

Review of the Nearctic species of the subgenus *Anacrostichus* Bezzi, 1909 (Diptera: Empididae)

Обзор неарктических видов подрода *Anacrostichus* Bezzi, 1909 (Diptera: Empididae)

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КЛЮЧЕВЫЕ СЛОВА. Diptera, Empididae, *Empis*, *Anacrostichus*, мухи-толкунчики, Северная Америка.

ABSTRACT. The Nearctic species of dance flies of the subgenus *Anacrostichus* Bezzi, 1909 of the genus *Empis* Linnaeus, 1758 are reviewed. A total of ten species of the group are recognised from this region including a new species: *E. (A.) spaetensis* **sp.n.** (Canada (British Columbia)). In addition, a new synonym is proposed: *Empis laevigata* Loew, 1864 = *Empis lucida* Zetterstedt, 1838. All species are redescribed and illustrated. A key to the North American species of *Anacrostichus* is provided.

РЕЗЮМЕ. Представлен обзор Неарктических видов мух-толкунчиков подрода *Anacrostichus* Bezzi, 1909 рода *Empis* Linnaeus, 1758. Всего в регионе найдено десять видов этой группы, включая один новый вид: *E. (A.) spaetensis* **sp.n.** (Канада (Британская Колумбия)). Кроме того, установлен один новый синоним: *Empis laevigata* Loew, 1864 = *Empis lucida* Zetterstedt, 1838. Все виды переописаны и иллюстрированы. Составлена определительная таблица Неарктических видов *Anacrostichus*.

Introduction

The genus *Empis* Linnaeus, 1758 is one of the most diverse genera of dance flies (Empididae), containing over 740 described species that are distributed mostly in the Northern Hemisphere [Yang *et al.*, 2007]. About 500 species of *Empis* are currently known from the Holarctic, including about 400 species from the Palaearctic and 95 species from the Nearctic [Shamshev, 2016; Sinclair *et al.*, 2013, 2021].

The subgenus *Anacrostichus* Bezzi, 1909 is almost exclusively a Holarctic group of *Empis* including nine species described from the Palaearctic [Chvála, 1994; Shamshev, 2017]. The North American species of *Anacrostichus* have never been revised. Melander [1928]

included in this subgenus seven species (three from Europe and four from North America). However, only three species from his list really belong to *Anacrostichus* (including one North American species). Melander placed remaining North American species of this group in three other subgenera, *Platyptera* Meigen, 1803, *Polyblepharis* Bezzi, 1909 and *Xanthempis* Bezzi, 1909.

The primary purpose of this review is to clarify the identification of the Nearctic species of *Anacrostichus*. Ten species of this group were recognised, including a new species described herein. A key to the North American species of *Anacrostichus* is compiled.

Material and methods

This study is based on material deposited in the Canadian National Collection of Insects, Ottawa, Canada (CNC); the Oxford University Museum of Natural History, Oxford, UK (OUMNH) and the Finnish Museum of Natural History, Helsinki, Finland (MZH). In addition, some conspecifics deposited in the collection of the Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia (ZISP) were examined. The photographs were taken using a Canon EOS 11 40D camera using a Canon MP-E 65 mm objective, with multiple layers combined using the Helicon Focus 5.3.14 software. To facilitate observations, the terminalia were macerated in cold 10% KOH, then immersed for a short period in 85% lactic acid and viewed in glycerine. Label data for primary types are cited in full with original spelling, punctuation, and date. Label lines are delimited by a slash (/) and the data from each label are separated by two slashes (//). Additional information to label data (e.g., current name of an old place name, geographical coordinates, etc.) is included in square [] brackets. Secondary type data are abridged. The repository of specimens is given in parentheses (CNC, when omitted). Male body length was measured from antennal base to the tip of genitalia and female body length from base of antennae to the tip of cerci. Thoracic setae are counted on one side of the body (except scutellars).

Taxonomic account

Class Insecta Linnaeus, 1758
 Order Diptera Linnaeus, 1758
 Suborder Brachycera Macquart, 1834
 Superfamily Empidoidea Latreille, 1804
 Family Empididae Latreille, 1804
 Genus *Empis* Linnaeus, 1758

Subgenus *Anacrostichus* Bezzi, 1909

Anacrostichus Bezzi, 1909: 93. Type species: *Empis nitida* Meigen, 1804 (by original designation).

DIAGNOSIS. Mid-sized (4–5 mm) to large (up to 8 mm) species; body black in ground-colour, rarely yellow (only North American species). Head: male head nearly holoptic to dichoptic; scape moderately long or elongate; postpedicel elongate, at least 4X as long as wide; stylus very short, nearly as long as postpedicel basal width; face bare (rarely setose); labellum setose, short and fleshy, not prolonged. Thorax: mesoscutum densely pruinose or shiny, usually with 4 vittae (sometimes with 3 or without vittae); prosternum bare; upper portion of proepisternum bare or setose; acrostichal setae present or absent. Legs: unmodified or hind leg with incrassate femur and geniculate tibia; tarsomeres 2–4 without spine-like setae ventrally. Wing: veins R_s and M_1 nearly parallel, at most slightly divergent towards wing margin; $CuA+CuP$ (anal vein) complete, well-sclerotised; axillary excision acute, sometimes close to 90°. Abdomen: male abdominal segments 5–7 modified (sometimes segments 6–7 only), forming clasping apparatus; tergite 6 and segment 7 bent downwards (accordingly, segment 8 and terminalia shifted to ventral position relative to body plane); tergite 6 and sclerites of segment 7 usually somewhat asymmetrical; sternite 6 usually almost entirely reduced; sternite 7 short, always strongly modified, often partly membranous medially, with deflected anterior portion; segment 8 modified, nearly funnel-like, narrowed anteriorly, tergite 8 and sternite 8 separated, tergite 8 undivided, sternite 8 without projections. Terminalia: epandrium unmodified; hypandrium separated or fused with base of phallus, setose or bare, sometimes with long projections; cerci unmodified or bilobed; phallus mostly hidden, gently arched, usually thickened on basal portion and slender on apical portion, sometimes with spinules subapically; ejaculatory apodeme in anterior view. Female: usually similar to male (expanded, darkened or whitish wings, eversible pleural abdominal sucks are present in some Palaearctic species); legs without flattened setae; cercus long, slender.

REMARKS. The subgenus *Anacrostichus* is distinguished from other Nearctic *Empis* subgenera by the shape of the male postabdomen, which is foot-shaped with the terminalia placed in a more or less ventral position.

Empis (*Anacrostichus*) *barbatoides* Melander, 1965
 Figs 1–7.

Empis barbata Loew, 1862: 195 (♂) [Cent. 2, no. 19]. Type locality: USA, California.

Empis barbatoides Melander, 1965: 458 [replacement name for *barbata* Loew, preoccupied by Macquart, 1823: 164].

Empimorpha barbata: Coquillett, 1895: 396; Melander, 1902: 329, fig. 106.

MATERIAL EXAMINED. USA. California. California, [no data and collector], *E. barbata* Loew (1 ♂, OUMNH). **CANADA. British Columbia.** Burnaby, 20.iv.2005, A.T. Beckenbach (9 ♀♀, CNC); same locality and collector, 27.iv.2005 // *Empis barbatoides* det. B.J. Sinclair 2006 (1 ♂, 1 ♀, CNC).

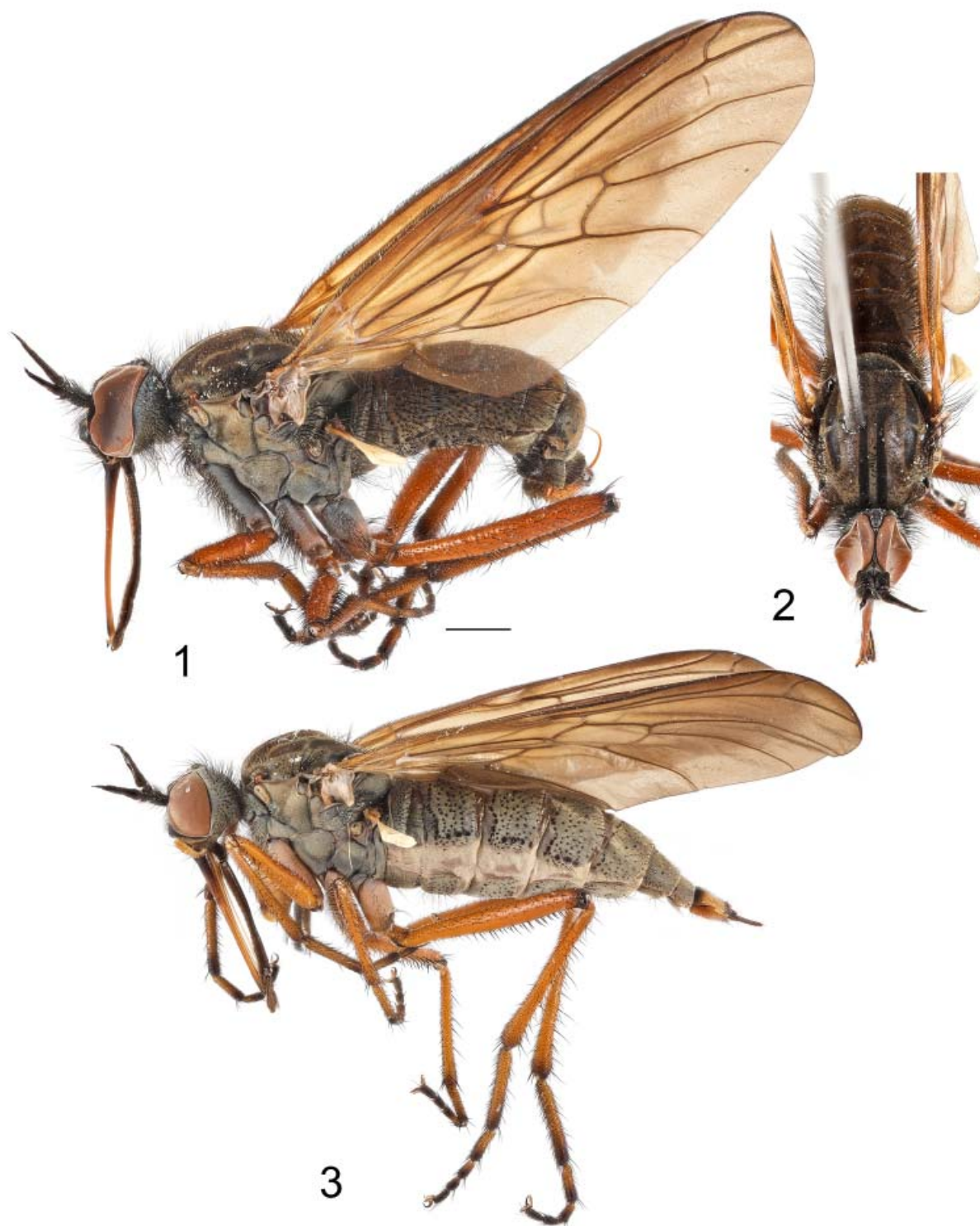
DIAGNOSIS. Large species (body 7.5–8 mm); face setose; antenna with long scape, nearly 3X longer than pedicel, postpedicel very long, 5–5.5X longer than basal width; palpus yellow; mesoscutum with 4 distinct brown vittae, acrostichal setae absent; legs extensively brownish yellow; wing brownish. Male: eyes nearly holoptic; abdominal sternite 5 with two clusters of strong long setae medially and two posteromarginal medial projections; epandrium yellow. Female: abdominal segment 8 yellow.

DESCRIPTION. Body length 7.5–8 mm, wing 9 mm. **Male** (Fig. 1). Head capsule regions densely greyish pruinose, only lower part of face and entire clypeus shiny; head setation black. Eyes almost touching on frons, upper ommatidia slightly enlarged. Frons very narrow in middle part (narrower than anterior ocellus), represented by small subtriangular space just below ocellar triangle and larger space above antennae; with marginal setulae. Face broad; covered with dense, hair-like setae. Ocellar setae fine, moderately long. Occiput covered with uniformly fine and long, dense setae; postgena with long hair-like setae. Antenna black; scape nearly 3X longer than subglobular pedicel, both with long dense setulae; postpedicel long (nearly 5.5X as long as basal width), with straight margins and very narrow base (nearly as broad as pedicel); stylus very short, slightly longer than postpedicel basal width. Proboscis with labrum mostly brownish yellow, brownish near base; nearly 2X longer than eye height; palpus short, yellow, with long, fine, black setae.

Thorax black in ground-colour, mostly densely greyish to brownish grey pruinose; mesoscutum rather greyish brown pruinose, with 4 distinct brown vittae (dorsal view) (Fig. 2); thoracic setation black. Prosternum bare. Proepisternum (including upper part), anteprepronotum and postpronotal lobe with numerous similar, fine setae. Mesonotal setae: acrostichals absent; dorsocentral setae multiserial throughout, mostly short and fine, prescutellars longer and stronger; presutural supra-alar(s) absent, 10–11 notopleurals, 2–3 postsutural supra-alars (surrounded by additional shorter setae), 1 long and several short fine postalars, 12–14 scutellars of different lengths and robustness; in addition, short, fine setae present over entire supra-alar face and on notopleural depression. Laterotergite with numerous setae. Anterior and posterior spiracles rather brownish yellow.

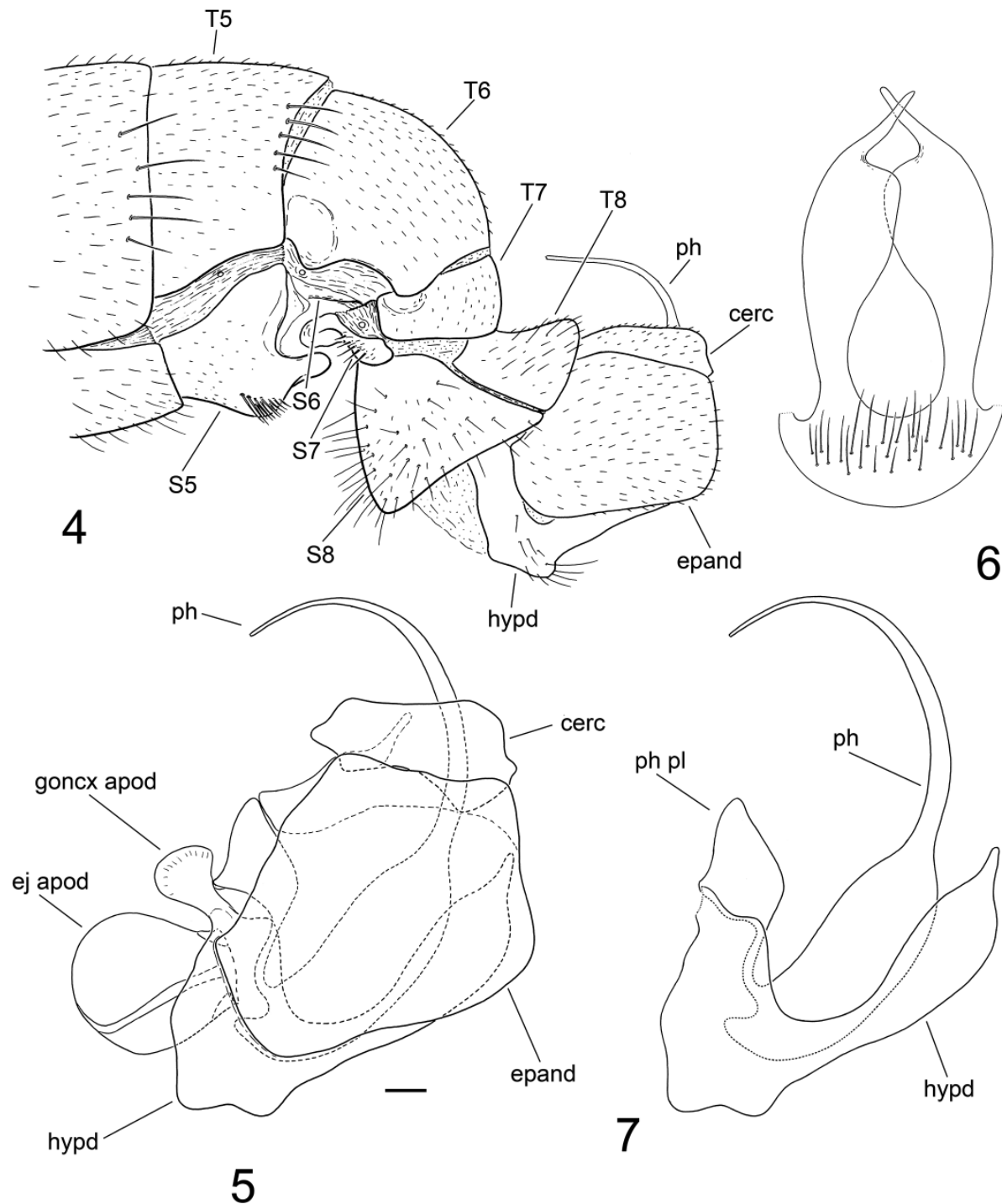
Legs with coxae greyish pruinose, remaining podomeres subshiny; black setose. Legs colour: almost entirely brownish yellow; coxae partly dark, tarsomeres 1–3 on apex, tarsomere 4 mostly (except extreme base) and tarsomere 5 entirely brown. Coxae and trochanters with simple setae. Fore femur with strong, short setae on about apical half anteroventrally and posteroventrally. Fore tibia with short anterodorsal and posterodorsal setae. Fore basitarsus slightly thickened towards base; with short setae dorsally, spinule-like setae ventrally. Mid femur with moderately long setae anterodorsally and dense, irregularly arranged spine-like setae ventrally (posteroventral setae somewhat longer). Mid tibia as fore tibia but setae slightly longer. Hind femur slender; as mid femur. Hind tibia with numerous, irregularly arranged, moderately long, strong setae dorsally; posteroapical comb inconspicuous. All tibiae slightly gently tapered towards apex. Hind basitarsus slender; with short setae dorsally, spinule-like setae ventrally.

Wing membrane brown, somewhat darker along anterior margin; entirely covered with microtrichia; veins mostly brownish, paler near base. Veins R_s and M_1 slightly divergent towards wing margin; $CuA+CuP$ (anal vein) complete. Cell dm short, with strongly elongate apex; apical portion of M_4 nearly 2.5X longer than its middle portion. Pterostigma brownish. Basal costal seta absent. Anal lobe well-developed;



Figs 1–3. *Empis (Anacrostichus) barbatoides* Melander, 1965, habitus: 1 — male, lateral view; 2 — male, dorsal view; 3 — female, lateral view. Scale bar is 1 mm.

Рис. 1–3. *Empis (Anacrostichus) barbatoides* Melander, 1965, габитус: 1 — самец, вид сбоку; 2 — самец, вид сверху; 3 — самка, вид сбоку. Масштаб 1 мм.



Figs 4–7. *Empis (Anacrostichus) barbatoides* Melander, 1965, male: 4 — postabdomen, lateral view; 5 — hypopygium, lateral view (setation omitted); 6 — hypandrium, ventral view; 7 — hypandrium and phallus, lateral view (setation of hypandrium omitted). Abbreviations: cerc — cercus; ej apod — ejaculatory apodeme; epand — epandrium; goncx apod — gonocoxal apodeme; hypd — hypandrium; ph — phallus; ph pl — phallic plate; T — tergite; S — sternite. Scale bar is 0.1 mm.

