



On the genus *Urytalpa* Edwards (Diptera: Keroplatidae) in the Nordic and Nearctic regions, with fixation of a new type species and a key to world males

JOSTEIN KJÆRANDSEN¹, SVANTE MARTINSSON², KJELL HEDMARK³ & NEAL L. EVENHUIS⁴

¹Museum of Zoology, Lund University, Helgonavägen 3, S-223 62 Lund, Sweden. E-mail: jostein.kjaerandsen@zool.lu.se

²University of Kalmar, School of Pure and Applied Natural Sciences, SE-391 82 Kalmar, Sweden.

E-mail: svante_martinsson@yahoo.se

³Kyrkvägen 17, S-960 30, Vuollerim, Sweden. E-mail: kjell.hedmark@same.net

⁴Department of Natural Sciences, Bishop Museum, 1525 Bernice Street, Honolulu, Hawai'i 96817, USA.

E-mail: NealE@bishopmuseum.org

Abstract

The five Nordic species of the genus *Urytalpa* Edwards (Diptera: Keroplatidae) are revised, of which one species, *Urytalpa galdes* Hedmark & Kjaerandsen, **sp. n.**, is described as new to science based on males collected in northern Sweden. We find that the original type species assignment for *Urytalpa* (*Platyura ochracea* Meigen, 1818) is based on a misidentification, and in order to stabilize the nomenclature we therefore select a new type species, *Urytalpa dorsalis* (Staeger, 1840), **sp. restit.** A lectotype is designated for *Orfelia ochracea* (Meigen, 1818), **comb. n.** = *Orfelia unicolor* (Staeger, 1840), **syn. n.** The males of *U. atriceps* (Edwards, 1913), *U. dorsalis*, *U. macrocera* (Edwards, 1913) and *U. trivittata* (Lundström, 1914), and the females of *U. dorsalis*, *U. macrocera* and *U. trivittata* are described and illustrated based on Nordic material. As the first known Nearctic representative of *Urytalpa*, *U. nigrita* (Johannsen, 1910), **comb. n.**, known from western USA (Washington) and Canada, is transferred from *Pyrtaula* to *Urytalpa*, illustrated and compared with the closely related *U. rhapsodica* Chandler, 1995 from central Europe. A key to all known males is provided. The generic limits of *Urytalpa* as presently understood are vague in relation to related genera and the genus is in need of a revision.

Key words: Orfeliini, new species, new synonym, new combination, Nordic revision

Introduction

Fungus gnats of the genus *Urytalpa* Edwards are placed in the tribe Orfeliini, belonging to the subfamily Keroplatinae of the Keroplatidae (Evenhuis 2006). The genus *Urytalpa* was originally described as a subgenus of *Platyura* Meigen by Edwards (1929) who distinguished and keyed 19 subgenera, all of them now regarded as separate genera (Evenhuis 2006). *Urytalpa* was first termed as a separate genus by Matile (1977) and characterized in relation to related genera by Matile (1978). Since then new species have been described by Ostroverkhova (1979), Chandler (1994, 1995), Zaitzev & Menzel (1996) and Uesugi (2004), some of whom have questioned the generic limits of the genus. Evenhuis (2006) listed 11 Palearctic and 1 Oriental species, and Bechev & Koç (2008) recently added yet another new species from Turkey and transferred *Platyura maritima* Becker, 1907 known from Tunisia, to *Urytalpa*.

Species of *Urytalpa* are not frequently encountered, but sometimes occur in large numbers when found. Little is known about their biology and the scarce material has resulted in two of the species, *U. ochracea* (Meigen, 1818) and *U. trivittata* (Lundström, 1914), being included in the Swedish Red List (Gärdenfors 2005). The larva is known for *U. ochracea* only, which is considered to be a spore-feeder (Matile 1997). As a part of the Swedish Taxonomy Initiative (see Miller 2005) Nordic fungus gnats are being investigated, and

this has resulted in five species of *Urytalpa* being recorded from Sweden (Kjærandsen *et al.* 2007), including one of which is regarded to be new to science and described here. The study of the Nordic species is partly based on a degree project work in biology presented by the second author (Martinsson 2008).

Re-examination of Meigen's type material and original description of the type species, *Urytalpa ochracea* revealed that Edwards (1924) misinterpreted a female *Neoplatyura* as *Urytalpa* and the original description strongly suggests a specimen of *Orfelina* to be the correct type for *Platyura ochracea* Meigen, 1818. The examination of additional specimens determined as *Urytalpa* by L. Matile further led us to suggest a new combination for *Pyrtaula nigrita* (Johannsen, 1910) in *Urytalpa*, as the first North American representative of the genus. We compare this species with the closely related *Urytalpa rhapsodica* Chandler, 1995 from central Europe. With these changes and additions, there are now 16 species currently treated in the genus *Urytalpa* and its distribution range is expanded to include the Nearctic Region (Table 1). We compile a key to all known males of *Urytalpa*, but find that its generic limits as presently understood are vague in relation to related genera and that the genus is in need of a revision.

TABLE 1. Species of the genus *Urytalpa* Edwards and their distribution. Abbreviations: W PAL = Western Palaearctic Region, E PAL = Eastern Palaearctic Region, ORI = Oriental Region, NEA = Nearctic Region.

Region	W PAL	E PAL	ORI	NEA
# species	9	5	1	1
<i>Urytalpa atriceps</i> (Edwards, 1913)	•			
<i>Urytalpa attenuata</i> Zaitzev & Menzel, 1996		•		
<i>Urytalpa chandleri</i> Bechev & Koc, 2008	•			
<i>Urytalpa corniculata</i> (Ostroverkhova, 1979)		•		
<i>Urytalpa crassicauda</i> Uesugi, 2004		•		
<i>Urytalpa dorsalis</i> (Staeger, 1840) sp. restit. = <i>U. ochracea</i> (Meigen, 1818) syn. n.	•			
<i>Urytalpa galdes</i> Hedmark & Kjaerandsen sp. n.	•			
<i>Urytalpa macrocera</i> (Edwards, 1913)	•			
<i>Urytalpa maritima</i> (Becker, 1907)	•			
<i>Urytalpa nigrita</i> (Johannsen, 1910) comb. n.				•
<i>Urytalpa nussbaumi</i> Chandler, 1994	•			
<i>Urytalpa rhapsodica</i> Chandler, 1995	•			
<i>Urytalpa sapporoensis</i> (Okada, 1938)		•		
<i>Urytalpa trivittata</i> (Lundstrom, 1914)	•			
<i>Urytalpa vicina</i> (Brunetti, 1912)			•	
<i>Urytalpa yoshidai</i> Uesugi, 2004		•		

Material and methods

The material was gathered from museum collections and project material from Sweden, Norway, Denmark, Italy, Canada and USA. The material is deposited in the following museum collections with codens adopted from Evenhuis (2008):

MNHN	Muséum National d'Histoire Naturelle, Paris, France
NHRS	Swedish Museum of Natural History, Stockholm, Sweden
MZLU	Museum of Zoology, Lund University, Lund, Sweden

USNM National Museum of Natural History, Washington D.C., USA
ZMUN Zoological Museum, University of Oslo, Oslo, Norway
ZMUC Zoological Museum, University of Copenhagen, Copenhagen, Denmark

All specimens examined by the first three authors were recorded with unique identification codes in a Biota 2.04 database (Colwell 2007), and the lists of material examined were extracted from this database. In order to link specimen codes to this specific database the prefix "JKJ-SPM-" (acronyms for J. Kjærandsen and specimen, respectively) is added on determination labels of examined material and data from the database is intended to be web published. For type material the type depository acronym is given first, followed by the prefixed identifier code. For each species and country the localities are sorted hierarchically within provinces, districts, localities and sites respectively.

A Nikon Digital Sight DS-M5 microscope camera mounted on a Nikon SMZ1500 stereomicroscope was used to capture images of fresh specimens lying in alcohol or parts of slide-mounted specimens. Except for a few pinned specimens, the material was identified in alcohol under a stereomicroscope. Five or more males and females (when present) of each species were slide-mounted in Canada balsam as outlined by Kjærandsen (2006). Scanned sketches of terminalia, drawn using a drawing tube attached to a Nikon Eclipse 50i compound microscope, were used as templates to produce digital illustrations with Adobe Illustrator and Photoshop. The terminology follows Sjøli *et al.* (2000).

Genus *Urytalpa* Edwards, 1929

Urytalpa Edwards, 1929:169 (as subgenus of *Platyura* Meigen, 1803).

Type species: *Platyura dorsalis* Staeger, 1840; hereby fixed under ICZN Code Article 70.3; cited as *Platyura ochracea* Meigen, 1818, misidentified *sensu* Edwards (1929), in the original designation by Edwards (1929: 169).

Emended diagnosis. Mouthparts shorter than head; palpi 5-segmented; mesoscutum with bare areas in between clearly arranged acrostichals, dorsocentrals and laterals; posterior border of anterior spiracle without black setae; metepisternum without setae; all veins reaching wing margin; basal part of M entirely reduced; branches of M and CuA setulose dorsally; tibial setulae irregularly arranged; terminal flagellomere with apical papilla; dorsal side of wing membrane with sparse short setulae posteriorly; male terminalia with large and complex aedeagal apparatus, sometimes extending anteriorly into segment V, forming a laterally compressed plate medially, with 1–2 pairs of long, sclerotized lateral apodemes; hypoproct forming a diffuse hyaline plate without projections; female terminalia with tergites VIII–IX reduced and partly fused, forming a retracted hyaline plate; sternite VIII divided ventrally, sclerotized apicoventral corners infolded and covered with short stiff setae; well sclerotized, globular to ovate spermathecae, spermathecal wall of variable thickness.

Fixation of a new type species. Re-examination of the type material and comparison with the original description of the originally assigned type species, *Urytalpa ochracea* (Meigen, 1818), revealed that Edwards (1924) must have misinterpreted the type series when he synonymized it with *Platyura dorsalis* Staeger, 1840 and *P. nigriceps* Walker, 1856. The type material of *Platyura ochracea* Meigen, 1818 at MNHN consists of three specimens, all labelled with circular labels on which "Meigen" is handwritten (Fig. 1A). The first specimen is a male *Orfelia unicolor* (Staeger, 1840), with a distinct brown pre-apical wing mark, from which the abdomen has been cleared and put in a glycerine vial. The second specimen is an *Orfelia* sp., also with a distinct brown pre-apical wing mark but lacking abdomen. The third specimen is a female *Neoplasyura* cf. *flava* (Macquart, 1826), labelled "*ochracea*" on a separate, square piece of paper, but without any pre-apical wing mark. The original description by Meigen (1818: 240) clearly states that the species he described has a pre-apical wing marking, both in the Latin diagnosis: "*alis ante apicem fascia fusca*", and in the German

description: “*dicht vor der Spitze eine braune Querbinde*”. At the same time Meigen indicated the type to be a female: “*Im Junius im Walde das Weibchen*”, but we find it more likely that he at that time misinterpreted the gender rather than the wing pattern. Nevertheless, among the type series, Edwards (1924) chose the female *Neoplatoryra* cf. *flava* to represent the species and misinterpreted it as the female of *P. nigriceps* = *P. dorsalis*. Hence, since none of the specimens in the type series belongs to genus *Urytalpa* as presently defined, and the original description clearly excludes this genus as well, we find it appropriate and necessary to select a male among the two specimens in the type series with a brown pre-apical wing mark as the lectotype, thereby agreeing with the original description. Hence, we hereby declare the name-bearing type of *Platyura ochracea* Meigen, 1818 to be the male *Orfelia* with a distinct brown pre-apical wing mark. This has the following nomenclatural consequences:

***Orfelia ochracea* (Meigen, 1818), comb. n.**

Platyura ochracea Meigen, 1818:240

= *Platyura unicolor* Staeger, 1840:280, **syn. n.**

nec *Urytalpa ochracea* (Meigen, 1818) authors based on Edwards (1924, 1929)

