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The larva of *Hydropsyche botosaneanui* MARINKOVIĆ-GOSPODNETIĆ 1966 (Trichoptera: Hydropsychidae)

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Abstract

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 *Hydropsyche pellucidula* in larval stage (5th instar). The species is part of a diverse lotic rhithron community and shows a flight period from May to June.

Key words: Trichoptera, Hydropsychidae, taxonomy, description, larva, rhithral, Europe, Germany.

Introduction

Hydropsyche botosaneanui is a rare species of the *H. pellucidula*-group described by MARINKOVIĆ-GOSPODNETIĆ (1966, 1979) from the Balkan Peninsula. According to new records in the last decade 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* MARINKOVIĆ, 1966, *H. dinarica* MARINKOVIĆ, 1979, *H. incognita* PITSCH, 1993) only the larva of *H. botosaneanui* was unknown. The following description allows to separate the larvae of all four species.

Examined material

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 Liebenseid (Top. map 5314 Rennerod, 8°06'19'E, 50°41'58'N.; Rhineland-Palatinate, Germany).

Material (p: pupae, L: larvae):

H. botosaneanui: Larval sclerites of: 2p (♂, ♀) laboratory reared, 96/05/31; 2p(♂♂) in parenthesis, 96/05/25; 2L (5th instar), 96/04/06; 4L (4th instar), 94/09/13; leg. Fischer. Larvae and pupae have been deposited in the entomological collections of the Research Institute Senckenberg in Frankfurt a.M., catalogue no. SMFTri13351-13355.

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

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

Description of the final instar larva

General aspect: Head with unusually dark ground coloring (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 with 6-7 stridulation ribs per 1/10 mm.

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

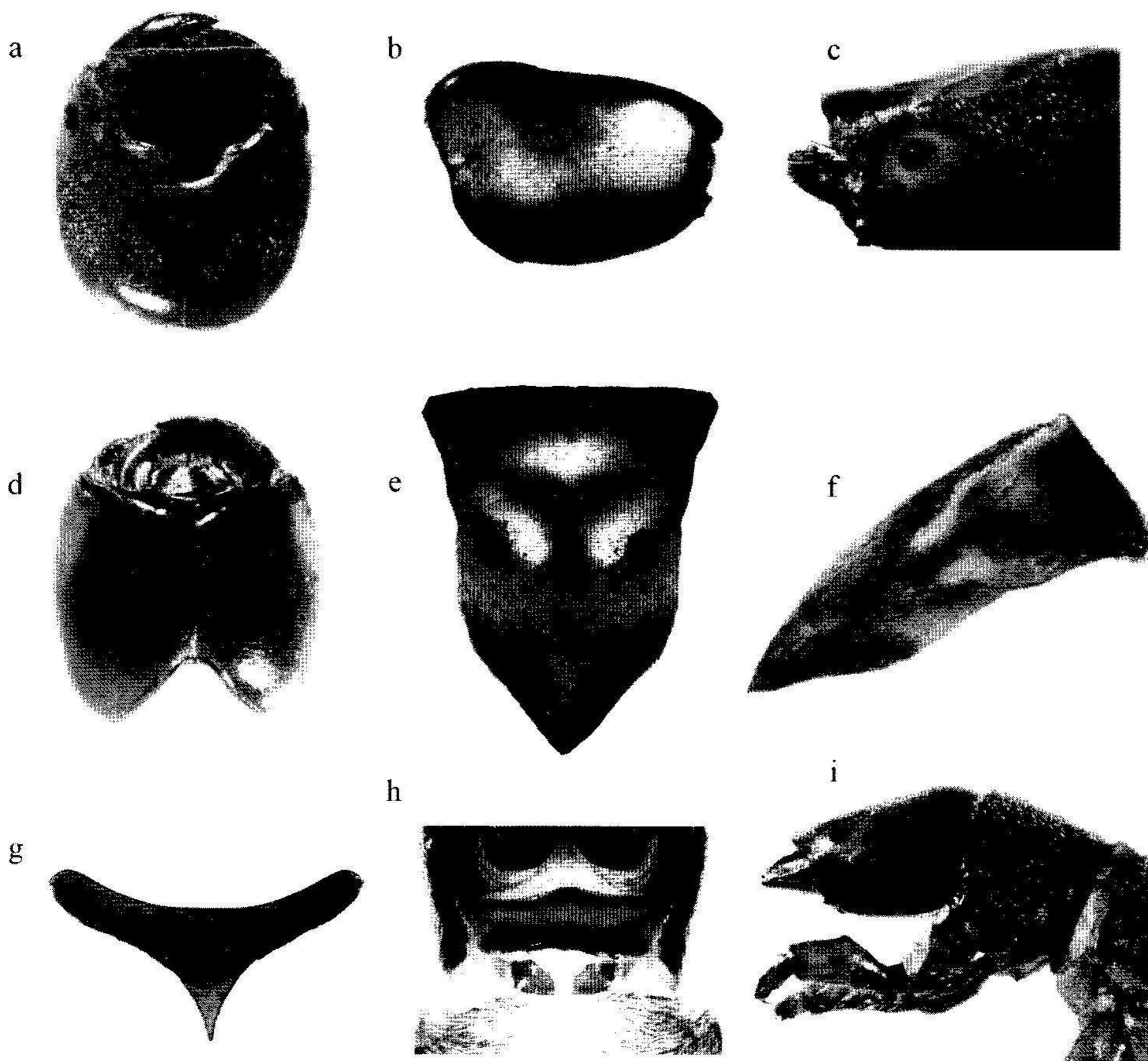
Posterior prosternites (Fig. 1h): Proximal parts sclerotized, rectangle to rhombic in shape and dark brown in color. Lateral parts light and less sclerotized.