Рис. 4–7. *Empis (Anacrostichus) barbatoides* Melander, 1965, самец: 4 — постабдомен, вид сбоку; 5 — гипопигий, вид сбоку (щетинки не указаны); 6 — гипандрий, вид снизу; 7 — гипандрий и фаллус (щетинки гипандрия не указаны). Сокращения: cerc — церк; ej apod — эякуляторная аподема; epand — эпандрий; goncx apod — гоноксальная аподема; hypd — гипандрий; ph — фаллус; ph pl — пластина фаллуса; T — тергит; S — стернит. Масштаб 0,1 мм.

axillary incision very acute. Squama yellow, dark fringed. Halter yellow.

Abdomen black, with black setation; all tergites and sternite 5 densely brownish grey pruinose, sternite 8 rather faintly pruinose, sternites 1–4 densely greyish pruinose.

Tergites 1–5 with short sparse setae dorsally and very long dense setae laterally (including strong posteromarginals), tergites 6–7 with scattered minute setulae, tergite 8 covered with moderately long fine setae. Sternites 1–4 with long hair-like setae, sternite 8 with more numerous and stronger setae. Postabdomen (Fig. 4): segments 5–8 modified. Tergite 6 and segment 7 bent downwards, accordingly segment 8 and terminalia shifted to ventral position relative to body plane. Tergite 5 with somewhat concave lateral margin. Sternite 5 with large median tubercle bearing two lateral clusters of long, strong, black setae and two short, digitiform posterior projections. Tergite 6 slightly asymmetrical; somewhat narrower than tergite 5, with small, rounded antero-lateral tubercle and small posteromarginal lateral projection. Sternite 6 invisible in situ, strongly reduced, represented by small, weakly sclerotised, bare, median sclerite anteriorly (hidden by sternite 5). Tergite 7 slightly asymmetrical; narrower and 2.5–3X shorter than tergite 6; with small, anteromarginal lateral excavation. Sternite 7 asymmetrical, with cluster of moderately long, strong setae laterally; divided by broad membranous space into two portions narrowly connected laterally; anterior portion (mostly invisible in situ) asymmetrical, strongly sclerotised, deflected downwards, including two small separated anterior sclerites and larger posterior sclerite of complicated structure; posterior portion represented by small, weakly sclerotised, lateral sclerite. Segment 8 funnel-like, narrow anteriorly, with entirely separated tergite and sternite; tergite 8 long, slightly longer than tergite 7, undivided, somewhat deflected posteriorly; sternite 8 subtriangular in lateral view, somewhat longer than tergite 8, with simple structure and vestiture.

Terminalia (Figs 4–7) moderately large; epandrial lamella yellow (except extreme apex and upper margin), subshiny; cercus brownish; hypandrium with brown base and yellow projections; phallus brownish yellow. Epandrium entirely divided (epandrial bridge absent); epandrial lamella subrectangular (Fig. 5), with black setae stronger and longer closer to lower margin. Hypandrium (Fig. 6) separated from epandrium; entirely sclerotised; very prolonged and deeply concave posteriorly forming two broad lobes abruptly narrowed subapically; bearing numerous strong setae near base; gonocoxal apodeme small. Subepandrial sclerite separated medially. Cerci separated with each other and from epandrium; cercus small, rather subrectangular (lateral view), slightly broadened posteriorly, with posterior margin extending nearly to apex of epandrial lamella; undivided, with smoothed inner margin; covered with simple dark setulae, bearing scattered erect setulae on inner surface. Hypoproct membranous, bare. Phallus (Fig. 7) mostly hidden, rather long apical portion extending beyond cerci; gently arched; nearly basal half very thick (lateral view), apical half slender. Ejaculatory apodeme moderately large, extended far beyond basal curvature of phallus, with lateral wings.

Female (Fig. 3). Similar to male except as follows. Eyes dichoptic, ommatidia equally small. Frons broad, nearly as broad as face below antennae, almost parallel-sided; with rounded shiny spot on about middle. Occiput with shorter, sparser and stronger setae. Prothoracic sclerites with shorter setae. Mesonotal setae: dorsocentrals shorter; sometimes 1 short, fine presutural supra-alar seta present, 4–7 notopleurals, 1 postsutural supra-alar, 10–12 scutellars. Legs somewhat paler, coxae entirely yellow. Fore basitarsus slender. Fore

femur with regular rows of anteroventral and posteroventral setae; mid and hind femora with somewhat shorter anteroventral and posteroventral spine-like setae. Abdomen with segment 8 yellow, subshiny; remaining segments densely greyish pruinose, covered with short fine setae only. Cercus brownish, long, slender, with simple scattered setulae.

DISTRIBUTION. Canada (British Columbia), USA (California, Washington, Oregon).

Empis (Anacrostichus) caeligena Melander, 1902
Figs 8–12.

Empis caeligena Melander, 1902: 314 (♂ and ♀), fig. 107. Type locality: USA, Alabama.

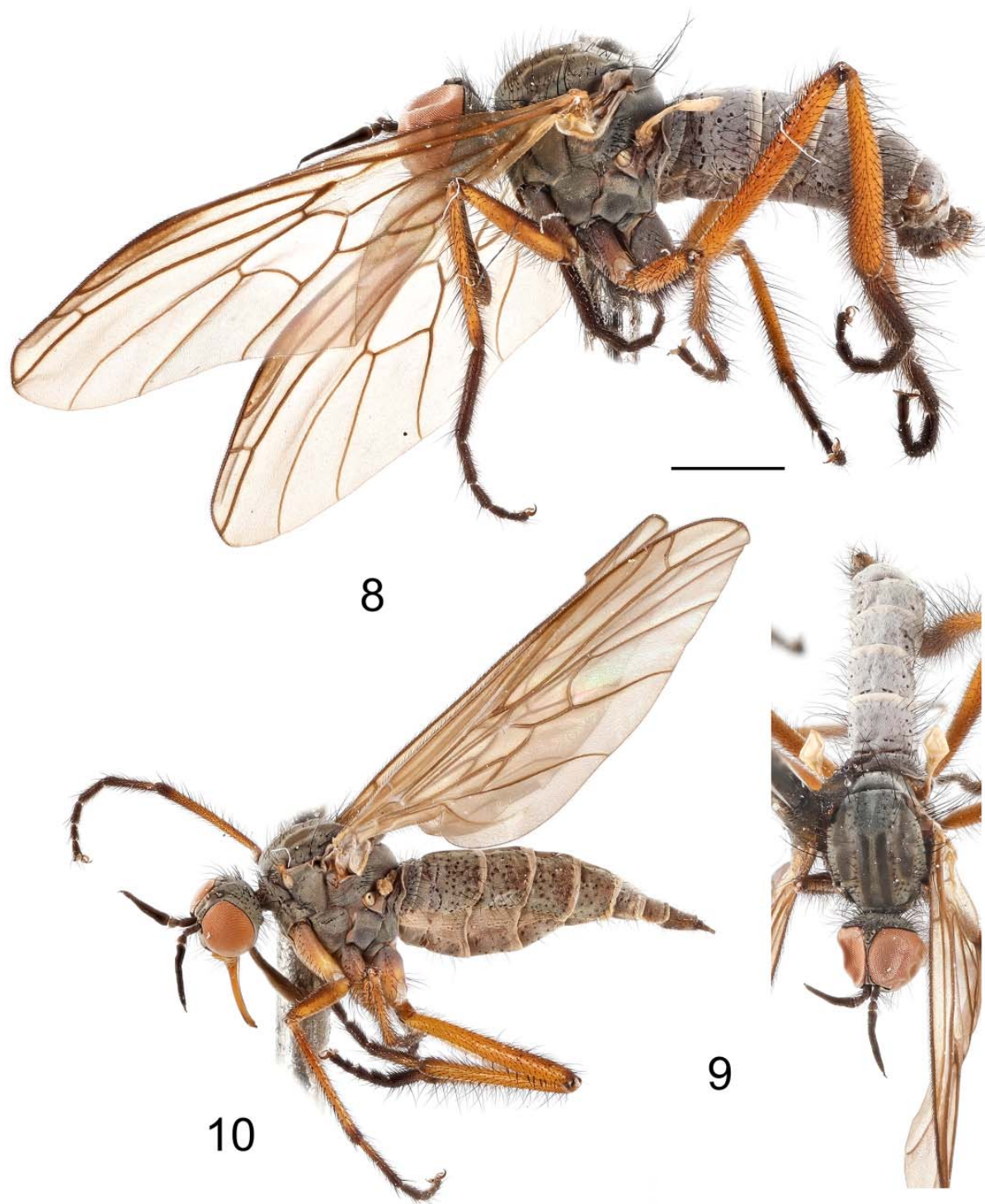
MATERIAL EXAMINED. **USA. Alabama:** Mibile Co., MT Bellefontaine (Site 7), 30.35N 88.11W, 23.ii.2004, E. Benton leg. (3 ♂♂, 5 ♀♀, CNC).

DIAGNOSIS. Mid-sized species (body about 5.5 mm); antenna with postpedicel long, nearly 5X longer than basal width; palpus yellow; mesoscutum with 4 dark, brown vittae, acrostichal setae absent; legs extensively yellow, hind tibia with long fine setae dorsally. Male: eyes nearly holoptic; hind tibia clavate; abdomen entirely, densely, silvery grey pruinose.

DESCRIPTION. Body length about 5.5 mm, wing 5.3–5.6 mm. **Male** (Fig. 8). Head capsule regions densely greyish pruinose, only lower margin of face and upper margin of clypeus shiny; head setation black. Eyes almost touching on frons, upper ommatidia slightly enlarged. Frons very narrow in middle part (narrower than anterior ocellus), small subtriangular space just below ocellar triangle and larger space above antennae; with marginal setulae. Face broad, bare. Ocellar setae undifferentiated; ocellar triangle with several equally long, fine setae. Occiput with long, fine setae (including postoculars); postgena with long hair-like setae. Antenna with scape and pedicel light brown, postpedicel and stylus black; scape nearly 2X longer than subglobular pedicel; scape with longer setulae than pedicel; postpedicel long (nearly 5X as long as basal width), with straight margins, base slightly broader than pedicel; stylus very short, slightly shorter than postpedicel basal width. Proboscis with labrum mostly yellowish, usually brownish yellow near base; only slightly longer than eye height; palpus short, yellow; with long, fine, black setae.

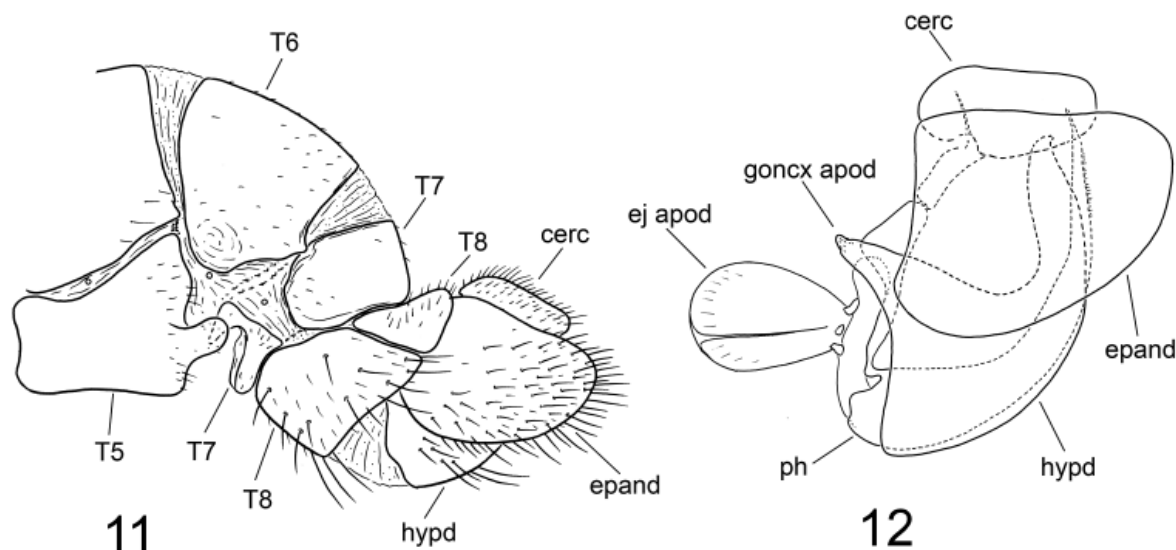
Thorax almost entirely black in ground-colour, postalar tubercle yellowish translucent; mostly densely greyish pruinose; mesoscutum with 4 dark brown vittae (dorsal view) (Fig. 9); thoracic setation black. Prosternum bare. Proepisternum with tuft of numerous long, fine setae on lower part, bare on upper part. Antepronotum with 6–7 short, strong setae dorsally and 4–5 longer, finer setae laterally on each side. Postpronotal lobe only with fine setulae of different lengths. Mesonotal setae: acrostichals absent; presutural dorsocentrals long, fine, arranged in 1–2 irregular rows, postsutural dorsocentrals longer, irregularly 2–3–serial along prescutellar depression, 2–3 setae closer to scutellum longest and strongest; 1 presutural supra-alar, 3 notopleurals, 1–2 postsutural supra-alar(s), 1 long and 1 minute postalar, 8–10 scutellars (4 setae usually stronger); in addition, fine setae along entire supra-alar face and several similar setae on anterior part of notopleuron. Laterotergite with numerous setae. Anterior and posterior spiracles pale yellow.

Legs with coxae greyish pruinose, remaining podomeres subshiny; black setose. Legs colour: coxae and trochanters brownish, coxae somewhat yellow translucent apically; fore femur rather brownish yellow on about basal 2/3 dorsally, otherwise femora yellow; tibiae almost entirely yellow, slightly



Figs 8–10. *Empis (Anacrostichus) caeligena* Melander, 1902, habitus: 8 — male, lateral view; 9 — male, dorsal view; 10 — female, lateral view. Scale bar is 1 mm.

Рис. 8–10. *Empis (Anacrostichus) caeligena* Melander, 1902, габитус: 8 — самец, вид сбоку; 9 — самец, вид сверху; 10 — самка, вид сбоку. Масштаб 1 мм.



Figs 11, 12. *Empis (Anacrostichus) caeligena* Melander, 1902, male: 11 — postabdomen, lateral view; 12 — hypopygium, lateral view (setation omitted). Abbreviations: cerc — cercus; ej apod — ejaculatory apodeme; epand — epandrium; goncx apod — gonocoxal apodeme; hypd — hypandrium; ph — phallus; T — tergite; S — sternite.

Рис. 11, 12. *Empis (Anacrostichus) caeligena* Melander, 1902, самец: 11 — постабдомен, вид сбоку; 12 — гипопигий, вид сбоку (щетинки не указаны). Сокращения: cerc — церк; ej apod — эякуляторная аподема; epand — эпандрий; goncx apod — гоноксальная аподема; hypd — гипандрий; ph — фаллус; T — тергит; S — стернит.

darkened on extreme apex; tarsi brown. Coxae and trochanters with simple setae. Fore femur with short, fine anteroventral and long, stronger posteroventral setae. Fore tibia with long, stronger anterodorsal and posterodorsal setae (longest setae nearly 2X longer than tibia width), covered with fine shorter setae posteriorly. Fore basitarsus slightly thickened but not broader than fore tibia on apex, with long fine setae dorsally and dense setulae ventrally; remaining tarsomeres with shorter, fine setae dorsally. Mid femur clothed in longer, somewhat outstanding setulae dorsally and anteriorly closer to base; with rows of moderately long, strong anteroventral and longer, finer antero-anteroventral setae; numerous, short, spinule-like ventral setae on about basal half; almost complete row of short, spine-like, posteroventral setae becoming longer and finer near extreme base. Mid tibia with numerous very long setae of different robustness anteroventrally and posteroventrally; almost double row of short, spine-like ventral setae on about apical half. Mid basitarsus slender, shorter than fore and hind basitarsi, with strong setae ventrally; dorsal setation as in fore tarsus. Hind femur slender; with row of long anterodorsal setae on about basal half; covered with mostly short, fine setae anteroventrally and ventrally, bearing row of 5–6 strong, moderately long, anteroventral setae closer to apex. Hind tibia clavate (anterior view) and somewhat curved (dorsal view), its subapical portion slightly broader than hind femur on middle; covered with fine outstanding setae longer dorsally (longest dorsal setae nearly 1.5X longer than hind tibia width on subapical portion); moderately long seta in posteroapical comb. Hind basitarsus slightly thickened but narrower than hind tibia on apex, nearly as long as fore basitarsus; clothed in long fine setae, stronger setae ventrally; remaining tarsomeres with longer fine setae dorsally.

Wing membrane faintly brownish infuscate; entirely covered with microtrichia; veins mostly brownish, brownish yellow near base. Veins R_5 and M_1 almost parallel toward wing

margin; $CuA+CuP$ (anal vein) complete. Cell dm short, with strongly elongate apex; apical portion of M_4 2.3–2.5X longer than its middle portion. Pterostigma brownish. One long basal costal seta (rarely 2). Anal lobe well-developed; axillary incision very acute. Squama yellow, dark fringed. Halter pale yellow.

Abdomen brown in ground colour, black setose, entirely densely silvery grey pruinose; tergites 2–4 with scattered setulae dorsally and numerous long fine setae laterally (shorter on tergite 4); sternites 1–4 and 8 with long fine setae. Postabdomen (Fig. 11): segments 5–8 modified. Tergite 6 and segment 7 somewhat bent downwards, accordingly segment 8 and terminalia shifted to ventral position relative to body axis. Tergite 5 with somewhat concave lateral margin posteriorly and slightly produced posterior lateral corner. Sternite 5 gently rounded medially, bearing minute setulae and two short, digitiform posterior projections. Tergite 6 asymmetrical; slightly narrower than tergite 5, with rather large, rounded antero-lateral tubercle and small posteromarginal lateral projection. Sternite 6 invisible in situ, strongly reduced, represented by small, strongly sclerotised, bare, median sclerite anteriorly (rounded anteriorly and digitiform posteriorly, partly hidden by sternite 5). Tergite 7 slightly asymmetrical; narrower and 2–2.5X shorter than tergite 6, with small, anteromarginal lateral excavation. Sternite 7 asymmetrical, with scattered setulae laterally; divided by broad membranous space into two portions narrowly connected laterally; anterior portion (mostly invisible in situ) asymmetrical, strongly sclerotised, deflected downwards, including two small separated anterior sclerites and larger posterior sclerite of complicated structure; posterior portion represented by small, weakly sclerotised, lateral sclerite. Segment 8 nearly funnel-like, with entirely separated tergite and sternite; tergite 8 long, nearly as long as tergite 7, undivided, somewhat concave anteriorly, gently

rounded posteriorly; sternite 8 rather trapezoid in lateral view, slightly longer than tergite 8, with simple structure and vestiture.

Terminalia (Figs 11, 12) moderately large; epandrial lamella brownish anteriorly and yellowish posteriorly, faintly pruinose; cercus mostly brownish yellow, somewhat brownish posteriorly, covered with dark setulae; hypandrium brown, faintly pruinose, with black setae. Epandrium entirely divided (epandrial bridge absent); epandrial lamella subtriangular (Fig. 12), apex rounded; with moderately long black setae more numerous along lower margin. Hypandrium separated from epandrium; entirely sclerotised; very prolonged and deeply concave posteriorly forming two subtriangular, pointed lobes almost reaching apex of phallus; bearing numerous setae near base; gonocoxal apodeme small. Subepandrial sclerite undivided. Cerci separated with each other and from epandrium; cercus small, subrectangular (lateral view), posterior margin far before apex of epandrial lamella; undivided, with smoothed inner margin; covered with simple dark setulae, bearing scattered erect setulae on inner surface. Hypoproct membranous, bare. Phallus entirely hidden, moderately long; gently arched; thick near basal curvature (lateral view), becoming gradually slenderer towards apex, short apical portion very slender; with spinules before apical slender portion. Ejaculatory apodeme moderately large, extended far beyond basal curvature of phallus, without lateral wings.

