

## Comparison of *Leuctra kisi* STEINMANN, 1968 with *Leuctra quadrimaculata* KIS, 1963 (Plecoptera: Leuctridae), and the first record of *L. quadrimaculata* from Ukraine

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**Abstract.** Female of *Leuctra kisi* STEINMANN, 1968, is compared with *Leuctra quadrimaculata* KIS, 1963. The similarity of their characters is stated, and the distinguishing characters of the original descriptions of *L. kisi* is rejected. The first record of *L. quadrimaculata* from Ukraine is given.

*Leuctra kisi* STEINMANN, 1968 was described in the identification book of the Hungarian stoneflies (STEINMANN, 1968) on the basis of a single female. More detailed description of the species, or any other mention on its further occurrence was never published, despite of the large Plecoptera material in the Hungarian Natural History Museum (HNHM) from its type locality. Later the species was considered as species inquirenda (TÓTH, 1990).

During the revision of the Plecoptera collection of HNHM, we found a female specimen, identified by H. STEINMANN as *L. kisi*. The specimen was not labeled as holotype, but its locality is the same as mentioned in the description. Moreover, the posture of the abdomen agrees with the drawing of STEINMANN (Figs. 1-2), and no other *L. kisi* specimen was present in our collection. As the *L. kisi* specimen seems identical with *L. quadrimaculata*, we also report the *L. quadrimaculata* material of HNHM, identified by B. KIS, and the first data of the species from the Ukrainian Carpathians.

### MATERIAL EXAMINED

***Leuctra kisi* STEINMANN, 1968:** Hungary, Visegrádi-mts., Visegrád, Apátkuti valley, PLH 355., 14.07.1965, 1♀, leg. et det. H. STEINMANN

***Leuctra quadrimaculata* KIS, 1963:** Ukraine: Mts. Kraszna, River Tereblja (Talabor), between

Kolocsava (Alsókalocsa) and Meresor (Rókarét), PLP 907., 23. 05. 2002, 1♀, leg. K. BALOGH, B. CSER & D. MURÁNYI, det. D. MURÁNYI; Romania: Borşa (Borsa), PLP 546., 24. 07. 1963, 1♂6♀ leg. et det. B. KIS; Bálványos spring, PLP 552., 20. 06. 1971, 6♂7♀, leg. et det. B. KIS; Mts. Vîlcan (Vulkán), Balea, Sokodol, Balami, PLP 564., 06. 07. 1962 - 08. 08. 1963, 2♂13♀, I. Székely, det. B. KIS; Bologo, PLP 600., 20. 06. 1967, 2♂4♀, leg. et det. B. KIS; Mts. Vîlcan (Vulkán), PLP 821., 10. 07. 1962, 3♂3♀, leg. et det. B. KIS; Borşa (Borsafüred), PLP 1010., 24. 07. 1963, 1♂, leg. et det. B. KIS.

### RESULTS

#### Examination of the *Leuctra kisi* specimen

On the basis of the shape of the subgenital plate (Figs. 2-4), the specimen labeled as *L. kisi* belongs to the *Leuctra inermis* species group sensu AUBERT, 1946. Although some members of this group could probably form a species complex (ZWICK & SIVÉC, pers. com.). Despite the great variability of *L. quadrimaculata* females the characters of this specimen agree with the description of *L. quadrimaculata*.

Comparing the specimen with our *L. quadrimaculata* material identified by KIS, real distinguishing characters were not found. Unfortunately, the spermathecal ring is unstudyable because of the poor condition of the

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specimen, but this structure is generally of little interest in separating closely related species since the armatures are often very similar even within a species group (RAVIZZA & VINÇON, 1998).

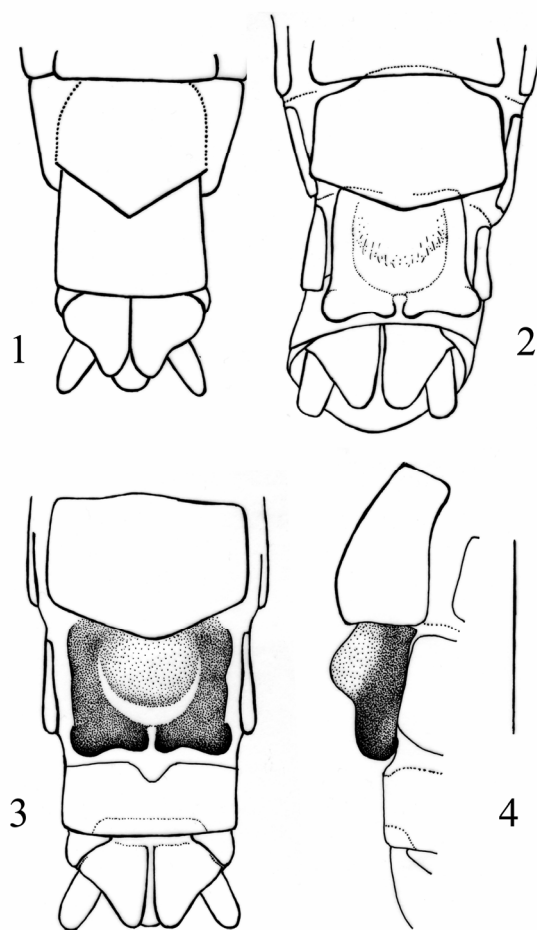
STEINMANN described three characters distinguishing *L. kisi*, these are the shape of the subgenital plate, the length of the 9<sup>th</sup> abdominal segment and the length of the epiproct. Comparing the specimen with his drawing, the sclerite, which was regarded as subgenital plate, obviously refers to the sternum 7. The drawing of the 9<sup>th</sup> abdominal segment includes the contracted 8<sup>th</sup> and 9<sup>th</sup> segments, and the real subgenital plate is therefore not described. The long epiproct probably refers to the contracted posture of the abdomen.

