

Description of the 3-rd instar larva of *Nebria jockischi* (Coleoptera, Carabidae)

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The 3-rd instar larva of *Nebria jockischi* STURM, 1815 is described, its differential diagnosis and a key to the known larvae of other Central European species is given.

Key words: Carabidae, larvae, instar, *Nebria jockischi*.

Among 14–15 species of the genus *Nebria* Latr. occurring in Central Europe the larvae of seven species, viz. *N. brevicollis*, *N. salina*, *N. gyllenhalii*, *N. livida*, *N. brevii* and *N. helwigi* have been described (LUFF, 1972, KLAUSNITZER, 1991). From the genus *Oreonebria* considered sometimes to be a subgenus of the genus *Nebria* the larvae of two species, viz. *Oreonebria castanea* and *O. atrata* are known (KLAUSNITZER, 1991).

During the entomological excursions in the State Nature Reserve Šrámková in the Malá Fatra mountains in 1983 three larvae in the 3-rd instar of the eighth species *Nebria jockischi* STURM, 1815 (ssp. *hoepferi* DEJ.) were found.

Description of the 3-instar larva of *N. jockischi hoepferi*

Body shape cylindrical, pronotum slightly broader than head, three basal segments of the abdomen broader than head, three basal segments of the abdomen broader than thoracic segments. The sclerites and head dark brown.

Head subquadrate, angles widely rounded. Head breadth 1.82–1.88 mm. Nasale four toothed, two central teeth strongly projecting, their external sides nearly parallel. Lateral teeth short, reaching just the basis of the incision between the internal teeth. On sides the lateral teeth separated from adnasale by a deep incision. Frontale with the setae FR2, major setae FR3,

short setae FR5 and FR6 and very long setae FR7. Between the setae FR5 and FR7 other eight setae. Setae PA1 and PA2 on parietale short, seta PA3 absent, setae PA4 and PA5 of intermediate length, seta PA6 and PA8 long, setae PA7 and PA9 very long and strong, seta PA10 slender and shorter.

Antennae elongate, segments 1–3 nearly three times as long as broad, the segment 4 approximately half as long as the segment 3. Two last segments with long setae AN1, AN2, AN4, AN5, AN6 and AN7 (seta AN1 shifted distally). Segment 2 with one seta and one pore, segment 1 with two setae on place of pores ANa and ANe. Segment 3 with little sensorial appendage.

Mandibles external margin regularly rounded, retinaculum slightly curved, its apex directed backwards. Maxillae with stipes four times as long as broad, lacinia styliform, exceeding the basal part of the apical palpal segment. First palpal segment as long as broad, length of the next segments increases progressively. Apical palpal segment as long as second and third palpal segment together. Cardo with seta MA1, stipes with setae MX2–MX5 and with four further setae on its external margin and eight setae in its internal margin. Labium slightly transverse with a distinct conical ligula and setae LA4 and LA6. First palpal segment with pore LAb. All palpal segments elongate, subequal in length.

Pronotum trapezoidal with broadly rounded angles. Ratio of pronotum length to width at basis 2:3, pronotum width at basis 2.1–2.2 mm. Lateral sides of

pronotum with long setae PR3 and PR9. Mesonotum and metanotum transverse. Mesonotum with well developed setae ME1-ME14. Setae ME1-ME14 on metanotum shorter than those on mesonotum.

First abdominal tergits with the setae TE1-TE11, seta TE8 as long as setae TE7 and TE9. Epipleurits out of setae EP1 and EP2 with one additional seta. Ninth abdominal tergit with two setae. Its posterior margin with a flat triangular process. 4-th-7-th median sternits with seta ST 2 and many additional setae. Inner sternits with the setae ST3 and ST4 and with two other setae. Outer sternits with the setae ST5 and ST6 and with two or three further setae. Hypopleurits with four setae, Sternal sclerite on eighth sternite with setae ST2-ST6 and with two additional setae near ST2 and two setae near ST3 and ST4. Sternal sclerite on ninth sternite with setae ST1 and ST4 and three additional setae on both sides of the sclerite posterior margin. Urogomphi out of the setae UR1-UR9 with 26-27 additional setae. Pygidium short, approximately 1.5 times as long as broad, with setae PPY2-PY7.

