NEW CHIRONOMID PUPAL TYPES FROM NORWAY, ONE WITH A MALE PHARATE ADULT: *PSEUDOSMITTIA PARASPINISPINATA* N.SP.

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Abstract

Three new pupal types from Norway are described, one with an associated male: *Pseudosmittia parspinispinata* n.sp.

Introduction

Following the International Symposium on Chironomidae in Trondheim, VS collected some pupal exuviae for PHL in lakes and streams around Stugudalen, many hitherto unrepresented in PHL's reference collection, two pupal types of Orthocladiinae not represented in Langton (1991) or Langton and Visser (2003) and a *Micropsectra* (Chironominae, Tanytarsini) not keyed in Stur and Ekrem (2006). These new forms are here described: anyone visiting the Stugudalen area in July is alerted to the need to obtain associated adult male material of the unnamed forms. Terminology for pupae is as in Langton (1991), except that T is the abbreviation for taeniae instead of S, and terminology for adults as in Sæther 1980. (Note: In conformity with Langton (1991) the apical transverse band of a tergite, though in many cases separated from the tergite by a narrow band of unsclerotized integument, so that it can be tucked under the tergite, is not considered to be conjunctival in origin. Thus armament that may appear to be situated on conjunctive III/IV is described as the apical band of tergite III.)

Descriptions

***Cricotopus (Cricotopus)* Pe18**

A detailed description of this form is unnecessary as it keys to *C. (C.) annulator* in Langton (1991) and Langton and Visser (2003). So closely does it resemble the exuviae of *C.(C.) annulator*, that routine inspection could overlook the strong, thumb-shaped projection, often pointed at tip, on the posterior thoracic mound (Figure 1). No intermediates were present in the collections and many hundreds of *C. (C.) annulator* exuviae have been examined since and none has shown even an incipient projection on the posterior thoracic mound. It is possible that this species could be only a local form of *C. (C.) annulator*, but in the authors' opinion, it is more likely to be distinct as the character has not been recorded for any other *Cricotopus* species.

Figure 1. Two examples of the posterior thoracic mound of *Cricotopus (Cricotopus)* Pe18. (scale line = 0.1mm)

Collection sites: Vestre Rotåa river, 3.3km SE of Stugudalen (62º53'41.23''N, 11º56'23.92''E), common; a small meandering brook 4km SE of Stugudalen (62º53'39.76''N, 11º57'36.38''E). (It is noted that all *C.(C.) annulator* collected at the same time in the Trondheim area (PHL) were typical.)

***Pseudosmittia paraspinispinata* n.sp.**

The collection from a lake between Storsola and Ekonhammeren, 7.8 km E of the Nedalshytta cottage (62˚02'54.82''N,12˚14'50.95''E) contained a

number of pupal exuviae (paratypes) and a pharate adult male (holotype; to be deposited in NTNU-VM: Department of Natural History, University Museum, Norwegian University of Science and Technology, N-7491, Trondheim) of a species of *Pseudosmittia* not described in Saether and Ferrington's (2011) revision of the genus.

Etymology. Greek *para*-, meaning close to, and *spinispinata*, a species described by Ferrington and Sæther (2011).

Pupal exuviae.

Total length 3.15-3.8mm (m., n=5), 2.7, 2.9mm (f., n=2). Cephalothorax and abdominal tergites pale brownish yellow.

Cephalothorax: frontal apotome rugose. Frontal setae absent. Thoracic setae difficult to make out: maps about 45µm long and longest dcs about 90µm long. Apex of antepronotum smooth.

Abdomen: Tergite I armed with small points laterally; II-VII covered with points, the anterior and posterior transverse bands joined medially by smaller points (Figure 2); VIII with only the anterior transverse band, the posterior band reduced to a few small points medio-laterally. Apical bands present on tergites II-VI, breadth about 0.18 segment width, but poorly developed on II , of 0-16, 17-46, 42-52, 16-49, and 34-48 points respectively (n=3). Sternites I-IV unarmed, V with an anterior band of minute points and a meagre posterior transverse band of similar points; VI and VII with similar armament, but progressively the points are a little larger and the bands more extensive; VIII with the anterior band only. Sternites II-VII with apical point bands of similar extent to those dorsally, of 0-5, 21-90, 83-99, 104-109, 81-104 and 0-97 points (n=3). Anal macrosetae absent. Male anal segment ending dorsally in a pair of crumpled projections, unarmed or with a very few minute points medially. Male genital sheaths about 1.4 times as long as the anal segment (Figure 3). Female anal segment rounded posteriorly, armed with a few small points medially, genital sheaths exceeding the apex of the segment by half their length.

