

## Taxonomy and distribution of *Temnostoma bombylans* (Fabricius) and *T. angustistriatum* Krivosheina (Diptera, Syrphidae) in Northern Europe

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The taxonomy of *Temnostoma bombylans* (Fabricius, 1805) and *T. angustistriatum* Krivosheina, 2002 (Diptera, Syrphidae) is reviewed. All Finnish specimens earlier determined as *T. bombylans* are *T. angustistriatum*. The junior synonym of *T. bombylans*, *T. zetterstedti* (Fallén, 1816) is re-described. Distributional data and differential diagnosis are given for both taxa.

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The primarily Holarctic genus *Temnostoma* (Diptera, Syrphidae) includes 12 species described from the Palaearctic region (Peck 1988, Thompson 2000). Three species were recorded from Finland (e.g. Hackman 1980), and four species are known from Europe (Speight 2003).

A study of large materials of *Temnostoma bombylans* (Fabricius, 1805) in Russia (Krivosheina 2002) resulted in the description of the species *T. angustistriatum* Krivosheina, 2002, close to *T. bombylans*. The new species is in Russia distributed from Karelia to Far East. *Temnostoma bombylans bombylans* was discovered in Carpathy Mountains (Ukraine), Moscow and Kaluga Regions (Russia), and North Ossetia (Caucasus). It should be noted that both taxa occur in the Moscow Region. The subspecies *Temnostoma bombylans flavifemur* Krivosheina, 2002 was described from Lvovskij, Krasnodarskij region based on a female with reddish front tibiae (Krivosheina 2002).

According to literature data of Peck (1988) and Speight (2003), *T. bombylans* is widely distributed in Northern Europe. However, a study of the collection of the Finnish Museum of Natural History, showed that large materials previously determined as *T. bombylans* actually belong to *T. angustistriatum*. In Sweden, however, all speci-

mens so far studied proved to belong to *T. bombylans* (H. Bartsch, pers. comm.).

*Temnostoma zetterstedti* (Fallén, 1816), a junior synonym of *T. bombylans*, was described from Sweden, the type-locality of *T. bombylans* is in the Pyrenees (France). The necessity to check this synonymy arose. We examined the syntypes of *Milesia zetterstedti* Fallén (♀ and ♂) and the type of *Milesia bombylans* Fabricius (♀).

The redescrptions of male and female of *T. zetterstedti* (Fallén), and data on the distribution of *T. angustistriatum* Krivosheina in Finland are given below. General outline of male terminalia of *Temnostoma apiforme* is shown in Fig. 1A, details of male terminalia of studied species in Fig. 1B and Fig. 2.

### *Temnostoma bombylans bombylans* (Fabricius, 1805)

Type material of *T. bombylans*: ♀, *Milesia bombylans*, "Eur:Aust. Hofman" (Zoological Museum, University of Copenhagen).

Other materials: 1 ♂, 1 ♀, Sk. Skärälid, 9.07.1956, P. I. Persson; 1 ♂ Skärälid, 11.06.1950, leg. O. Ringdahl; 1 ♂ S. Sk. Dalby, 4.08.1988, Askkärr, Malaisefälla, leg. L. Huggert (all in Museum of Zoology, Lund University) [Sk. = Skåne, South Sweden]

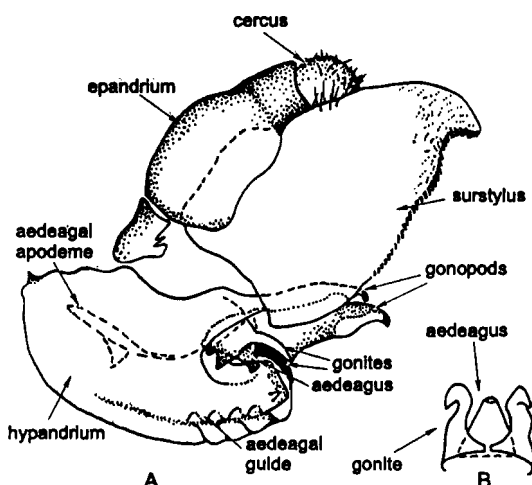


Fig. 1. A: Lateral view of *Temnostoma apiforme* male genitalia. B: *T. zetterstedti*, ventral view of aedeagus and gonites.

Type material of *T. zetterstedti* (Fallén, 1816): Lectotype, by present designation, male, labelled "*M. bombylans* ♂ (*M. zetterstedti* Fall.) Smol.", Paralectotype, by present designation, ♀, labelled "*M. bombylans* ♀, Lärketorp" (Museum of Zoology, Lund University).