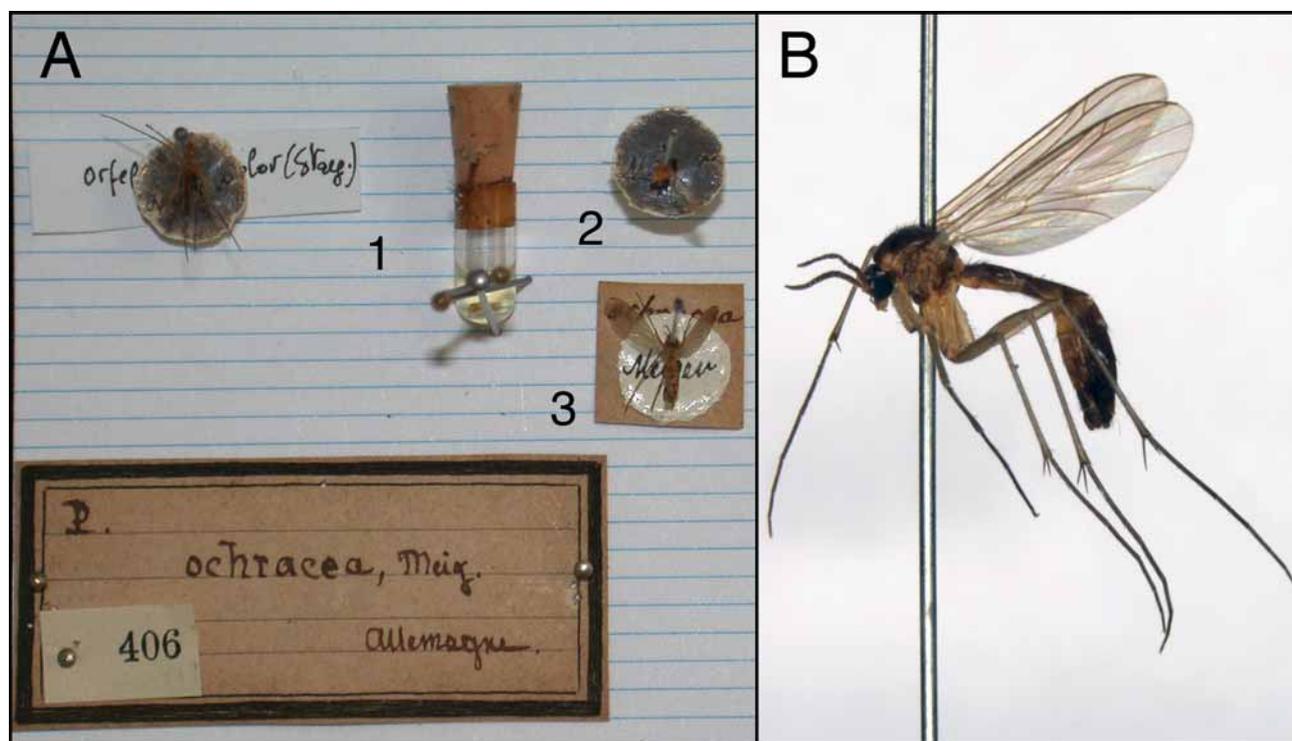


FIGURE 1. Type material studied. — **A.** Type series of *Platyura ochracea* Meigen, 1818 at the MNHN collections in Paris. 1 = male with cleared abdomen in glycerine in separate microvial. This specimen is in best agreement with the original description and selected as the lectotype for *Orfelia ochracea* (Meigen, 1818) **comb. n.** = *Orfelia unicolor* (Staeger, 1840) **syn. n.** 2 = *Orfelia* sp. lacking abdomen. 3 = female *Neoplatoryra* cf. *flava* (Macquart, 1826). — **B.** Male holotype of *Urytalpa dorsalis* (Staeger, 1840) **sp. restit.** from the ZMUC collections in Copenhagen. This specimen in near perfect condition (only lacking right mid leg beyond trochanter) is designated as the new type species for *Urytalpa* due to original misidentification of *Platyura ochracea* Meigen, 1818 by Edwards (1924, 1929).

Type material: **Lectotype male** by present designation, GERMANY [“im Walde”], undated [NMHN, JKJ-SPM-011815]. Original label: Round, darkened (originally white?) label with handwritten “Meigen”. Secondary determination label of new date: White, rectangular with handwritten “*Orfelia unicolor* (Staeg.)”.

Paralectotypes: 1 male *Orfelia* sp. lacking abdomen [NMHN, JKJ-SPM-033583] with original label: Round, darkened (originally white?) with handwritten “Meigen”. 1 female *Neoplatoryra* cf. *flava* (Macquart, 1826)

[NMHN, JKJ-SPM-033584] with original labels: Round, blank white with handwritten "Meigen". Second square off-white label with handwritten "ochracea".

Classification. *Urytalpa* is included in a genus group called the *Cloeophoromyia-Asindulum* group, a group that includes 10 genera (Uesugi 2004) and is mainly characterized by the enlarged aedeagal apparatus with long, sclerotized anterior apodemes (Matile 1978). The placement of *Urytalpa* in relation to other genera of this genus group is vague and not settled. In the original key, Edwards (1929) used the combination of bare mediotergite, less setose to bare anepisternum and "totally different hypopygium" to separate *Urytalpa* from *Pyrtaula*. Matile (1978) gave one synapomorphy for *Urytalpa* that seems to hold for the species we have examined: Mesonotal setae clearly separated into acrostichals, dorsocentrals and laterals [but see note on *U. yoshidai* Uesugi, 2004 by Uesugi (2004)]. We find that the species currently placed in *Urytalpa* display a rather large interspecific variation both in general appearance (Figs 2–3) and in structures of their male terminalia (Figs 5–10). The detection of new species with high resemblance in structures of the terminalia between *Urytalpa*, *Asindulum* and *Macrorrhyncha* has made authors express concerns about the generic limits between them (Chandler 1994, Chandler & Blasco-Zumeta 2001, Uesugi 2004). *Asindulum* and *Macrorrhyncha* are usually separated in keys by their elongated mouthparts but some species with intermediate mouthparts, such as *Asindulum theodori* Matile, 1974, *Macrorrhyncha gallica* Chandler & Matile, 2001 and *Urytalpa yoshidai*, further complicate the picture. It is beyond the scope of this paper to solve these issues but we stress that the current generic limits of *Urytalpa* appear vague to us and that the entire genus group is in need of a revision.

***Urytalpa atriceps* (Edwards, 1913)**

(Figs 2C, 4C, 5A–D)

Platyura atriceps Edwards, 1913:350, figs 18–19

Orfelia (Urytalpa) atriceps; Hutson *et al.* 1980:38, fig. 141

Urytalpa atriceps; Bechev & Koç 2008:31, figs 7–8

Diagnosis. This species shares terminalia with fused gonocoxites and very long aedeagal apparatus with *U. dorsalis* and *U. trivittata*. It can be distinguished from these and other species by having long, digitate projections from tergite IX (Figs 5B–C) and relatively large and exposed gonostyli. The shape of the bifid gonostylus is unique with a brush of strong setae on the inner smaller branch (Fig. 5D).

Description. **Male** (n=1). Body length 6 mm. Wing length 4.84 mm or 3.36 as long as profemur. Antenna length 2.26 mm. **Coloration** (dry, pinned specimen, Fig. 2C). Head dark blackish brown with pale yellowish brown mouth parts and palps. Antenna dark brown; scape, pedicel and basal part of first flagellomere paler yellow. Thorax yellow with mediotergite dark brown; preepisternum with brown posterior part and anterior edge; thoracic stripes brown, narrowly surrounded by pale yellow ground, humeral area pale, extending laterally to behind wing base. Wings clear, yellow tinged. Halter yellow. Legs yellow. Abdomen yellow with tergites VI–IX dark brown, sternites VII–VIII brownish yellow. **Terminalia** (Fig. 5). Gonocoxites connected by a narrow strip and prolonged apicolaterally. Gonostylus bifurcate, with a broad base; ventral branch strong, ending in a sclerotized fold; dorsal branch shorter with about 5 long strong setae forming a brush apically. Aedeagal apparatus long but not high, with compressed plate extending anteriorly into segment V, and long associated apodemes laterally. Tergite IX with a long, narrow, digitate projection apicolaterally without patch of short internal setae; with deep posterior and anterior U-shaped incision. Proctiger small and short, cercus thin, rhombic in lateral view.

Female unknown.

Distribution. North-western Europe; known only from southern England, the Netherlands, Norway and Sweden.

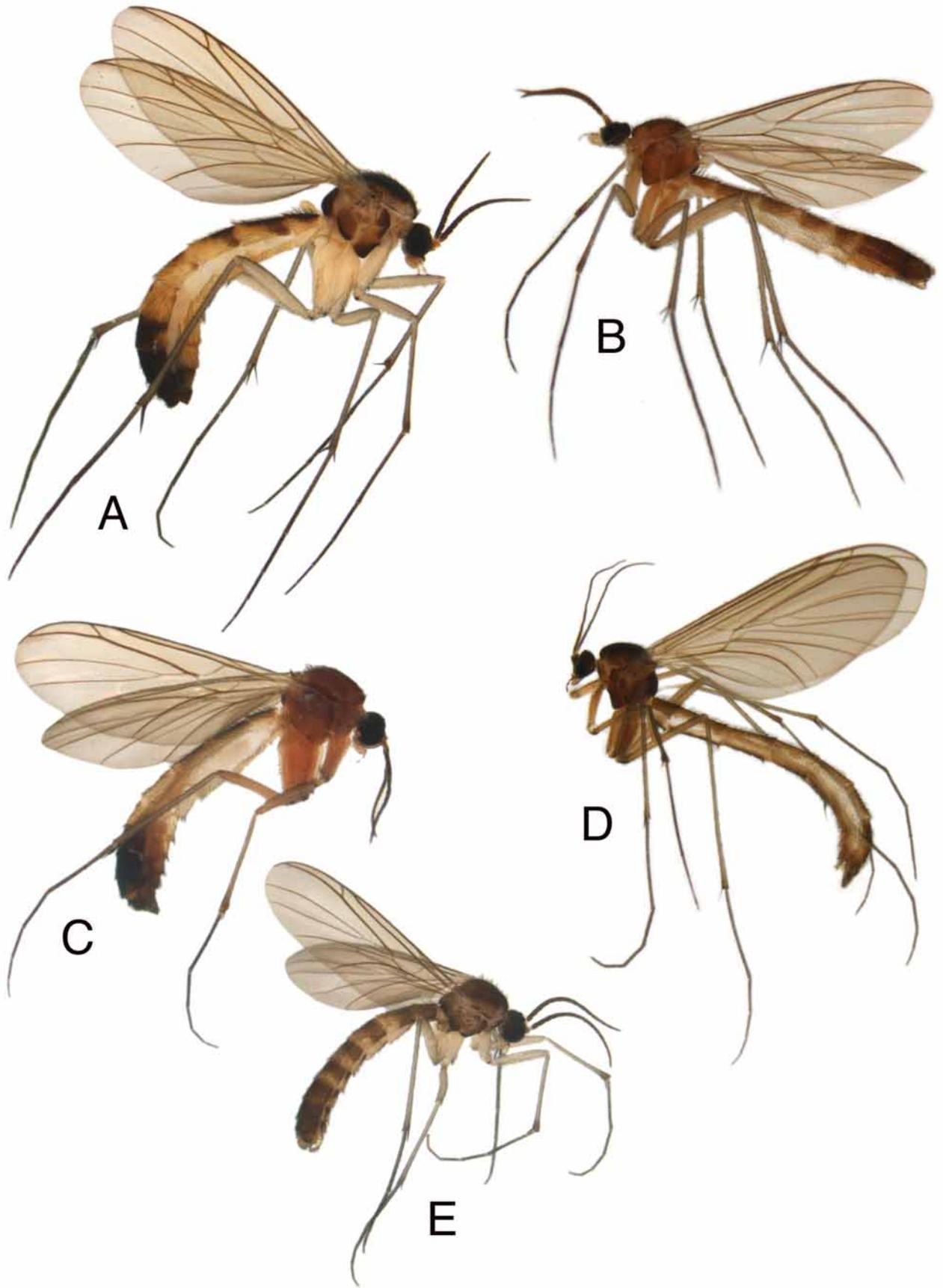


FIGURE 2. Habitus photos of males of Nordic species of the genus *Urytalpa* Edwards. — A. *Urytalpa dorsalis* (Staecker, 1840). — B. *Urytalpa trivittata* (Lundström, 1914). — C. *Urytalpa atriceps* (Edwards, 1913). — D. *Urytalpa macrocera* (Edwards, 1913). — E. *Urytalpa galdes* Hedmark & Kjaerandsen **sp. n.**

Material examined: SWEDEN: LU, Gällivare, Haapavaara/Annavaara, 8 km WNW Vettasjärvi, 67°24'22"N, 067°24'22"E, 1 Jun–26 Jul 1994 (NHRS, Leg. R. Rova) — 1 male; NB, Pajala, Pajala, 27 Jul 1955 (MZLU, Leg. H. Andersson) — 1 male; TO, Kiruna, Abisko, 68°21'01"N, 018°49'50"E, 16 Jul 1957 (MZLU, Leg. P. I. Person) — 1 male; Abisko, mouth of river Ridonjira, 22 Jul 1983 (MZLU, Leg. H. Andersson) — 2 males; Kiruna, Övre Soppero, Harrijoki, 68°10'09"N, 021°30'57"E, 26 Jul 1951 (MZLU, Leg. Ander & Ardö) — 1 male.

