3. The adult males of Telmatogotoninae (Diptera: Chironomidae) of the Holarctic region — Keys and diagnoses

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Diagnoses and illustrations are given for the adult males of the subfamily Telmatogotoninae Brundin and the genera Telmatogoton Schiner and Thalassomya Schiner together with a key to the genera.

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Subfamily Telmatogotoninae Brundin, 1966
Figs. 3.1 – 3.2.

Diagnosis

Medium sized to large species, with wing length exceptionally to 8 mm.

Antenna. Scape well developed, without setae; pedicel large, often with dense setae; flagellum with 6 flagellomeres, ultimate flagellomere usually with apical nipple; plume and groove absent; sensilla chaetica and sensilla coeliconica on all flagellomeres. Antennal ratio low, usually not more than 0.3.

Head. Eye bare, fully developed, rounded, without dorsomedial projection. Corona suture and triangle absent. Temporal setae variable, always strong; postorbitals always, outer verticals usually, present; frontals and inner verticals may be absent; clypeals numerous. Cibarium unique—squat, with well developed cornua and torma; tentorium weak, long, narrow, relatively undifferentiated and easily deformed in preparation. Palp either subequal in length to antennal flagellum, with segment 1 scarcely delimited, 2–3 globular, 4–5 narrow, with sensilla capitate on segment 3 (Thalassomya) or palp short, incompletely 2–3 segmented, without sensilla capitate (Telmatogoton).

Thorax. Antepronotal lobes short, subtriangular, either widely separated medially, or fused along very narrow, often setose band; antepronotal setae often divided into dorsal and lateral group. Thoracic setation variable; acrostichals present (Thalassomya) or absent (Telmatogoton); dorsocentrals often numerous; prescutellars usually present; prealaris always present, sometimes extending to humerals; scutellars multiserial (sparse in extra-limital species). Preepisternum sometimes with few setae. Anepisternal suture variably weak, never complete.

Wing. Usually fully developed (reduced in T. pectinata (Deby) and extralimital species formerly placed in Haliryus). Membrane moderately to strongly punctate, with or without microtrichia. Anal lobe strongly produced. Costa scarcely extended beyond R_{3+4}; subcosta quite distinct, nearly meeting costa distal to RM; R_{2+3} completely absent; R_{4+5} reaching virtually to apex of wing, always distal to apex of M_{3+4}, Cu, gently to strongly curved; FCu distal to RM. Anal vein faint, postcubitus extending beyond FCu. Costa, R, R_{1} and R_{4+5} always, bases of M_{1+2}, M_{3+4} and Cu, sometimes, setose. Squama with well developed setal fringe. Brachyrium with up to 10 sensilla coeliconica and many setae.

Legs. Elongate, with large coxae, at least on foreleg. Spurs subequal on all legs, 1 on fore tibia, 1–2 on mid and hind tibiae; comb absent. Sensilla chaetica on at least tarsomeres 2 and 3 of all legs interspersed with numerous sensilla basiconica; all

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chaetica on at least tarsomeres 2 and 3 of all legs interspersed with numerous sensilla basiconica; all sensilla aggregated in distal part of each tarsomere. Tarsomere 4 cordiform on all legs; tarsomere 5 either simple (Thalassomya) or strongly trid (Telmatogoton), with median branch extending beyond claws. Empodium long; pulvilli small, much shorter than half claw length; claws strongly modified, often divided into 2, inner division pointed, outer pectinate; (divisions often asymmetrical in extra-limital species), arrangement on hind leg often different to fore and mid legs. Hyaline spine often present at base of claw.

Abdomen. Tergal apophyses well developed. Setae irregularly scattered. Hypopygium variably rotated through torsion between segments VII and VIII.

Hypopygium (treated as pre-rotation). Tergite IX without anal point. Gonocoxites broad, densely setose, with or without dorsomedian or median lobes (probably not homologous with inferior or superior volsellae). Distinctive elongate, spoon-shape endomeres present, surrounding variably distinct aedeagus. Phallapodeme always strongly developed, other apodemes variable, often weak. Gonostylus variably developed, without megaseta.

Comments

The absence of cross-vein MCu, lack of vein R_{2+3}, cordiform tarsomere 4, reduced, subtriangular antepronotum and short anepisternal suture are diagnostic for the Telmatogotoniniae. In brachypterous or subapterous species, the unique shape of the endomeres of the hypopygium will allow recognition.

Keys

Genera of Telmatogotoniniae

1. Acrostichals numerous. Tarsomere 5 simple. (Fig. 3.2) ............... Thalassomya (p.19)
   - Acrostichals absent. Tarsomere 5 trilobed. (Fig. 3.1) ................... Telmatogoton (p.18)

Note: Psamathiomya Deby and Paraclunio Kieffer are treated here as synonyms of Thalassomya.

Telmatogoton Schiner

Fig. 3.1.

