

First record of *Diamesa thomasi* Serra-Tosio, 1970, from Croatia

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Plitvice National Park is situated in the mountainous karst area of Croatia. When conducting studies of the chironomid fauna of the park, we found that *Diamesa thomasi* Serra-Tosio, 1970 were abundant in the stream Bjela rijeka. The streams Bijela rijeka and Crna rijeka form the Matica River, which is the main surface-water supplier of the lakes in the park. This is the first record of *D. thomasi* in Croatia. The river's source, the Bijela rijeka spring, is located at an altitude of 719 m a.s.l. at 44°50'05" N and 15°33'43" E. The Bijela rijeka spring is a rheocrene that dries out only during extremely dry years (Marušić & Čuruvija 1991). Spring water emerges from substrate composed mainly of cobbles and sand with a few interspersed moss-covered boulders. Because of these characteristics, it is considered a psammorheocrene type of spring (Gerecke et al. 1998). The tree canopy is open during spring, and there is much aquatic vegetation and accumulated allochthonous organic material during autumn and winter.

A pyramid-type emergence trap was operated at six locations from February 2007 to February 2008. *Diamesa thomasi* was recorded at three of them. In total, we have collected 94 adult specimens of *D. thomasi* from these traps. Maximum number of specimens collected at one time is 48. All specimens were found in winter / spring samples with the emergence period ranging from November until May.

Serra-Tosio (1970) considered *D. thomasi* as a member the *dampfii* group with *Diamesa dampfi* (Kieffer, 1924) as sister species and *Diamesa permacra* (Walker, 1856) as their closest relative. These midges are characterized by the combination of a typical *Diamesa* wing and a flattened, but not completely cordiform fourth tarsi (Fig. 1A). We used Sanger-sequencing on frequently used DNA markers, including mitochondrial cytochrome *c* oxidase subunits I and II (COI, COII) (e.g. Ekrem et al., 2010) to quickly check for relationships between *D. thomasi* and 55 other Diamesinae species (Willassen unpublished data). Three specimens were prepared for DNA analysis according to the procedure described by Ekrem et al. (2010) and vouchers are kept in the collections of Bergen University Museum. Unfortunately, the standard DNA barcoding primers (Folmer et al. 1994) did not yield clean sequences with unambiguous base calls for COI. However, the COII segment places *D. thomasi* as sister to *D. permacra* in the dataset. Unfortunately, the dataset currently lacks sequences from *D. dampfi*.

Morphologically, the male genitalia of *D. thomasi* (Figs. 1C-D) correspond with the description by Serra-Tosio (1970, figs. 8, 9). Serra-Tosio (1970) also included a figure of the female genitalia in lateral view and Willassen and Serra-Tosio (1988, figs. 3.4, 3.6) showed that the hypothetical sister species, *D. dampfi* (Kieffer, 1924) differs from *D. thomasi* by possessing a long and digitiform gonocoxite IX. In ventral view (Figs. 1E-F) the female genitalia of *D. thomasi* appear more similar to *D. permacra* (see Willassen 1982, fig.10.2).

This study is important in that it expands the known distribution of *D. thomasi*. Since its first discovery in the French Pyrenées (Serra-Tosio 1970), and with additional findings in the region by Moubayed-Breil (2007), the distribution of *D. thomasi* is presently known to range from the Caucasus Mountains, the Tatra Mountains and Carpathians (Kownacki and Kownacka 1974; Kownacki 1988), to the Dinaric Mountains in Croatia. *Diamesa thomasi* has also been recorded from the Thuringian Forest in Germany (Bellstedt 1992).