The identity of *L. kisi* with *L. quadrimaculata* is highly probable, but the synonymy is definitively not stated, because of the great variability of the females in the *inermis*-group, and the unstudyable spermathecal ring of the specimen. To reach a solution of this problem, examination of additional specimens from the type locality, or even the revision of the *inermis*-group in the Carpathian Basin would be necessary.

#### New record of *Leuctra quadrimaculata* in Ukraine

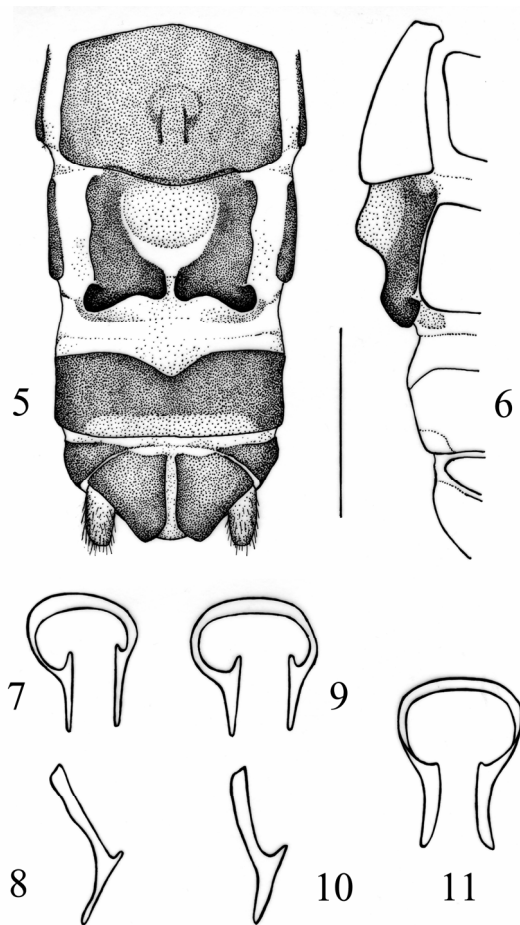
In the Plecoptera material collected in the Mts. Kraszna, Ukrainian Carpathians during May of 2002, we have found a female specimen of *L. quadrimaculata* from the River Tereblja. This is the first data of the species from Ukraine. It is worth to mention that the spermathecal rings of both Ukrainian specimen (Figs. 7-8) and the Transylvanian ones, identified by B. KIS (Figs. 9-10), are differing in ventral aspect from the figures of the original description (KIS, 1963), but in flattened position (Fig. 11) it agrees with the figures of the work on the Romanian fauna (KIS, 1974). Moreover, every other characters of the specimen agree with *L. quadrimaculata*, so its identity is sure.

In the Carpathian Basin, the *inermis*-group is represented by the European *L. inermis* KEMPNY,



**Figures 1-4.** *Leuctra kisi* STEINMANN, 1968. 1: end of female abdomen, ventral (after STEINMANN 1968); 2: end of female abdomen, ventral, original position of the conserved animal; 3: end of female abdomen, ventral, after KOH boiling; 4: end of female abdomen, lateral, after KOH boiling; scale 0.5 mm.

1899, the Alpine *L. teriolensis* KEMPNY, 1900, the Central European *L. rauscheri* AUBERT, 1957, the Central and South European *L. handlirschi* KEMPNY, 1898 (that needs confirmation according to KIS, 1974) and the Balkano-Carpathian *L. quadrimaculata* (KIS, 1974, RAUŠER, 1980, SIVEC, 1980). In Ukraine, the presence of *L. inermis*, *L. rauscheri* and *L. handlirschi* was hitherto confirmed (ZHILTZOVA, 1997), and *L. quadrimaculata* is the fourth member of the group. In Hungary, only *L. inermis* was reported from Mts. Bükk (ÚJHELYI, 1969), apart from the uncertain *L. kisi* that is assigned here to *L. quadrimaculata*.



**Figures 5-11.** *Leuctra quadrimaculata* KIS, 1963. 5: end of female abdomen, ventral (Ukraine); 6: end of female abdomen, lateral (Ukraine); 7: spermathecal ring, ventral (Ukraine); 8: spermathecal ring, lateral (Ukraine); 9: spermathecal ring, ventral (Romania); 10: spermathecal ring, lateral (Romania); 11: spermathecal ring, ventrally flattened (Ukraine) scale 0.5 mm.

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