The pupal exuviae run to couplet 12 (*P. baueri* Strenzke/ *P. danconai* (Marcuzzi)) in Saether and Ferrington's revision, but the sternal apical band IV has 17-34 points in *P. baueri* and in *P. danconai* 0-14 points, whereas in *P. paraspinispinata* there are 80 or more (83-99, n=3) (the pupa of *P. spinispinata* is unknown).

Adult male (n=1 pharate).

Wing length 1.7mm (derived from pupal wing sheath length (Langton, 2002)). Colour brown; head and thorax darker than abdomen.

Head. AR 0.96. Terminal flagellomere about 200µm long. Temporal setae 6 (0 inner verticals, 6 outer verticals). Palpomere lengths (in µm): 24, 20, 60, 72, 100.

Thorax. Antepronotal lobes narrowed medially, no lateral setae visible. Dorsocentral setae 7, acrostichals ?7, prealars 6. Scutellum with 8 setae.

Legs. Spur of front tibia 30µm long, spurs of middle tibia 20,16µm, of hind tibia 30 and 24µm with

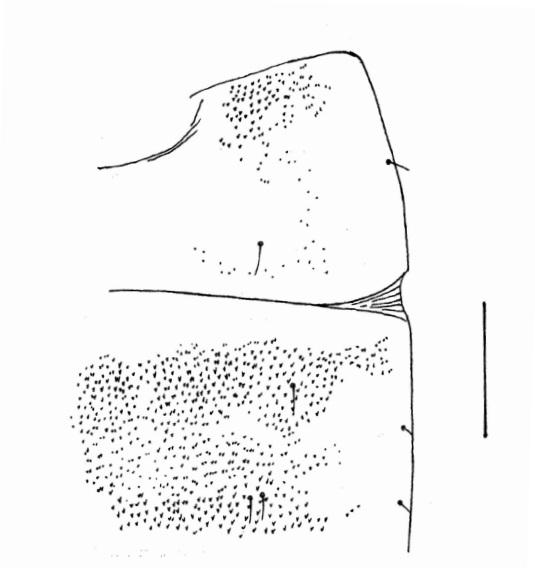

Figure 2. *Pseudosmittia paraspinispinata* n.sp. pupal exuviae, armament of tergites I and II. (scale line = 0.1mm)

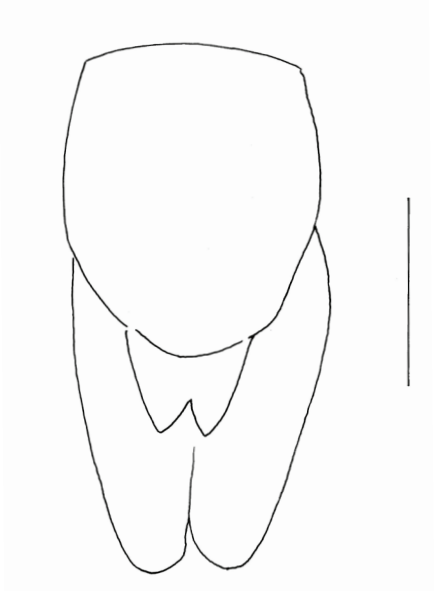

Figure 3. *Pseudosmittia paraspinispinata* n.sp. pupal exuviae, male segment IX, dorsal. (scale line = 0.1mm)

comb of about 20 setae (normal), the other tibia with three spurs 40, 30 and 20µm, the third associated with a comb of 3 setae (abnormal). Width at apex of front tibia 30µm, of mid tibia 36µm, of hind tibia 40µm. Front LR 0.25.

Hypopygium (Figure 4). Anal point absent; the raised, pubescent, rounded boss on tergite IX on which the anal point is based in *spinispinata* (Saether and Ferrington, loc.cit. Fig. 57F) is present; tergite IX with 16 setae. Virga a long strong spine, apparently composed of a number of fused spines, about 44µm long, and a row of small spines near its apex. Gonocoxite 200µm long; superior volsella emarginate, with a few small setae dorsally, reaching 0.6 gonocoxite length, smooth, thumb shaped inferior volsella and pubescent accessory lobe well developed and reaching to 0.6 and 0.8 gonocoxite length respectively. Gonostylus 80µm long; megaseta 7µm long.

The adult male of *P. paraspinispinata* runs to couplet 2 in Ferrington and Sæther (*spinispinata* n.sp and *gracilis* (Goetghebuer)) The present species has the long virga, strong accessory spines and AR of *P. spinispinata*, a species described from a single male collected in South Carolina, U.S.A. *P. paraspinispinata* differs from *P. spinispinata* in not having an anal point and having a much lower fore leg ratio: 0.25 as against 0.40-0.44 in *P. spinispinata* (any stretching of the fore leg on eclosion would only reduce the LR further).