Female (Fig. 10). Similar to male except as follows. Eyes dichoptic, ommatidia equally small. Frons broad, nearly as broad as face below antennae, almost parallel-sided. Ocellar setae differentiated, fine, moderately long. Occiput with somewhat sparser and stronger setae. Prothoracic sclerites with shorter setae. Mesonotum with shorter dorsocentral setae; 4–6 scutellars. Legs somewhat paler, generally with shorter, simple setation; fore coxa almost entirely yellow, mid and hind coxae yellow on about apical half; all basitarsi mostly yellow. Fore femur with subequally short, fine anteroventral and posteroventral setae. Fore basitarsus slender. Mid femur with almost complete rows of short spine-like anteroventral and posteroventral setae (absent near base). Mid tibia with about twice shorter setae dorsally; hind tibia slender and straight. Hind basitarsus slender. Abdominal segments 1–6 paler in ground colour, rather yellowish brown translucent, light grey pruinose, segments 7 and 8 somewhat darker, brownish; covered with short setae. Cercus brownish, long, slender, with scattered minute setulae.

DISTRIBUTION. USA (Alabama).

Empis (Anacrostichus) lucida Zetterstedt, 1838
Fig. 13.

Empis lucida Zetterstedt, 1838: 561. Type locality (by lectotype designation): Sweden, Jukkasjärvi [Chvála, 1994: 51].

Empis laevigata Loew, 1864: 75 (♂) [Cent. 5, no. 49]. Type locality: USA, New Hampshire. **syn.n.**

Empis fumida Coquillett, 1900: 409 (♂ and ♀) (1904: 23). Type locality: USA, Alaska.

Empis browni Curran, 1931: 93 (♂ and ♀). Type locality: Canada, Quebec, Harrington Harbor.

TYPE MATERIAL EXAMINED. *Empis laevigata*: This species is known by the holotype (male) only. The photos of its labels and habitus are available on the site of the Museum of Comparative Zoology, Cambridge, USA: <https://mczbase.mcz.harvard.edu/name/Empis+laevigata>. The specimen is in very good condition to be correctly recognised.

Empis browni: **Holotype**, ♂ labelled: Harrington Harb. / Que. [= Quebec, Canada] 2.VIII 1929 / W.J. Brown // Holotype / *Empis / browni* / Curran / CNC number 3408 [red] // Type /

Empis / browni / Curran (CNC). **Paratypes**: Que. 1929; Little Mecatina Is, 6.VII; W.G. Brown // Paratype, *Empis browni* Curran, No. 3408 [yellow] // Paratype, *Empis browni* Curran ♂ (1 ♂, CNC); same data as holotype; Allotype, *Empis browni* Curran, No 3408 [red] // Type *Empis browni* Curran ♀ (1 ♀, CNC).

Empis fumida: Kukak Bay, Alaska, July 4 '99 Harriman Expedition '99 T. Kincaid, Collector // [red label] Paratype No. 5211 U.S.N.M. (1 ♂, OUMNH); same data // [hand-written label] *Empis fumida* Coq. (1 ♀, OUMNH).

ADDITIONAL MATERIAL EXAMINED. **CANADA.**

British Columbia: Mt. Revelstoke [Mount Revelstoke National Park, 51°05'N 118°03'W], 6000 ft, 31.vii.1952, G.J. Spencer (3 ♂♂); same locality and collector, 28.vii.1952 (2 ♂♂), 17.vii.1952 (1 ♂), 26.vii.1952 (6 ♂♂), 30.vii.1952 (2 ♂♂), 12.viii.1952 (1 ♂); same locality, 12.viii.1923, P.N. Vroom (1 ♂); same locality, 27.vii.1952, G.P. Holland (1 ♂); Mt. Harry, 6200 ft, Mount Revelstoke National Park, 11.viii.1952, G.J. Spencer (2 ♂♂, 1 ♀); Eva Lake trail, 6000 ft, Mount Revelstoke National Park, 31.vii.1952, G.J. Spencer (2 ♂♂); same locality and collector, 6.viii.1952 (1 ♀), 29.vii.1952 (1 ♀); same locality, 29.vii.1952, G.P. Holland (2 ♂♂); Miller–Eva Lake trail, 6300 ft, Mount Revelstoke National Park, 13.vii.1952, G.J. Spencer (1 ♂); Lisadele Lake, 58°41'N, 133°04'W, 4000 ft, marshy meadow, 10.viii.1960, W.W. Moss (1 ♂, 4 ♀♀); same locality and collector, 6.viii.1960 (3 ♂♂), 7.viii.1960 (1 ♂), 8.viii.1960 (1 ♂); same locality, 11.viii.1960, R. Pilfrey (1 ♂); Moosehorn Lake, 58°10'N, 132°07'W, 4500 ft, on flowers of *Heracleum lanatum*, 29.vii.1960, R. Pilfrey (3 ♂♂); same locality and collector, wet grass and flower meadow, 25.vii.1960 (1 ♂), 22.vii.1960 (2 ♂♂, 1 ♀), 1.viii.1960 (1 ♂), *Potentilla* meadow, 29.vii.1960 (1 ♂, 1 ♀); Squamish [49°42'N 123°09'W], Diamond Head Trail, 4600 ft., 10.viii.1953, W.R.M. Mason (1 ♂); same locality and collector, 11.viii.1953 (1 ♂, 1 ♀), 25.viii.1953 (1 ♀); Mt. Thornhill [54°29'N 128°26'W], near Terrace, on alpine tundra, 4300–5300', 26.vii.1960, B. Heming (1 ♂, 12 ♀♀); same locality and collector, 29.vii.1960 (3 ♂♂), 8.viii.1960 (3 ♂♂, 1 ♀), 20.vii.1960 (1 ♀); same locality, 26.vii.1960, C.H. Mann (1 ♂); same locality, 29.vii.1960, W.R. Richards (1 ♂); Mt. Allard [49°32'N 121°24'W], 23 mi. N of Terrace, 3500 ft., treeline open clearings in hemlock fir, 28.vi.1960, J.G. Chillcott (2 ♂, 1 ♀); Summit Lake [54°15'N 122°38'W], Mi 392 Alaska Hwy, 4500 ft, 1.vii.1959, R.E. Leech (1 ♀). **Newfoundland and Labrador**: Cartwright [53°42'N 57°01'W], 11.vii.1955, E.E. Sterns (1 ♂). **Northwest Territories**: Salmita Mines, 64°05'N 111°15'W, 1.vii.1953, J.G. Chillcott (1 ♂). **Quebec**: Port Harrison [now Inukjuak, 58°27'N 78°06'W], 18.vii.1949, P.J. Lachaine (1 ♂); Knob Lake, 54°47'N–66°47'W, 16.vii.1948, E.G. Munroe (1 ♂); Mt. Albert [48°55'N 66°11'W], 1.vii.1954, G.P. Holland (1 ♂); Great Whale River [55°15'N 77°47'W], 18.vii.1949, J.R. Vockeroth (1 ♂). **Yukon**: La Force L., 132°20'N, 62°41'W, 3300 ft., 5.vii.1960, J.E.H. Martin (1 ♂); same locality and collector, 10.vii.1960 (1 ♀); Otter Lake, 130°25'N, 62°30'W, 4000 ft, 15.vii.60, J.E.H. Martin, IDEMA illustration (1 ♂, terminalia dissected and attached in microvial). **USA**. **Alaska**: Nome [64°30'N 165°24'W], 15.vi.1951, D.P. Whillans (1 ♂); Unalakleet [63°52'N 160°47'W], 20.vi.1960, B.S. Heming (2 ♂♂, 1 ♀); Torquoise Lake, 60°48'N 154°W, vi–vii.1997, P.S. Tomkovich (1 ♂, 2 ♀♀, ZMMU). **New Hampshire**: Mt. Washington [44°16'N 71°18'W], 17.vii.1929, G.S. Walley (1 ♂).

REMARKS. *Empis lucida* was redescribed by Collin [1961: 489] and Chvála [1994: 50]. Main differences of this species from other North American species of *Anacrostichus*

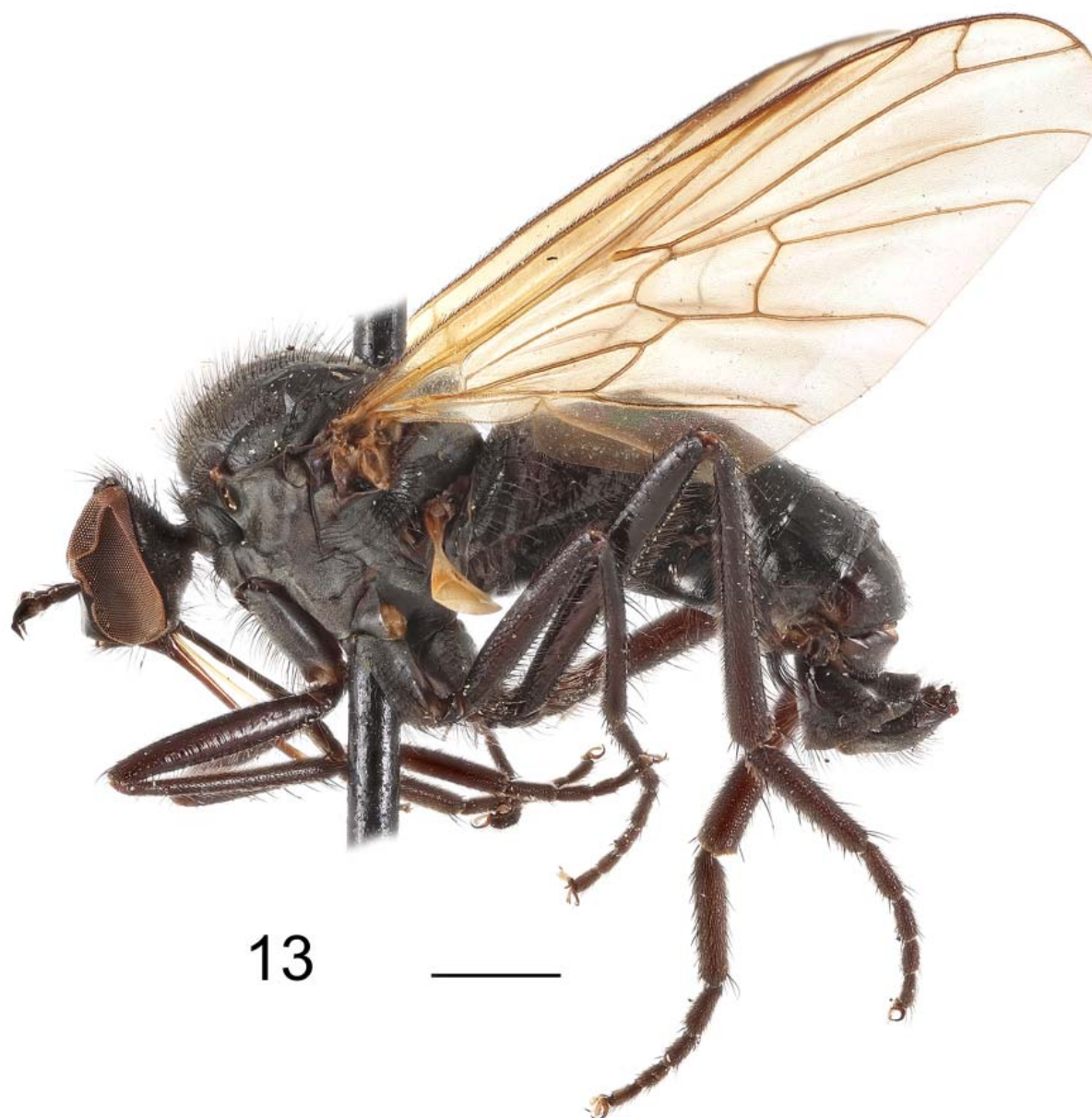


Fig. 13. *Empis (Anacrostichus) lucida* Zetterstedt, 1838, male, habitus, lateral view. Scale bar is 1 mm.

Рис. 13. *Empis (Anacrostichus) lucida* Zetterstedt, 1838, самец, габитус, вид сбоку. Масштаб 1 мм.

are indicated in the key. *Empis fumida* and *E. browni* were synonymised by Shamshev [2016]. As *E. browni*, *E. lucida* was illustrated in Manual of Nearctic Diptera [Steyskal, Knutson, 1981: 607, fig. 47.1; 629, fig. 47.52] and Manual of Central American Diptera [Cumming, Sinclair, 2009: 653, fig. 48.1].

This species is somewhat variable by some characters. For example, the mesoscutal shiny vittae sometimes are coalescent posteriorly, the frons of the female varies from mostly shiny (usual condition) to entirely pruinose.

DISTRIBUTION. Holarctic. Canada (British Columbia, Newfoundland and Labrador, Northwest Territories, Quebec, Yukon). USA (Alaska, New Hampshire). *Empis lucida* is a widespread transcontinental species both in

Eurasia and in North America. In North America, this species is distributed primarily across the low arctic but also was recorded in some boreal regions (often higher in mountains).

Empis (Anacrostichus) pallida Loew, 1861
Figs 14, 15.

Empis pallida Loew, 1861: 322 (♂) [Cent. 1, no. 30]. Type locality: USA, New York.

MATERIAL EXAMINED. **CANADA.** Ontario: Waubamuk, Jne'15, H.S. Parish // *Empis pallida* Loew (1 ♂, OUMNH).

DIAGNOSIS. Mid-sized (body about 4.5 mm) species with yellow body and legs; male eyes dichoptic; mesoscutum

without acrostichal setae; hind femur slender, hind tibia and hind basitarsus with numerous long, fine setae dorsally; abdomen with fine, yellow setae.

DESCRIPTION. Body length about 4.5 mm, wing 5.0 mm.

Male. Body entirely yellow to reddish yellow. Head with frons, face (except lower margin), ocellar triangle, occiput and postgena densely light grey pruinose; setation mostly black, postgena with pale setae. Eyes dichoptic, with ommatidia equally small. Frons below ocellar triangle nearly 1.5 times broader than anterior ocellus; with scattered marginal setulae. Face broader than frons, bare. Ocellar setae short. Occiput with moderately long postoculars and row of similar setae on upper part; postgena with hair-like setae. Antenna with scape and pedicel yellow, postpedicel (except yellow base) and stylus brown; scape nearly 2X longer than postpedicel, both with scattered short setae; postpedicel nearly 4X longer than basal width. Proboscis with labrum nearly 1.5X longer than head height. Palpus yellow, with scattered black setulae.

Thorax subshiny, faintly pruinose, mostly black setose. Prosternum bare. Proepisternum with 1 black and 3 yellow fine setae on lower part, bare on upper part. Pronotum with 6 strong black setae on each side. Postpronotal lobe with 1 moderately long inclinate and 2 short setae. Mesonotal setae: acrostichals absent; dorsocentrals uniserial, fine, moderately long, 1 prescutellar pair longer; 1 presutural supra-alar, 2 notopleurals, 1 postsutural supra-alar, 1 postalar, 2 scutellars. Laterotergite with black setae. Spiracles yellow.

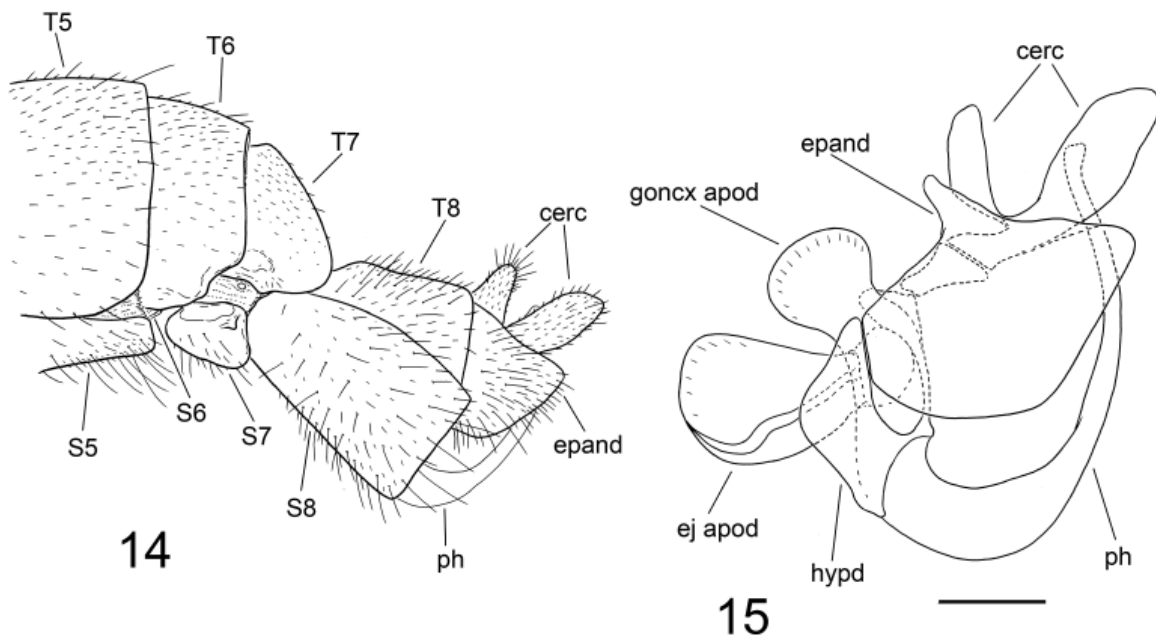
Legs very long, slender; almost entirely yellow (including coxae), tarsomeres 1–4 brownish apically, tarsomere 5 entirely brown. All femora without whitish pilosity ventrally. Fore femur with 4–5 anteroventral and 4–5 posteroventral spine-like setae near apex. Fore tibia without prominent setae

(besides circlet of subapicals). Fore tarsus with rather long setulae; basitarsus somewhat thickened. Mid femur with rows of anteroventral and longer posteroventral spine-like setae. Mid tibia with 1 anterodorsal seta. Mid tarsus with rather long setulae. Hind femur clothed in rather long setulae; bearing spine-like ventral setae, especially in subapical part. Hind tibia bearing long, dorsal, fine setae (longer in subapical part). Hind tarsomeres with long, dorsal, fine setae (especially basitarsus).

Wing long; membrane hyaline; veins yellowish; basal costal seta absent. Anal lobe well-developed; axillary incision obtuse but only slightly more 90°. Squama yellow, pale fringed. Halter yellow.

Abdomen with yellow, fine setae. Tergite 5 and sternite 5 with unmodified structure and vestiture. Postabdomen (Fig. 14): segments 6–8 modified. Tergite 6 and segment 7 bent downwards, accordingly segment 8 and terminalia shifted to ventral position relative to body plane. Tergite 6 asymmetrical; slightly narrower than tergite 5; with small excavation at posterior corner. Sternite 6 invisible in situ, small, entire, subrectangular (ventral view), convex mid-anteriorly, weakly sclerotised, bare. Tergite 7 slightly asymmetrical; narrower and shorter than tergite 6, with small, lateral tubercle. Sternite 7 symmetrical, entire, subrectangular; with small, blackish, lateral tubercle posteriorly; bearing few moderately long setae laterally. Segment 8 funnel-like, with entirely separated tergite and sternite; tergite 8 long, nearly as long as tergite 7, undivided; deeply, narrowly concave anteriorly, with straight posterior margin; sternite 8 rather subtriangular in lateral view, only slightly longer than tergite 8, with simple structure and vestiture.

