

CHIRONOMIDAE (INSECTA, DIPTERA) FROM HUNGARY 3.  
THE PUPA OF *PARATENDIPES NUBILUS* (MEIGEN)

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The pupa of *Paratendipes nubilus* (MEIGEN) is described and figured for the first time based on material from Hungary and The Netherlands.

MEIGEN (1830) described the imago of *Paratendipes nubilus* (type locality not given). ALBU (1980) described and figured the male imago too (Fig. 1), but she did not know the larva or pupa. We found a male pupa from the River Tisza (Tiszaroff, Hungary) and a male pupa from the River Rhine (Waal, The Netherlands) in which we could see the hypopygium (Fig. 2). This hypopygium closely resembles that figured by ALBU (loc.cit.) and CRANSTON *et al.* (1989) (Fig. 3). The pupa differs from the generic diagnoses of PINDER and REISS (1986) and LANGTON (1991): intersegmentally III/IV and IV/V there is no band of shagreen and segment VIII has 5 lateral taeniae, not 4. *Paratendipes basidens* TOWNES (EPLER & FERRINGTON, 1994) is very similar but *P. nubilus* has cephalic tubercles, lacking in *P. basidens*.

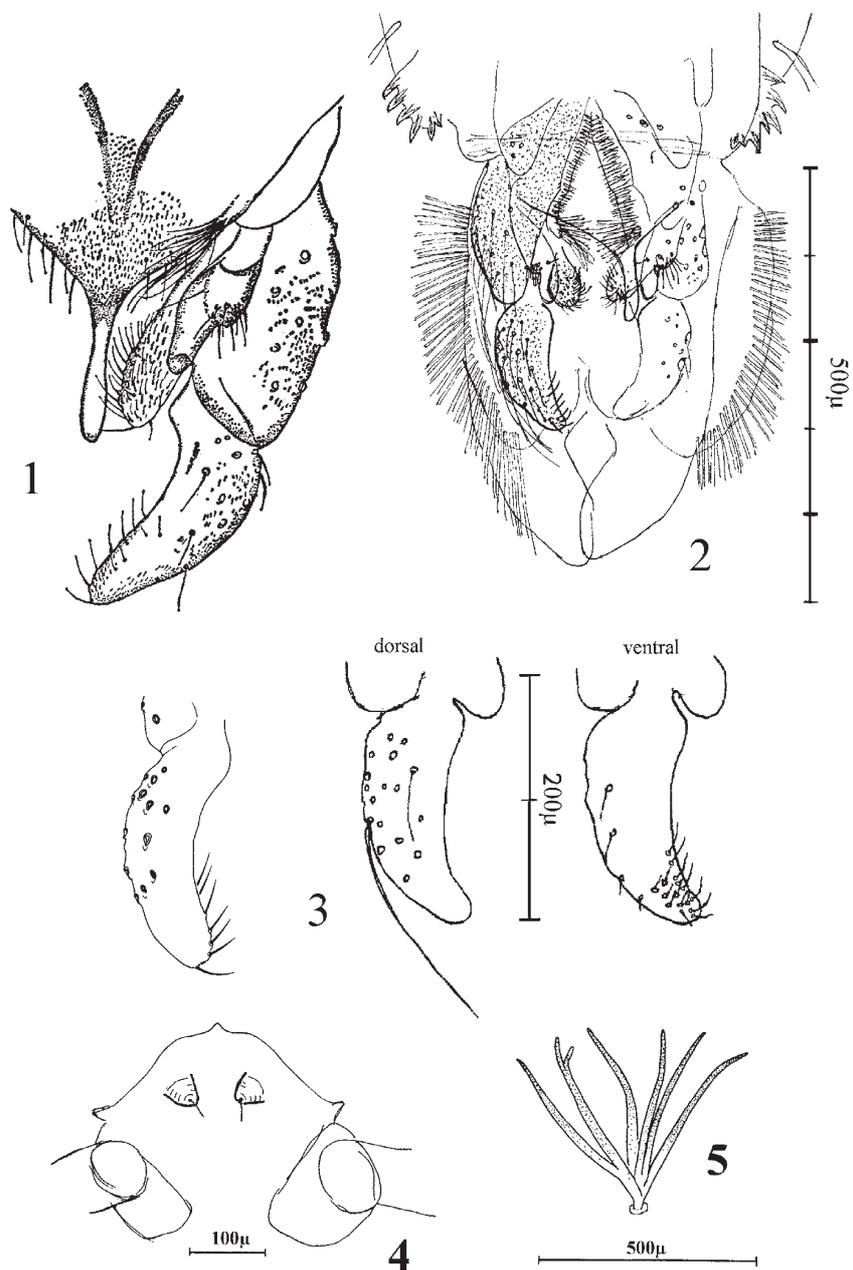
Pupal description (n = 2)