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

Discussion**Differential diagnosis**

The larva of *Hydropsyche botosaneanui* is very similar to *H. incognita*. The 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 checked for its validity on *H. botosaneanui* specimens from other localities but so far it enables us to distinguish 100% of the examined material. Further characters of *H. botosaneanui* which separate it from *H. pellucidula* are: the broader and more angular shape of the frontoclypeus (Fig. 2a-c), the coloring 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.

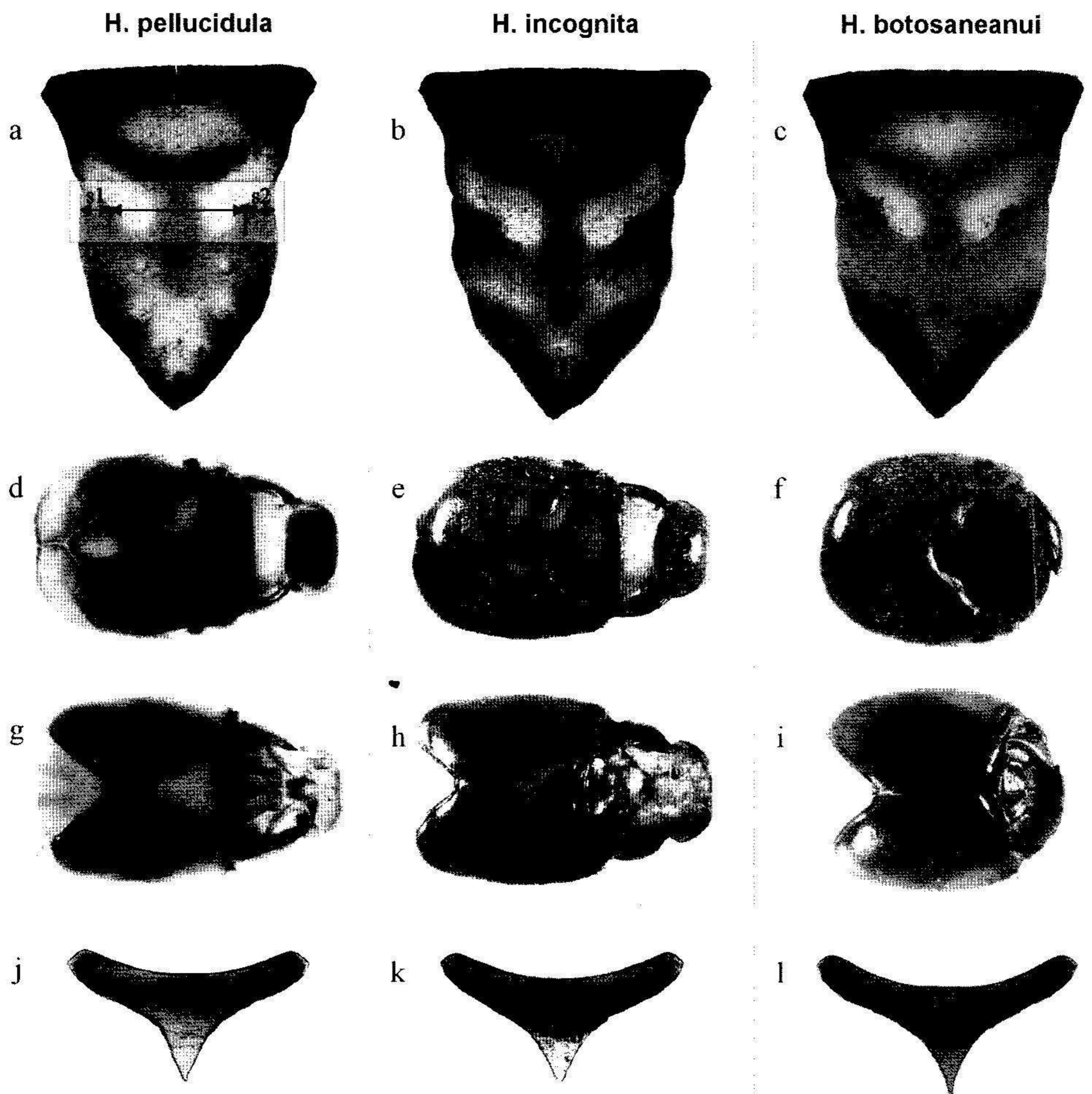


P.J. Neu, 27.01.2001

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

Tab. 1. Ratio $m/(s1 + s2)$ (*H. botosaneanui*: No. 1-6, 5th instar and 7-10, 4th instar).