Terminalia (Figs 14, 15) moderately large. Epandrium entirely divided (epandrial bridge absent); epandrial lamella



Figs 14, 15. *Empis (Anacrostitichus) pallida* Loew, 1861, male: 14 — postabdomen, lateral view; 15 — hypopygium, lateral view (setation omitted). Abbreviations: cerc — cercus; ej apod — ejaculatory apodeme; epand — epandrium; goncx apod — gonocoxal apodeme; hypd — hypandrium; ph — phallus; T — tergite; S — sternite. Scale bar is 0.1 mm.

Рис. 14, 15. *Empis (Anacrostitichus) pallida* Loew, 1861, самец: 14 — постабдомен, вид сбоку; 15 — гипопигий, вид сбоку (щетинки не указаны). Сокращения: cerc — церк; ej apod — эякуляторная аподема; epand — эпандрий; goncx apod — гоноксальная аподема; hypd — гипандрий; ph — фаллус; T — тергит; S — стернит. Масштаб 0,1 мм.

rather subtriangular (Fig. 15), apex more or less rounded; with moderately long setae more numerous along lower margin. Hypandrium reduced, very narrow, subrectangular viewed laterally, broadly attached to epandrial lamella, fused with base of phallus, bare; gonocoxal apodeme large, subovate, extending slightly beyond middle of ejaculatory apodeme. Subepandrial sclerite broadly divided medially into two bacilliform sclerites. Cerci separated with each other, partly fused to epandrial lamella; cercus very deeply concave dorsally forming two narrowly connected lobes (lateral view); anterior cercal lobe very narrow, bacilliform; posterior cercal lobe fused to epandrial lamella, broader than anterior lobe, elongate oval viewed laterally, with apex somewhat upturned. Hypoproct weakly sclerotised, bare. Phallus moderately long, gently arched; thickened on about basal third (lateral view), slender on remaining portion (thickened portion well visible in situ). Ejaculatory apodeme large, extended far beyond basal curvature of phallus, with small lateral wings.

Female. Unknown.

REMARKS. *Empis pallida* is the only described species of *Anacrostichus* with yellow body. Melander [1928] placed *E. pallida* in the subgenus *Xanthempis*. Indeed, this species resembles *E. scutellata* Curtis, 1835. The habitus of *E. pallida* is the same as *Empis (Anacrostichus)* sp. 1 (Figs 44, 45).

DISTRIBUTION. Canada (Ontario). USA (Massachusetts, New Hampshire, New York, Vermont).

Empis (Anacrostichus) pellucida Coquillett, 1900
Figs 16–20.

Empis pellucida Coquillett, 1900: 408, ♂ and ♀ [1904: 22]. Type locality: USA, Alaska.

TYPE MATERIAL EXAMINED. Popof Island, Alaska, July 9 '99 // Harriman Expedition '99 // *Empis pellucida* Coq. // Paratype (1 ♂, OUMNH).

ADDITIONAL MATERIAL EXAMINED. CANADA. British Columbia: Eureka Mt. [50°4'N 118°23'W] 6000' Monashee, 22.vii.1955, G.P. Holland (1 ♂); Moosehorn Lake [58°9'N 132°7'W], 4500', 58°10'N 132°07'W, heath tundra *Potentilla* meadows, 28.vii.1960, W.W. Moss (1 ♀); 32 mi. S.W. of Terrace [~54°30'N 128°35'W], flowers of *Heracleum*, 6.vi.1960, G.E. Shewell (1 ♀). **USA. Alaska:** Anchorage [61°13'N 149°54'W], 3.vii.1951, R.S. Bigelow (1 ♂).

DIAGNOSIS. Mid-sized (body about 6 mm) species; male eyes dichoptic, frons shiny; palpus yellow; mesoscutum extensively shiny, acrostichal setae present; legs entirely dark brown; wing membrane hyaline; abdomen almost entirely shiny; male abdominal sternite 5 with large projection bearing lateral clusters of numerous, long, strong setae.

DESCRIPTION. Body and wing length about 6 mm. Male (Fig. 16). Head capsule regions black, mostly faintly greyish pruinose; frons mostly shiny, face shiny along lower margin, clypeus entirely shiny. Eyes dichoptic, ommatidia equally small. Frons nearly as broad as distance between outer margins of posterior ocelli, with marginal setulae. Face broad, bare. Ocellar setae fine, moderately long. Occiput covered with black, moderately long, strong setae; postgena with pale, long, hair-like setae. Antenna black; scape nearly 2X longer than subglobular pedicel, both with short setulae; postpedicel nearly 3.5X as long as its basal width; stylus very short, nearly as long as postpedicel basal width. Proboscis with labrum mostly brownish yellow, brownish near base; nearly 1.5X longer than eye height; palpus short, yellow; with fine, black setae.

Thorax mostly black, only postalar tubercle yellowish translucent; mostly faintly greyish pruinose; mesoscutum extensively shiny (lateral margins, notopleuron, prescutellar

depression and scutellum pruinose), virtually with 4 shiny vittae but lateral and medial vittae mostly coalescent leaving only narrow space of pruinosity along rows of acrostichal setae (dorsocentral setae partly situated on shiny space). Prosternum bare. Proepisternum on lower part (upper part bare), anteprepronotum and postpronotal lobe with similar, black, fine, moderately long setae; postpronotal seta undifferentiated. Mesonotal setae black: acrostichals short, fine, scattered, irregularly biserial, absent on prescutellar depression; presutural dorsocentrals similar to acrostichals, postsutural dorsocentrals uniserial, longer, 1 pair of prescutellars longest; 1 moderately long, weak presutural supra-alar (with additional finer setae); 3–4 notopleurals (sometimes different number on right and left sides), 1 postsutural supra-alar (with 1–2 additional shorter and finer setae), 1 postalar, 4–6 scutellars; in addition, fine setulae present just behind postpronotal lobe and on notopleural depression anteriorly. Laterotergite with numerous setae. Anterior and posterior spiracles rather yellowish brown.

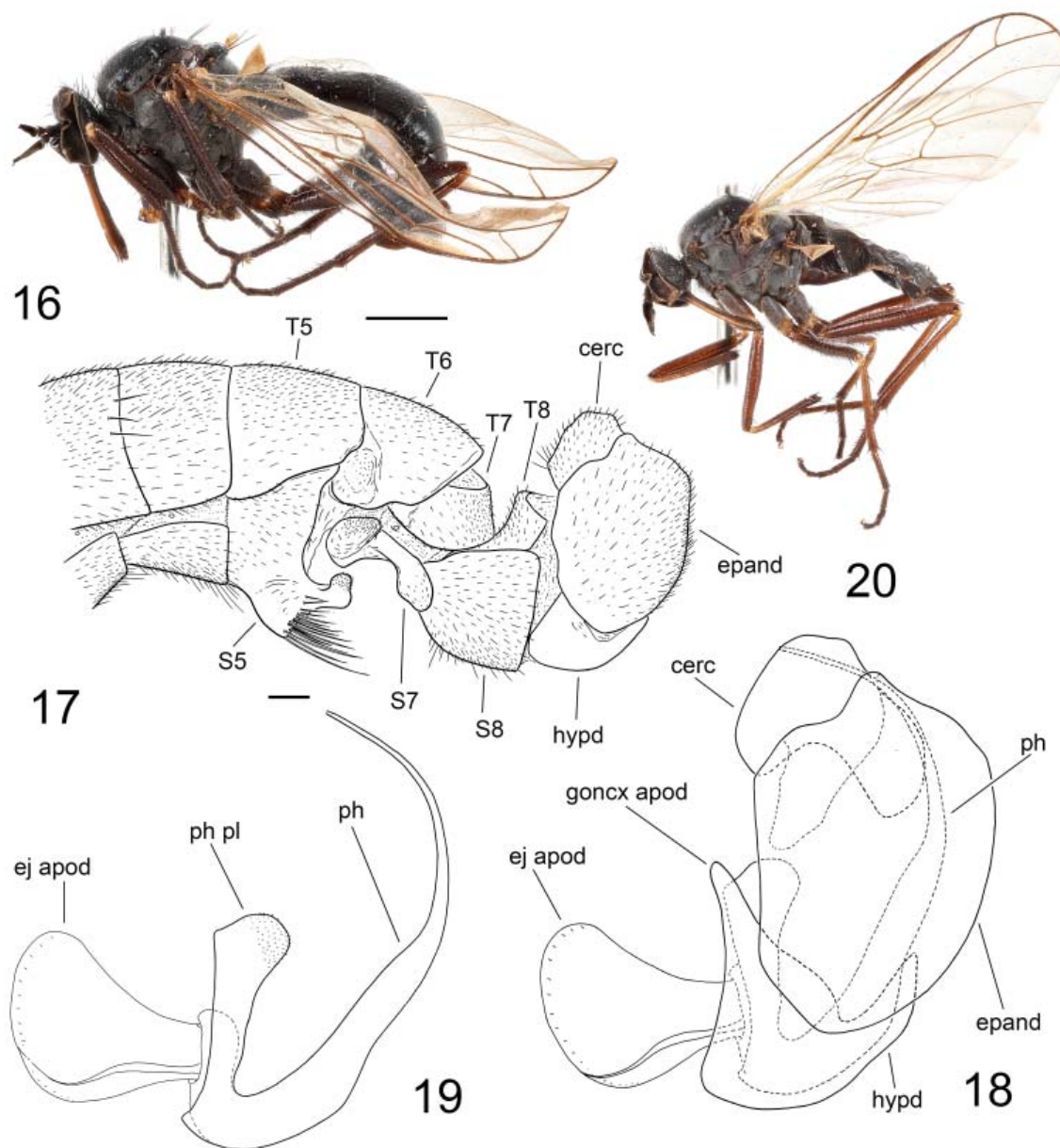
Legs long, slender; entirely dark brown and black setose; coxae densely greyish pruinose, remaining podomeres subshiny. Femora without whitish ventral pubescence. Fore femur with mostly minute anteroventral and posteroventral setae. Mid and hind femora with similar armature, including complete rows of short, strong anteroventral and posteroventral setae as well as numerous spinule-like setulae along ventral face; hind femur slightly thickened, nearly 1.5X broader than mid femur. All tibiae slender, with very reduced setation (including setulae); fore tibia with 2–3 hardly distinguishable anterodorsal setae; mid tibia with 1–2 similar anterodorsal and 2 longer, stronger posterodorsal setae; hind tibia with row of 4–5 short posterodorsals, without seta in posteroapical comb. All tarsomeres slender; basitarsi with short, spine-like anteroventral and posteroventral setae.

Wing membrane hyaline; entirely covered with microtrichia; veins yellowish brown, well sclerotized. Veins R_2 and M_1 slightly divergent towards wing margin; radial fork acute; $CuA+CuP$ (anal vein) complete; cell dm somewhat elongate, with strongly elongate apex; apical portion of M_4 nearly 1.7X longer than its middle portion. Pterostigma brownish yellow. Basal costal seta present, moderately long. Anal lobe well-developed; axillary incision very acute. Squama yellow, brownish fringed. Halter yellow.

Abdomen black, almost entirely shiny, black setose; tergite 1 entirely, tergites 2–6 narrowly anteriorly, most part of tergite 7 (except anterior margin), sternite 5 (except projection) faintly greyish pruinose. Tergites 1–4 with scattered short setae longer on tergites 1–3 laterally; tergites 5–7 with scattered setulae. Postabdomen (Fig. 17): segments 5–8 modified. Tergite 6 and segment 7 somewhat bent downward, accordingly segment 8 and terminalia shifted to ventral position relative to body axis. Tergite 5 with somewhat concave lateral margin posteriorly; small excavation on slightly produced posterior lateral corner. Sternite 5 with large rounded projection bearing two clusters of dense, long, strong setae on apex and with two small, closely set, bare posteromarginal projections. Tergite 6 slightly asymmetrical, somewhat narrower than tergite 5; with small tubercle in posterior lateral corner. Sternite 6 invisible in situ (hidden by sternite 5), strongly reduced; represented by small, weakly sclerotised sclerite anteriorly; bare. Tergite 7 narrower and nearly 2X shorter than tergite 6, with small, anteromarginal lateral excavation. Sternite 7 asymmetrical, with few setulae laterally; divided by broad median membranous space into two portions narrowly connected laterally; anterior portion larger, deflected downwards (in situ appressed to virtual space of sternite 6), with small, weaker sclerotised median

and two larger, stronger sclerotised lateral projections (lateral projections asymmetrical); posterior portion represented by two subtriangular, asymmetrical sclerites narrowly separated medially. Segment 8 funnel-like, with entirely separated tergite and sternite (lateral view). Tergite 8 long, slightly longer than tergite 7, undivided, somewhat concave anteriorly and deflected posteriorly. Sternite 8 subtriangular in lateral view; slightly longer than tergite 8; with simple structure and vestiture.

Terminalia (Fig. 17–19) moderately large; epandrial lamella brown, shiny; cercus yellowish brownish, subshiny; hypandrium yellowish brown; phallus brownish yellow. Epandrium entirely narrowly divided (epandrial bridge absent); epandrial lamella rather subrectangular, slightly produced posteriorly (Fig. 18); with scattered setulae. Hypandrium separated from epandrium; entirely sclerotised; subtriangular (ventral view), with small notch on apex; bare; gonocoxal apodeme small. Subepandrial sclerite



Figs 16–20. *Empis (Anacrostichus) pellucida* Coquillett, 1900: 16–19 — male: 16 — habitus, lateral view; 17 — postabdomen, lateral view; 18 — hypopygium, lateral view (setation omitted); 19 — phallus, lateral view. 20 — female, habitus, lateral view. Abbreviations: cerc — cercus; ej apod — ejaculatory apodeme; epand — epandrium; goncx apod — gonocoxal apodeme; hypd — hypandrium; ph — phallus; ph pl — phallic plate; T — tergite; S — sternite. Scale bars: 16, 20 — 1 mm; 17–19 — 0.1 mm.

Рис. 16–20. *Empis (Anacrostichus) pellucida* Coquillett, 1900: 16–19 — самец: 16 — габитус, вид сбоку; 17 — постабдомен, вид сбоку; 18 — гипопигий, вид сбоку (щетинки не показаны); 19 — фаллус, вид сбоку. 20 — самка, габитус, вид сбоку. Сокращения: cerc — церк; ej apod — эякуляторная аподема; epand — эпандрий; goncx apod — гоноксальная аподема; hypd — гипандрий; ph — фаллус; ph pl — пластина фаллуса; T — тергит; S — стернит. Масштаб: 16, 20 — 1 мм; 17–19 — 0,1 мм.

undivided. Cerci separated with each other and epandrium; cercus small, narrow, rather subrectangular (lateral view), produced downwards posteriorly, posterior margin extending nearly to apex of epandrial lamella; undivided, with smoothed inner margin; covered with simple dark setulae, bearing scattered setulae on inner surface. Hypoproct membranous, bare. Phallus (Fig. 19) hidden; gently arched; thickened on about basal 1/2, uniformly slender on remaining portion (lateral view). Ejaculatory apodeme moderately large, extended far beyond basal curvature of phallus, with lateral wings.

Female (Fig. 20). Similar to male except as follows. Head and thorax generally with shorter setation. Legs without pennate setae; tibiae with more distinct setae; hind femur slightly narrower. Abdomen shiny, only tergite 1 and tergite 2 along anterior margin faintly pruinose; with shorter setae. Cercus long, slender; with scattered setulae.

REMARKS. *Empis pellucida* is very similar to the Palaearctic *E. longipennis* Loew, 1868 known from the Eastern Siberia [Shamshev, 2016]. *Empis longipennis* differs from *E. pellucida* by brown palpi, entirely brown legs (including knees) and almost entirely shiny mesoscutum (except notopleuron).

DISTRIBUTION. Canada (British Columbia), USA (Alaska).

Empis (Anacrostichus) scoparia Coquillett, 1903
Figs 21–24.

Empis scoparia Coquillett, 1903: 269 (♂). Type locality: USA, New Hampshire, Franconia.

MATERIAL EXAMINED. CANADA. New Brunswick: Lower Southampton, York Co. // *Empis scoparia* Coq. det. G.E. Shewell '47 (1 ♂). ALBERTA: [no data], C.E. Yauch (1 ♂).

DIAGNOSIS. Mid-sized species (body about 6 mm); male eyes dichoptic, frons shiny; palpus brownish yellow; mesoscutum extensively shiny, acrostichal setae present; femora and tibiae yellow; abdomen extensively shiny; male abdominal sternite 5 with large, rounded projection bearing long, strong setae, sternite 8 strongly produced downwards.

DESCRIPTION. Body length about 6 mm, wing 6.8 mm. **Male.** Head with ocellar triangle, occiput, postgena and gena faintly greyish pruinose; frons and face mostly shiny, clypeus entirely shiny. Eyes dichoptic, ommatidia equally small. Frons broad, with marginal setulae. Face broad, bare. Ocellar setae fine, moderately long. Occiput covered with black, moderately long, strong setae; postgena with pale, long, hair-like setae. Antenna with scape and pedicel brownish, postpedicel and stylus black; scape nearly 2X longer than subglobular pedicel, both with short setulae; postpedicel long (nearly 4X as long as basal width), with straight margins, its base slightly broader than pedicel; stylus very short, slightly shorter than postpedicel basal width. Proboscis with labrum mostly brownish yellow, brownish near base; nearly 1.5X longer than eye height; palpus short, brownish yellow; with fine, black setae.