Telmatogoton Schiner, 1866a:931; Wirth 1947b.
Syns.: Psamathiomya Deby, 1889a; Paraclunio Kieffer, 1911a.

Diagnosis

Medium sized to large species, wing length up to 8 mm.

Antenna. Extraliminal species with less than 6 flagellomeres; antennal setae strongly reduced or absent.

Head. Intercocular area bare, only postorbitals and clypeals present. Palp 2, or indistinctly 3, segmented, without sensilla capitata.

Thorax. Setation reduced; acrostichals absent; dorsocentrals restricted to median or posterior scutum; prealars not extending to humeral area. Preepisternum bare. Anapleural suture shorter than in Thalassomya.

Wing. Reduced in T. pectinata Deby. Membrane with moderate punctuation (microtrichia visible at 60x). Costa, R_{1} and R_{4+5} with setae; R and posterior veins usually (?) always) bare.

Legs. Setae simple and stout or modified as flattened scales on at least some femora, tibiae and tarsomeres 1 on all legs (T. trilobatus Kieffer). Some species (formerly in Paraclunio) with paired blunt proteruences on apex of fore femur which lock with sub-basal prominence of fore tibia. Claws sometimes asymmetrically developed, sometimes lacking one point, sometimes symmetrical.

Hypopygium. Gonocoxite sometimes without any lobe, sometimes with weak, rarely strong, lobe dorsobasally, close to margin of tergite IX, rarely with strongly developed ventrobasal lobe. Gonostylus broader medially than basally, often rather blunt-ended, without megaseta.

Comments

The species groups erected by Wirth (1947b) do
not appear sustainable, but require examination in a phylogenetic study. Species formerly placed in Paraclunio can be recognised by the autapomorphy of the "locking mechanism" of the anterior femur and tibia.

Ecology and distribution

Species of Telmatogoton in the Holarctic region are confined to the marine intertidal zone. The 8 Holarctic species often show an association with freshwater seepages, especially of sewage polluted waters, but only in Hawaii are there freshwater species living in streams and torrents. The adults can fly, perhaps for appreciable distances, but are most often seen actively scurrying over rocks in the splash zone close to the high water mark.

These midges tolerate repeated immersion by waves, appearing to be unwettable. There is no aerial swarm; copulation, assisted by male hypopygial rotation, takes place on rocks exposed to waves. There is no evidence of lunar synchrony of emergence, at least in T. japonicus Tokunaga (= T. remanei Remmert) populations in the Baltic Sea.

The genus is world-wide in distribution, including subantarctic species formerly placed in Haliryus. T. japonicus has a wide distribution in the Pacific, Nearctic and western Palaeartic coasts, perhaps distributed relatively recently by intercontinental shipping.

Wirth (1947b, 1949a) described adults of several species.

**Thalassomya** Schiner

Fig. 3.2

Thalassomya Schiner, 1856a:218; Wirth 1947a.

Diagnosis

Medium sized species, wing length up to 4 mm. Antenna. With 6 flagellomeres. Antennal setae present, but reduced.

Head. Temporal setae numerous, multiserial and extending over much of vertex. Palp 5 segmented, basal segment indistinct, 2 and 3 globular, 4 and 5 elongate; sensilla capitata on subapex of 3.

Thorax. Antepronotal lobes may meet in narrow setose band, distinctly ventral to apex of scutum. Acrostichals numerous, starting at anterior of scutum, uniserial until meeting extensive prescutellars; dorsocentrals numerous, uniserial, starting close to anterior margin of scutum; uniserial humerals distinct from prealars and anterior dorsocentrals; few posthumerals present. Preepisternum with 1–3 setae. Anapleural suture longer than in Telmatogoton.

Wing. Membrane with uniform coarse punctuation (dense microtrichia visible at 20x magnification). Cell usually (? always) brown pigmented; costa and radial veins often dark pigmented. Subcosta distinct, reaching costa distal to RM.

Legs. Tarsomere 5 simple, never triloculated. Outer claw pectinate on fore and mid legs, simple on hind leg.

Hypopygium. Apex of endomere setose. Gonoocytes with variably developed dorsobasal lobe close to margin of tergite IX. Gonostylus usually broadest medially, tapering apically to group of longer setae, none of which appear to be a megaseta.

Comments

Thalassomya is readily separated from Telmatogoton by the presence of strong acrostichals and the simple tarsomere 5.

Ecology and distribution.

All Thalassomya species live in the intertidal zone, particularly of the warmer seas of the world. Many of the species appear to be associated with areas of reduced salinity around harbours and river mouths and there is some evidence of a preference for areas of high organic input around sewage inflows. Adult behaviour has not been observed but it may be similar to that of the observed species of Telmatogoton. Of 9 described species, 1 is Nearctic, 1 Palaeartic and 1 Japanese, but the status of Mediterranean and Atlantic populations of T. frauenfeldi Schiner needs reexamination.

Wirth (1947a) described adults of several species.