Legs long, tibia of the hind legs markedly shorter than femur and tarsus (1:1.5). Coxa in posterolateral aspect with setae CO11, CO12 and CO13. On place of setae CO14-CO16 more little pores. Two further setae in the basal and apical part of coxa. Trochanter with the setae TR4-8. Femur with setae FE2-FE4 and with further six setae on its anterior margin, five anterolateral setae and four setae near to the posterior margin. Tibia with setae T13-T17 in its apical part and further five setae on its anterior margin, five setae on the anterolateral part and three setae on the posterior margin. Tarsus with seta TA1 and the strong seta TA7 and with further eight setae on its anterior margin, on the anterolateral side and five setae on the posterior margin. Claws unequal in length, without setae (UN1 and UN2).

Differential diagnosis

The larva of *N. jockischi* (ssp. *hoepferi*) differs from the larva of *N. brevicollis* by much more projecting teeth on nasale, much longer segments of antennae and maxillar palpi, more elongate pronotum and by femur and tarsus distinctly longer than tibia. The larvae of *N. bremii*, *N. livida*, *N. gyllenhali*, *N. salina* and *N. brevicollis* differ from the larva of *N. jockischi* by the absence of setae on the second antennal article. The larvae of *N. germari* and *N. hellwigi* differ from the larva of *N. jockischi hoepferi* by higher number of setae on the second antennal article. From the larvae of *N. livida* and *N. gyllenhali* the larva of *N. jockischi hoepferi* differs by three lateral setae on the abdominal tergits.

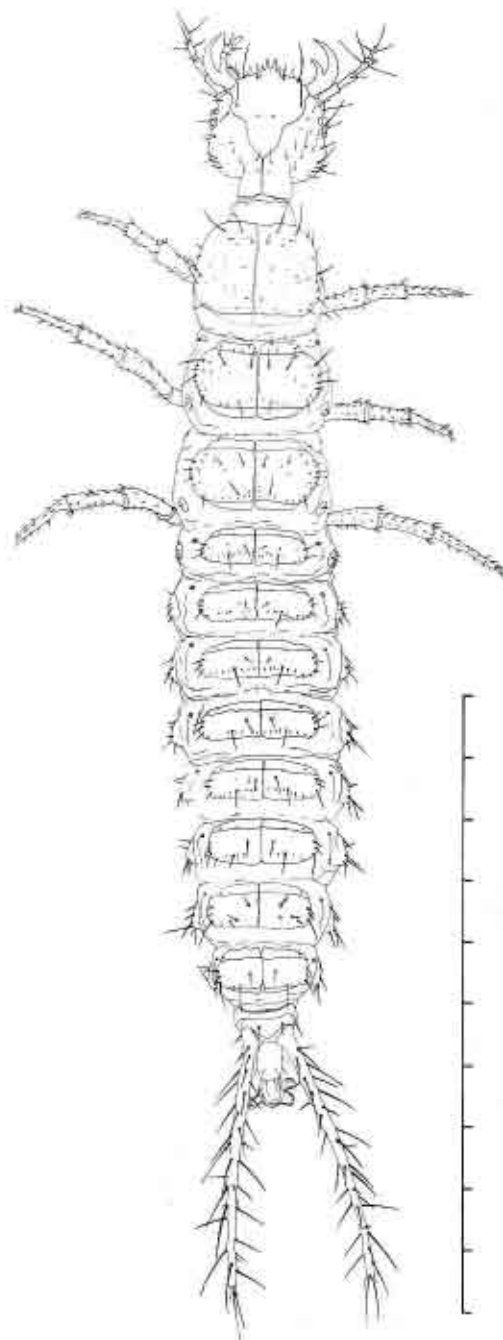


Fig. 1. Larva of *Nebria jockischi*, 3-rd instar, dorsal aspect (scale 10 mm).

