

Espèces	Type de nidif.	Zone I			Zone II	
		N	N'	S	N	S
Megachilidae (suite)						
<i>Osmia coerulescens</i> (L.)	(T)MBR				2	2
<i>Osmia cornuta</i> (LATREILLE)	TMABR	63	141	4	80	5
<i>Osmia rufa</i> (L.)	TMABR	132	295	6	186	4
Apidae (N=159)						
<i>Apis mellifera</i> L.		3	7	2	36	4
<i>Bombus lucorum lucorum</i> (L.)	S	3	7	2	26	5
<i>Bombus terrestris terrestris</i> auct.	S	1	2	1	17	4
<i>Megabombus hortorum hortorum</i> (L.)	S	2	4	1	11	5
<i>Megabombus pascuorum floralis</i> (GMELIN)		1	2	1	8	3
<i>Megabombus pascuorum moorseleensis</i> (BALL)	D				1	1
<i>Pyrobombus lapidarius lapidarius</i> (L.)	S	1	2	1	3	2
<i>Pyrobombus hypnorum erictorum</i> (PANZER)	DB	8	18	4	21	5
<i>Pyrobombus pratorum</i> ssp. (L.)		4	9	2	9	3
<i>Pyrobombus pratorum tataricus</i> (RADOSZKOSKI)	D	1	2	1	3	3
<i>Psithyrus bohemicus</i> (SEIDL)	P				*	*
<i>Psithyrus vestalis vestalis</i> (FOURCROY)	P				*	*

***Tanytarsus debilis* (Meigen, 1830) :**
 diagnosis of the adult male
 and description of the pupa and larva
 (Chironomidae, Diptera)*

by Boudewijn R. GODDEERIS**

During our investigations on chironomid life histories in two trout-ponds at Mirwart (Belgian Ardennes), *Tanytarsus debilis* was by far the commonest species (GODDEERIS, 1983). In one of the ponds densities up to 91000 larvae/m² have been recorded. This is also the first record of *T. debilis* from Belgium. Up to now neither the pupa nor the larva of *T. debilis* have been described. Confirmation of the species identity of the larvae and pupae at Mirwart was given by laboratory cultures. Ten individual sequences larva-pupa-adult male were obtained, and a lot of males from non-individual cultures. At the same time it was possible to follow the larval cohorts and to reconstruct the life cycle of *T. debilis*, which confirmed the identifications of the second and third instar larvae. These identifications were made on similar diagnostic characters to those of the fourth instar larva.

The male imagines were identified with the key and descriptions in REISS and FITTKAU (1971). However, it was necessary to change the diagnosis of *T. debilis* because of the variability of the diagnostic characters used by REISS and FITTKAU. We refer to SAETHER (1980) for the used terminology and to SHILOVA (1976) for the general descriptions and characteristics of the genus *Tanytarsus*.

Diagnosis adult male

A species of the genus *Tanytarsus* with following characteristics : Anal tergite with a median bundle of long, strong bristles

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** Koninklijk Belgisch Instituut voor Natuurwetenschappen. Afdeling Hydrobiologie, Vautierstraat 29, B-1040 Brussel.

(4-8). In lateral view, the dorsal rim of the anal point has a kink of about 90°, there where the combs begin. Very few (1-2) or no spines between the combs. Appendage 1 not concave on the mesal contour. Digitus far beyond appendage 1, heavy, subapically widest. Anterior tarsus with beard. (Hypopygium fig. 1 a-d).

Remarks : REISS and FITTKAU (1971) mentioned in both the identification-key and the diagnosis, the presence of a single spine between the combs of the anal point. The bundle of bristles before the anal point would always sit on a common socle. A great deal of the reared males from Mirwart has no spine at all (30 % of 30 individuals - fig. 1b) and one male has two spines (fig. 1d). The common socle of the bundle of bristles also varies widely and is sometimes not present (fig. 1b-d).

Description pupa

Length exuviae about 4 mm.

Colour. Exuviae transparent. Cephalothorax light brownish ; basis of antennal and P₁ sheaths and margins of wing sheaths somewhat darker. Anal lobes, lateral margins of abdominal segment VIII and caudo-lateral combs, pale brown.

Cephalothorax. Cephalic tubercles weakly developed. Frontal setae $\pm 110 \mu\text{m}$ long. Base of antennal sheaths with a mesal and low conical protuberance. Thoracic horn (fig. 2) very long ($\pm 0,75 \text{ mm}$) and slender ; widest in the basal part and gradually tapering to the apex ; basal third smooth, distal 2/3 coarsely ringed ; without setae and spinules. Granulation near the suture only weakly developed. Wing sheaths with nose and without pearl row.

Chaetotaxie of thorax. 3 Pc (subequal), 1 MAps, 1 LAs and 4 Dc present. Dc 3-4 close together, above the wing sheath and near the thoracic suture ; Dc 4 stronger than frontal seta and twice as strong as Dc 3.