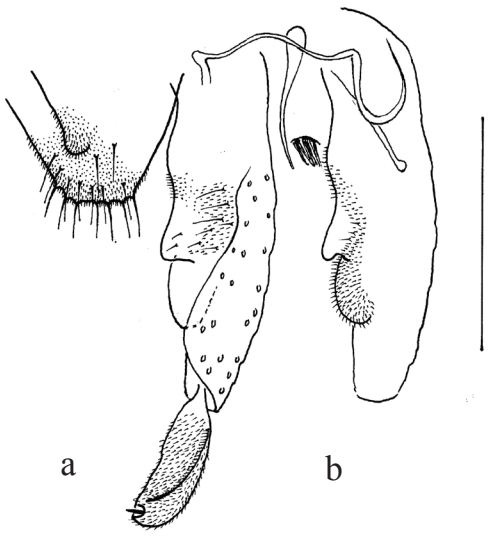

Figure 4. *Pseudosmittia paraspinispinata* n.sp. male hypopygium, a. showing dorsal volsella, b. showing ventral volsella, virga and accessory spines. (scale line = 0.1mm)

***Micropsectra* Pe9**

In the same collection in which *Pseudosmittia paraspinispinata* occurred were exuviae of a *Micropsectra* that run to *M. pallidula* (Meigen) in Stur and Ekrem's (2006) key and to *M. bidentata* (Goetghebuer) (=*M. pallidula,* teste Stur and Ekrem *loc. cit.*) in Langton (1991) and Langton and Visser's (2003) keys. However two characters indicate that they are not *M. pallidula*: 1.) the thoracic horns break off so easily that only one exuviae has an attached thoracic horn, which became detached on mounting; and 2.) the posterior spines of tergite III are confined to a patch posteriad seta D5 (Figure 5). Also the rounded cephalic tubercles and more robust teeth of the comb of segment VIII may serve to confirm the identification.

Parametric and numeric data: PeL4.9-6.0mm (m=5.4mm, n=7). FsL 70-160µm (m=117, n=6). ThL680µm; ThR 8.0 ; Th seta L 240µm (n=1). Hook row L 0.41-0.63 B II (m=0.54, n=6); hooks 140-160 (m=150, n=6). LT V-VIII 0-3, 0-4, 2-4, 2-5; LT IX 34-59 (m=46.6, n=7). CbB 40-60µm (m=52µm, n=7), Cb marginal teeth 3-7 (m=5, n=7), short, hardly longer than broad at base (Figure 6). ALR 0.95-1.2 (m=1.08, n=7). Cephalic tubercles rounded mounds. Posterior thoracic mound shallow. PSB II well developed.

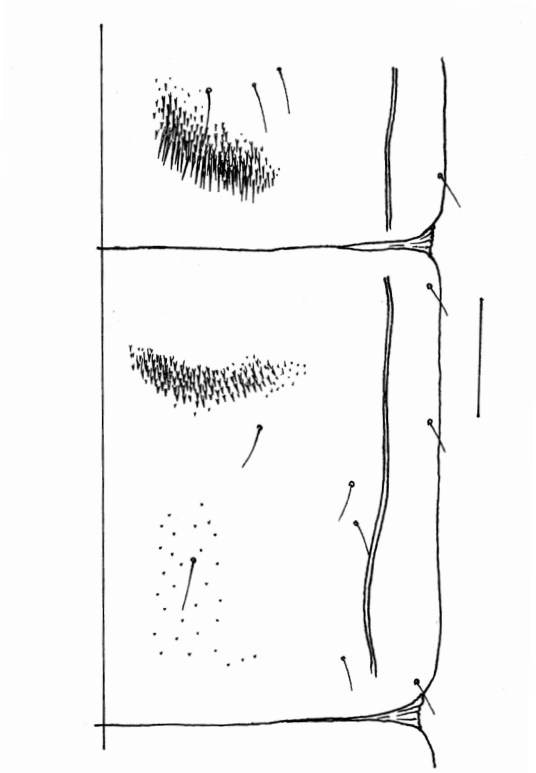

Figure 5. *Micropsectra* Pe9 armament of tergites III and IV. (scale line = 0.1mm)

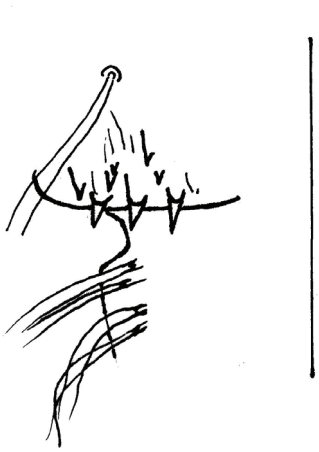

Figure 6. *Micropsectra* Pe9 comb of segment VIII. (scale line = 0.1mm)

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