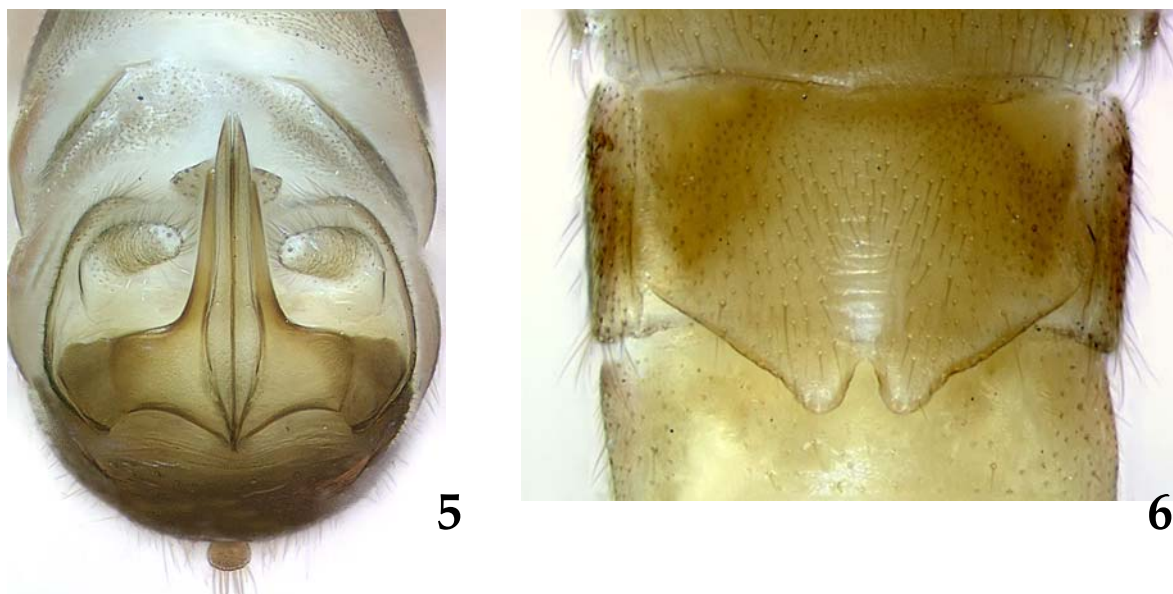
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Figs. 5-6. *Leuctra festai*: 5. Male paraprocts, 6. Female subgenital plate.

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