Abdomen. Tergite I without shagreenation. Tergite II with 2 small patches of short spines on the anterior part (fig. 3a), surrounded by shagreenation. Posterior on tergite II a transverse band of spinules with, on each side, a row of shagreenation narrowing in anterior direction. Row of hooklets half as wide as segment II. Tergite III with 2 longitudinal fields of short spines

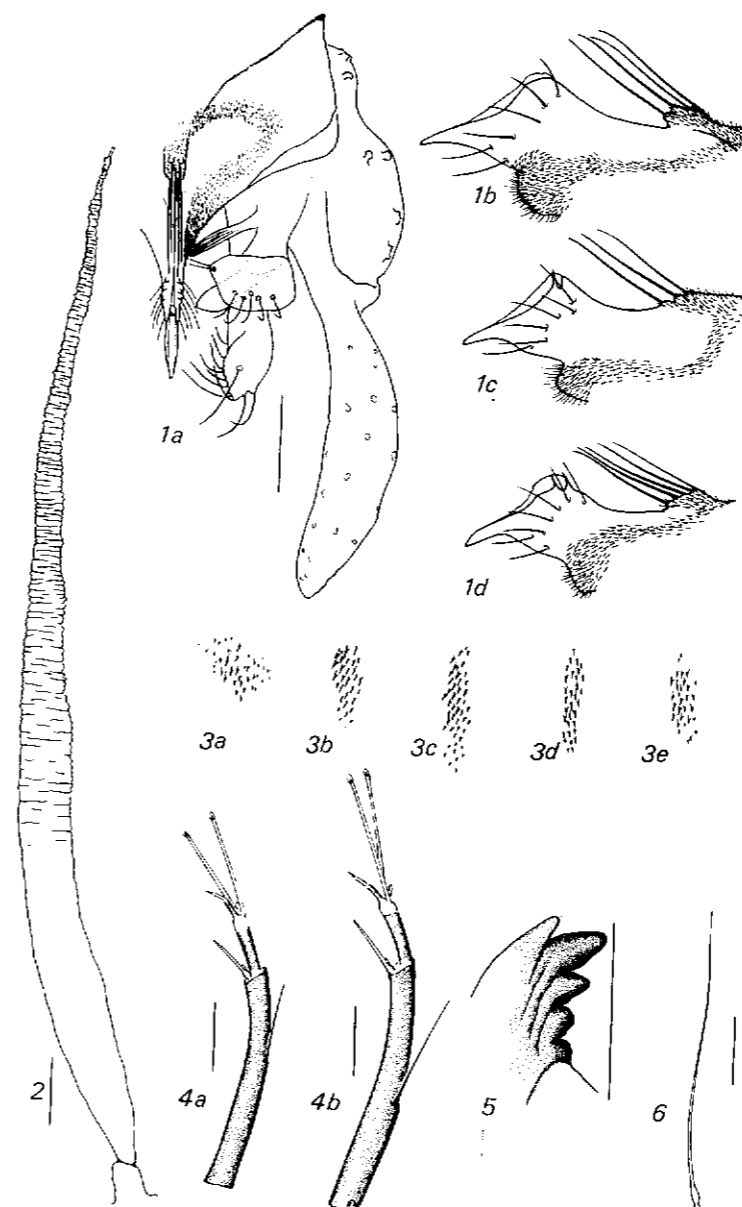


FIG. 1-6 : *Tanytarsus debilis* (MEIGEN, 1830)

- 1: Adult male ; 1a : hypopygium, dorsal view ; 1b-d : anal point, lateral view ;
 2: Pupa : thoracic horn ;
 3: Pupa : fields of spines on abdominal tergites ; 3a : tergite II ; 3b : tergite III ; 3c : tergite IV ; 3d : tergite V ; 3e : tergite VI ;
 4: Larva (fourth instar) : antenna ; 4a : in early spring ; 4b : in summer.
 5: Larva (fourth instar) : external and internal teeth of mandibula.
 6: Larva (fourth instar) : supraanal seta.

Scale = 50 μm

(fig. 3b); these fields $\pm 3 \times$ as long as wide; in front between the fields some shagreenation. Tergite IV with 2 longitudinal fields of short spines (fig. 3c); these fields are somewhat longer although as wide as those on tergite III; in front, between the fields sometimes a weak shagreenation. Tergite V with 2 longitudinal fields of short spines (fig. 3d), resembling the fields on tergite IV; no shagreenation. Tergite VI with 2 longitudinal fields of short spines (fig. 3e) resembling the fields on tergite III; no shagreenation. Tergite VII without shagreenation. Tergite VIII with a patch of shagreenation in each anterior corner. A small patch of shagreenation dorsally on each anal lobe. Caudo-lateral combs oval with about 6 teeth on the posterior margin; the surface of the combs dentated, especially on the posterior part. Sternite II and III with shagreenation of very weak spinules. Sternite VIII with a patch of shagreenation in each anterior corner, as tergite VIII but somewhat smaller. Pedes spurii B on segment II.

Chaetotaxie of abdomen:

	LS	L	D	V	DS	VS	O _d	O _v
I			3					
II		3	3	3			1	1
III		3	4-5	3-4			1	1
IV		3	5	4			1	1
V	1	2	5	4			1	1
VI	3		5	4			1	1
VII	4		5	4			1	1
VIII	4				1	1	1	1

Anal lobe with 2 dorsal filamentous setae and a continuous fringe of about 25 (21-29) filamentous setae.