Colour: exuviae brownish.

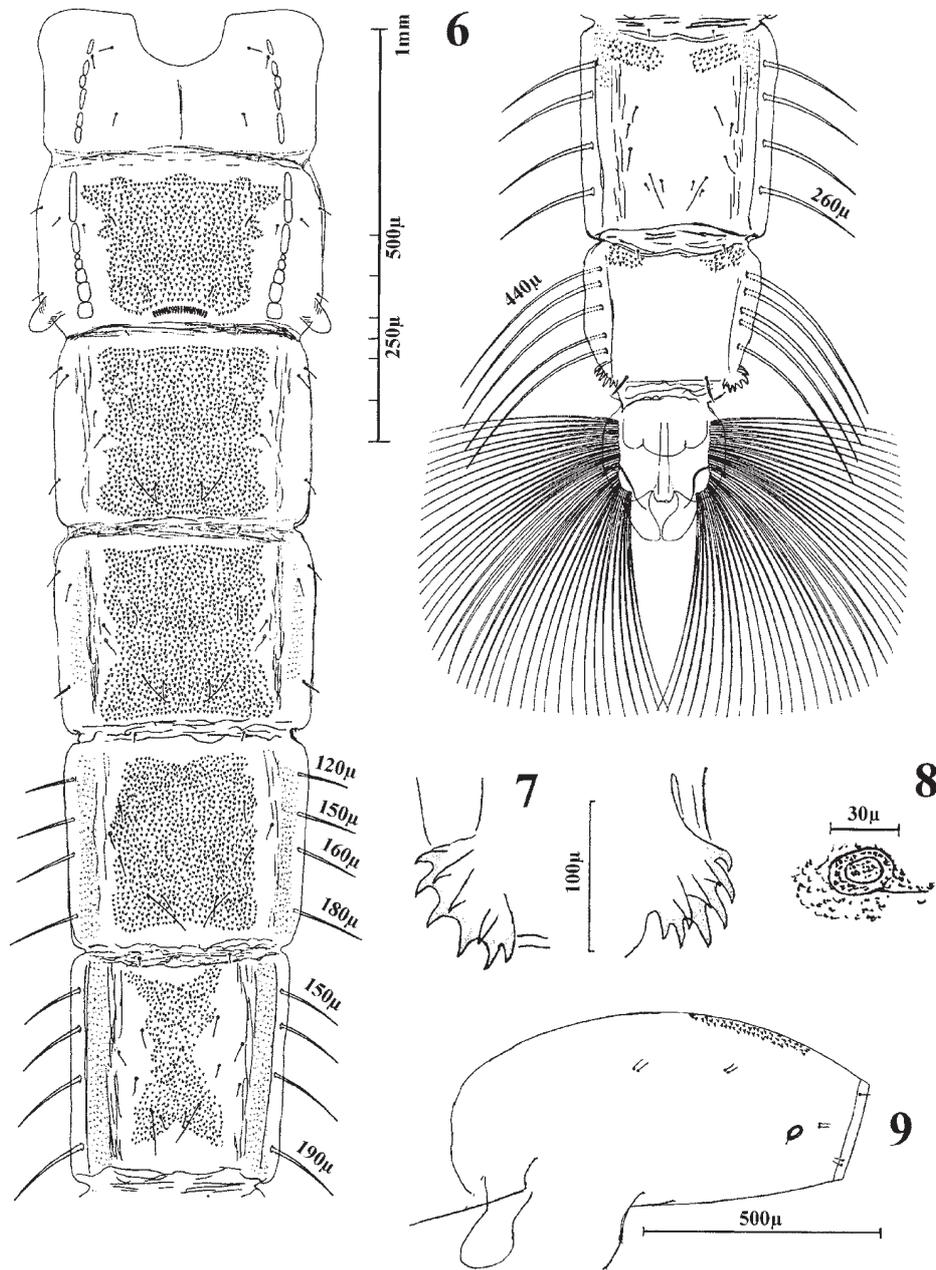
Length: Total 4.9–5.3 mm. Cephalothorax 1.1–1.2 mm. Abdomen 3.8–4.1 mm.