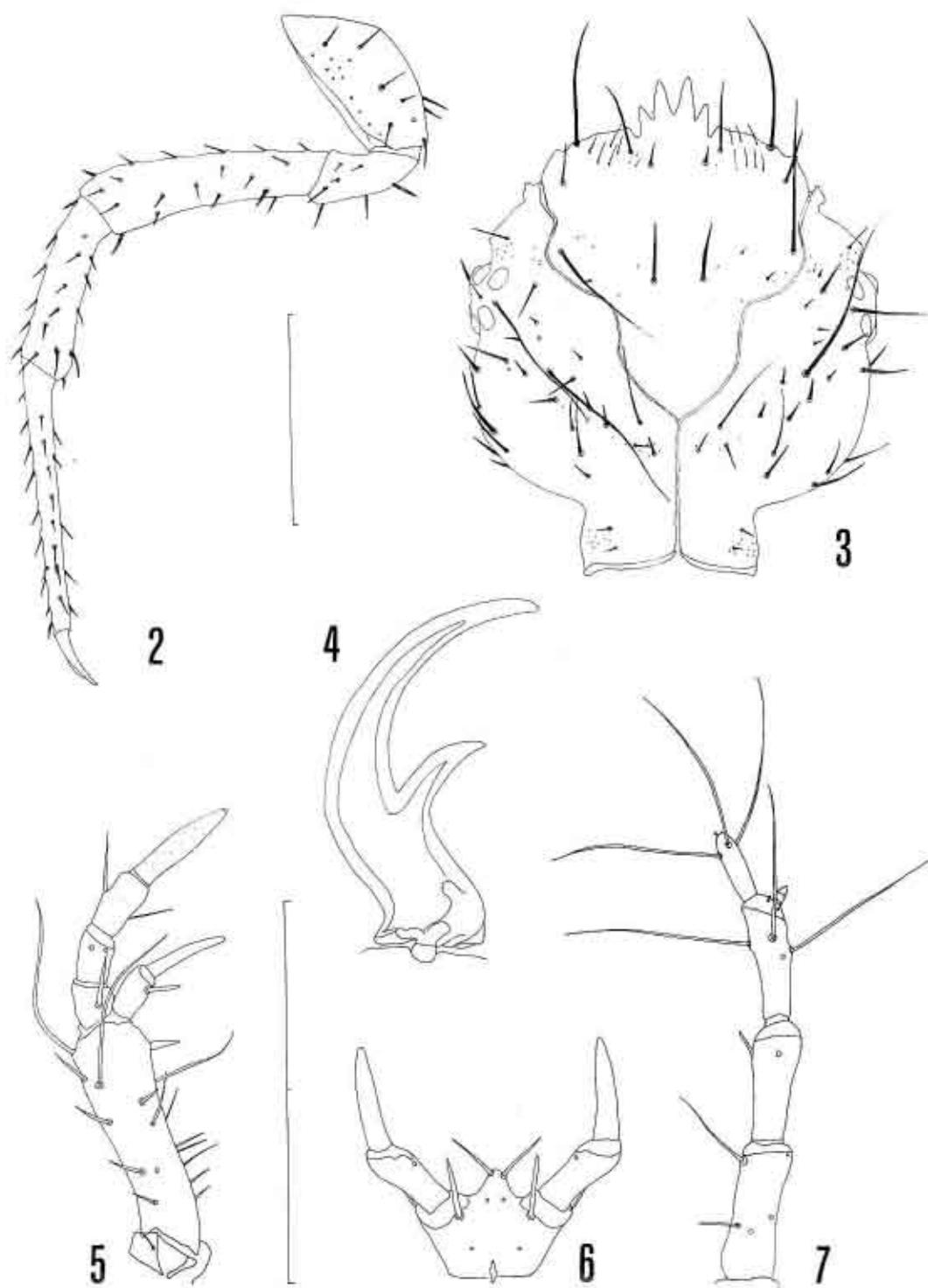


Fig. 2.-7. *Nebria jockischi*, 3-rd instar, hind leg, ventral aspect (2), right mandible (4), right maxilla (5), labium (6) and antenna (7), (scale 1 mm).

