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The larva of *Hydropsyche botosaneanui* MARINKOVIC-GOSPODNETIC 1966 (Trichoptera, Hydropsychidae)

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With 2 figures and 1 table

Schlagwörter: Hydropsyche, Trichoptera, Insecta, Deutschland, Montanbach, Rhithral, Taxonomie, Morphologie, Larve

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The larva of *Hydropsyche botosaneanui* is described from a mountain brook in Germany. A new morphometric character is used to separate it from *Hydropsyche incognita* and *H. pellucidula* in the 5th instar larval stage. The species is an inhabitant of rhithral stream regions with an early flight period from may to june.

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1 Introduction

Hydropsyche botosaneanui is a rare species of the *H. pellucidula*-group described by MARINKOVIC-GOSPODNETIC (1966, 1979) from the balkan peninsular. According to new records in the last decade (4.3) the species is distributed from Central to Southeast Europe. Within the Central European species of the *H. pellucidula*-group (*Hydropsyche pellucidula* (CURTIS 1834), *H. botosaneanui* MARINKOVIC 1966, *H. dinarica* MARINKOVIC 1979, *H. incognita* PRITSCH 1993) only the larva of *H. botosaneanui* was unknown. The following description now makes it possible to distinguish the larvae of all four species.

2 Material examined

The description of *H. botosaneanui* is based on 10 specimens from the epirhithral region of the Weierbach (580 m a.s.l., tributary system: Dill/Lahn/Rhein) downstream the village Liebenscheid (Topographic map TK25: 5314 Rennerod, 8°06'19"E, 50°41'58"N; Rhineland-Palatinate, Germany).

Material (m: male, f: female, p: pupa, l: larva)

H. botosaneanui: Larval sclerites of 2 p (m, f) laboratory reared, 96/05/31; 2 p (m), 96/05/25; 2 l (5th instar), 96/04/06; 4 l (4th instar), 94/09/13; leg. Fischer, coll. Fischer/Neu.

H. pellucidula: Larval sclerites of 9 p (m) in parenthesis from different locations in Germany; leg. Pitsch 1984-1987, coll. Pitsch; 1 l (5th instar), 94/05; leg. Kunze, coll. Fischer/Neu.

H. incognita: Larval sclerites of 10 p (m) from different locations in Germany; leg. Pitsch 1984-1987, coll. Pitsch.

3 Description of the final instar larva of *H. botosaneanui*

General aspect. Head with unusually dark ground colouring (Fig. 1a, d). Size: 18-20 mm in length without anal prolegs. Width of cephalic capsule: 1.8-2.0 mm.

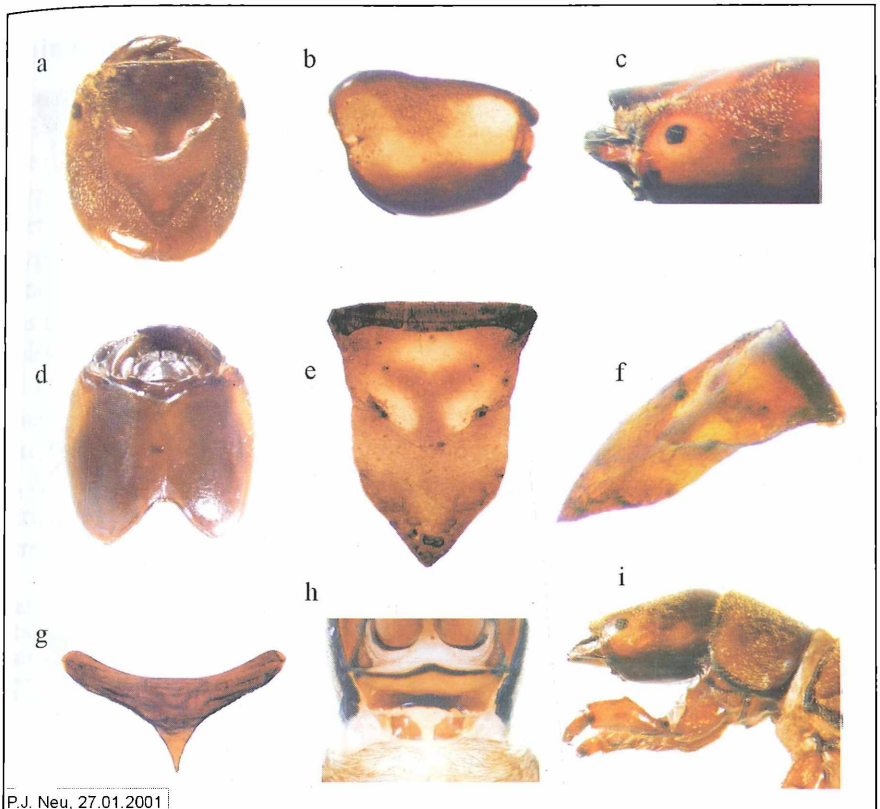
Parietalia (Fig. 1a-d, i). Dorsal: Complete dark brown, only in brighter specimens a narrow, slightly brighter posterior band is visible. Lateral: Light brown with a dark brown saddle shaped dorso-median pattern which usually reaches to the dark brown ventral boundary. Eyes surrounded by a yellowish ring. Ventral: complete dark brown. Stridulation ribs with 6-7 per 1/10 mm. Around the eye and around the frontoclypeal margin the dorsal part of the parietalia is covered dense with short and bright bristles.