Cephalothorax: Cephalic tubercles present, bearing 30 µm long frontal setae; frontal warts absent (Fig. 4). Thorax with a dorsomedial group of small tubercles; 2 precorneal and 3 anteprenotal setae; dorsocentral seta 1 adjacent to 2, and 3 adjacent to 4 (Fig. 9). Thoracic horn apparently with 6 smooth, slender branches, one of them bifid at apex (Fig. 5); its base is oval with a circular/oval tracheal bundle (Fig. 8).

Abdomen: Tergite I bare; tergites II–V with a more or less rectangular area of coarse points; tergite VI with the point patch roughly X-shaped; tergites VII and VIII with a small oval/elliptical patch of fine points on each side anteriorly; tergite IX bare. Hook row of segment II of 20 weak hooklets. Paratergites IV–VI with a band, nearly the length of the paratergite, of very small points; on VII the band is only 1/4 the length of the paratergite (Fig. 6). Sternite I with a few scattered small points; II–VIII apparently bare. Parasternite with moderately developed vortex. Comb of segment VIII a cluster of 6 large pointed teeth with 3 smaller basally (Fig. 7). Well-developed pedes spurii B present on segment II. Conjunctions III/IV and IV/V bare. Tergites with 1 pair of small O-setae. Lat-



**Figs 1–5.** *Paratendipes nubilus* (MEIGEN) pupa. 1 = hypopygium after ALBU, 2 = segment IX and hypopygium from The Netherlands, 3 = hypopygium after CRANSTON, 4 = frontal apotome, 5 = thoracic horn



**Figs 6–9.** *Paratendipes nubilus* (MEIGEN) pupa. 6 = tergites, 7 = comb of segment VIII, 8 = basal ring of thoracic horn, 9 = thorax

eral setae of segment I 0, II–IV 3; lateral taeniae of V 3 (120–180 µm long), VI 4 (150–190 µm long), VII 4 (260 µm long) and VIII 5 (440 µm long). Anal lobes with a uniserial fringe of 36/38 taeniae plus a pair of narrow dorsal taeniae. Genital sacs of male extend beyond the anal lobe by half its length.

**Biology and distribution.** Pupae and pupal exuviae were obtained from large lowland rivers with moderate to slow flow, in The Netherlands and Hungary during June 1993.

## DISCUSSION

The pupa of *P. nubilus* differs from those of *albimanus* (MEIGEN) and *P. nudisquama* (EDWARDS) described in PINDER and REISS (1986) and LANGTON (1991) as follows (*P. albimanus* and *P. nudisquama* in parentheses): thoracic horn with 6 branches (10); frontal setae short, 30–32 µm (60–125 µm); basal ring of thoracic horn more circular (more oval); armament of tergites II–V more or less rectangular (more or less like a broad X); conjunctives III/IV and IV/V bare (armed); hook row of segment II with 20–21 hooklets (25–75); hook row 130 µm long (300–430 µm); dorsal setae 4 of tergites III–VII twice as long as the other dorsal setae (all dorsal setae more or less equal in length); tergite VIII has 5 lateral taeniae (4); comb of segment VIII different.

Associated imago not examined.

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*Acknowledgements* – We wish to thank PETER H. LANGTON for kindly correcting our manuscript. We thank also PÁL GULYÁS (VITUKI Budapest), who supported this work; as well PÉTER JUHÁSZ and BÉLA CSÁNYI who kindly helped us by collecting the material.

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Revised version received August 31, 2005, accepted October 3, 2005, published October 31, 2005