The type specimen of *T. bombylans* is covered with dust, however the structure of face and frons as well as the coloration of legs are well distinguishable. Frons with broad, pubescent lateral stripes, hind tibia yellow. Zimsen (1964) recorded "Pyrenaeis" (Mus. Dom. Lund) as type locality and depository of type specimen for this species, but the label "Eur: Aust. Hofman" was also cited for one of the syntypes.

The lectotype of *T. zetterstedti* has the following characters. Frontal stripe two times shorter than upper frons. Frons completely covered with white pilosity, and pubescence reaching the median ocellus. Ocellar triangle and part of vertex behind it covered with long, scattered, pale anteriorly directed hairs. Median occipital sclerite with light pollinosity, lateral parts of occiput reaching this sclerite with thicker pollen and silvery short pubescence. Lunule dorsally with bare extensive triangular spot, twice as long as lower frons. Antennal protuberance bare on lateral 1/4. The medial bare facial stripe is narrowed towards fa-

cial margin, and in the middle 1,5 – 2 times as broad as lateral pubescent stripe. Postpronotal lobes completely pale. Notopleuron with oval elongated pale spot. Pale anepisternal band narrow, not exceeding 1/3 of the sclerite. Mesonotum with pale long hairs in front of scutellum, scutellar margin with similar hairs. Postalar callus with yellowish short hairs not exceeding its width. Two median parallel narrow stripes ending at equal distance from transverse suture and scutellum, they are separated by a distinct black stripe. There are two grey indistinct oval spots separated by the black colour anterior of scutellum. Abdominal tergite II with pale stripe divided by narrow weak black stripe. This stripe 1,5 times as broad as the same band on abdominal tergite III and twice as broad as the same stripe of abdominal tergite IV. Abdominal tergites II and III with yellowish short hairs medially. Coxa and trochanter black.

Femora mainly black. Fore femur with small yellow spot apically, mid femur with larger spot apically, hind femur with small yellow spot on base and on apical 1/5 (anterior view). Fore tibia and tarsus black, mid and hind tibiae and tarsi yellow except black apical tarsomeres. Hind tibia sometimes with small, dark spot on apical third.

Genitalia (Fig. 2A-E, H) – Dorsal side of gonite with relatively small lobe near base of apical dent (Fig. 2H). Internal dents of the median part of hypandrium long (Figs. 2B-D).

Female. The relation of the width of frons to the width of eye is 2,5 : 5,5. Lateral pubescent frontal stripes relatively broad and reaching median ocellus. These stripes on upper frons slightly less than half as broad as the bare median stripe, and near lunula about 1/3 as broad. Lateral 2/3 of antennal protuberance pollinose. Median bare facial stripe 3x broader than lateral pubescent stripe. Other characters as in the male.

Comments: The present morphological study supports the synonymy of *T. zetterstedti* to *T. bombylans*. It is remarkable that in spite of examining very large collection materials on *Temnostoma* from the territory of Finland (Finnish Museum of Natral History), we did not find