Species	01	02	03	04	05	06	07	08	09	10	Range	Ø
<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



P.J. Neu, 26.01.2001

Fig. 2. *Hydropsyche* spp.: 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.

Ecology

In Central Europe *H. botosaneanui* is an inhabitant of lotic rhithral stream regions. 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.

Chorology

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

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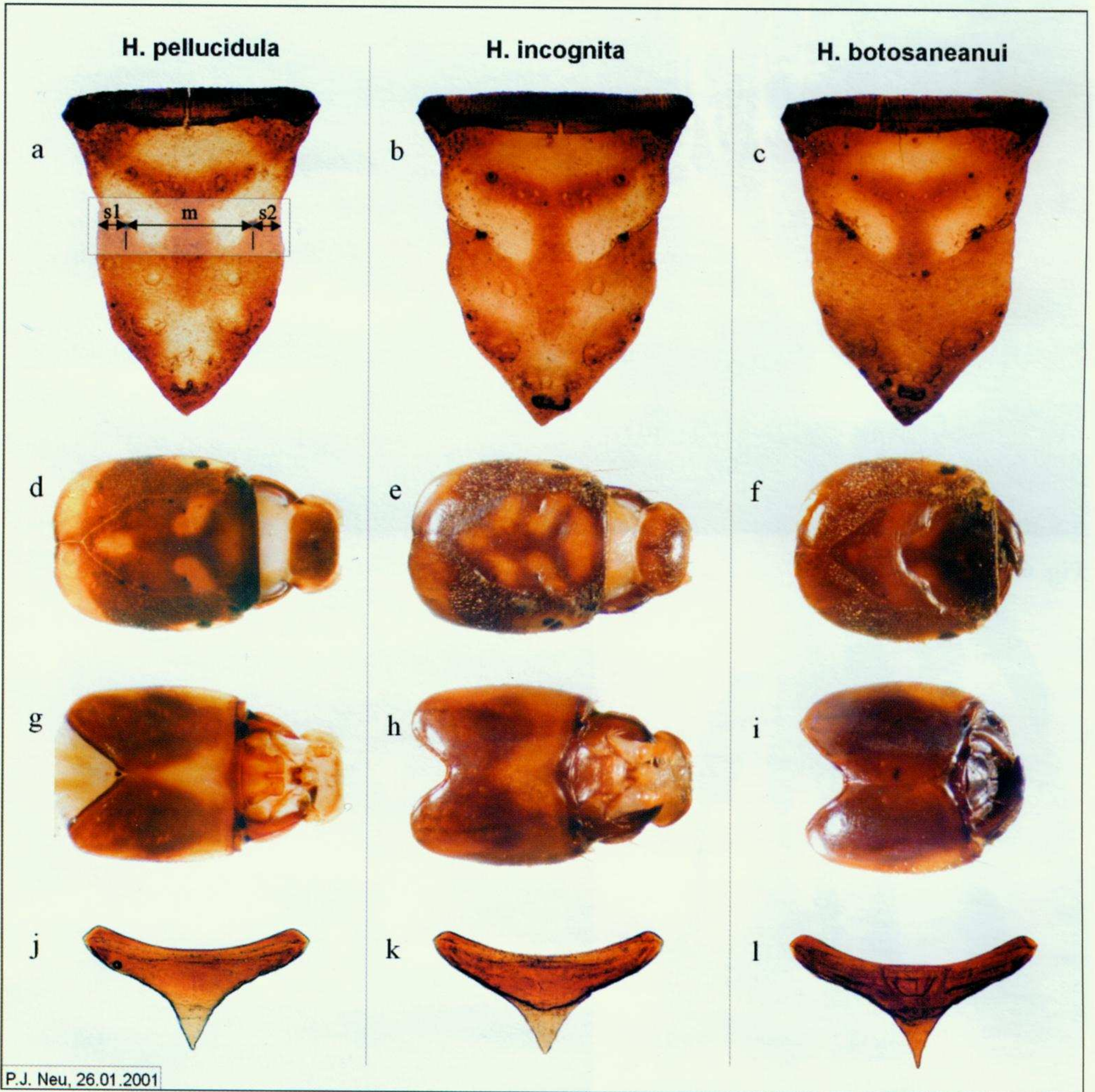


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