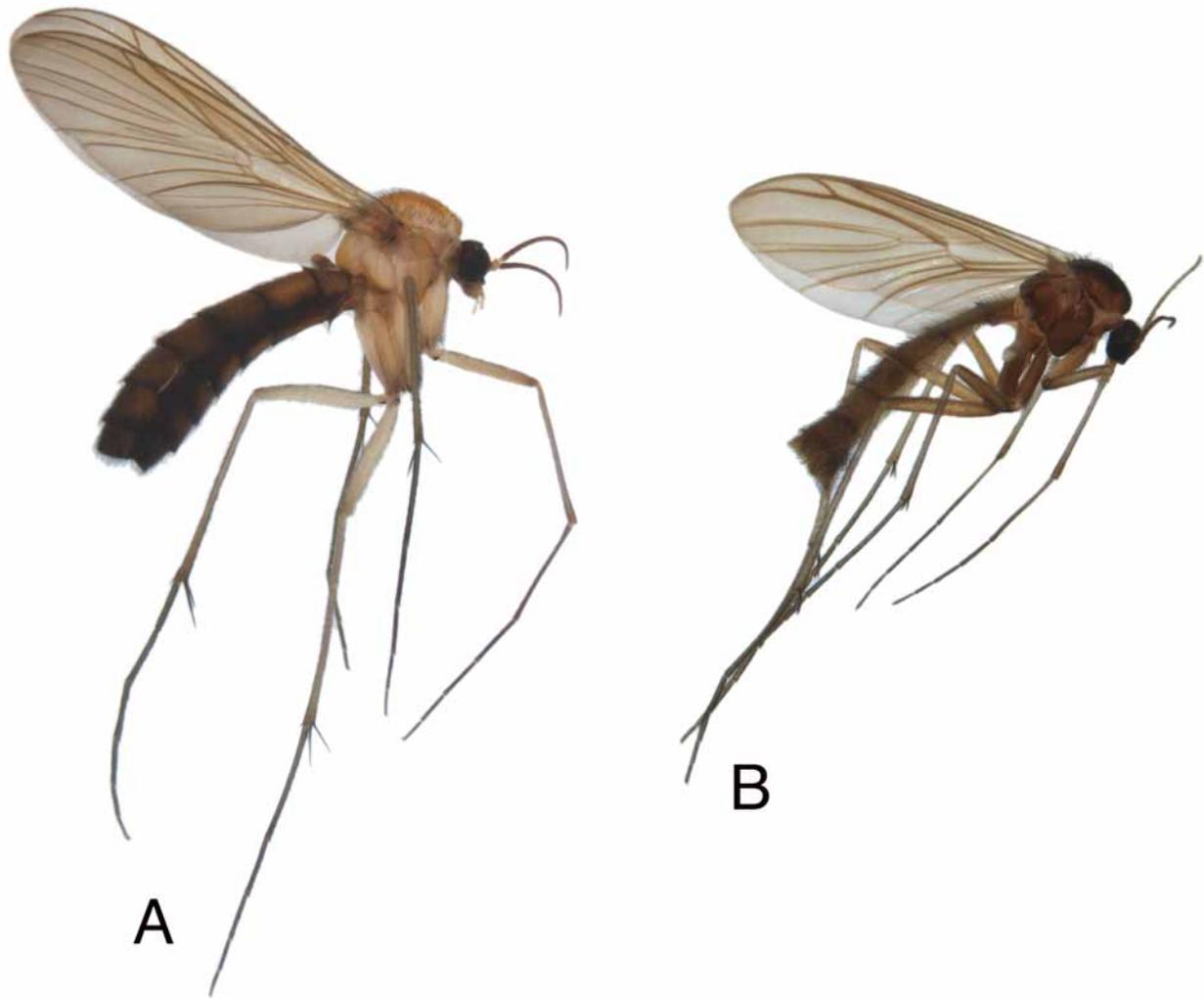


FIGURE 3. Habitus photos of females of Nordic species of the genus *Urytalpa* Edwards. — A. *Urytalpa dorsalis* (Staeger, 1840). — B. *Urytalpa macrocera* (Edwards, 1913).

***Urytalpa dorsalis* (Staeger, 1840), sp. restit.**
(Figs 1B, 2A, 3A, 4A, 6A–D, 11A–B)

Platyura dorsalis Staeger, 1840:278
nec *Platyura ochracea* Meigen, 1818 authors based on Edwards (1924, 1929)
= *Platyura mycetophiloides* Walker, 1856:66
= *Platyura nigriceps* Walker, 1856:66
= *Platyura humeralis* Schiner, 1863:440 [Winnertz, 1864:692]
nec *Platyura ochracea*; Dziedzicki 1915:7, figs 17–18
Platyura dorsalis; Edwards 1913:350, figs 16–17
Orfelia (*Urytalpa*) *ochracea*; Hutson *et al.* 1980:38, fig. 142
Urytalpa ochracea; Zaitzev 1994:103, fig. 41.1
Urytalpa ochracea; Bechev & Koç 2008:31, figs 7–8

Diagnosis. This species comes closest to *U. trivittata* and *U. atriceps* in shape of the terminalia, but differs by having the thoracic stripes darker and fused in males. The gonostylus is small, tapered and claw-like in lateral view (Figs 6C–D), retracted and directed dorsad to the extent that it is almost totally hidden in ventral view (Fig. 6A). Such a small, retracted gonostylus is also found in *U. trivittata* and *U. sapporoensis* (Okada, 1938). This is the only Nordic species of *Urytalpa* where the male abdomen due to the extra large anterior extension of the aedeagal apparatus (Fig. 6C) appears distinctly petiolated and laterally compressed (Fig. 2A). The female (Fig. 3A) can be separated from *U. trivittata* and *U. macrocera* by the combination of a short ovate sessile cercus, sternite VIII having convex apicomedial corners with a larger setose excavation, and by having globular spermathecae with thick inner wall (Figs 11A–B).

Description. Male (n=5). Body length 6–9, 7.5 (n=7) mm. Wing length 4.46–6.02, 5.24 mm, or 3.28–3.44, 3.36 as long as profemur. Antenna length 2.18–2.48, 2.32 mm. **Coloration** (specimen in alcohol, Fig. 2A). Head dark brown, mouthparts and palps pale yellowish. Antenna dark brown, scape, pedicel and basal part of first flagellomere pale. Thorax brown with antepnotum pale; preepisternum 2 with darker lower half; laterotergite with darker posteroventral part; mesonotal stripes dark, almost completely fused, separated anteriorly; humeral area pale, extending laterally to behind wing base. Wings clear, yellow tinged, veins brown. Halter pale. Legs pale whitish yellow. Abdomen dark brown with variable amount of yellow; tergites I–V usually with large triangular apicolateral yellow marking; tergites VI–IX darker, with at most small yellow patches laterally on tergites VI–VII; sternites I–VI pale; terminalia dark brown. **Terminalia** (Fig. 6). Gonocoxites fused ventrally by a broad connection; apically with a short apicomedial outgrowth without strong setae. Large hypandrial lobe forming thin hyaline plate ventromedially. Gonostylus retracted into gonocoxite, small and claw like in lateral view with the tip pointing apicoventrally. Aedeagal apparatus very large, with compressed plate large and tall, extending anteriorly into segment V, and long associated apodemes laterally. Tergite IX without outgrowths, apical corner with patch of short internal setae; with shallow posterior and deep anterior U-shaped incision. Proctiger small and short, cercus oblong in lateral view.

Female (n=2). Body length 7.5 mm. Wing length 5.68–5.9 mm, or 3.38–3.6 as long as profemur. Antenna length 1.75 mm. **Coloration** (Fig. 3A). Thorax usually all yellow without dark markings; abdomen variable from all dark to entirely yellow; otherwise as in male. **Terminalia** (Figs 11A–B). Cercus short ovate and sessile. Sternite VIII with convex corners, with a large excavation apicomediaally covered with short stiff setae. Spermathecae globular, spermathecae and ducts with thick inner walls.

Distribution. Widespread in Europe; recorded from Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Ireland, Italy, Latvia, Netherlands, Norway, Poland, Romania, Russia (NET), Slovakia, Spain, Sweden and Switzerland.

Type material examined: Holotype male, DENMARK (without given locality) June 14 (year not given, before 1840) [ZMUC, leg. R. C. Staeger, JKJ-SPM-033574, Fig. 1B].

Other material examined: NORWAY: TEI, Kviteseid, Kviteseid, 59°24'11"N, 008°29'38"E, 150 m a.s.l., 15–16 Jun 1988 (ZMUN, Leg. S. Ligaard) — 1 male; **SWEDEN: BO**, unknown locality (NHRS, Leg. C. H. Boheman) — 1 female, 1 male; **HA**, Halmstad, Strandskogen, Eldsberga, 56°40'45"N, 012°42'56"E, 8 Jun 1952 (MZLU, Leg. P. Ardö) — 1 male; **LY**, Ammarnäs, Kaissats sydslutning, 600 m a.s.l., 27 Jul 1957 (MZLU, Leg. Unknown) — 1 female; **NB**, Pajala, Kengis, Utmockan, 67°11'16"N, 023°29'23"E, 15 Jul 1951 (MZLU, Leg. Ander & Ardö) — 1 male; **ÖG**, Sturefors Nature Reserve, 58°19'43"N, 015°46'08"E, 15 Jun 1990 (MZLU, Leg. M. Wadstein) — 2 males; 6 Jul 1990 (MZLU, Leg. M. Wadstein) — 1 male; **SK**, Lomma, pine forest at Habo gård N Lomma, 55°41'24"N, 013°03'50"E, 10 m a.s.l., 23 May 2004 (MZLU, Leg. J. Kjørandsen) — 1 male; Dalby, Ö. Mölla, 55°39'47"N, 013°21'22"E, 28 May 1989 (MZLU, Leg. R. Danielsson) — 1 male; 7 Jun 1989 (MZLU, Leg. R. Danielsson) — 1 female, 1 male; Kristianstad, Arkelstorp, 56°10'13"N, 014°17'09"E, 26 Jun 1919 (MZLU, Leg. Unknown) — 1 female; **SM**, unknown locality (NHRS, Leg. C. H. Boheman) — 1 female; Högsby, Emån at Berga Gård, 57°08'48"N, 016°03'21"E, 17 May–19 Jul 2006 (MZLU, Leg. A. Malmqvist) — 1 male; Markaryd, Jul 1929 (MZLU, Leg. O. Ringdahl)