Frontoclypeus (Fig. 1e-f). Ground colouring dark brown to blackish. Frontoclypeal anterior spot less distinct and not fused with median marks. These are brighter and run along the clypeal edge not reaching the outer clypeal margins. They enclose a black spot (pretentorina) on each side. Posterior spot indistinct and barely visible. Frontoclypeal edge continuous. Outline rough-edged, with nearly trapezoid posterior part, rectangular median part and triangular posterior part.

Submentum (Fig. 1g). Lateral lobes narrow and elongated. Anterior median margin with a distinct hump. Posterior margin slender and pointed.

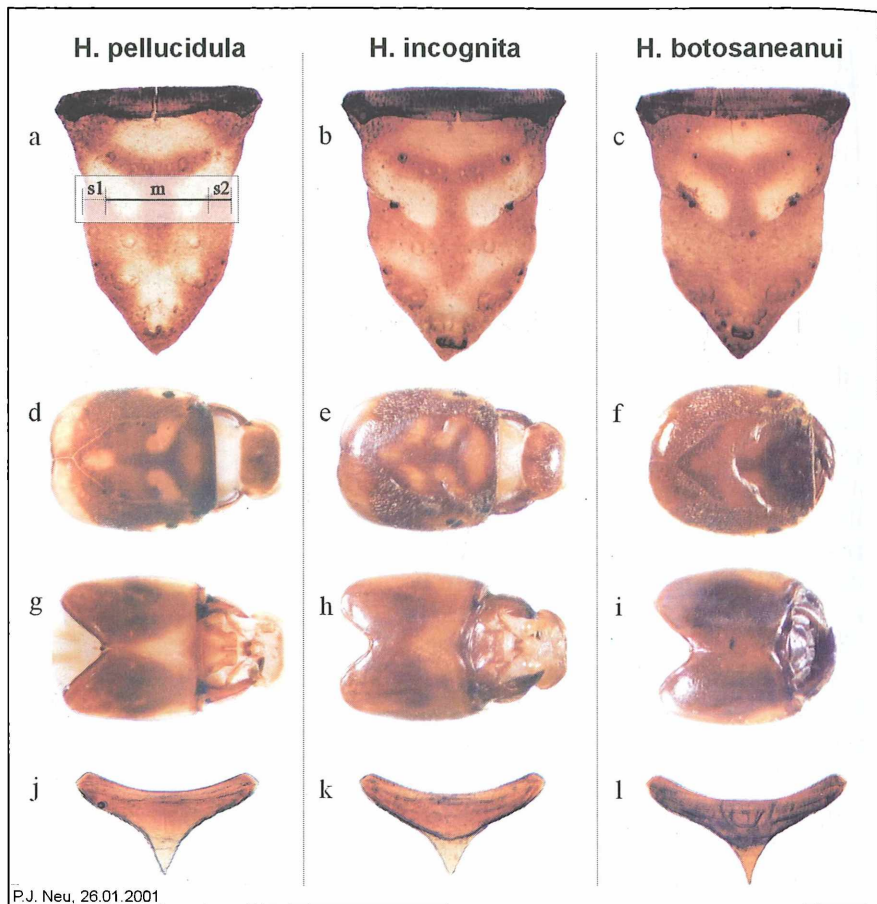
Posterior prosternites (Fig. 1h). Proximal parts sclerotized, rectangle to rhombic in shape and dark brown in color. Lateral parts light and less sclerotized.