Thorax mostly black, only postalar tubercle yellowish translucent; mostly faintly greyish pruinose; mesoscutum extensively shiny leaving narrowly pruinose lateral and posterior margins. Prosternum bare. Proepisternum with numerous long, fine, yellow setae on lower part, bare on upper part. Anteprenotum with numerous black, strong setae dorsally and 3–4 yellow, fine setae laterally. Postpronotal lobe with several moderately long, strong, black setae (1 seta slightly stronger) and a few pale setulae posteriorly. Mesonotal setae: acrostichals brownish yellow, very short, fine, scattered, 1–2-serial; presutural dorsocentrals similar to acrostichals, arranged in 2 irregular rows, postsutural dorsocentrals longer, 1 pair of prescutellars black, strong, nearly as long as scutellars; 1 short, weak presutural supra-alar; 4–5 notopleurals, 1

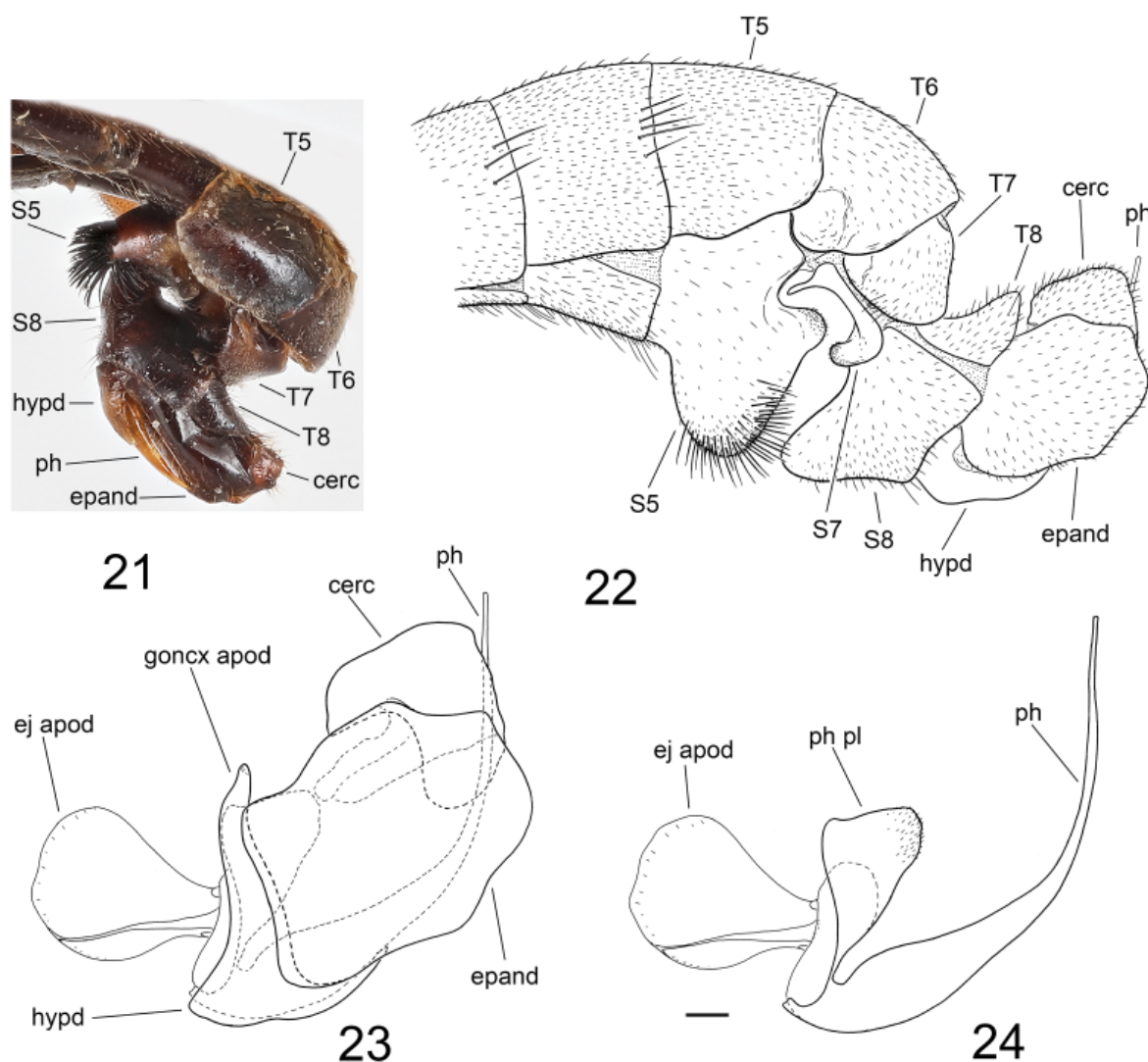
postsutural supra-alar, 1 postalar, 4 scutellars (apical pair slightly longer); in addition, fine brownish setulae present on notopleural depression anteriorly. Laterotergite with intermixed brownish and yellow setae. Anterior and posterior spiracles brown.

Legs with coxae and trochanters brown, femora and tibiae yellow, tarsi brown (except yellow base of basitarsus). Fore femur mostly with minute anteroventral and posteroventral setae, somewhat longer and stronger setae only near apex. Fore tibia with short, inconspicuous, dorsal setae. Mid femur with almost complete rows of equally short, spine-like setae (absent near base). Mid tibia with 2–3 short strong anterodorsal and posterodorsal setae. Hind femur rather slender, only slightly broader than mid femur; with complete rows of short spine-like anteroventral and posteroventral setae; dense spinule-like setulae over ventral face; 2 short spine-like setae near apex anteriorly. Hind tibia slender, with 4–5 short strong anterodorsal and posterodorsal setae; covered with erect setulae ventrally; no seta in posteroapical comb. Fore and hind basitarsi slender, with short setae.

Wing membrane very faintly infusate or hyaline; entirely covered with microtrichia; veins brownish to yellowish brown, well sclerotized. Veins R_5 and M_1 slightly divergent towards wing margin; radial fork acute; $CuA+CuP$ (anal vein) complete; cell dm short, with strongly elongate apex; apical portion of M_4 nearly 2.5X longer than its middle portion. Pterostigma brownish. Basal costal seta absent. Anal lobe well-developed; axillary incision very acute. Squama yellow, pale fringed. Halter yellow.

Abdomen black, extensively shiny. Tergite 1 entirely densely greyish pruinose, tergites 6 and 7 mostly faintly pruinose; tergites 1–3 with longer intermixed brownish and pale, fine setae laterally and minute setae dorsally; remaining tergites with minute setae (somewhat longer on tergite 8). Sternite 1 bare; sternites 2–4 and 8 with scattered pale and brownish setulae. Postabdomen (Figs 21, 22): segments 5–8 modified. Tergite 6 and segment 7 somewhat bent downward, accordingly segment 8 and terminalia shifted to ventral position relative to body axis. Tergite 5 with somewhat concave lateral margin posteriorly; small excavation on slightly produced posterior lateral corner. Sternite 5 with very large median projection bearing two narrowly separated clusters of dense, long, strong setae on apex and two small, closely set, bare posteromarginal projections. Tergite 6 slightly asymmetrical and somewhat narrower than tergite 5; with small tubercle in posterior lateral corner. Sternite 6 invisible in situ (hidden by sternite 5), strongly reduced, represented by small, weakly sclerotised sclerite, with few setulae posteriorly. Tergite 7 narrower and nearly 2X shorter than tergite 6; with small, anteromarginal lateral excavation; anterior margin concave. Sternite 7 asymmetrical, bare; divided by broad median membranous space into two portions narrowly connected laterally; anterior portion larger, deflected downwards, with small, median and two lateral, subglobular projections (lateral projections asymmetrical); posterior portion represented by two elongate oval, asymmetrical sclerites narrowly separated medially. Segment 8 funnel-like, with entirely separated tergite and sternite (lateral view). Tergite 8 long, nearly as long as tergite 7, undivided, somewhat concave anteriorly and deflected posteriorly. Sternite 8 rather subtriangular in lateral view, slightly longer than tergite 8; strongly produced downwards; with simple vestiture.

Terminalia (Figs 21–24) moderately large; epandrial lamella brown, shiny; cercus brownish yellow, subshiny; hypandrium brownish on basal part and brownish yellow on apical part; phallus yellow. Epandrium entirely narrowly divided (epandrial



Figs 21–24. *Empis (Anacrostichus) scoparia* Coquillett, 1903, male: 21 — postabdomen, lateral view; 22 — outline of postabdomen, lateral view; 23 — hypopygium, lateral view (setation omitted); 24 — phallus, lateral view. Abbreviations: cerc — cercus; ej apod — ejaculatory apodeme; epand — epandrium; goncx apod — gonocoxal apodeme; hypd — hypandrium; ph — phallus; ph pl — phallic plate; T — tergite; S — sternite. Scale bar is 0.1 mm.

Рис. 21–24. *Empis (Anacrostichus) scoparia* Coquillett, 1903, самец: 21 — постабдомен, вид сбоку; 22 — строение постабдомена, вид сбоку; 23 — гипопигий, вид сбоку (щетинки не показаны); 24 — фаллус, вид сбоку. Сокращения: cerc — церк; ej apod — эякуляторная аподема; epand — эпандрий; goncx apod — гоноксальная аподема; hypd — гипандрий; ph — фаллус; ph pl — пластина фаллуса; T — тергит; S — стернит. Масштаб 0,1 мм.

bridge absent); epandrial lamella rather subrectangular (Fig. 23); with scattered setulae. Hypandrium separated from epandrium; entirely sclerotised; subtriangular (ventral view), short, with small notch on apex; bare; gonocoxal apodeme small. Subepandrial sclerite undivided. Cerci separated with each other and epandrium; cercus small, narrow, rather subrectangular (lateral view), produced downwards posteriorly, posterior margin extending nearly to apex of epandrial lamella; undivided, with smoothed inner margin; covered with simple dark setulae, bearing scattered setulae on inner surface. Hypoproct membranous, bare. Phallus (Fig. 24) hidden; gently arched; thickened on about basal 1/2, uniformly slender on remaining

portion (lateral view). Ejaculatory apodeme moderately large, extended far beyond basal curvature of phallus, with small lateral wings.

Female. Unknown.

REMARKS. *Empis scoparia* is a unique species of *Anacrostichus* by the structure of the abdominal sternite 8 of the male.

DISTRIBUTION. Canada (Alberta, New Brunswick), USA (New Hampshire).

Empis (Anacrostichus) spaetensis Shamshev, **sp.n.**
Figs 25–28.

TYPE MATERIAL. **Holotype**, ♂ labelled: BC. [= British Columbia, Canada] // Bear Mt. / 6.v.20 [no collector name] (CNC).

Paratype. [hand-written label, locality illegible] May 8.21. W.K.C. (1 ♂, CNC).

DIAGNOSIS. Rather large species (body about 7 mm); male eyes nearly holoptic; mesoscutum brownish grey pruinose, with 4 brown vittae; acrostichal setae absent; legs with femora and tibiae extensively yellow, fore and mid tibiae with dense, long setae anterodorsally and posterodorsally. Male: abdominal sternite 5 convex medially, bearing two lateral clusters of short strong setae and two short posteromarginal projections.

DESCRIPTION. Body length 6.7 mm, wing length 7 mm (holotype). **Male** (Fig. 25). Head capsule regions mostly densely, greyish pruinose, black setose; face with shiny upper margin, clypeus almost entirely shiny. Eyes almost touching on frons, upper ommatidia slightly larger. Frons represented by very small subtriangular space just below ocellar triangle and larger space above antennae; with marginal setulae. Face broad, bare. Ocellar setae undifferentiated; several equally short, fine setae present. Occiput covered with long, dense setae (including postoculars); postgena with longer, finer setae. Antenna black; scape nearly 2X longer than subglobular pedicel, both with moderately long setulae; postpedicel nearly 4X as long as basal width; stylus very short, nearly as long as postpedicel basal width. Proboscis with labrum brownish yellow, brown near base; nearly 1.5X longer than eye height; palpus short, brownish yellow; with long, fine, black setae.

Thorax black, mostly densely greyish pruinose; black setose; mesoscutum brownish grey pruinose, with 4 brown vittae (dorsal view) (Fig. 26). Prosternum bare. Proepisternum with numerous long, fine setae on lower part and 2–3 similar setae on upper part. Anteprepronotum with short setae dorsally and long, fine setae laterally. Postpronotal seta undifferentiated (in holotype) or barely differentiated (in paratype); lobe covered with numerous, moderately long, fine setae. Mesonotal setae (number, position and robustness very variable): acrostichals absent; presutural dorsocentrals arranged in 3 irregular rows, short, fine, postsutural dorsocentrals becoming longer and somewhat broader spread towards scutellum, 2–3 strongest prescutellars; 1 moderately long presutural supra-alar (with numerous additional fine setae); 5–8 notopleurals, 2–3 postsutural supra-alars (with additional fine setae), 1–2 strong and several short fine postalars, 12–14 scutellars (different lengths and robustness, sometimes different number on right and left sides); in addition, numerous short, fine setae present on notopleural depression. Laterotergite with numerous setae. Anterior and posterior spiracles brownish yellow.

Legs long, slender, black setose. Coxae greyish pruinose, remaining podomeres subshiny. Coxae and trochanters with simple setae. Femora without whitish ventral pubescence. Legs colour: coxae and trochanters brownish to yellowish brown; femora almost entirely yellow, only extreme apex (including “knees”) brownish; tibiae mostly yellow, narrowly brownish at apex; basitarsus of all legs mostly brownish yellow to yellow (brown apically), remaining tarsomeres brown. Fore femur clothed with long, mostly fine setae (longer posteroventrally and posteriorly; slightly stronger closer to apex). Fore tibia with numerous, long, mixed fine and strong setae anterodorsally and similar, longer setae posterodorsally and posteriorly. Fore basitarsus thickened; with moderately long, fine setae posterodorsally and posteriorly; bearing scattered, spinule-

like setae ventrally. Mid femur with numerous moderately long, strong, irregularly arranged setae on about apical 2/3 (longest setae only slightly longer than femur width); longer and somewhat finer setae on about basal 1/3; spine-like setae on ventral face. Mid tibia mostly with similar setation to fore tibia; bearing spinule-like setae ventrally. Mid basitarsus with spine-like anteroventral and posteroventral setae. Hind femur only slightly broader than mid femur; bearing several moderately long setae anterodorsally and anteriorly closer to apex; mostly moderately long setae anteroventrally (stronger near apex; longer and finer near base); mostly minute setae posteroventrally and posteriorly (long, fine near extreme base); spinule-like and simple setulae on ventral face. Hind tibia simple; slightly, gently thickened towards apex; bearing dense, long setae anterodorsally and posterodorsally; simple setulae ventrally; very short seta in posteroapical comb. Hind basitarsus slender, with 2–3 long, fine anterodorsal and posterodorsal setae; spine-like anteroventral and posteroventral setae.

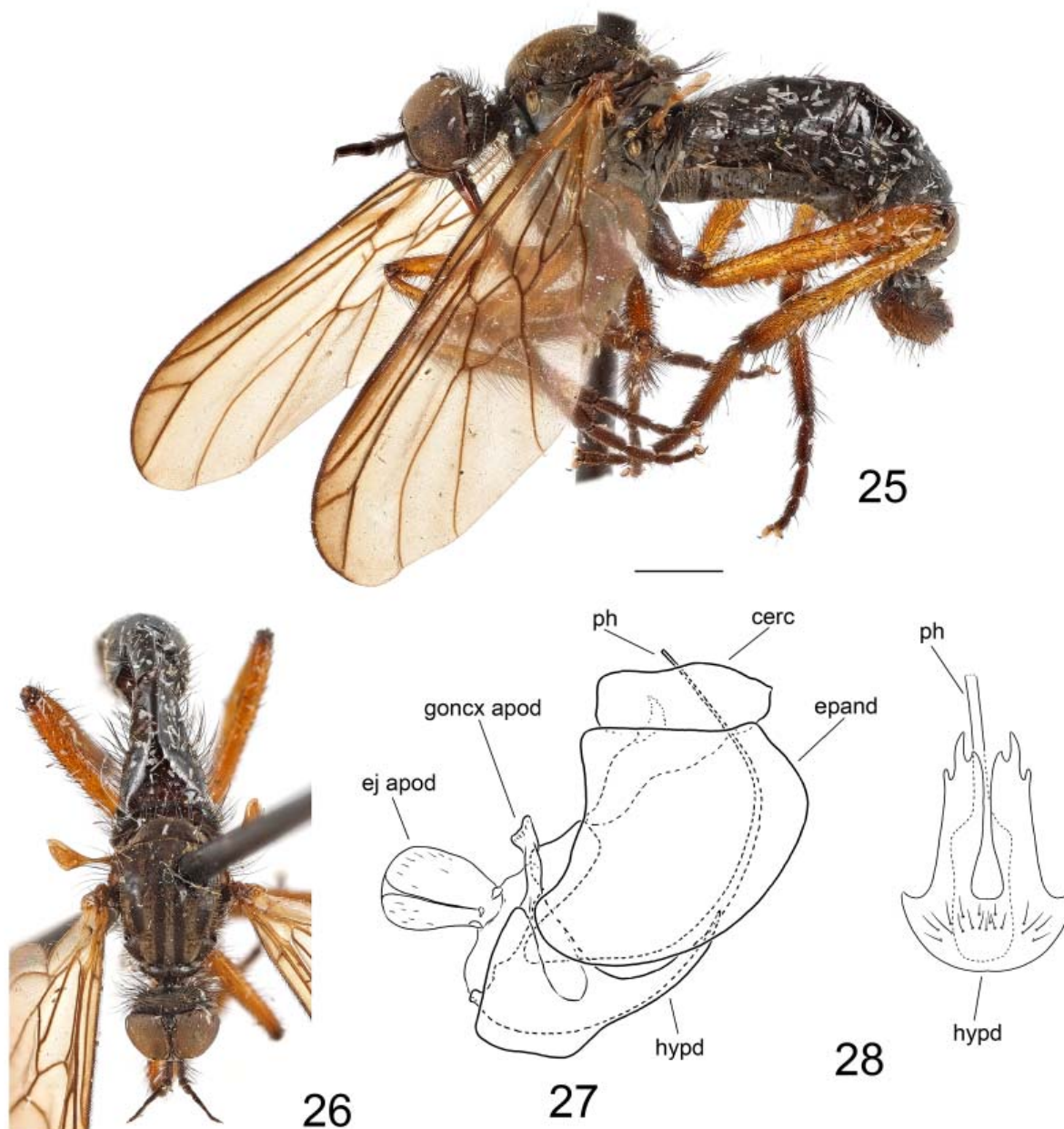
Wing membrane brownish infusate; entirely covered with microtrichia; veins brownish, well sclerotized. Veins R_5 and M_1 almost parallel near wing margin; radial fork acute; $CuA+CuP$ (anal vein) complete; cell dm short, with elongate apex; apical portion of M_4 nearly 3X longer than its middle portion. Pterostigma brownish. One–two short, basal costal seta(e). Anal lobe well-developed; axillary incision very acute. Squama yellow, with brownish margin, black fringed. Halter yellow.

Abdomen dark brown, black setose. Tergites 1–5 extensively shiny, narrowly greyish pruinose laterally (broader on tergite 5), tergites 6–8 mostly densely greyish pruinose (tergite 6 with shiny antero-lateral spot); tergites 1–4 with numerous long, mixed fine and strong setae laterally and scattered setulae dorsally (posteromarginal setae hardly distinguishable), tergite 5 with short fine setae, tergites 6–7 with scattered setulae, tergite 8 with moderately long fine setae. Sternites 1–5 densely greyish pruinose, sternite 8 subshiny laterally and greyish pruinose medially; sternites 1–4 and 8 with long setae. Postabdomen: segments 5–8 modified. Tergite 6 and segment 7 bent downwards, accordingly segment 8 and terminalia shifted to ventral position relative to body plane. Tergite 5 with somewhat concave lateral margin. Sternite 5 convex medially; bearing two sublateral clusters of moderately long, strong, black setae and two short, digitiform posterior projections. Tergite 6 slightly asymmetrical; somewhat narrower than tergite 5, with small, rounded antero-lateral tubercle and small posteromarginal lateral projection. Sternite 6 invisible in situ, partly retracted into sternite 5, strongly reduced, bare. Tergite 7 slightly asymmetrical; narrower and 2.5–3X shorter than tergite 6; with small, anteromarginal lateral excavation. Sternite 7 asymmetrical, with few short setae laterally; deeply concave laterally forming two portions broadly separated by membranous space ventrally; anterior portion (mostly invisible in situ) asymmetrical, including free, strongly sclerotised, small sclerite anteriorly and larger sclerite posteriorly; posterior portion represented by small, weakly sclerotised, lateral subtriangular sclerite. Segment 8 funnel-like, narrowed anteriorly, with entirely separated tergite and sternite; tergite 8 long, nearly as long as tergite 7, undivided, somewhat deflected posteriorly; sternite 8 subtriangular in lateral view, somewhat longer than tergite 8, with simple structure and vestiture.