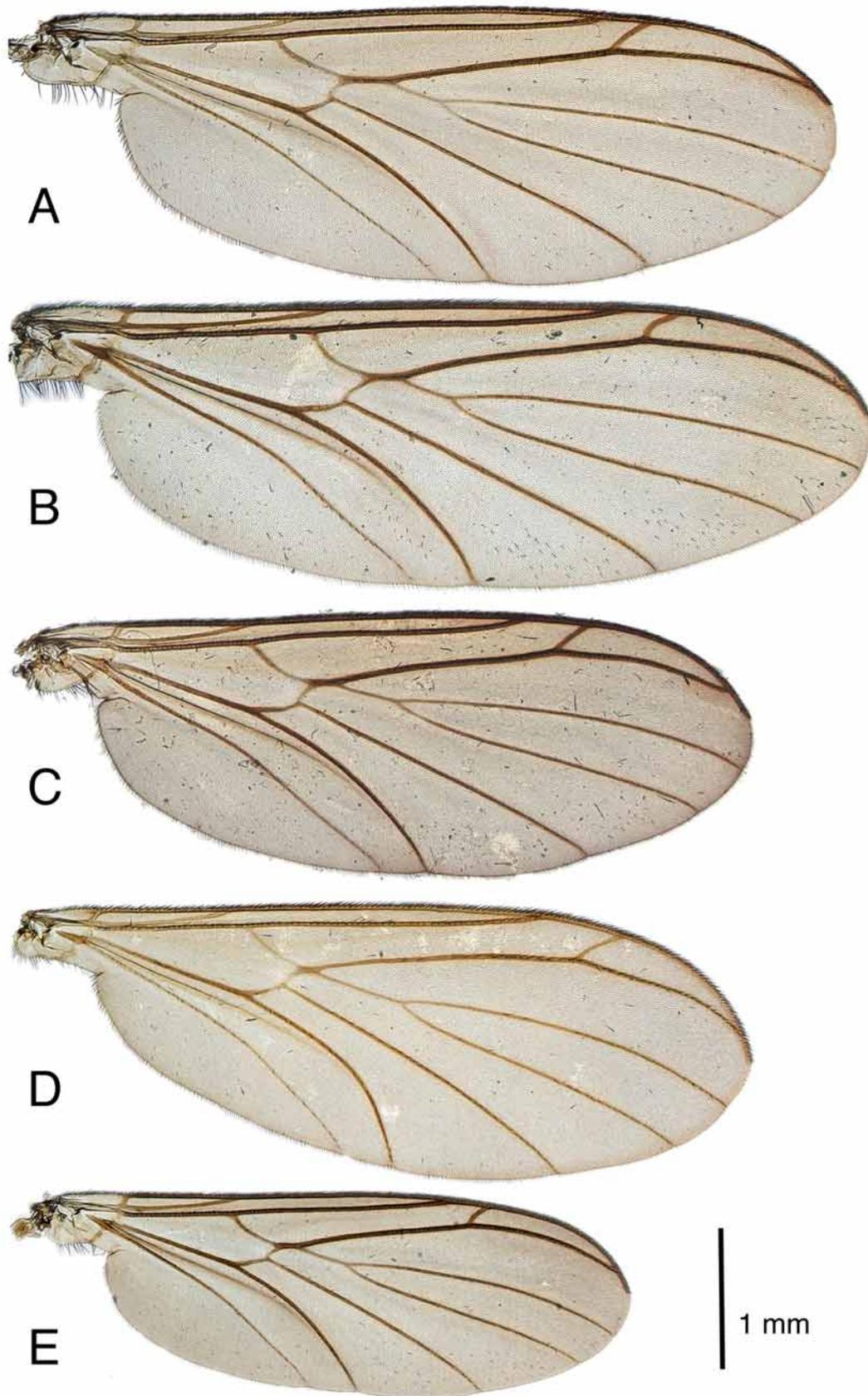


FIGURE 4. Wing photos of males of Nordic species of the genus *Urytalpa* Edwards. — A. *Urytalpa dorsalis* (Staeger, 1840). — B. *Urytalpa trivittata* (Lundström, 1914). — C. *Urytalpa atriceps* (Edwards, 1913). — D. *Urytalpa macrocera* (Edwards, 1913). — E. *Urytalpa galdes* Hedmark & Kjaerandsen **sp. n.**

— 1 male; Bolmen, 1 Jul 1957 (MZLU, Leg. O. Ringdahl) — 1 male; Markaryd, Traryd, Axhult, 56°30'26"N, 013°39'55"E, Jul 1952 (MZLU, Leg. G. Olsson) — 1 male; Aug 1952 (MZLU, Leg. G. Olsson) — 3 males; Torsås, Torsås, 56°24'51"N, 015°59'53"E, 10 Jun 1985 (MZLU, Leg. R. Danielsson) — 1 female, 2 males; **SÖ**, Haninge, Tyresta National Park, 59°11'11"N, 018°18'19"E, Erikslund (NHRS, Leg. B. Viklund) — 1 female; 26 May–30 Jul 2001 (NHRS, Leg. B. Viklund, L. O. Wikars & H. Ahnlund) — 2 males; UP, Uppsala, Ekdalen Nature Reserve, southern hillside, 59°58'17"N, 018°21'18"E, trap id. 27-487, 2–16 Jun 2004 (NHRS, Leg. Swedish Malaise Trap Project) — 3 females, 60 males.

***Urytalpa galdes* Hedmark & Kjaerandsen, sp. n.**

(Figs 2E, 4E, 7A–E)

Diagnosis. This species is closest to *U. chandleri* Bechev & Koç, 2008 in the shape of the male terminalia but is easily distinguished from all other species by the long club-shaped and gently incurved processes arising caudally from the gonocoxites (Fig. 7A) and by the large gonostylus with a single long and digitate apical process (Fig. 7D). It appears distinctly smaller than the other Nordic species of *Urytalpa* and the male abdomen is dorsoventrally rather than laterally compressed (Fig. 2E).

Holotype male: SWEDEN: LU, Jokkmokk, Kaltisbäcken 1 km NNE Messaure, 66°41'26"N, 020°22'37"E, 250 m a.s.l., 12 Jul–17 Aug 2004 (Leg. J. Kjaerandsen & K. Hedmark) [MZLU, JKJ-SPM-028550, on slide].

Paratypes: LU, Jokkmokk, Kaltisbäcken 1 km NNE Messaure, same data as for holotype — 1 male [MZLU, JKJ-SPM-016493, on slide]; 1 male [MZLU, JKJ-SPM-033204, in alcohol]; 1 male, 15 Aug 1998 (Leg. K. Hedmark) [MZLU, JKJ-SPM-036830, pinned with terminalia in glycerine].

Etymology. Based on the Sámi word "gáldes", the first element of "Gáldesjåhkå" which is the original Sámi name for the type locality, a small stream close to Messaure. The meaning and origin of "gáldes" is unknown to the science of language. The word is apparently very old. The second element, "jåhkå", means stream. We consider "gáldes" to be an unlatinized Sámi word and thus to be retained with original gender and termination unchanged (ICZN Article 31b). The name "Gáldesjåhkå" is usually transcribed to "Kaltisjokk" or "Kaltisbäcken" on maps and references to this locality in biological papers.

Description. Male (n=2). Body length 4.5–5.5 (n=3) mm. Wing length 3.9–3.92 mm, or 3.5–3.55 as long as profemur. Antenna length 2.24–2.26 mm. **Coloration** (specimen in alcohol, Fig. 2E). Head brown with pale yellowish mouth parts. Antenna dark brown with basal part of first flagellomere pale. Thorax mainly brown; prescutum pale brown on anterior half; preepisternum pale on dorsal half; laterotergite pale on anterior part; mediotergite gradually darker towards posterior end; thoracic stripes dark blackish brown narrowly surrounded by pale yellow ground; humeral area pale, narrow pale stripe extending laterally along entire length of mesoscutum. Wings clear, yellow tinged, veins brown. Halter whitish. Legs whitish. Abdomen mainly dark brown; tergites II–V with apical half forming yellow bands; sternites yellow with thin dark bands basally. **Terminalia** (Fig. 7). Gonocoxites divided ventrally, with long club-shaped and gently incurved process apicolaterally and short setose lobe medially. Hypandrial lobe not discernible, apparently absent or very hyaline. Gonostylus large, with a rounded lateral knob and a long digitate apical process. Aedeagal apparatus of medium length, medial compressed plate not high but extending distinctly beyond apex of the stout lateral apodeme (Fig. 7E). Tergite IX without outgrowths, apical corner rounded, without patch of short internal setae; with deep posterior and shallow anterior U-shaped incision. Proctiger relatively long; cercus parallelogram shaped in lateral view.

Female unknown

Distribution. Northern Europe; so far known only from the type locality in northern Sweden.

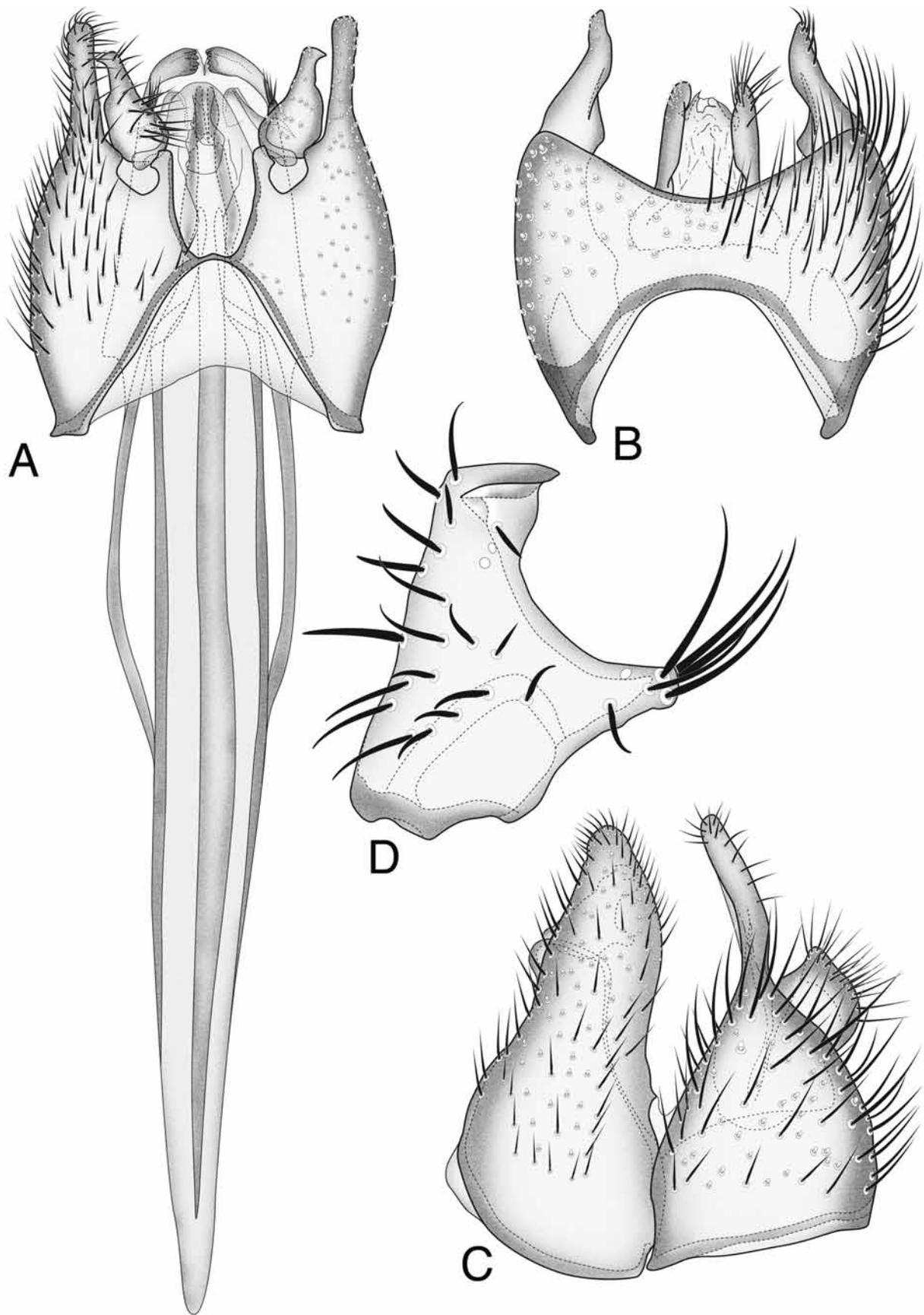


FIGURE 5. Male terminalia of *Urytalpa atriceps* (Edwards, 1913). — A. Sternite IX, hypandrial lobe and internal aedeagal apparatus in ventral view (pre-terminal segments not illustrated). — B. Tergite IX, proctiger and cerci in dorsal view. — C. Segment IX and beyond in lateral view. — D. Gonostylus in lateral view, enlarged.