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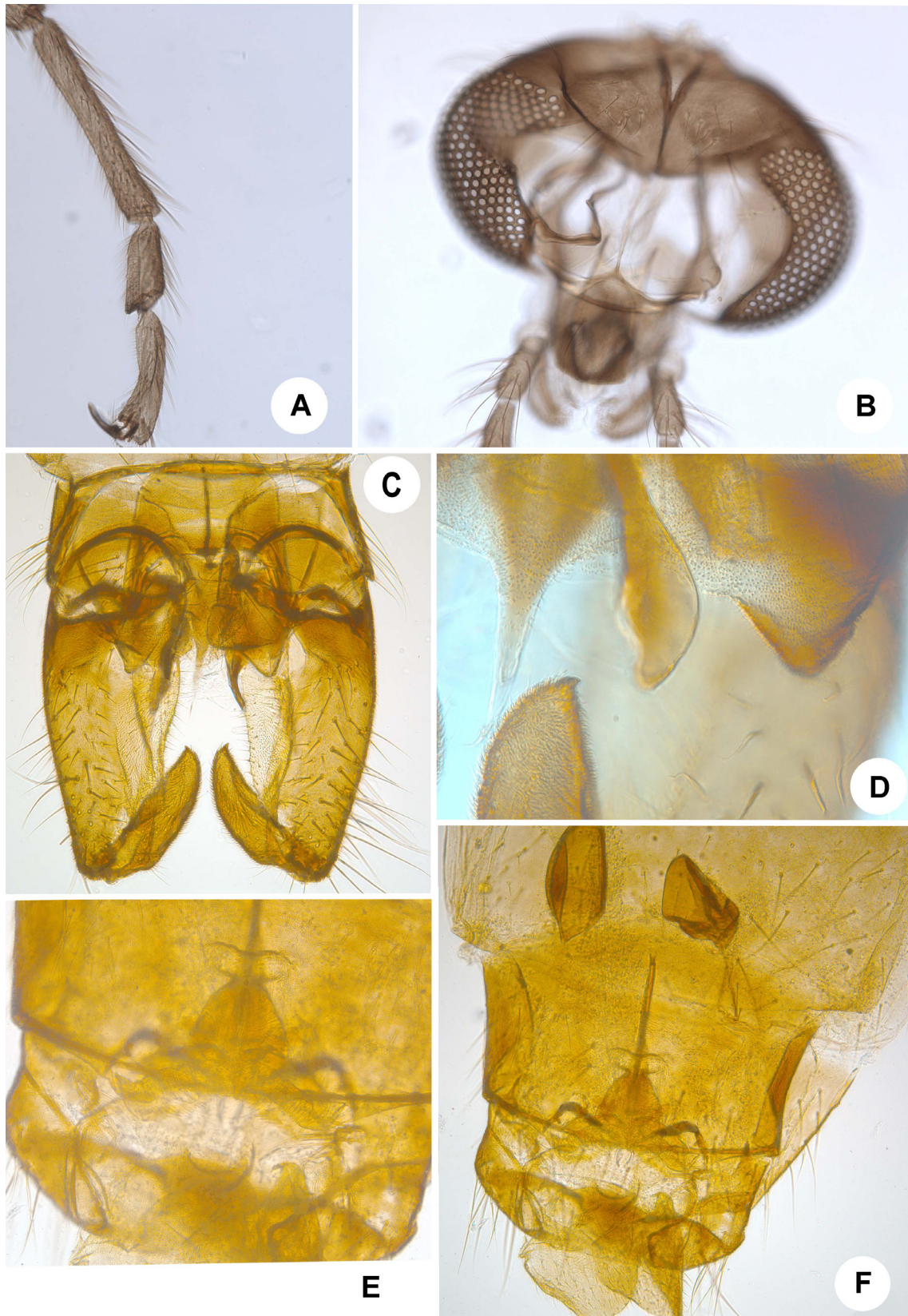


Figure 1. *Diamesa thomasi* Serra-Tosio, 1970 from Croatia. A. leg with typical shape of tarsus four; B. male head; C. male genitalia; D. details of male genitalia; E. female genitalia in ventral view; F. female genitalia with seminal capsules.

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