Terminalia (Fig. 27, 28) moderately large, black setose; epandrium mostly brownish, yellowish brown along lower margin, with long setae closer to lower margin; hypandrium with brown basal portion and brownish yellow apical projections, bearing long setae; cercus brown, with simple

setulae; phallus brownish yellow. Epandrium entirely divided (epandrial bridge absent); epandrial lamella rather subtriangular (lateral view), with broadly rounded apex, bearing long setae more numerous closer to lower margin. Hypandrium (Fig. 28) separated from epandrium; entirely sclerotised; very prolonged and deeply concave posteriorly forming two broad lobes excised at apex; bearing numerous strong setae near base; gonocoxal apodeme small. Subepandrial sclerite separated

medially. Cerci separated with each other and from epandrium; cercus small, rather subrectangular (lateral view), slightly broadened posteriorly, with posterior margin extending nearly to apex of epandrial lamella; undivided, with smoothed inner margin; covered with simple dark setulae, bearing scattered erect setulae on inner surface. Hypoproct weakly sclerotised, bare. Phallus almost entirely hidden, gently arched; nearly basal 1/3 very thick (lateral view), remaining portion slender.



Figs 25–28. *Empis (Anacrostichus) spaetensis* Shamshev, **sp.n.**, male: 25 — habitus, holotype, lateral view; 26 — habitus, holotype, dorsal view; 27 — hypopygium, lateral view (setation omitted); 28 — hypandrium, ventral view. Abbreviations: cerc — cercus; ej apod — ejaculatory apodeme; epand — epandrium; goncx apod — gonocoxal apodeme; hypd — hypandrium; ph — phallus.

Рис. 25–28. *Empis (Anacrostichus) spaetensis* Shamshev, **sp.n.**, самец: 25 — габитус, голотип, вид сбоку; 26 — тоже, вид сверху; 27 — гипопигий, вид сбоку (щетинки не показаны); 28 — гипандрий, вид снизу. Сокращения: cerc — церк; ej apod — эякуляторная аподема; epand — эпандрий; goncx apod — гонококсальная аподема; hypd — гипандрий; ph — фаллус.

Ejaculatory apodeme moderately large, extended far beyond basal curvature of phallus, with lateral wings.

Female. Unknown.

DIFFERENTIAL DIAGNOSIS. Within the key to the North American species of *Empis* compiled by Coquillett [1895], the new species would run to *E. tenebrosa* Coquillett, 1895 and *E. spectabilis* Loew, 1862. *Empis tenebrosa* (USA: Colorado, Texas) remains known after an original description only and its subgeneric position is unclear. The new species differs from *E. tenebrosa* primarily by entirely black antenna (versus scape and postpedicel reddish) and extensively shiny abdominal tergites 1–5 (versus pollinose). *Empis spectabilis* belongs to *Anacrostichus*. This species has densely pruinose abdomen and incrassate hind femora (see below). Within the key provided by Melander [1902], the new species would run to the couplet 56 (2 or 4 scutellar setae). However, the new species has 12–14 scutellar setae.

ETYMOLOGY. The epithet refers to the type locality of the new species (Bear Mountain, British Columbia (Vancouver Island), Canada) that is a traditional mountain area in shared Coast Salish territories. In the Salishan language, “spaet” means “bear”.

DISTRIBUTION. Canada (British Columbia).

Empis (Anacrostichus) spectabilis Loew, 1862
Figs 29–35.

Empis spectabilis Loew, 1862: 196 (♀) [Cent. 2, no. 21]. Type locality: USA, Maryland.

Additional reference: Melander, 1902: 311 (♂), fig. 109.

MATERIAL EXAMINED. **USA. Virginia:** Falls Church, iv30 Va, C.T. Greene Collector, *Empis spectabilis* Lw. (2 ♂♂, OUMNH). **Maryland:** Cabin John, 28.iv.1927, J.M. Aldrich Coll (1 ♂, OUMNH). **Tennessee:** Sevier Co. GSMNP, Twin Cks, MT 35°41.10'N 83°29.94'W, 29.iii.–15.iv.1999, Parker, Stocks, Petersen (2 ♂♂, 1 ♀, CNC).

DIAGNOSIS. Rather large, robust species (body about 7 mm) with densely greyish pruinose thorax and abdomen; male eyes nearly holoptic; mesoscutum with indistinct vittae, acrostichal setae absent; legs almost entirely yellow, strongly spine-like setose, hind femur thickened. Male: mid femur near base with tubercle covered with spine-like setae; tergite 6 with yellow, shiny, antero-lateral spot. Female: segments 7–8 yellowish.

DESCRIPTION. Body length about 7 mm, wing 7.4 mm. **Male** (Fig. 29). Head capsule regions densely, light grey pruinose, black setose; face with narrow, subtriangular, shiny spot on lower margin, clypeus narrowly shiny along upper margin, ocellar triangle subshiny around ocelli. Eyes almost touching before middle of frons, ommatidia of equal size. Frons on narrowest portion narrower than anterior ocellus, slightly broadened just below ocellar triangle, strongly broadening towards antennae beyond middle; with marginal setulae. Face broad, bare. Ocellar setae short, fine. Postocular setae fine, very short on upper part, longer laterally; occiput with numerous long setae. Antenna with scape and pedicel yellowish brown, postpedicel and stylus black; scape nearly 2.5X longer than subglobular pedicel, with rather long setulae, pedicel with short setulae; postpedicel long (nearly 4X as long as basal width), with straight margins; stylus very short, nearly as long as postpedicel basal width. Proboscis with labrum mostly yellow, brownish yellow near apex; nearly 1.5X longer than eye height; palpus short, yellow; with long, fine, black setae.

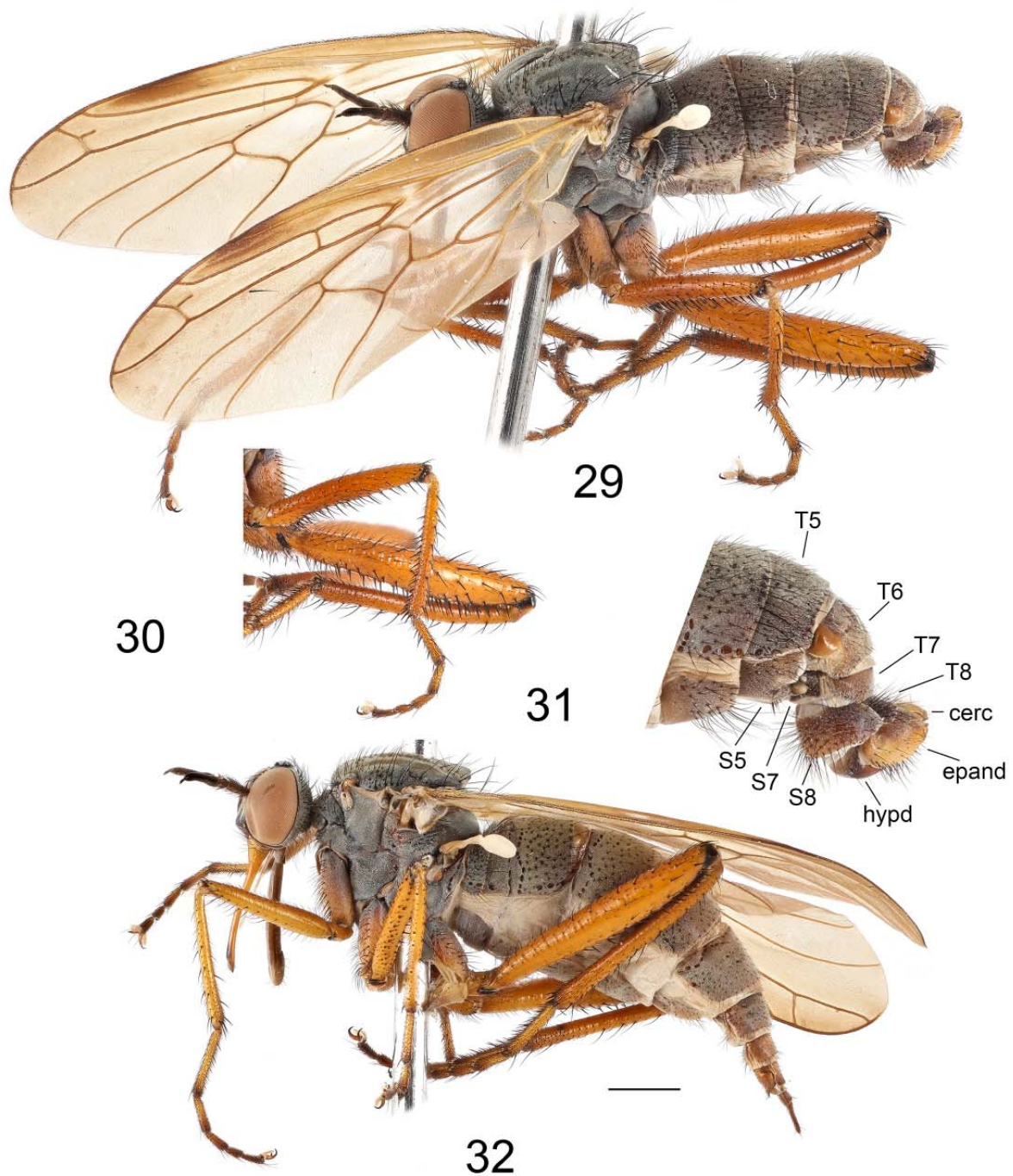
Thorax mostly black, postpronotal lobe, postalar tubercle and meron narrowly anteriorly yellowish translucent; mostly densely greyish pruinose; black setose; mesoscutum with

4 dark, indistinct, narrow vittae (dorsal view). Prosternum bare. Proepisternum with numerous long, fine setae on lower part and 3–5 similar setae on upper part. Antepronotum with numerous strong, short setae dorsally and fine, long setae laterally. Postpronotal seta present or undifferentiated; lobe covered with short to moderately long fine setae. Mesonotal setae: acrostichals absent; presutural dorsocentrals rather long, fine, arranged in 3–4 irregular rows, postsutural dorsocentrals irregularly biserial, setae of inner row somewhat inclinate, becoming longer towards scutellum, 2–3 prescutellars strongest; 1 weak presutural supra-alar (with additional shorter setae; sometimes inconspicuous or of different robustness on right and left sides); usually 4 notopleurals (sometimes 5), 2–3 postsutural supra-alars (with additional fine and shorter setae), 1 postalar, usually 6 scutellars (with some number of additional short, fine setae; sometimes 4 strong setae or different number on right and left sides); in addition, some setulae present on notopleural depression anteriorly. Laterotergite with numerous setae. Anterior and posterior spiracles pale yellow.

Legs robust; almost entirely yellow, only coxae near extreme base, tarsomeres 1–4 on apex and entire tarsomere 5 darkened. Coxae faintly pruinose, remaining podomeres subshiny. Coxae and trochanters with simple setae. Fore femur with row of long, strong anteroventral setae on about apical 2/3 to 1/2 and fine setae on remaining basal portion; row of short, strong posteroventral setae on about apical 1/2 to 1/3 and minute posteroventral setae on remaining basal portion. Fore tibia with rows of 5–6 short strong anterodorsal and posterodorsal setae; 1–2 similar posteroventral setae on middle part. Fore basitarsus slightly thickened, not broader than fore tibia on apex; with 1 short, weak anterodorsal and 1 similar posterodorsal setae on about middle; 4–5 very short, fine anteroventral setae. Mid femur (Fig. 30) near base with ventral tubercle covered spinules; bearing row of moderately long anterodorsal setae and similar setae anteriorly; numerous spine-like setae anteroventrally and row of similar posteroventral setae. Mid tibia with 5–6 strong, moderately long anterodorsal and 5–6 similar posterodorsal setae; complete rows of numerous, short, spine-like anteroventral and posteroventral setae. Mid basitarsus with spine-like anteroventral and posteroventral setae. Hind femur (Fig. 30) strongly thickened on about apical 2/3; with numerous strong setae anterodorsally and anteriorly on thickened part; numerous spine-like setae along entire anteroventral surface (somewhat denser closer to apex), similar setae on about apical half ventrally and posteroventrally. Hind tibia slightly geniculate and thickened; with numerous anterodorsal and posterodorsal, moderately long setae; covered with simple, greatly reduced setulae ventrally; 1 short seta in posteroapical comb. Hind basitarsus slender; with 2–3 fine, moderately long anterodorsal and 2–3 posterodorsal setae; spine-like anteroventral and posteroventral setae.

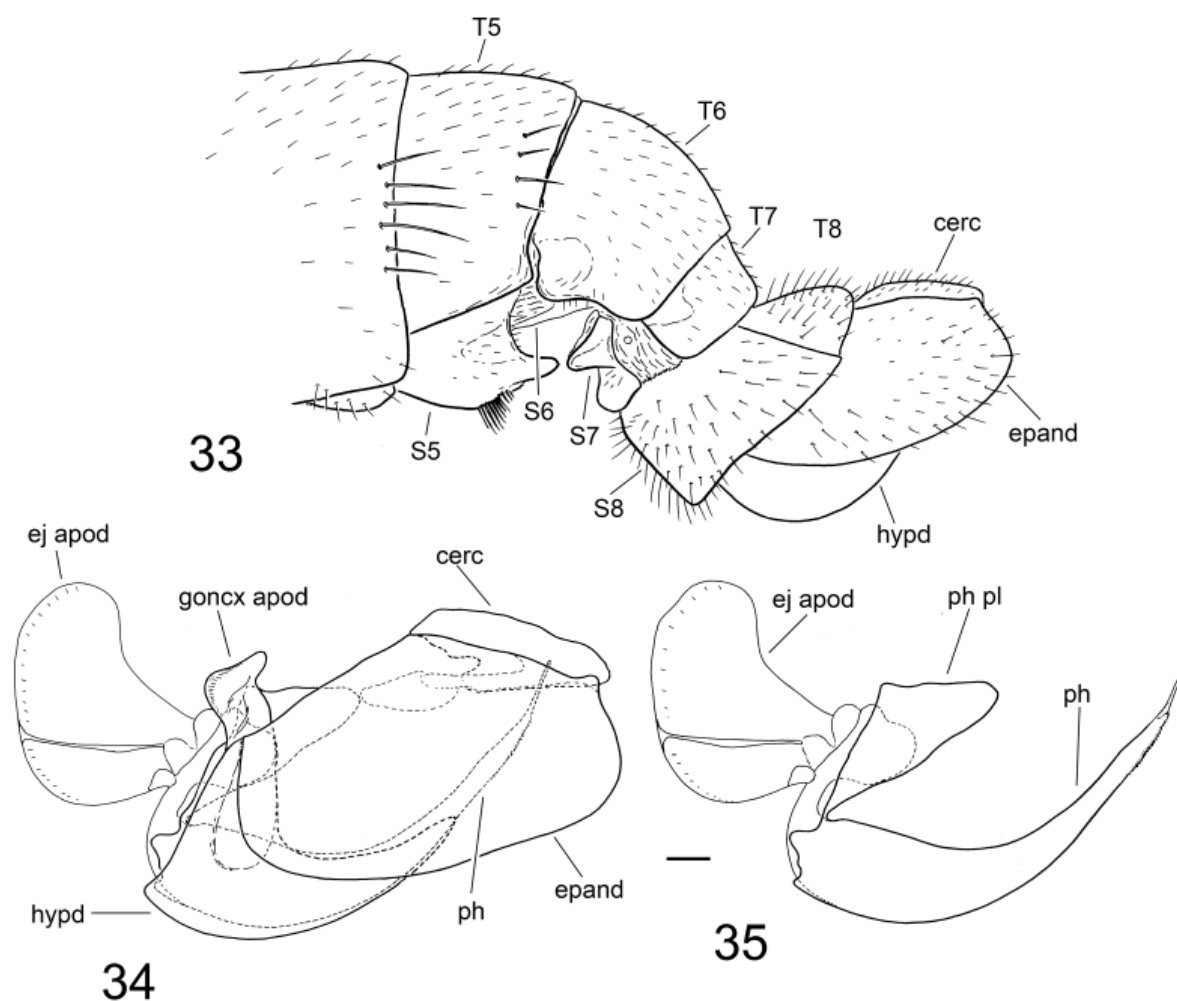
Wing membrane brownish infusate; entirely covered with microtrichia; veins mostly brownish (costa between base and margin of pterostigma, Sc and R₁ yellowish), well sclerotized. Veins R₅ and M₁ slightly divergent near wing margin; radial fork acute; CuA+CuP (anal vein) complete; cell dm short, with strongly elongate apex; apical portion of M₄ nearly 3X longer than its middle portion. Pterostigma brownish. Two basal costal setae (anterior seta longer). Anal lobe well-developed; axillary incision very acute. Squama yellow, dark fringed. Halter yellow.

Abdomen brownish in ground-colour, tergites 6–7 and sternites somewhat yellowish translucent; almost entirely greyish pruinose, tergite 6 with shiny spot anterolaterally; black setose. Tergites 2–5 with scattered setulae dorsally and long setae laterally (including strong posteromarginals); tergites 6–7



Figs 29–32. *Empis (Anacrostichus) spectabilis* Loew, 1862: 29–31 — male: 29 — habitus, lateral view; 30 — mid and hind legs, anterior view; 31 — postabdomen, lateral view. 32 — female, habitus, lateral view. Abbreviations: cerc — cercus; epand — epandrium; hypd — hypandrium; T — tergite; S — sternite. Scale bar is 1 mm.

Рис. 29–32. *Empis (Anacrostichus) spectabilis* Loew, 1862: 29–31 — самец: 29 — габитус, вид сбоку; 30 — средняя и задняя ноги, вид спереди; 31 — постабдомен, вид сбоку. 32 — самка, габитус, вид сбоку. Abbreviations: cerc — церк; epand — эпандрий; hypd — гипандрий; T — тергит; S — стернит. Масштаб 1 мм.



Figs 33–35. *Empis (Anacrostichus) spectabilis* Loew, 1862, male: 33 — outline of postabdomen, lateral view; 34 — hypopygium, lateral view (setation omitted); 35 — phallus, lateral view. Abbreviations: cerc — cercus; ej apod — ejaculatory apodeme; epand — epandrium; goncx apod — gonocoxal apodeme; hypd — hypandrium; ph — phallus; ph pl — phallic plate; T — tergite; S — sternite. Scale bar is 0.1 mm.

Рис. 33–35. *Empis (Anacrostichus) spectabilis* Loew, 1862, самец: 33 — строение постабдомена, вид сбоку; 34 — гипопигий, вид сбоку (щетинки не показаны); 35 — фаллус, вид сбоку. Сокращения: cerc — церк; ej apod — эякуляторная аподема; epand — эпандрий; goncx apod — гоноксальная аподема; hypd — гипандрий; ph — фаллус; ph pl — пластина фаллуса; T — тергит; S — стернит. Масштаб 0,1 мм.

with minute setulae; tergite 8 with moderately long, fine setae laterally. Sternites 1–4 and 8 with long, fine setae. Postabdomen (Figs 31, 33): segments 5–8 modified. Tergite 6 and segment 7 somewhat bent downwards, accordingly segment 8 and terminalia shifted to ventral position relative to body axis. Tergite 5 with somewhat concave lateral margin posteriorly; slightly produced posterior lateral corner. Sternite 5 gently rounded medially, bearing cluster of several spine-like median setae and scattered setulae laterally; with two short, digitiform, bare, posterior projections. Tergite 6 slightly asymmetrical; somewhat narrower than tergite 5; with rather large, rounded antero-lateral tubercle (shiny yellow in situ) and small posteromarginal lateral projection; weaker sclerotised on about middle laterally. Sternite 6 invisible in situ, strongly reduced, represented by small, strongly sclerotised, bare, median sclerite anteriorly (rounded anteriorly and digitiform posteriorly, partly

hidden by sternite 5). Tergite 7 slightly asymmetrical; narrower and 2–2.5X shorter than tergite 6; with small, anteromarginal lateral excavation. Sternite 7 asymmetrical, with scattered setulae laterally; divided by broad membranous space into two portions narrowly connected laterally; anterior portion (mostly invisible in situ) asymmetrical, strongly sclerotised, deflected downwards, including two small separated anterior sclerites and larger posterior sclerite (concave posteriorly); posterior portion represented by small, asymmetrical, weakly sclerotised, lateral sclerite. Segment 8 nearly funnel-like, with entirely separated tergite and sternite; tergite 8 rather trapezoid in lateral view, long, slightly longer than tergite 7, undivided, somewhat concave anteriorly, gently rounded posteriorly; sternite 8 nearly as long as tergite 8, with simple structure and vestiture.