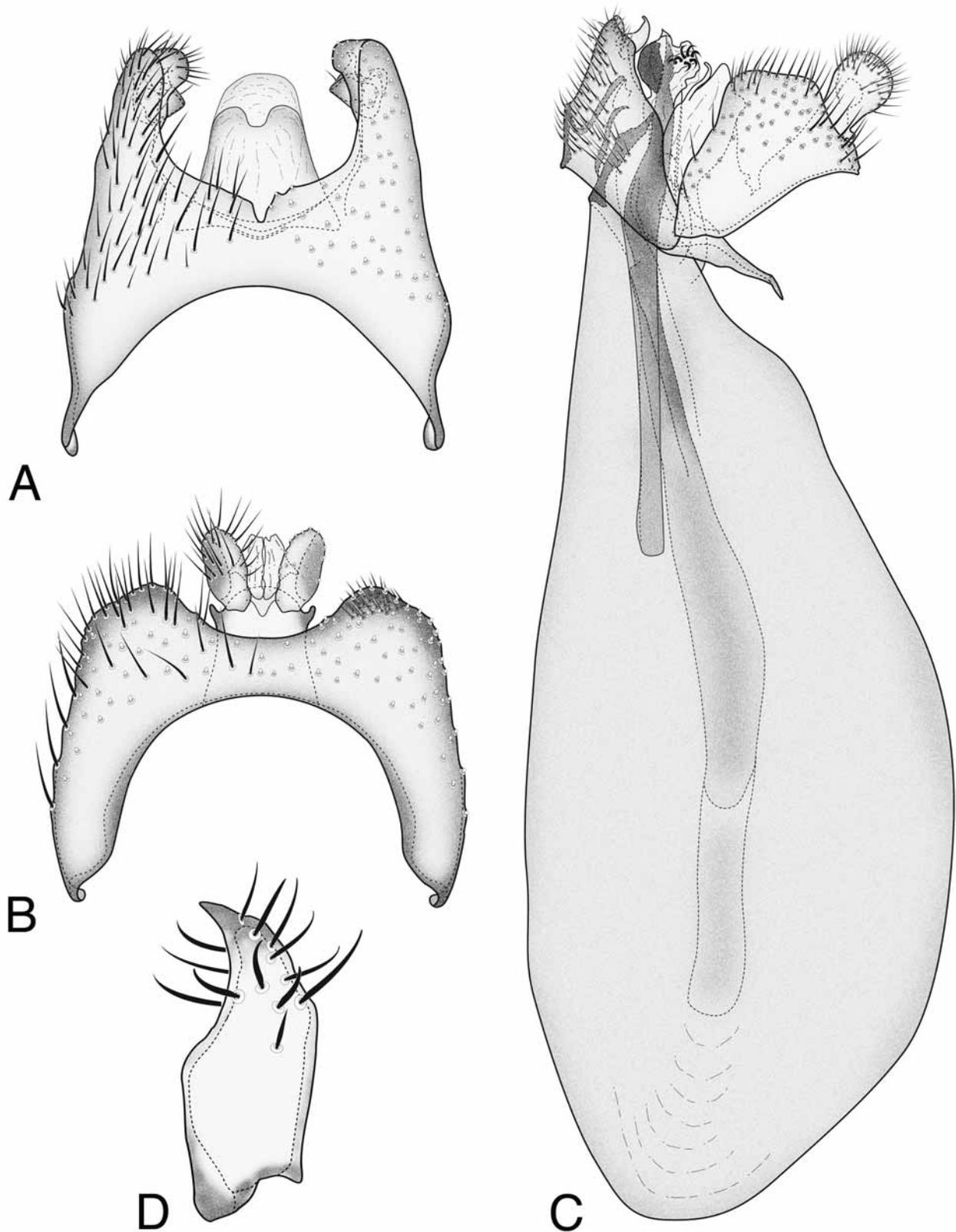


FIGURE 6. Male terminalia of *Urytalpa dorsalis* (Staeger, 1840). — A. Sternite IX and hypandrial lobe in ventral view. — B. Tergite IX, proctiger and cerci in dorsal view. — C. Segment IX and beyond in lateral view, including internal aedeagal apparatus (pre-terminal segments not illustrated). — D. Gonostylus in lateral view, enlarged.

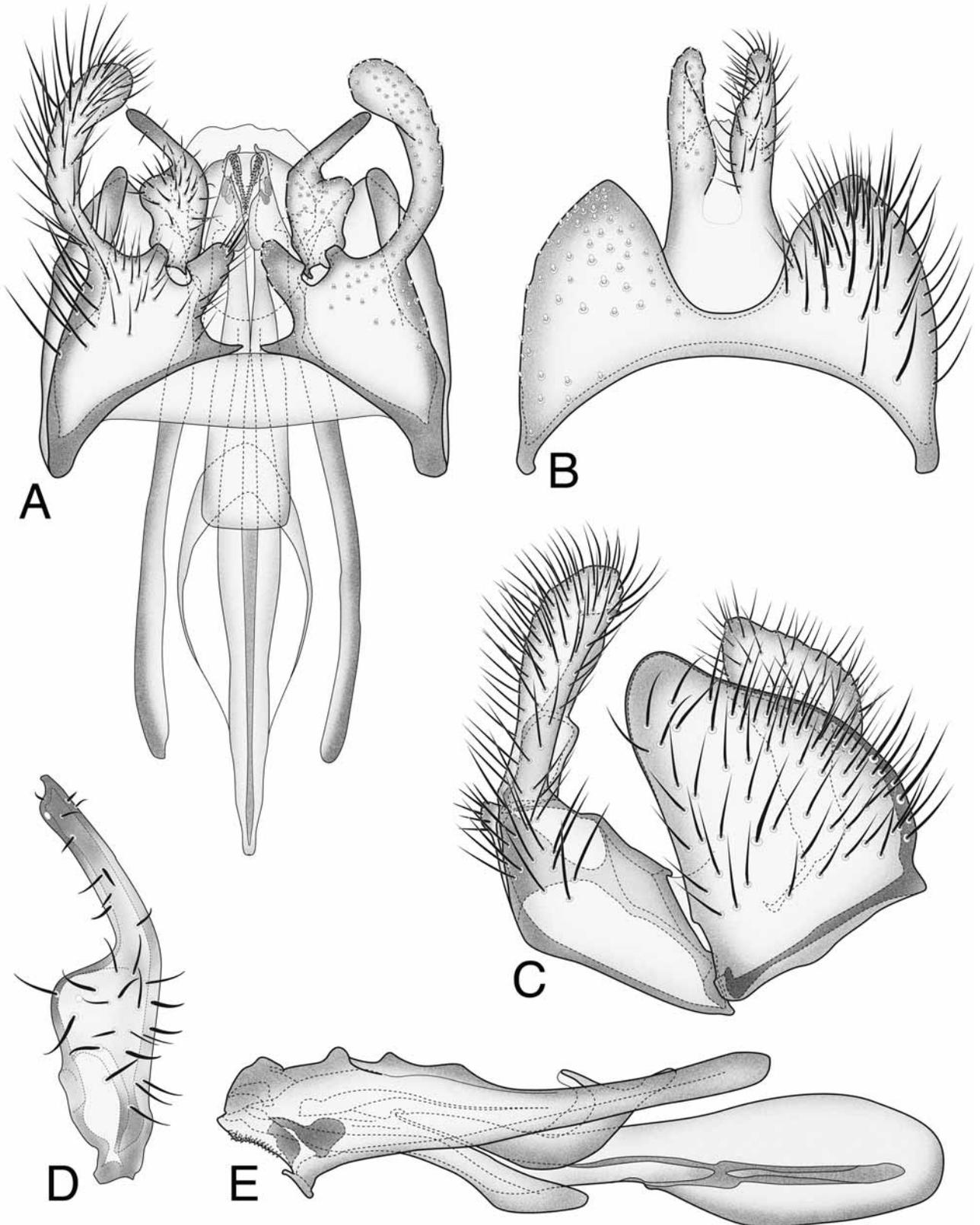


FIGURE 7. Male terminalia of *Urytalpa galdes* Hedmark & Kjaerandsen **sp. n.** — A. Segment IX, hypandrial lobe and internal aedeagal apparatus in ventral view (pre-terminal segments not illustrated). — B. Tergite IX, proctiger and cerci in dorsal view. — C. Segment IX and beyond in lateral view. — D. Gonostylus in lateral view, enlarged. — E. Aedeagal apparatus in lateral view.

***Urytalpa macrocera* (Edwards, 1913)**

(Figs 2D, 3B, 4D, 8A–D, 11E–F)

Platyura macrocera Edwards, 1913:349, figs 7, 8 & 8a

Orfelia (Urytalpa) macrocera; Hutson *et al.* 1980:38, fig. 140

Urytalpa macrocera; Bechev & Koç 2008:30, figs 1–2

Diagnosis. The long slender antenna, uniform dark brown coloration, and rounder wing with shorter R-M vein fusion (Fig. 4D) easily distinguishes this species from the other members of the genus (Fig. 2D). The long slender apical projection of the gonocoxites (Figs 8A, C) is shared only with *U. galdes*, **sp. n.** but most other structures of the male terminalia are unique and distinct, including the large spoon shaped projection laterally from tergite IX with a dense brush of long setae internally (Fig. 8A). The female can be separated from *U. trivittata* and *U. dorsalis* by the short, truncated abdomen (Fig. 3B) and by having globular spermathecae with thin inner walls and thin ducts (Figs. 11E).

Description. Male (n=5). Body length 6.5–8.5, 7.79 (n=7) mm. Wing length 5–6.72. 5.83 mm, or 3.74–4.15, 3.89 as long as profemur. Antenna length 2.84–3.9 (n=4) mm. **Coloration** (specimen in alcohol, Fig. 2D). Head dark brown, mouth parts brown. Antenna brown with basal part of first flagellomere pale. Thorax dark brown; thoracic stripes dark brown, diffusely separated; humeral area brown. Wings clear, yellow tinged, veins paler brown than in other species. Halter whitish. Legs brown. Abdomen uniformly dark brown. **Terminalia** (Fig. 8). Gonocoxites divided ventrally, with long slender projection. Hypandrial lobe tongue shaped and curved dorsally. Double "bladder shaped" aedeagal guides situated above the gonocoxite. Gonostylus long and slender, subrectangular in lateral view with the apicodorsal corner slightly elongated. Aedeagal apparatus short and small compared to other species, with compressed plate extending only slightly beyond apex of the stout and short lateral apodeme. Tergite IX with large spoon shaped projection laterally and with large dense brush of long setae internally, with deep posterior and shallow anterior U-shaped incision. Proctiger small and short, cercus sessile, broadly ovate in lateral view.

Female (n=3). Body length 5–5.5 mm. Wing length 4.04–4.08 mm, or 3.29–3.54 as long as profemur. Antenna length 1.62–1.7 mm. **Coloration.** Overall brown as in male (Fig. 3B). **Terminalia** (Fig. 11E–F). Tergites VIII and IX weakly sclerotized apically in front of cercus. Cercus sessile and ovate. Sternite VIII divided ventrally, with slightly truncated corner, with a narrow excavation apicomedialed covered with short stiff setae. Spermathecae globular, spermathecae and ducts with thin inner walls.

Distribution. Western Europe; known only from northern Britain (Scotland and northern England), France, Norway, Sweden and The Netherlands.

Material examined: **FRANCE:** Forez (63), Baracuchet, 4 Sep 1980 (MNHN, Leg. J. Brunhes) — 1 female, 1 male; **NORWAY:** **FV**, Alta, Elvestrand, 69°57'12"N, 023°15'32"E, 18 Jul–16 Sep 1996 (ZMUN, Leg. H. Rinden) — 1 female, 497 males; **TRY**, Tromsø, Skitteneelv, 13 Sep 1987 (MZLU, Leg. G. E. E. Søli) — 1 female, 45 males; **SWEDEN:** **LU**, Jokkmokk, Porsitjärn/Porsi VVO, 1.5 km SE Vuollerim, 66°25'28"N, 020°40'17"E, 60 m a.s.l., 16 Aug–2 Sep 2005 (MZLU, Leg. K. Hedmark & M. Karström) — 1 male; Jokkmokk, Bombmurkleskogen VVO, 4 km SSE Messaure, 66°38'47"N, 020°22'49"E, 85 m a.s.l., 18 Aug–9 Sep 2005 (NHRS, Leg. Swedish Malaise Trap Project) — 1 male; **SK**, Skärälid NP, 56°01'26"N, 013°13'48"E, border between hardwood forest and marsh in ravine, 8–18 Jul 1994 (MZLU, Leg. M. Söderlund) — 6 females, 47 males; **TO**, Kiruna, Abisko, 68°21'01"N, 018°49'50"E, 150–500 m W Naturv. stn., 8–15 Sep 1975 (MZLU, Leg. K. Müller) — 4 males; **VB**, Kallviken, 5 km SÖ Lövvånger, RN 21L NV, 25 Jun–15 Sep 1997 (NHRS, Leg. Sporrang & Viklund) — 34 males.