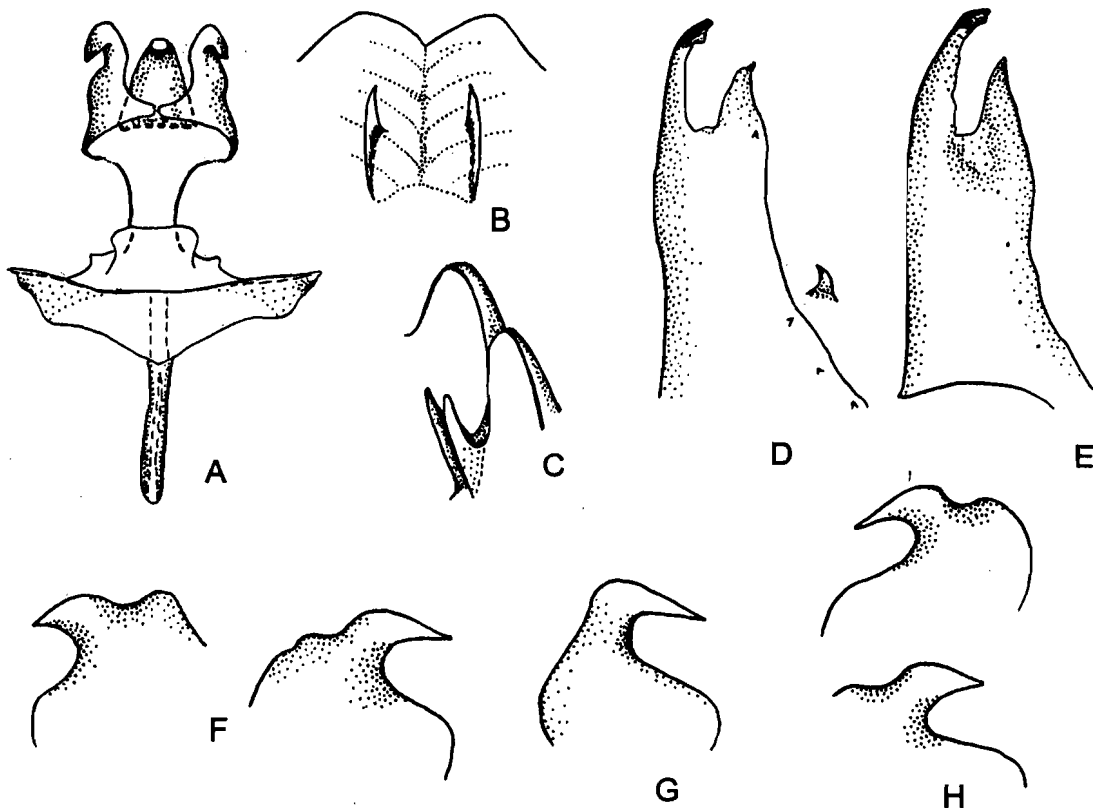


Fig. 2. Male genitalia of lectotype of *Temnostoma zetterstedti* (Fallén) (A-E, H), *T. bombylans* (Karpatien, Turja Poljana (Fabr.) (F) and *T. angustistriatum* Krivosheina (G): A: structure of aedeagus-complex (aedeagus, gonites and aedeagal apodeme), ventral view; B: median part of hypandrium internally; C: the same, lateral view; D: lateral lobe (superior lobe, gonopod) of hypandrium internally; E: the same, outwardly; F-G-H – apex of gonite (or paramers), lateral view. *T. bombylans*, *T. angustistriatum* and *T. zetterstedti*, respectively.

this species. Obviously the northern border of *T. bombylans* range in Scandinavia is southern Sweden, and in Russia the Central territories of East Europe.

***Temnostoma angustistriatum* Krivosheina, 2002**

Material from Finland: 1 ♀ *N*: Tuusula, 6.6.1925, Löfqvist; 1 ♀ *Sr*: Yläne, J. Sahlb.; 1 ♀ *Ka*: Rajala, Saima Kanal, Finland, Adelung, 12.VII.1907; 1 ♀ *Ta*: Ruovesi, Inberg; 1 ♀ *Ta*: P.-Pirkkala, Grönblom; 2 males *Tb*: Pihtipudas, Liitonjoki, 7036:440, 15.6.2002, Tero Piirainen leg.; 1 ♂ *Sb*: Tuovilanlaks, Palmén (genitalia dissected); two ♀♀ on same pin *Ta*: Ruovesi, J. Sahlb.; all in ZMH. 1 ♀ *N*: Somero, coll. Merisuo; 1 ♂ coll. Sahlberg, in Zoological Museum, University of Turku.

Material from Russia: 2 ♂♂, Sortavala, Tiensuu; 1 ♂ Petrozawodsk, Günther; 1 ♀ Jaakkima, J. Sahlb., all in ZMH. 1 ♂ *Ik*: Kivennapa, Arth Boman, in Zoological Museum, University of Turku.

Distribution: Scandinavia: Finland, Norway. Russia: Carelia, Moscow Region, Ural, East Siberia and Far East;

**Differential diagnosis of *T. bombylans* *bombylans* & *T. angustistriatum***

*T. angustistriatum*: Both sexes: hind tibia darkened medially, 1/3 – 1/2 of tibia length. Female: frons with very narrow, pubescent (whitish) stripes (pubescence very short) along eye, width

ca 1/6 of frons width. Male genitalia: with (small) short spicule/dents on inner part of hypandrium. Apex of superior lobe (gonite) more pointed and narrow, longer, without lobe (Fig. 2 G).

*T. bombylans bombylans*: Both sexes: hind tibia yellow, sometimes with small, dark spot on apical third. Female: frons with broader pubescent stripes (pubescence also longer, yellowish) along eye, stripe width ca 1/4 of frons width. Male genitalia: long spicule/dents on interior sclerite of aedeagus (inner part of hypandrium). Apex of superior lobe (gonite) shorter, less pointed, with lobe (Fig. 2 F & H).

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informed us about the identity of Swedish and Norwegian specimens.

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