Terminalia (Fig. 33–35) rather small; epandrial lamella mostly yellow, brownish yellow along upper margin; cercus

largely yellow, black along lower margin on about apical half; hypandrium brownish yellow; phallus yellow. Epandrium entirely divided (epandrial bridge absent); epandrial lamella rather subrectangular (Fig. 34), upper posterior corner slightly produced, pointed; with rather short black setae more numerous and stronger along lower margin. Hypandrium separated from epandrium; entirely sclerotised; very prolonged and deeply concave posteriorly forming two long subtriangular lobes; bearing numerous strong setae near base; gonocoxal apodeme small. Subepandrial sclerite undivided. Cerci separated with each other and from epandrium; cercus small, narrow, rather subtriangular (lateral view), with apex nearly pointed, posterior margin extending nearly to apex of epandrial lamella; undivided, with smoothed inner margin; covered with simple dark setulae, bearing cluster of setulae on inner surface. Hypoproct membranous, bare. Phallus (Fig. 35) mostly hidden, only slender apical portion usually extending beyond cerci; gently arched; very thick near basal curvature

(lateral view), becoming gradually slenderer towards apex, short apical portion very slender; with spinules before slender apical portion. Ejaculatory apodeme rather large, extended far beyond basal curvature of phallus, with small lateral wings.

Female (Fig. 32). Similar to male except as follows. Eyes divided by broad frons, below ocellar triangle nearly as broad as distance between inner margins of posterior ocelli, somewhat broadening towards antennae. Body generally with shorter setae. Abdominal segments 7–8 brownish yellow; sternite 6 entirely divided. Cercus long, slender, with scattered setulae.

REMARKS. Habitually *Empis spectabilis* resembles species of the *E. (Polyblepharis) albicans* group occurring in steppe regions of the Central Europe, the European part of Russia and Central Asia.

DISTRIBUTION. USA (Connecticut, Maryland, North Carolina, Tennessee, Virginia).

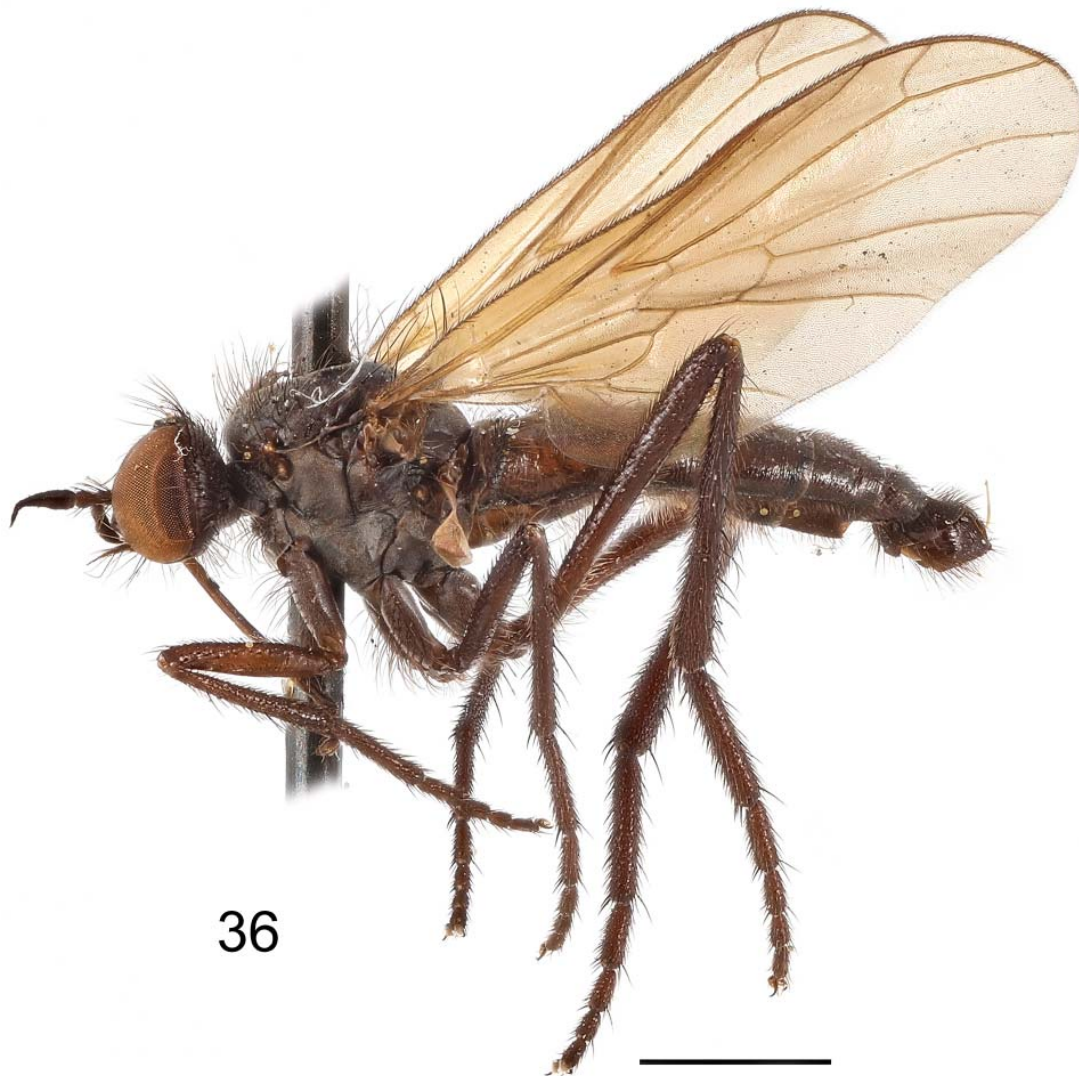


Fig. 36. *Empis (Anacrostichus) verralli* Collin, 1927, male, habitus, lateral view. Scale bar is 1 mm.
Рис. 36. *Empis (Anacrostichus) verralli* Collin, 1927, самец, габитус, вид сбоку. Масштаб 1 мм.

Empis (Anacrostichus) verralli Collin, 1927
Fig. 36.

Empis (Anacrostichus) verralli Collin, 1927: 21 (♂ and ♀). Type localities: UK, England: Snowdon (Carnarvon), Yorkshire; Scotland.

Empis (Anacrostichus) minor Frey, 1953: 35 (♂ and ♀). Type locality: Russia, Kamchatka: Ozernaya.

MATERIAL EXAMINED. USA. Alaska: Unalakleet [63°52'N 160°47'W], 29.vi.1961, B.S. Heming (1 ♂); same locality and collector, 23.vi.1961 (2 ♂♂), same data: 20.vi.1961 (7 ♂♂, 5 ♀♀), 29.vi.1961 (1 ♀), 5.vii.1961 (1 ♂, 1 ♀); same locality, 22.vi.1961, R. Madge (3 ♂♂, 5 ♀♀), 24.vi.1961 (1 ♀); Nome [64°30'N 165°24'W], 2.vii.1951, D.P. Whillans (1 ♂); same locality and collector, 20.vi.1951 (1 ♂), 15.vi.1951 (1 ♂), 6.vi.1951 (1 ♂), 18.vi.1951 (3 ♂♂), 19.vi.1951 (4 ♂♂), 12.vi.1951 (18 ♂♂, 1 ♀); Naknek [58°43'N 157°00'W], on tundra, 18.vii.1952, J.B. Hartley (1 ♂); same locality, 3.vii.1952, W.R. Mason (1 ♂).

REMARKS. It seems that this species was not described by the North American authors. Main differences of *E. verralli* from other Nearctic species of *Anacrostichus* are indicated in the key. *Empis verralli* was redescribed by Collin [1961] and Chvála [1994]. The wing venation of *E. verralli* is unstable (as both these authors have noted), including different degree of a reduction of the radial fork (R_{4+5}) and some other veins, extra crossveins, etc. In addition, the frons of the female sometimes is entirely pruinose (usually shiny on the middle).

DISTRIBUTION. Holarctic. In Eurasia, *E. verralli* is known from British Isles, extreme north of the European part of Russia, Siberia (including subarctic areas) and the Russian Far East [Shamshev, 2016]. In North America, *E. verralli* is known only from the western part of Alaska.

Empis (Anacrostichus) virgata Coquillett, 1895
Figs 37–43.

Empis virgata Coquillett, 1895: 408 (♂). Type locality: USA, Washington.

Additional reference: Malloch, 1923: 184 (♀).

MATERIAL EXAMINED. CANADA. British Columbia: Metatype *E. virgata* Coq., Compared by C.H. Curran // Agassiz, 27.iv.1922, R. Glendenning (1 ♂); Lakelse, near Terrace, B.C., 300, 14.vi.1960, W.W. Moss (1 ♂); Tye, 27 mi. E. Pr. Rupert, on flowers of goat's beard, 24.vi.1960, J.G. Chillcott (1 ♀); Burnaby, 20.iv.2005, A.T. Beckenbach // *Empis virgata* Coq. det. B.J. Sinclair 2005 (1 ♂, 2 ♀♀). **USA, Alaska:** Yakutat, June 21 '99, Harriman Expedition '99, T. Kincaid, Collector // *Empis virgata* Coq. (1 ♂, OUMNH); Sitka, June 16 '99, Harriman Expedition '99, T. Kincaid, Collector (1 ♀, OUMNH); same locality, Holmberg (1 ♂, MZH). **Washington:** Olympia, 4.i.95 // *Empis virgata* Coq. (1 ♀, OUMNH).

DIAGNOSIS. Large blackish species (body 6–8 mm); male eyes nearly holoptic; mesoscutum greyish pruinose, with 3 brownish subshiny vittae along rows of acrostichal and dorsocentral setae; legs entirely dark brown. Male: abdominal sternite 5 with large rounded projection covered dense, short, strong setae.

DESCRIPTION. Body and wing length 6–8 mm. **Male** (Fig. 37). Head capsule regions mostly densely, greyish pruinose, black setose; face with subtriangular shiny spot on lower part, clypeus entirely shiny. Eyes touching on frons, upper ommatidia enlarged. Frons represented by very small subtriangular space just below ocellar triangle and larger space above antennae; with marginal setulae. Face broad, bare. Ocellar setae undifferentiated; several equally long,

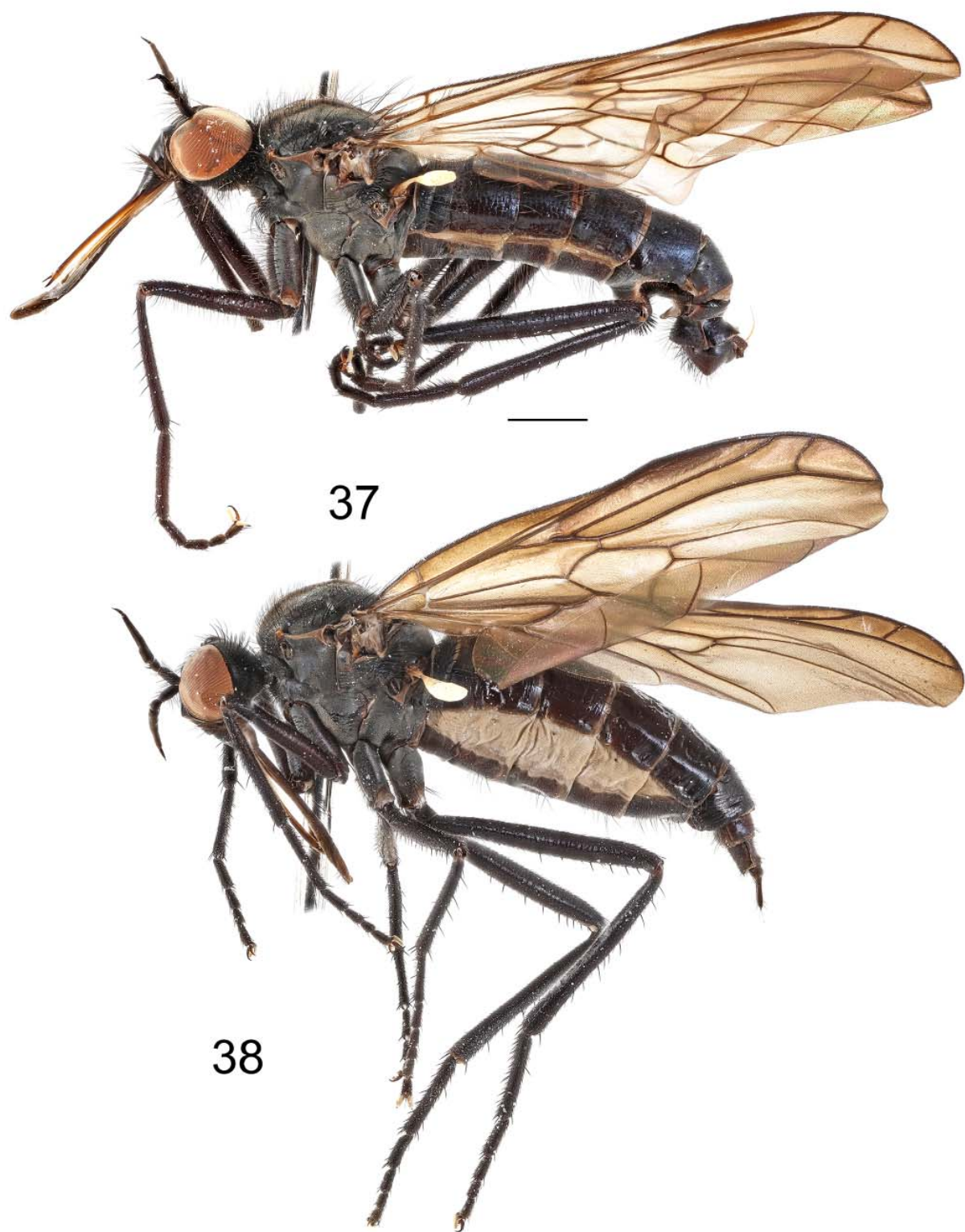
fine setae present. Occiput covered with long, fine, dense setae (including postoculars). Antenna black; scape nearly 3X longer than subglobular pedicel, both with long setulae; postpedicel long (nearly 4X as long as basal width); stylus very short, nearly as long as postpedicel basal width. Proboscis with labrum brownish, darker near base; nearly 1.5X longer than eye height; palpus short, brownish; with long, fine, black setae.

Thorax mostly black, only postalar tubercle somewhat yellowish translucent; mostly densely greyish pruinose; black setose; mesoscutum with 3 brownish, subshiny vittae along rows of acrostichal and dorsocentral setae (dorsal view). Prosternum bare. Proepisternum with numerous long, fine setae on lower part, bare on upper part. Anteprepronotum with strong, short setae dorsally and fine, long setae laterally. Postpronotal seta undifferentiated; lobe covered with long hair-like setae. Mesonotal setae: acrostichals arranged in 3–5 irregular rows (variable character), long, hair-like, dense, usually absent on prescutellar depression (rarely present); presutural dorsocentrals multiserial and not separated from similar presutural supra-alars anteriorly, long, hair-like, postsutural dorsocentrals sparser and longer, intermixed fine and somewhat stronger setae, usually 2 strongest prescutellars; presutural supra-alar undifferentiated, numerous hair-like setae present somewhat stronger in front of suture; 4–6 notopleurals (variable), 2–3 postsutural supra-alars (with additional fine and shorter setae), 1 postalar, 6–8 scutellars (usually with some number of additional shorter, fine setae); in addition, numerous setulae present on notopleural depression anteriorly. Laterotergite with numerous setae. Anterior and posterior spiracles brownish.

Legs long, slender, entirely dark brown, black setose. Coxae greyish pruinose, remaining podomeres subshiny. Coxae and trochanters with simple setae. All femora whitish pubescent ventrally. Fore femur with row of short, mostly fine, anteroventral setae (somewhat stronger near apex); long, dense, hair-like setae posteroventrally. Fore tibia with rows of 5–6 short anterodorsal and posterodorsal setae. Fore basitarsus slightly thickened or sometimes nearly slender; with spinule-like anteroventral setulae. Mid femur with stronger setulae anteriorly; anteroventral complete row of numerous, short, strong setae (somewhat longer and finer near base); posteroventral row of similar but somewhat longer setae; spinule-like ventral setulae on about basal half. Mid tibia with rows of 5–6 short anterodorsal and longer posterodorsal setae; anteroventral and posteroventral spine-like setae (except about basal 1/3). Mid basitarsus with anteroventral and posteroventral spine-like setae. Hind femur slender, only slightly broader than mid femur; with short, spine-like, rather sparse anteroventral setae; simple setulae ventrally and posteroventrally. Hind tibia simple; slightly gently thickened towards apex; with rows of very short anterodorsal and longer posterodorsal setae; simple setulae ventrally; very short seta in posteroapical comb. Hind basitarsus slender; with 2–3 very short anterodorsal setae, spine-like anteroventral and posteroventral setae.

Wing membrane brownish infusate; entirely covered with microtrichia; veins brownish, well sclerotized. Veins R_5 and M_1 almost parallel near wing margin; radial fork acute; $CuA+CuP$ (anal vein) complete; cell dm short, with strongly elongate apex; apical portion of M_4 nearly 2X longer than its middle portion. Pterostigma brownish. Basal costal seta present, short. Anal lobe well-developed; axillary incision very acute. Squama yellow, dark fringed. Halter yellow.