***Urytalpa nigrita* (Johannsen, 1910), comb. n.**

(Figs 9A–D)

Platyura nigrita Johannsen, 1910:256, fig. 92

Type material examined: Holotype male: UNITED STATES: Washington, Friday Harbor [48.53°N 123.02°W], June (USNM, Leg. J.M. Aldrich). The holotype is in fair condition but lacks the tip of the abdomen, which was dissected for the illustration of the terminalia; but apparently the terminalia were not re-associated with the holotype after illustration was completed.

Additional material examined: CANADA: Yukon Territory, Herschel Island, 69°34'39"N, 139°05'17"W, 18–24 Jul 1971 (MNHN, Leg. W.R.M. Mason) — 1 male.

Additional specimen examined of *Urytalpa rhapsodica* Chandler, 1995 for comparison: ITALY: Eau Rousse (Valsavaranche), 1600 m a.s.l., 4 Sep 1978 (MNHN, Leg. L. Matile) — 1 male.

Classification. During the study of the Nordic species we also studied the collections of *Urytalpa* determined by the late Loic Matile at MNHN, which included a specimen from Canada labelled "*Urytalpa nigrita* (Johannsen, 1910) [L. Matile det. 1980]". Based on a preliminary investigation of the type material in USNM, this species was recently transferred from *Platyura* to *Pyrtaula* Edwards by mistake (Evenhuis 2006). Upon a second and more thorough examination of the holotype by N.L. Evenhuis in April 2008, it was found to clearly fit the characters of *Urytalpa*. It lacks the original key character given to separate *Pyrtaula* from *Urytalpa* (metepisternum with patch of short decumbent hair; Edwards 1929). Moreover, its terminalia are very similar to another specimen in the collections at MNHN, from Italy and left undetermined by Matile, which we have determined as *Urytalpa rhapsodica*. The specimens of *U. nigrita* and *U. rhapsodica* only differ in minute details of their terminalia, but enough to be considered separate species. The male terminalia of *U. nigrita* are illustrated here for comparison (Figs 9A–D) since the original illustration provided by Johannsen (1910) is insufficient to separate the two. The aedeagal apparatus has a wide, dilated and abruptly truncated apex in *Urytalpa rhapsodica* (Chandler 1995, fig. 1) while the apex is less dilated and truncated, and forms four small projections in *U. nigrita* (Fig. 9A). These two species form a group with yet another type of terminalia within genus *Urytalpa*. The gonocoxites are wide subrectangular without projections but fused by a broad sclerotized medial bridge, somewhat broader in *U. rhapsodica* than in *U. nigrita*. The gonostylus is large and exposed, longer than sternite IX and distinctly bifurcated in lateral view. The aedeagal apparatus is stout but less than twice as long as segment IX.

The transfer here of *Platyura nigrita* to *Urytalpa* marks the first record of *Urytalpa* in the Nearctic. The discovery of a second specimen of this species (in MNHN) from The Yukon in Canada extends the distribution significantly northward. It could be assumed that more specimens will be found in between the two localities in the northwestern portion of the North American continent.

***Urytalpa trivittata* (Lundström, 1914)**

(Figs 2B, 4B, 10A–D, 11C–D)

Platyura trivittata Lundström, 1914:10

Urytalpa trivittata; Bechev & Koç 2008:31, figs 9–10

Diagnosis. Most similar to *U. dorsalis* but differs by having more slender and less petiolated and less laterally compressed abdomen (Fig. 2B) and by having the thoracic stripes distinctly separated. The larger apicomedial outgrowth of the gonocoxite with 5–6 strong setae in a row (Fig. 10A) is a distinctive character for this species. *Urytalpa dorsalis* and *U. trivittata* differ from the other Nordic species in having gonocoxites without larger outgrowths and the gonostylus is retracted dorsally into the gonocoxites. In *U. trivittata*, however, the gonostylus is subtriangular in lateral view and somewhat larger (Fig. 10C). The female can be separated from *U. dorsalis* and *U. macrocera* by the combination of an oblong and petiolated cercus, sternite VIII having truncated apicomedial corners with a narrow setose excavation, and by having distinctly ovate spermathecae with a relatively thin inner wall (Figs 11C–D).

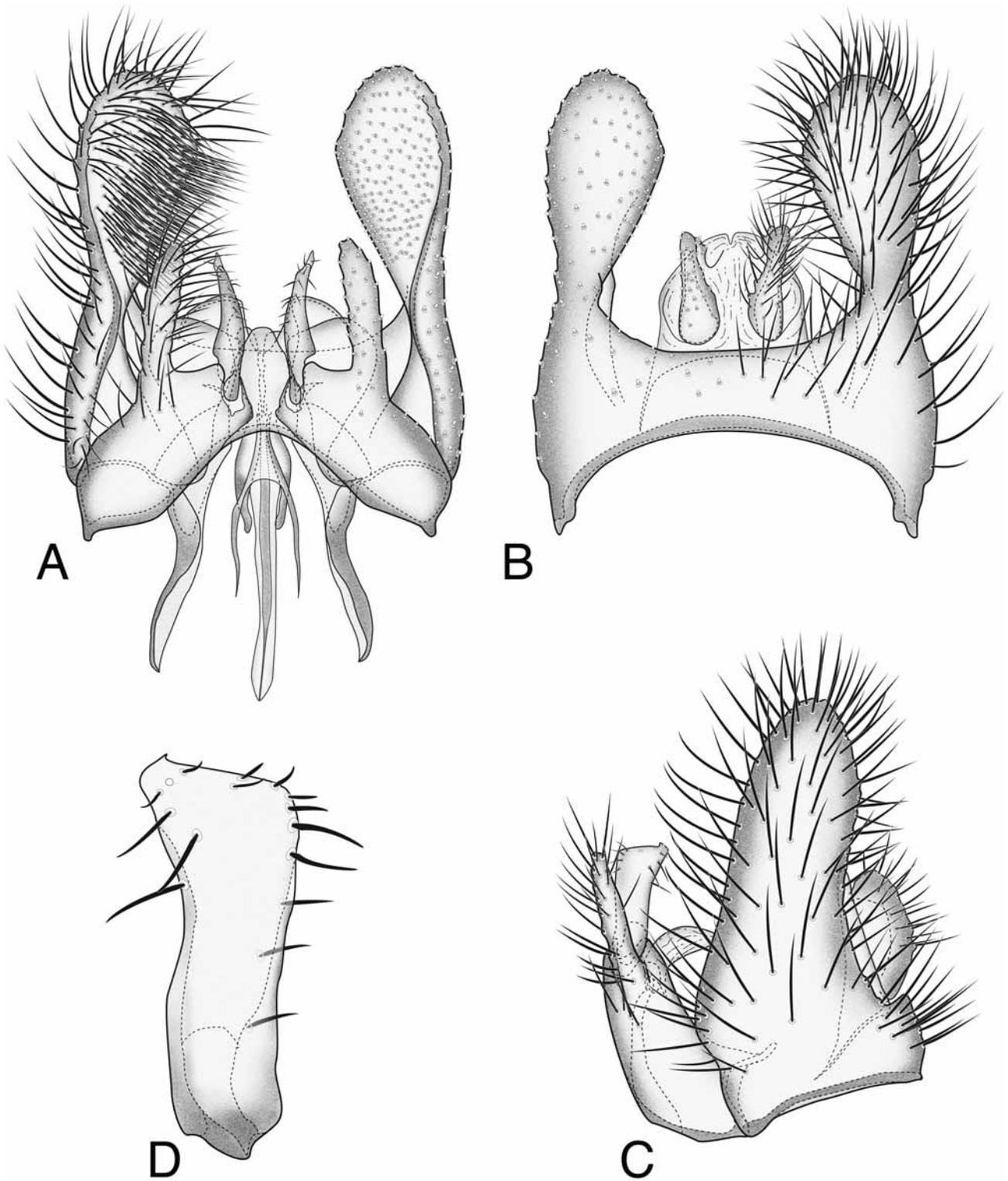


FIGURE 8. Male terminalia of *Urytalpa macrocera* (Edwards, 1913). — A. Segment IX, hypandrial lobe and internal aedeagal apparatus in ventral view (pre-terminal segments not illustrated). — B. Tergite IX, proctiger and cerci in dorsal view. — C. Segment IX and beyond in lateral view. — D. Gonostylus in lateral view, enlarged.

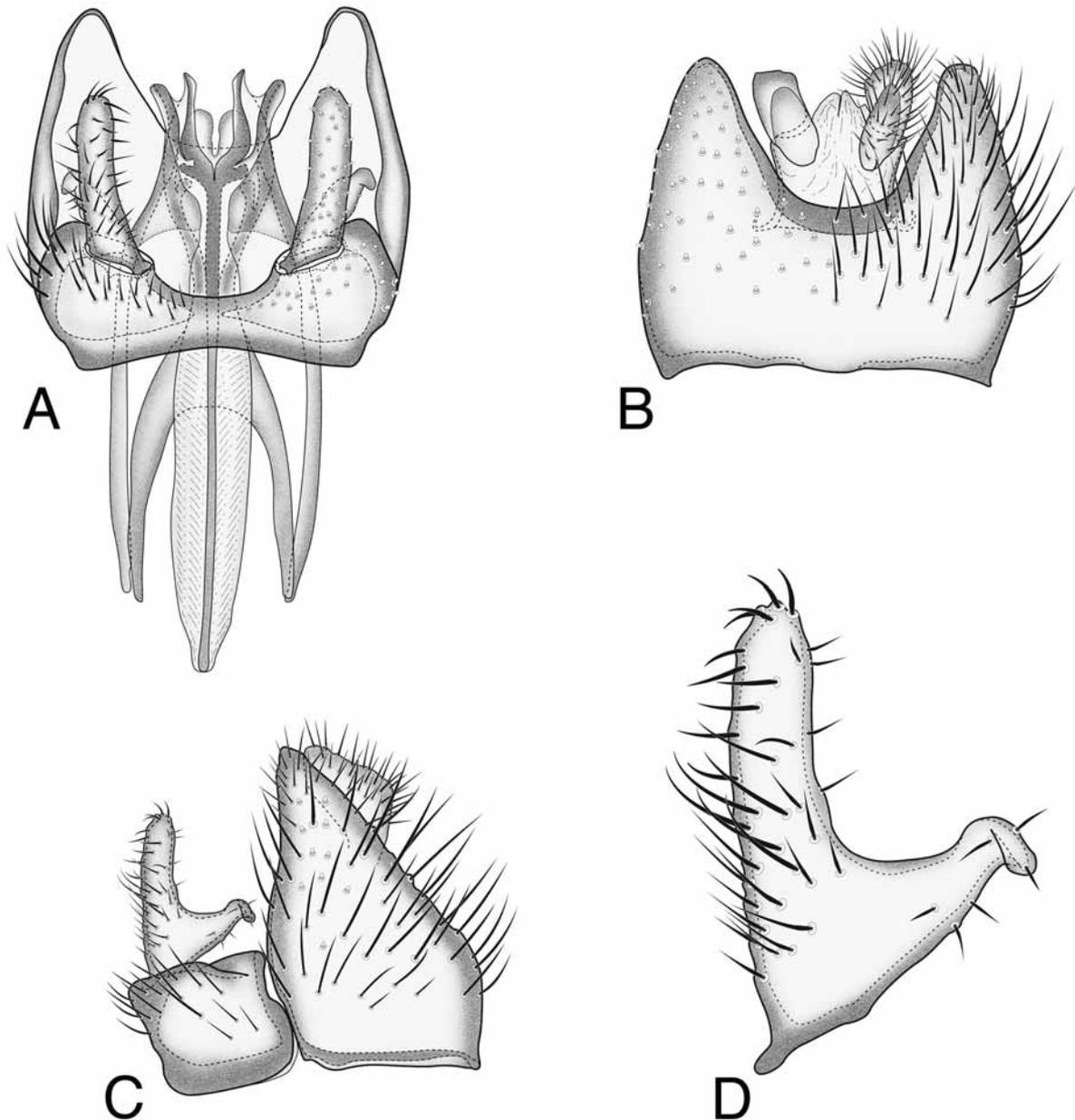


FIGURE 9. Male terminalia of *Urytalpa nigrita* (Johannsen, 1910) **comb. n.** — A. Segment IX, hypandrial lobe and internal aedeagal apparatus in ventral view (pre-terminal segments not illustrated). — B. Tergite IX, proctiger and cerci in dorsal view. — C. Segment IX and beyond in lateral view. — D. Gonostylus in lateral view, enlarged.