Nota (Fig. 1i). Pronotum dark, mesonotum middle and metanotum light brown. All nota densely covered with short bright or light brownish bristles.



P.J. Neu, 27.01.2001

Fig. 1: *Hydropsyche botosaneanui*. a = head dorsal, b = parietalia lateral, ; c = head lateral, d = head ventral, e = frontoclypeus dorsa,; f = frontoclypeus dorso-lateral, g = submentum, h = posterior prosternites, i = larva dorso-lateral



P.J. Neu, 26.01.2001

Fig. 2: a, d, g, j = *Hydropsyche pellucidula*. b, e, h, k = *H. incognita*. c, f, i, l = *H. botosaneanui*. a-c = Frontoclypeus, d-f = head dorsal, g-i = head ventral, j-l = submentum

4 Discussion

4.1 Differential diagnosis

The larva of *Hydropsyche botosaneanui* is very similar to *H. incognita*. Most significant feature for separating *H. botosaneanui* from *incognita* and *pellucidula* is the distance between the center of the black spots (pretentorinae) on the frontoclypeus expressed as ratio of $m/(s1 + s2)$ (Fig. 2a) with m : distance between the pretentorinae and $(s1+s2)$: sum of distances between pretentorinae and lateral clypeus margin. In *H. botosaneanui* this ratio (1.31-1.74) is smaller than in *incognita* (1.94-2.28) and *pellucidula* (2.26-2.52) (Tab. 1). The constancy of this feature has to be proved for *H. botosaneanui* specimens from other locations but it enables us to distinguish 100 % of the examined material. Further characteristics of *H. botosaneanui* which separates it from *H. pellucidula* are the broader and rough-edged shape of the frontoclypeus (Fig. 2a-c), the colouring patterns on the parietalia (Fig. 2d-i), the median hump on the submentum and its shape (Fig. 2j-l). *H. botosaneanui* is also very similar to *H. morettii* DE PIETRO 1996 which is restricted to South and Central Italy and inhabits metarhithral to epipotamal stream regions.

Tab. 1: Ratio: $m/(s1 + s2)$. No. 1-6 of *H. botosaneanui*: 5th instar; 7-10: 4th instar. m = distance between the pretentorinae, $(s1+s2)$ = sum of distances between pretentorinae and lateral clypeus margin

Species	01	02	03	04	05	06	07	08	09	10	Range	\bar{x}
<i>H. pellucidula</i>	2.37	2.52	2.30	2.57	2.29	2.36	2.27	2.38	2.43	2.26	2.26-2.52	2.37
<i>H. incognita</i>	2.00	2.01	1.94	2.15	2.09	1.94	1.99	2.28	1.97	2.06	1.94-2.28	2.04
<i>H. botosaneanui</i>	1.55	1.54	1.74	1.65	1.31	1.63	1.44	1.43	1.68	1.46	1.31-1.74	1.54

4.2 Ecology

In Central Europe *H. botosaneanui* seems to be an inhabitant of (epi-)rhithral stream regions of montane altitudes. In the Weierbach *H. botosaneanui* is coexisting with *H. dinarica*, *H. saxonica*, *H. instabilis* and *H. siltalai*. Here it shows an early flight period from may to june (FISCHER & NEU 1998). TOBIAS (1999) mentioned an old imaginal record of the species from the Taunus (Germany) caught in August 1913 by Döhler showing that the flight period might be more extended.

4.3 Distribution

The presence of *H. botosaneanui* has been ascertained for Germany (PITSCH 1993, FISCHER & NEU 1998, TOBIAS 1999), Bosnia-Herzegovina (MARINKOVIC-GOSPODNETIC 1978), Romania (BOTOSANEANU 1993), Greece and Turkey (MALICKY 1999).

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