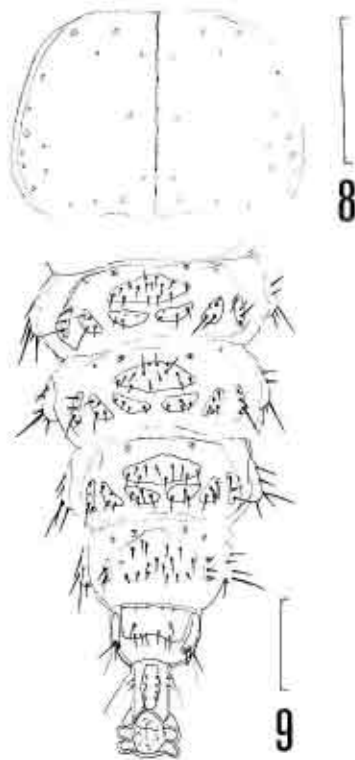


Fig. 8-9. *Nebria jockischi*, 3-rd instar, pronotum (8) and 5.-10. abdominal sternites (9), scale 1 mm

Material examined

Three larvae of the 3-rd instar found together with the adults on the gravelly banks of a small tributary of the Bystrička stream in the State Nature Reserve Šrámková in the Malá Fatra mountains (square 6880 of the map grid of the Data Bank of the fauna of Slovakia) on 1. 7. 1983, leg. author, coll. Slovak National Museum, Bratislava and author.

Key to the 3-rd instar larvae of the genera *Nebria* and *Oreonebria* (modified after LUFF 1972 and KLAUSNITZER 1991)

- 1 (2) Head slender, ca. 1.3 as long as broad, urogomphi relatively short, with only 15 setae
 *Oreonebria castanea* BONELLI

- 2 (1) Head broader, urogomphi with at least 30 setae.
 3 (8) Second antennal article with at least one seta.
 4 (7) Urogomphi distinctly twice longer than head, approximately with 35 setae on each.
 5 (6) Second antennal article with one seta
 *Nebria jockischi* STURM
 6 (5) Second antennal article with 3 or 4 setae
 *Nebria germari* HEER
 7 (4) Urogomphi less than twice longer than head, with more than 40 setae on each, second antennal article with 2-4 setae
 *Nebria hellwigi* PANZER
 8 (3) Second antennal article without setae.
 9 (10) Larvae small sized, head width in L3 ca 1.02 mm. Urogomphi with more than 30 setae, upper seta on the first antennal article very long
 *Nebria breinii* GERMAR
 10 (9) Larvae larger.
 11 (16) Abdominal tergites with 2 strong lateral setae.
 12 (13) Urogomphi 2.0-2.3 times longer than head, with more 30 setae on each. Head in L2 1.60-1.64 mm, in L3 2.00-2.30 mm, a lowland species
 *Nebria livida* L.
 13 (12) Urogomphi max. 1.6 times longer than head, montane species.
 14 (15) Urogomphi ca. 1.6 times longer than head, with at least 40 light setae
 *Oreonebria arata* DEJEAN
 15 (14) Urogomphi ca. 1.6 (L2) or 1.0 (L3) longer than head, with 30 setae
 *Nebria gyllenhalii* SCHOENHERR
 16 (11) Abdominal tergites with 3 distinct lateral setae.
 17 (18) Second antennal article ca. as long as wide, head width in L2 1.14-1.38 mm, in L3 1.53-1.77 mm
 *Nebria salina* FAIRMAIRE
 18 (19) Second antennal article slightly longer than wide, head width in L2 1.16-1.29 mm, in L3 1.62-1.83 mm
 *Nebria brevicollis* (FABRICIUS).

References

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