Description. Male (n=5). Body length 6.5–8.5, 7.1 (n=10) mm. Wing length 5.14–5.88, 5.5 mm, or 3.24–3.64, 3.39 as long as profemur. Antenna length 2.2–2.64 (n=4) mm. **Coloration** (specimen in alcohol, Fig. 2B). Head brown with mouth parts paler. Antenna brown, scape, pedicel and basal part of first flagellomere paler. Thorax yellow with pale antepnotum; dark brown mesonotal stripes distinctly separated, narrowly surrounded by pale yellow ground; humeral area pale, extending laterally to behind wing base. Wings clear, yellow tinged, veins brown. Halter pale. Legs slightly paler than thorax. Abdomen brown; tergites I–V with narrow pale bands apically; tergites VI–IX dark brown; sternites I–V pale; terminalia yellowish brown. **Terminalia** (Fig. 10). Gonocoxite connected ventrally by a narrow strip only; apically with a distinct apicomedial outgrowth with 5–6 strong setae in a row. Large hypandrial lobe forming thin hyaline plate ventromedially. Gonostylus retracted into gonocoxite, small and subtriangular in lateral view with the tip pointing dorsally. Aedeagal apparatus long but not high, with less compressed plate extending anteriorly into

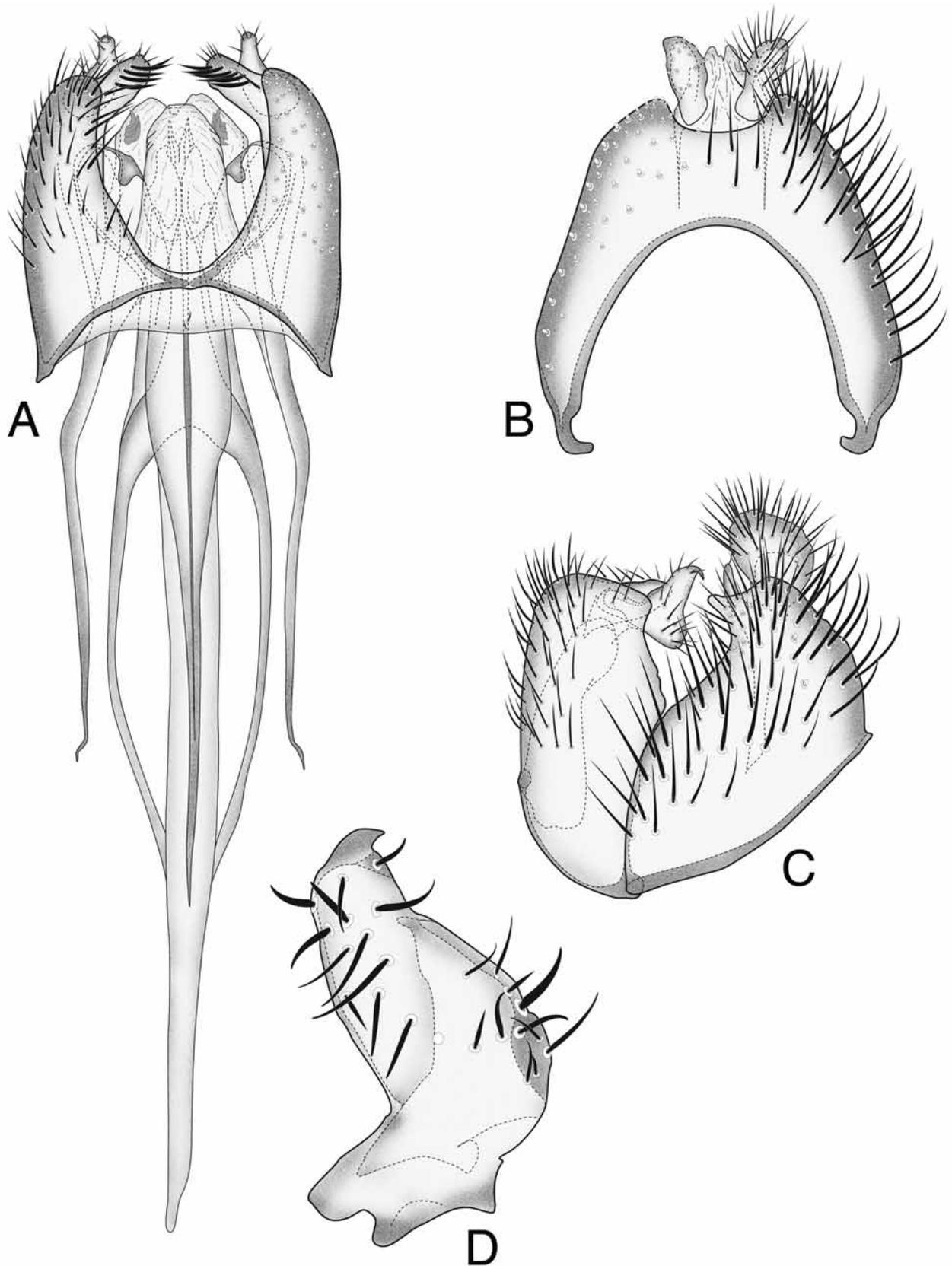


FIGURE 10. Male terminalia of *Urytalpa trivittata* (Lundström, 1914). — A. Sternite IX, hypandrial lobe and internal aedeagal apparatus, ventral view (pre-terminal segments not illustrated). — B. Tergite IX, proctiger and cerci in dorsal view. — C. Segment IX and beyond in lateral view. — D. Gonostylus in lateral view, enlarged.

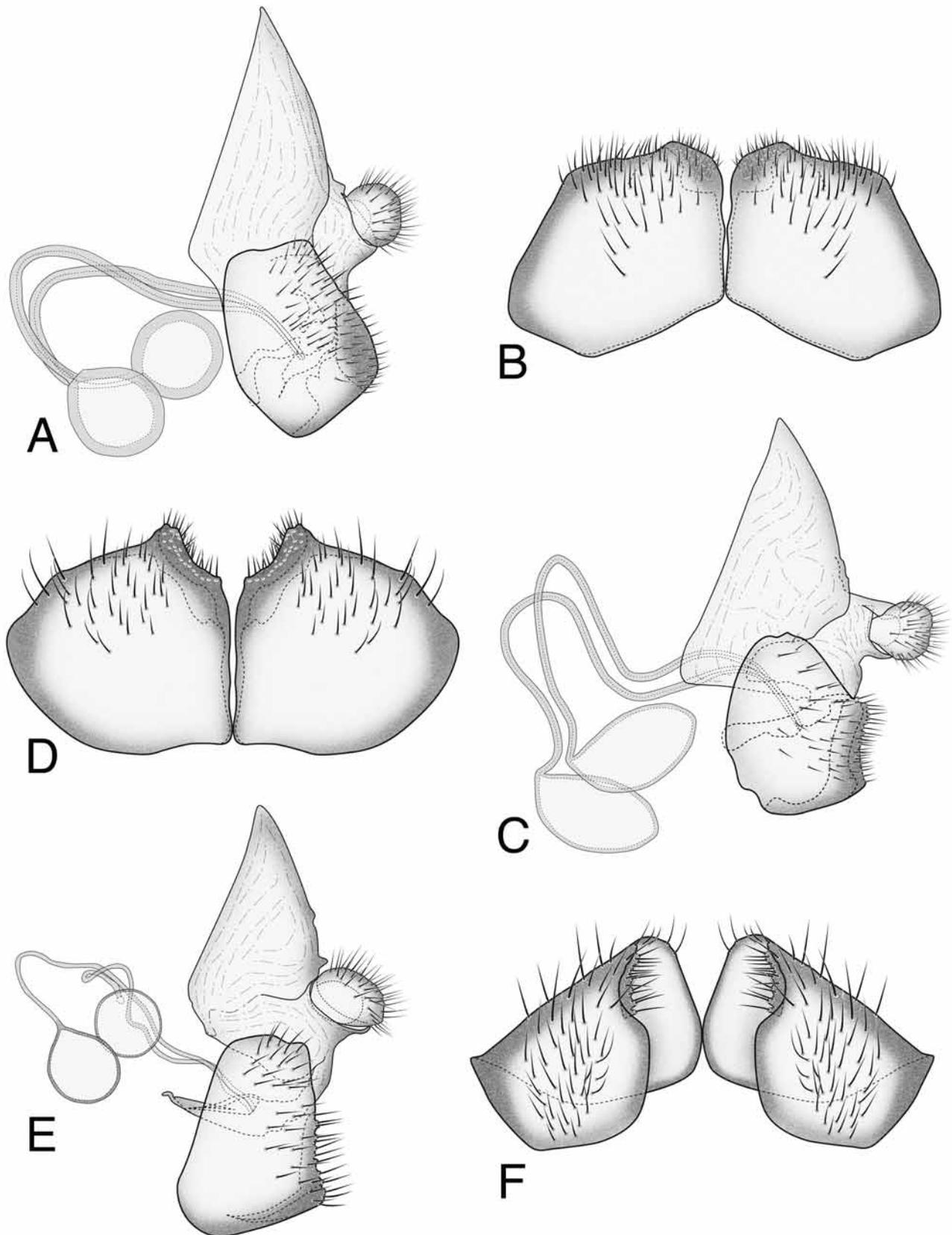


FIGURE 11. Female terminalia and spermathecae of *Urytalpa* species (pre-terminal segments not illustrated). — A. *U. dorsalis* (Staeger, 1840) in lateral view. — B. *U. dorsalis*, ventral view of sternite VIII. — C. *Urytalpa trivittata* (Lundström, 1914) in lateral view. — D. *U. trivittata*, ventral view of sternite VIII. — E. *Urytalpa macrocera* (Edwards, 1913) in lateral view. — F. *U. macrocera*, dorsal view of sternite VIII.

segment V, and long associated apodemes laterally. Tergite IX without outgrowths, apical corner pointed ventrally, without patch of short internal setae; with shallow posterior and deep anterior U-shaped incision. Proctiger small and short, cercus broadly ovate in lateral view.

Female (n=1). Body length 7.5 mm. Wing length 6 mm. Antenna length 1.82–1.86 mm. **Coloration.** As in male with dark brown mesonotal stripes distinctly separated. **Terminalia** (Figs 11C–D). Cercus oblong and petiolated. Sternite VIII with truncated corners, with a narrow excavation apicomediaally covered with short stiff setae. Spermathecae distinctly ovate, spermathecae and ducts with medium thick inner walls.

Remarks. Association of the single female is based on co-occurrence and coloration matching with a male, but deviating slightly from the generic diagnosis in having the A₁ vein fading slightly before the wing edge.

Distribution. European; with scattered records only from Finland, Germany, Italy, Norway and Sweden. Possibly boreal-mountainous with main distribution in northern parts of the boreal zone.