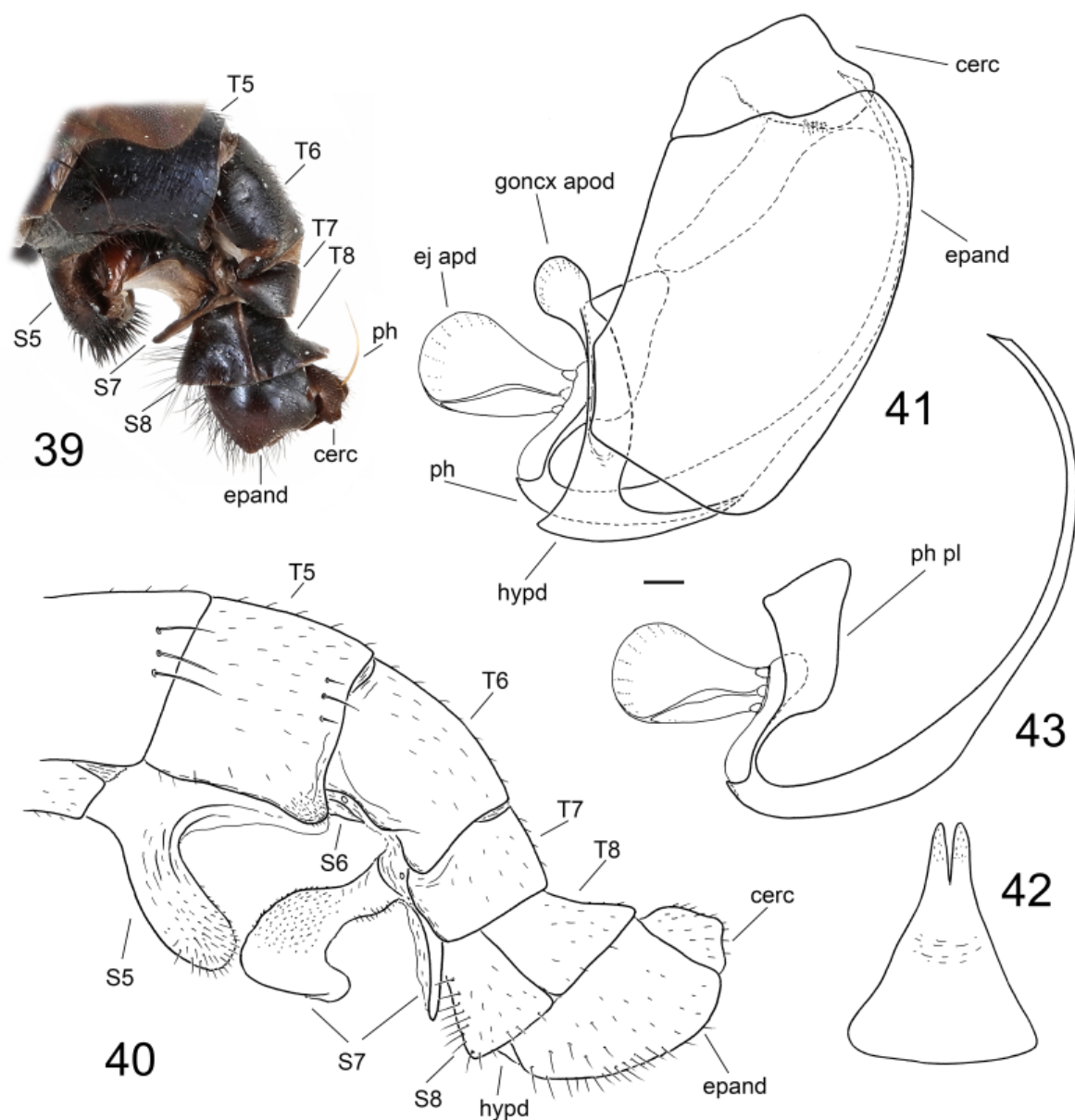
Abdomen dark brown, black setose. Tergites 2–5 subshiny (except tergite 2 narrowly greyish pruinose along anterior margin), tergites 1, 6–8 faintly greyish pruinose; tergites 2–4



Figs 37, 38. *Empis (Anacrostichus) virgata* Coquillett, 1895, habitus, lateral view: 37 — male; 38 — female. Scale bar is 1 mm.
Рис. 37, 38. *Empis (Anacrostichus) virgata* Coquillett, 1895, габитус, вид сбоку: 37 — самец; 38 — самка. Масштаб 1 мм.

with short setae dorsally and long, dense setae laterally (including some stronger posteromarginals), tergites 5–8 with scattered setulae. Sternites faintly greyish pruinose (projection of sternite 5 subshiny); sternites 1–4 with sparse, long, fine setae. Postabdomen (Figs 39, 40): segments 5–8 modified. Tergite 6 and segment 7 somewhat bent downwards, accordingly segment 8 and terminalia shifted to ventral position relative to body axis. Tergite 5 with slightly produced posterior lateral corner. Sternite 5 with very large, median, subrectangular projection covered with dense, spine-like setae on apex. Tergite 6 slightly asymmetrical;

somewhat narrower than tergite 5; somewhat concave laterally closer to anterior margin, with slightly produced posterior lateral corner. Sternite 6 invisible in situ (hidden by sternite 5), strongly reduced, represented by small, weakly sclerotised, bare sclerite. Tergite 7 slightly asymmetrical; narrower and 2–2.5X shorter than tergite 6, with small, anteromarginal lateral excavation. Sternite 7 deeply concave laterally forming two narrowly connected portions; anterior portion stronger sclerotised, represented by two very large, L-shaped, fused, asymmetrical lobes (in situ appressed to sternite 6), with short setae near upper



Figs 39–43. *Empis (Anacrostichus) virgata* Coquillett, 1895, male: 39 — postabdomen, lateral view; 40 — outline of postabdomen, lateral view; 41 — hypopygium, lateral view (setation omitted); 42 — hypandrium, ventral view; 43 — phallus, lateral view. Abbreviations: cerc — cercus; ej apod — ejaculatory apodeme; epand — epandrium; goncx apod — gonocoxal apodeme; hypd — hypandrium; ph — phallus; ph pl — phallic plate. Scale bar is 1 mm.

Рис. 39–43. *Empis (Anacrostichus) virgata* Coquillett, 1895, самец: 39 — постабдомен, вид сбоку; 40 — строение постабдомена, вид сбоку; 41 — гипопигий, вид сбоку (щетинки не показаны); 42 — гипандрій, вид снизу; 43 — фаллус, вид сбоку. Сокращения: cerc — церк; ej apod — эякуляторная аподема; epand — эпандрій; goncx apod — гоноксальная аподема; hypd — гипандрій; ph — фаллус; ph pl — пластина фаллуса; Т — тергит; S — стернит. Масштаб 1 мм.

margin; posterior portion elongate, subtriangular (ventral view), asymmetrical, mostly membranous, narrowly sclerotised along lateral margins. Segment 8 funnel-like, with entirely separated tergite and sternite of subequal width (lateral view); tergite 8 long, longer than tergite 7, undivided, somewhat concave anteriorly and deflected posteriorly; sternite 8 subtriangular in lateral view, slightly longer than tergite 8, with simple structure and vestiture.

Terminalia (Fig. 41–43) moderately large, black setose; epandrium brown, cerci brownish to yellowish brown. Epandrium entirely narrowly divided (epandrial bridge absent); epandrial lamella rather subtriangular (Fig. 41); with long black setae along lower margin. Hypandrium (Fig. 42) separated from epandrium; entirely sclerotised, subtriangular (ventral view), cleft apically, bare; gonocoxal apodeme small. Subepandrial sclerite undivided. Cerci separated with each other (appressed anteriorly), appressed to dorsal margin of epandrium; cercus small, narrow, convex dorsally, as in Fig. 41, posterior margin extending nearly to apex of epandrial lamella; undivided, with smoothed inner margin; covered with simple dark setulae, bearing scattered setulae on inner surface. Hypoproct membranous, bare. Phallus (Fig. 43) hidden; gently arched; thickened on about basal 1/3, uniformly slender on remaining portion (lateral view). Ejaculatory apodeme moderately large, extended far beyond basal curvature of phallus, with small lateral wings.

Female (Fig. 38). Similar to male except as follows. Body and legs generally with much shorter setae. Dichoptic, ommatidia equally small. Frons very broad, broader than distance between outer margins of ocelli; mostly shiny.

Mesoscutum with very short acrostichal and dorsocentral setae. Femora not pubescent ventrally. Fore femur with simple setulae, bearing minute anteroventral and posteroventral setae. Fore basitarsus slender. Mid femur with simple setulae, bearing very short anteroventral and posteroventral setae. Mid tibia with spine-like setae ventrally; 2–3 very short posteroventral setae (sometimes inconspicuous). Hind femur with very short, sparse anteroventral setae, otherwise covered with simple setulae. Abdomen with much shorter setation; tergites 7 and 8 greyish pruinose. Cercus long, slender, with scattered setulae.

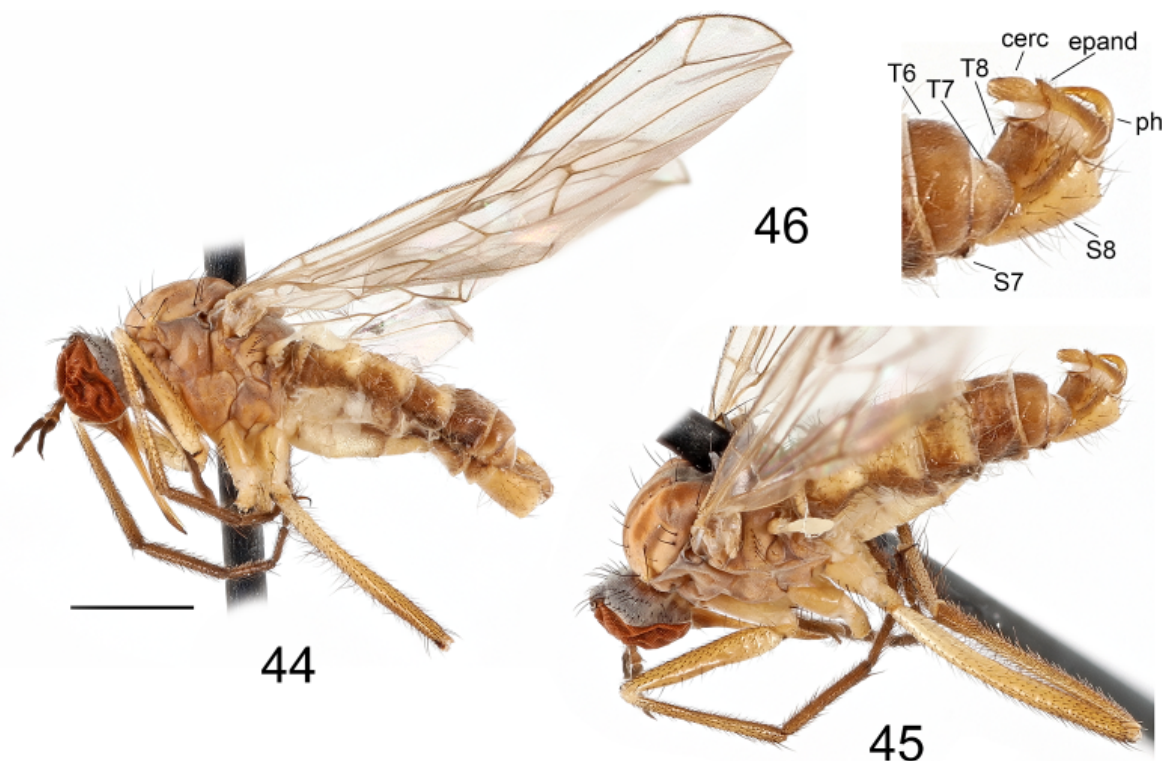
REMARKS. *Empis virgata* is a unique species of *Anacrostichus* by the curious structure of the abdominal sternite 7 of the male.

DISTRIBUTION. Canada (British Columbia), USA (Alaska, Washington).

Empis (Anacrostichus) sp. 1
Figs 44–46.

MATERIAL EXAMINED. USA. Alabama: Baldwin Co., North Delta (site 25), Malaise, 31.13N 87.85W, 23.v.2004, E. Benton (1 ♂).

DIAGNOSIS. Male (Figs 44, 45). Mid-sized (body about 4.5 mm; wing 5.0 mm) species with yellow body and legs. Very similar to *Empis pallida* except as follows. Frons below ocellar triangle nearly as broad as anterior ocellus. Antenna with scape and pedicel brownish yellow, postpedicel entirely brown. Thorax with prescutellar depression and anterior face of scutellum dark, greyish pruinose. Pronotum with 5 strong black setae on each side. Fore femur with fine setae



Figs 44–46. *Empis (Anacrostichus) sp. 1*, male: 44 — habitus, lateral view; 45 — same, dorsolateral view; 46 — postabdomen. Abbreviations: cerc — cercus; epand — epandrium; ph — phallus; T — tergite; S — sternite.

Рис. 44–46. *Empis (Anacrostichus) sp. 1*, самец: 44 — габитус, вид сбоку; 45 — то же, вид сверху-сбоку; 46 — постабдомен. Сокращения: cerc — церк; epand — эпандрий; ph — фаллус; T — тергит; S — стернит.

near apex, some anteroventrals slightly stronger. Abdomen with dark setae; tergites 2–5 rather yellowish brown, tergites 2–4 broadly pale posteriorly. Postabdomen (Fig. 46) as in *E. pallida*. Terminalia very similar to *E. pallida* but epandrial lamella somewhat narrower.

REMARKS. This single, somewhat damaged, specimen could be associated only with *E. pallida*. However, there are some differences suggesting that another, yet undescribed, species may be present. Additional material should be examined to make a final conclusion. It should be noted that all known records of *E. pallida* refer to the areas with rather temperate climate (Ontario of Canada, the New England region of the USA). The unnamed specimen was collected from the territory with subtropical maritime climate (near the Gulf of Mexico).

Discussion

The genus *Empis* currently includes 95 described valid species from the Nearctic. They could provisionally be arranged by the proposed subgenera in the following way: *Acallomyia* Melander, 1928 — 2 species; *Anacrostichus* — 10; *Coptophlebia* Bezzi, 1909 — 1; *Empis* s.str. — 7; *Enoplempis* Bigot, 1880 — 37; *Polyblepharis* — 5; *Pyrremis* Melander, 1928 — 1 (doubtful subgenus). The systematic position of remaining 32 species is unknown (including seven species described by females only). These numbers suggest that *Anacrostichus* is relatively speciose in North America (about 20 species in Eurasia).

The Palaearctic species of *Anacrostichus* is divided into two species groups — *E. nitida* group and *E. lucida* group [Collin, 1961; Chvála, 1984; Shamshev, 2017]. Phylogenetically, the North American *Empis pellucida*, *E. scoparia* and *E. virgata* are closely related to several Asiatic species allied to *E. lucida* [our unpublished data]. *Empis barbatoides*, *E. caeligena*, *E. spaetensis* sp.n. and *E. spectabilis* show closer affinities with the European *E. bistortae* Meigen, 1822 and *E. monticola* Loew, 1868. In addition, they may have some relatives in South America, e.g., *E. majerona* Smith, 1962 described from Brazil and at least 3–4 undescribed species from Paraguay [Smith, 1962; our unpublished data]. *Empis pallida* is closely related to a complex of the species comprising the European *E. nitida* and several Asiatic species.

Five species of *Anacrostichus* are known only from western North America (*E. barbatoides*, *E. pellucida*, *E. spaetensis* sp.n., *E. verralli*, *E. virgata*) and three species only from eastern North America (*E. caeligena*, *E. pallida*, *E. spectabilis*). *Empis lucida* and, probably, *E. scoparia* are widespread transcontinental species. However, these conclusions are very preliminary due to a limited material treated in this study.

It is quite possible that some described North American species of *Empis* have remained unrecognised as belonging to *Anacrostichus*. In addition, undescribed species of *Anacrostichus* are undoubtedly present. To conclude, we hope that this paper will form a starting point for further studies of this group in North America.

Key to North American species of *Anacrostichus*

1. Male 2
- Female (unknown for *E. scoparia*, *E. pallida* and *E. spaetensis* sp.n.) 11
2. Acrostichal setae present 3
- Acrostichal setae absent 7

3. Eyes separated by broad frons (its width at least as distance between inner margins of posterior ocelli) 4
- Eyes touching or almost touching on frons (in the latter case its width less than diameter of anterior ocellus) 5
4. Femora and tibiae yellow to brownish yellow. Abdominal sternite 8 strongly produced ventrad (Figs 21, 22) *E. (A.) scoparia* Coquillett
- Legs almost entirely dark brown, only “knees” yellow. Abdominal sternite 8 simple (Fig. 17) *E. (A.) pellucida* Coquillett
5. Abdominal sternite 5 without projections, covered with only fine, short setae. Hind femur only with short, fine setae anteroventrally (Fig. 36). Smaller, body 4–5 mm *E. (A.) verralli* Collin
- Abdominal sternite 5 with projection(s) and strong or spine-like setae posteriorly. Hind femur with strong, short, anteroventral setae. Larger, body 6.5–8 mm 6
6. Mesoscutum with 3 vittae of brownish pollinosity along rows of acrostichal and dorsocentral setae. Sternite 5 with very large projection bearing numerous short, spine-like setae on its rounded apex; anterior portion of sternite 7 very long (Figs 39, 40) *E. (A.) virgata* Coquillett
- Mesoscutum with 4 shiny vittae (sometimes coalescent on middle portion of mesoscutum). Sternite 5 with 2 short, foot-shaped projections and cluster of long, strong setae situated between them; anterior portion of sternite 7 short *E. (A.) lucida* Zetterstedt
7. Body extensively yellow. Abdomen with yellow setae; sternite 5 unmodified (Fig. 14) *E. (A.) pallida* Loew
- Body black in ground colour. Abdomen with black setae; sternite 5 with projections posteriorly 8
8. Face covered with hair-like setae. Larger, wing about 9 mm. Wing membrane brown (Fig. 1) *E. (A.) barbatoides* Melander
- Face bare. Smaller, wing about 5.5–7 mm. Wing membrane at most faintly brownish infusate (sometimes slightly darker along anterior margin) 9
9. Abdominal tergites 2–5 extensively shiny, greyish pruinose narrowly laterally (Fig. 25) *E. (A.) spaetensis* Shamshev, sp.n.
- Abdominal tergites 2–5 entirely densely pruinose 10
10. Hind tibia clavate, its subapical portion slightly broader than hind femur on middle; covered with long, dense, fine setae dorsally (Fig. 8); hind femur slender, mostly with short, fine setae ventrally. Abdomen silvery grey pruinose (Fig. 9). Smaller, wing about 5.5 mm *E. (A.) caeligena* Melander
- Hind tibia slender, much narrower than hind femur; with rows of anterodorsal and posterodorsal strong setae; hind femur strongly thickened, with numerous spine-like setae ventrally (Fig. 30). Abdomen greyish pruinose (Fig. 29). Larger, wing about 7 mm *E. (A.) spectabilis* Loew
11. Acrostichal setae present 12
- Acrostichal setae absent 15
12. Mesoscutum with 3 vittae of brownish pollinosity along rows of acrostichal and dorsocentral setae *E. (A.) virgata* Coquillett
- Mesoscutum with 4 shiny vittae (sometimes coalescent on middle portion of mesoscutum) 13
13. Smaller, body 4–5 mm. Hind femur mostly with short, fine setae anteroventrally, at most some subapical setae stronger *E. (A.) verralli* Collin
- Larger, body 6.5–8 mm. Hind femur at least with spine-like anteroventral setae 14
14. Palpus yellow. Hind femur with anteroventral and posteroventral spine-like setae *E. (A.) pellucida* Coquillett

- Palpus brown to black. Hind femur only with anteroventral spine-like setae *E. (A.) lucida* Zetterstedt
- 15. Face covered with hair-like setae. Larger, wing about 9 mm. Wing membrane brown *E. (A.) barbatoides* Melander
- Face bare. Smaller, wing about 5.5–7 mm. Wing membrane at most faintly brownish infuscate (sometimes slightly darker along anterior margin) 16
- 16. Hind femur slender on basal half, somewhat broadened on apical half (only slightly broader than mid femur), mostly with short fine setae ventrally. Smaller, wing about 5.5 mm *E. (A.) caeligena* Melander
- Hind femur strongly thickened, with numerous spine-like setae ventrally. Larger, wing about 7 mm *E. (A.) spectabilis* Loew

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