Description fourth instar larva

Length up to 6.5 mm.

Head capsule light yellow, about 0.35 mm long. Occipital margin nearly black, but dorsally pale. Posterior half of submentum darkened on both sides; anterior half pale. Dorsal eyespot slightly larger than ventral; distance between eyespots greater than width of dorsal spot. Pedestal of antenna long, about a quarter of total length head capsule; extremity obliquely cut and pointed mesally (not a distinct spur). Clypeal seta S₃ simple.

Antenna (fig. 4 a-b) five-segmented. First segment somewhat shorter in early spring than in summer: length 165.7 μm 15th march 1977 (95% confidence limits: 161.8 to 169.6 μm , n = 25) and 171.1 μm 5th july 1977 (95% c.l.: 167.7 to 174.5 μm , n = 25). Implantation of antennal seta also different: just above the middle of the first segment in early spring (51.6% of the length of the first segment from the base; 95% c.l.: 50.4 to 52.8%, n = 25) and just beneath the middle of the first segment in summer (47.0%; 95% c.l.: 46.1 to 47.9%, n = 25). Second segment almost straight, only slightly widening to the apex; basal 4/5 sclerotized and light brown, distal fifth membranous and somewhat swollen. Length of second segment about 47.2 μm in early spring (95% c.i.: 45.5 to 48.9 μm , n = 25) and 53.8 μm in summer (95% c.i.: 52.0 to 55.6 μm , n = 25). Short style on top of second segment. Antennal blade not extending beyond second segment; with a short accessory blade joined at the swollen base. Third segment about 18 μm long; basal fifth membranous, distal 4/5 sclerotized. Fourth segment about 11 μm long and fifth segment about 5.5 μm . Lauterborn organs at the apex of second segment; pedicels long, $\pm 3 \times$ as long as segments 3-5.

Labrum. Setae anteriores S₁ with pectinated mesal margin and top. Setae posteriores S₁₁ about 44 μm long, falcate, with some slender teeth against the concave rim. Five chaetae labrales on each side, with some teeth varying from short to long and slender against the concave rim. Pecten labralis with about 30 teeth. Pre-mandible with 5 pale teeth; outer tooth very fine, with membranous base; second tooth slender and pointed; third tooth as long as second but twice as wide; fourth tooth as wide as third but shorter; fifth tooth weakly developed; brush well developed.

Epipharynx. Pecten epipharyngis of 3 distally serrated scales; median scale with ± 5 teeth, lateral with ± 7 teeth. Eight pairs of chaetae laterales; one pair apically dentated with slender teeth, the others simple. Two pairs of chaetae basales, fringed at the tip.

Mandibula (fig. 5) with 4 dark ventral teeth; third lateral tooth incompletely developed. One pale dorsal tooth at the apex. Inner basal margin of mandibula with 3 spines. Seta subdentalis falcate in distal half; extends beyond apical tooth. Pecten mandibularis

a row of about 20 slender teeth; distal tooth $\pm 3 \times$ as wide as the nearest tooth. Seta interna of 4 ramified branches.

Maxilla. Maxillary palp with lateral excrecence, carrying b-seta, bisensillum and 2 sensilla. Chaetulae of palpiger slender.

Mentum with trilobed median tooth; central lobe pale, laterals dark. Five pairs of dark lateral teeth, gradually diminishing in length, but the fifth half as large as the fourth. Ventromental plates short and wide: $\pm 5 \times$ as wide as long and slightly wider than mentum.

Abdomen. Supraanal setae (fig. 6) well developed, about 250 μ m long and swollen at the base. Dorsal anal tubules somewhat conical, twice as large as ventral. Posterior parapods each with 16 smooth claws.

Diagnosis fourth instar larva

Head capsule 0.35 mm long. Antennal pedicel pointed mesally. Clypeal seta S₁ simple. Antennae (fig. 4a-b): implantation of seta antennalis at about the middle of first segment; second and third segments almost entirely sclerotized; third segment straight; length fourth segment about 2/3 of segment 3; lauterborn organs with long pedicels, $\pm 3 \times$ length of segments 3-5. Premandible pale. Mandible (fig. 5) with 1 dorsal tooth; third lateral tooth incompletely developed. Supraanal setae (fig. 6) well developed and swollen at base. Anal tubules somewhat conical.

Diagnosis third and second instar larva

Length of head capsule ± 0.22 and 0.14 mm respectively. Antennal pedicel weakly pointed or not. Implantation of seta antennalis in the basal part of first segment at 1/3 of its length. Distal end of second antennal segment and proximal end of third less sclerotized than in fourth instar. Other characteristics similar to those of fourth instar. It was not possible to distinguish the first instar larvae of *T. debilis* from those of other *Tanytarsus* species.

Summary

A new diagnosis of the adult male of *Tanytarsus debilis* is given, because of the variability of the diagnostic characteristics used previously. Pupa and larva are described for the first time.

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