Material examined: **ITALY:** Pellaud, Vallée de Rhêmes (Aosta), 1800–2000 m a.s.l., 8 Oct 1978 (MNHN, Leg. L. Matile) — 1 male; **NORWAY:** **FV**, Alta, Detsika, Buolamalia, 69°51'38"N, 023°19'38"E, in sandy slope, 24 Jun–16 Jul 1996 (ZMUN, Leg. L. O. Hansen & H. Rinden) — 1 male; 6 Aug–25 Sep 1996 (MZLU, Leg. L. O. Hansen & H. Rinden) — 1 female, 3 males; **SWEDEN:** **LU**, Jokkmokk, Kaltisbäcken 1 km NNE Messaure, 66°41'26"N, 020°22'37"E, 250 m a.s.l., 1–10 Jul 1968 (MZLU, Leg. K. Müller) — 1 male; Kaltisbäcken, loc. 7, Sapta, 10–20 Aug 1968 (MZLU, Leg. K. Müller) — 1 male; 21–30 Aug 1968 (MZLU, Leg. K. Müller) — 11 males; Kaltisbäcken, loc. 20 (MZLU, Leg. K. Müller) — 1 male; Jokkmokk, Messaure, 66°40'57"N, 020°21'48"E, 175 m a.s.l., 6–10 Sep 1968 (MZLU, Leg. K. Müller) — 2 males; Jokkmokk, Kanibäcken, 8 km SE Messaure, 66°36'45"N, 020°27'20"E, 100 m a.s.l., 1–10 Aug 1968 (MZLU, Leg. K. Müller) — 2 males; 6–10 Sep 1968 (MZLU, Leg. K. Müller) — 3 males; Kvikkjokk, along the path to point 749 Prinskullen, 66°57'24"N, 017°41'27"E, 600 m a.s.l., spruce forest dominated by *Aconitum lycoctonum*, 6 Aug 1997 (Coll. & Leg. K. Hedmark) — 1 male; **TO**, Kiruna, Abisko, 68°21'01"N, 018°49'50"E, LF 5 - 150–500 m W Naturv. stn., 8–15 Sep 1975 (MZLU, Leg. K. Müller) — 1 male.

Key to males of *Urytalpa*

The key is partly compiled from different partial keys by Zaitzev (1994), Uesugi (2004) and Bechev & Koç (2008), but we put more focus on the male terminalia. Hence, we exclude *Urytalpa maritima* from the key since its terminalia has not been illustrated and the holotype has lost its abdomen (see Bechev & Koç 2008).

1. Tergite IX prolonged caudally into large, broad lateral lobes, strongly setose on medial side (cf. Fig. 8A); aedeagal apparatus not more than twice as long as segment IX 2
- Tergite IX smaller, at most with narrow and less setose, digitate projections (cf. Fig. 5C) or retracted, incurved lobes; aedeagal apparatus of variable length 3
2. Thin, slender species with long antenna (Fig. 2D), second flagellomere more than 2.5 times longer than broad *Urytalpa macrocera*
- Less slender species, second flagellomere at most twice as long as broad *Urytalpa attenuata* Zaitzev & Menzel, 1996
3. Gonocoxites completely separated ventromedially by a membranous area (cf. Fig. 7A) 4
- Gonocoxites connected by a narrow, sclerotized strip (H-shaped, cf. Fig. 10A) or solidly fused medially (wide sub-rectangular, cf. Fig. 9A) 8
4. Large, L-shaped projection separately situated laterally between tergite IX and gonocoxites (Uesugi 2004: figs 1A–D) *Urytalpa crassicauda* Uesugi, 2004
- Without such separately situated, L-shaped projection 5
5. Mouthparts slightly elongated (cf. Uesugi 2004: fig. 4F); gonocoxites without digitate process 6
- Mouthparts not elongated; gonocoxites apicolaterally with digitate process (cf. Fig. 7A) 7
6. Anterior margin of tergite IX deeply emarginated, making tergite IX medially connected by a narrow strip only (Chandler 1994: fig. 19) *Urytalpa nussbaumi* Chandler, 1994
- Tergite IX only shallowly emarginated anteriorly and broadly connected medially (Uesugi 2004: fig. 4B)

- *Urytalpa yoshidai*
7. Apical process from gonocoxite long, club-shaped and gently incurved in ventral view (Fig. 7A); tergite IX concave, with deeply u-shaped posterior edge (Fig. 7B); gonostylus with plain digitate projection apically (Fig. 7D)
 *Urytalpa galdes*, **sp. n.**
- Apical process from gonocoxite shorter, parallel sided and straight in ventral view; tergite IX convex, without deeply u-shaped posterior edge; gonostylus with characteristic hoe-shaped projection subapically (Bechev & Koç 2008: figs 16–19) *Urytalpa chandleri*
8. Gonostylus small (cf. Fig. 6D), shorter than sternite IX and usually retracted into gonocoxites (cf. Fig. 6A); gonocoxites fused, H-shaped by narrow bridge medially; aedeagal apparatus more than twice as long as segment IX (cf. Fig. 5A) 9
- Gonostylus larger (cf. Fig. 9D), longer than sternite IX and exposed and distinctly bifurcated in lateral view (cf. Fig. 9C); gonocoxites fused, wide subrectangular with broad bridge medially; aedeagal apparatus less than twice as long as segment IX (cf. Fig. 9A) 13
9. Abdomen distinctly petiolated and laterally compressed (Fig. 2A) due to a huge vertically oriented aedeagal plate internally (Fig. 6C) 10
- Abdomen subcircular in cross section, not distinctly petiolated nor laterally compressed; internal aedeagal plate long, but more narrow 11
10. Head dark, thorax with dark brown thoracic stripes *Urytalpa dorsalis*
- Head and thorax yellow *Urytalpa corniculata* (Ostroverkhova, 1979)
11. Gonocoxites with mesially directed, incurved projection ventrad of the gonostylus, projection with row of 5–6 strong setae ventrally (Fig. 10A); tergite IX without projections *Urytalpa trivittata*
- Gonocoxites without such projection ventrad of the gonostylus, projection situated laterad of the gonostylus and slightly diverging 12
12. Tergite IX with broad, incurved projection curving mesially under proctiger and cerci; gonostylus small, digitate (Uesugi 2004: figs 2A–F) *Urytalpa sapporoensis*
- Tergite IX with narrow, digitate, straight projection apically (Figs 5B–C); gonostylus larger, with brush of strong setae on basal projection (Fig. 5D) *Urytalpa atriceps*
13. Gonocoxal bridge constricted medially making apical margin between base of gonostyles widely u-shaped (Fig. 9A) *Urytalpa nigrita*
- Gonocoxal bridge not constricted medially, apical margin between base of gonostyles straight (Chandler 1995: fig. 1) *Urytalpa rhapsodica*

Acknowledgements

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References

- Bechev, D. & Koç, H. (2008) *Urytalpa chandleri* sp. n. (Diptera: Keroplatidae) from Turkey, with a key to the Western Palaearctic species of the genus. *Zootaxa*, 1676, 29–36.
- Chandler, P.J. (1994) The fungus gnats of Israel (Diptera: Sciaroidea, excluding Sciaridae). *Israel Journal of Entomology*, 28, 1–100.
- Chandler, P.J. (1995) New data on fungus gnats (Diptera, Sciaroidea excluding Sciaridae) of Czechoslovakia. *Annotations Zoologicae et Botanicae*, 217, 3–16.
- Chandler, P.J. & Blasco-Zumeta, J. (2001) The fungus gnats (Diptera: Bolitophilidae, Keroplatidae and Mycetophilidae)

- of the Monegros region (Zaragoza, Spain) and five other new European species of *Pyratula* Edwards and *Sciophila* Meigen. *Zapateri, Revista Aragonesa de Entomologia*, 9, 1–24.
- Colwell, R.K. (2007) Biota 2 – the biodiversity database manager. Version 2.04 [computer software]. Sinauer Associates, Sunderland MA. Available from <http://viceroy.eeb.uconn.edu/biota> (accessed July 14, 2008).
- Dziedzicki, H. (1915) Atlas des organes génitaux (Hypopygium) des types de Winnertz et des genres de sa collection de Mycétophiles. *Publications de la Société des Sciences de Varsovie*, 3, 1–16.
- Edwards, F.W. (1913) Notes on British Mycetophilidae. *Transactions of the Royal Entomological Society of London*, 1913, 334–382.
- Edwards, F.W. (1924) Notes on Meigen's fungus-gnat types. *Encyclopédie Entomologique. Série B. Diptera*, 1, 13–17.
- Edwards, F.W. (1929) Notes on the Ceroplatinae with descriptions of new Australian species (Diptera, Mycetophilidae). *Proceedings of the Linnean Society of New South Wales*, 54, 162–175.
- Evenhuis, N.L. (2006) Catalog of the Keroplatidae of the World (Insecta: Diptera). *Bishop Museum Bulletin in Entomology*, 13, 1–177.
- Evenhuis, N.L. (2008). The insect and spider collections of the world website. Available from: <http://hbs.bishopmuseum.org/codens/> (accessed January 13, 2009).
- Gärdenfors, U. (2005) *Rödlistade arter i Sverige 2005 – The 2005 Red List of Swedish species*. ArtDatabanken, SLU, Uppsala, 496 pp.
- Hutson, A.M., Ackland, D.M. & Kidd, L.N. (1980) Mycetophilidae (Bolitophilinae, Ditomyiinae, Diadocidiinae, Keroplatinae, Sciophilinae and Manotinae) Diptera, Nematocera. *Handbooks for the Identification of British Insects, Vol. IX, Part 3*, Royal Entomological Society of London, 111 pp.
- Johannsen, O.A. (1910) The Mycetophilidae of North America. Part II. The Sciophilinae. *Maine Agricultural Experimental Station Orono, Bulletin*, 180, 125–192.
- Kjærandsen, J. (2006) Review of fungus gnats of the genus *Tarnania* Tuomikoski, with a phylogeny of the *Rymosia* s.l. genus group (Diptera: Mycetophilidae). *Insect Systematics & Evolution*, 37, 121–148.
- Kjærandsen, J., Hedmark, K., Kurina, O., Polevoi, A., Økland, B. & Götmark, F. (2007) Annotated checklist of fungus gnats from Sweden (Diptera: Bolitophilidae, Diadocidiidae, Ditomyiidae, Keroplatidae and Mycetophilidae). *Insect Systematics & Evolution Supplement*, 65, 1–128.
- Lundström, C. (1914) Beiträge zur Kenntnis der Dipteren Finlands. IX. Supplement 3. Mycetophilidae. *Acta Societatis pro Fauna et Flora Fennica*, 39, 1–26.
- Martinsson, S. (2008) *Nordic fungus gnats of the genus Urytalpa Edwards (Diptera, Keroplatidae)*. Degree project work in Biology, School of Pure and Applied Natural Sciences. University of Kalmar, Kalmar, 24 pp.
- Matile, L. (1977) Catalogue provisoire des Mycetophilidae (Diptera) de la Faune de France. *Bulletin du Muséum national d'Histoire naturelle serie 3*, 319, 621–655.
- Matile, L. (1978) Révision des *Truplaya* de la région afrotropicale (Diptera, Mycetophilidae). *Annales de la Société Entomologique de France (n.s.)*, 14, 451–477.
- Matile, L. (1997) Phylogeny and evolution of the larval diet in the Sciaroidea (Diptera, Bibionomorpha) since the Mesozoic. In: P. Grandcolas (Ed), *The origin of biodiversity in insects: phylogenetic tests of evolutionary scenarios. Mémoires du Muséum national d'Histoire naturelle (A)*, 173, 273–303.
- Meigen, J.W. (1818) *Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. Erster Theil*. F.W. Forstmann, Aachen, xxxvi + 332 + [1] pp.
- Miller, G. (2005) Linnaeus's Legacy Carries On. *Science*, 307, 1038–1039.
- Ostroverkhova, G.P. (1979) *Fungus-gnats (Diptera, Mycetophiloidea) of Siberia*. Tomsk University Press, Tomsk, 308 pp. [In Russian]
- Søli, G.E.E., Vockeroth, R.J. & Matile, L. (2000) A.4. Families of Sciaroidea. In: L. Papp & B. Darvas (Eds), *Contribution to a Manual of Palaearctic Diptera. Appendix*. Science Herald, Budapest, pp. 49–92.
- Staeger, R.C. (1840) Systematisk fortegnelse over de i Danmark hidtil fundne Diptera. *Naturhistorisk Tidsskrift*, 3, 228–288. [in Danish]
- Uesugi, K. (2004) Fungus gnats of the genus *Urytalpa* Edwards (Diptera: Keroplatidae) in Japan. *Entomological Science*, 7, 369–376.
- Winnertz, J. (1864) Beitrag zu einer Monografie der Pilzmücken (Mycetophilidae). *Verhandlungen der Zoologisch-Botanische Gesellschaft in Wien*, 13, 637–964.
- Zaitzev, A.I. (1994) *Fungus gnats of the fauna of Russia and adjacent regions. Part 1*. Moskva: Nauka, 288 pp. [In Russian]
- Zaitzev, A.I. & Menzel, F. (1996) New data on the fungus gnats from Russian Far East (Diptera: Sciaroidea). *Beiträge zur Entomologie*, 46, 159–167.