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PYRGOTID FLIES ASSIGNED TO APYRGOTA. II. NEW SYNONYMS IN EUPYRGOTA (SUBGENUS TAENIOMASTIX) (DIPTERA, PYRGOTIDAE), WITH KEY TO SUBGENERA AND SPECIES

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Pyrgotid Flies Assigned to *Apyrgota*. II. New Synonyms in *Eupyrgota* (Subgenus *Taeniomastix*) (Diptera, Pyrgotidae), with Key to Subgenera and Species. Korneyev V. A. — The synonymy of *Taeniomastix* Enderlein, 1942, **syn. n.** (type species: *Taeniomastix sumatrana* Enderlein, 1942) and *Eupyrgota* Coquillett, 1898 is established. The subgeneric rank of *Taeniomastix* is proposed; the subgenus corresponds the *spinifemur* group of species sensu Korneyev (2006), with minor additions to its diagnosis. Four species from the Oriental (and partly Palaearctic), and two from Afrotropical Regions are included: *E. formosana* (Hennig, 1938), **comb. n.** (*Apyrgota formosana*), *E. griseipennis* (Hendel, 1933), **comb. n.** (*Adapsilia griseipennis*) (= *Taeniomastix sumatrana* Enderlein, 1942, **syn. n.**), *E. pictiventris* (Hendel, 1914) (*Apyrgota*) (= *Adapsilia facialis* Hendel, 1933, **syn. n.**, = *E. tigrina* Kim et Han, 2000 **syn. n.**), *E. saegeri* (Vanschuytbroeck, 1963); *E. spinifemur* (Hendel, 1934), and *E. unicolor* (Hendel, 1914), **comb. n.** (*Apyrgota spinifemur*); illustrated diagnoses of the transferred species are given. Keys to subgenera of *Eupyrgota* and species of the subgenus *Taeniomastix* are provided.

Key words: Diptera, Cyclorrhapha, Tephritoidea, Pyrgotidae, *Eupyrgota*, taxonomy, new combinations, synonymy.

Мухи-пирготиды, отнесённые к *Apyrgota*. II. Новые синонимы в *Eupyrgota* (подрод *Taeniomastix*) (Diptera, Pyrgotidae), с таблицей для определения подродов и видов. Корнеев В. А. — Установлена синонимия *Taeniomastix* Enderlein, 1942, **syn. n.** (типовой вид: *Taeniomastix sumatrana* Enderlein, 1942) и *Eupyrgota* Coquillett, 1898. Для *Taeniomastix* предложен статус подрода; этот подрод соответствует группе видов *spinifemur* sensu Korneyev (2006), с небольшими дополнениями к диагнозу. Сюда включены четыре вида из Ориентальной (и отчасти Палеарктической), и два — из Афротропической областей: *E. formosana* (Hennig, 1938), **comb. n.** (*Apyrgota formosana*), *E. griseipennis* (Hendel, 1933), **comb. n.** (*Adapsilia griseipennis*) (= *Taeniomastix sumatrana* Enderlein, 1942, **syn. n.**), *E. pictiventris* (Hendel, 1914) (*Apyrgota*) (= *Adapsilia facialis* Hendel, 1933, **syn. n.**, = *E. tigrina* Kim et Han, 2000 **syn. n.**), *E. saegeri* (Vanschuytbroeck, 1963); *E. spinifemur* (Hendel, 1934), and *E. unicolor* (Hendel, 1914), **comb. n.** (*Apyrgota spinifemur*). Приведены иллюстрированные диагнозы перемещённых видов. Составлены таблицы для определения подродов рода и видов подрода *Taeniomastix*.

Ключевые слова: Diptera, Cyclorrhapha, Tephritoidea, Pyrgotidae, *Eupyrgota*, таксономия, новые комбинации, синонимия.

Introduction

This paper continues a series of revisions of the Old World Pyrgotidae genera (Korneyev, 2004, 2006 a, b, 2012, 2014), and I refer to those papers for some special morphological terms and abbreviations used below.

The genus *Eupyrgota* Coquillett, 1898 was shown to include 38 described species; the nominal genus *Apyrgota* Hendel, 1908 has been synonymized with it (Korneyev, 2014). However, several Oriental species formerly assigned to *Apyrgota*, and Afrotropical species placed to *spinifemur* group of the genus *Eupyrgota*, which have slender pale yellow body and legs and mostly hyaline wings, have not been listed there. Examination of the type specimens of *Taeniomastix sumatrana* Enderlein, 1942 shows that they all form a compact group of species, which is considered here to be a subgenus *Taeniomastix* Enderlein, 1942 of *Eupyrgota*.

Material

The specimens examined in this study are deposited in the following collections: BBMH — Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A.; BINH — Royal Belgian Institute of Natural History, Brussels, Belgium; BMNH — the Natural History Museum, London, U.K.; CMNH — the Carnegie Museum of Natural History, Pittsburgh, U.S.A.; SIZK — Schmalhausen Institute of Zoology, Kyiv, Ukraine; ZMSH — Zoologisches Staatsinstitut und Zoologisches Museum Hamburg, Germany; USNM — National Museum of Natural History, Smithsonian Institution, Washington, D. C., U.S.A.; YSUW — Yonsei University, Wonju-si, Gangwon-do, Korea. ZMB — Zoologische Museum, Berlin, Germany;

The slash character (/) is used to separate lines, and the square brackets are for data absent in the literally cited labels.

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***Eupyrgota* Coquillett, 1889**

Type species: *Eupyrgota luteola* Coquillett, 1898, by original designation.

Apyrgota Hendel, 1909.

Type species: *Eupyrgota scioida* Hendel, 1908, by monotypy.

Peltodasia Enderlein, 1942.

Type species: *Peltodasia vespiformis* Enderlein, 1942, by original designation.

Taeniomastix Enderlein, 1942, **syn. n.**

Type species: *Taeniomastix sumatrana* Enderlein, 1942, by original designation.

Key to subgenera of *Eupyrgota*

1. Large, robust species: wing length (7–) 9–21 mm; scutellum with 3–6 pairs of sctl setae, if rarely with 2 pairs, then fore trochanter of female with spiny setulae, ventral hooks of the oviscape (if present), wide and strong, and wing widely yellow or grey, usually with apex dark grey or brown. 2.
- Slender and smaller species: wing length 5–8 (–9) mm; scutellum with one pair of sctl setae, if with 2 pairs, then fore trochanter of female without spiny setulae, ventral hooks of oviscape sharp and slender. *Taeniomastix*
2. Oviscape uniformly sclerotized, with 2 robust ventral hooks anterior of apex. Body size and coloration variable. *Eupyrgota* s. str.
- Oviscape with V-shaped pale desclerotized area on its ventral side, separating its apical portion from basal; ventroapical area anterior of terminal opening with a narrow bordered, sucker-like slit, but without ventral hooks. Body size and coloration variable. *Asipyrgota*.

Subgenus *Taeniomastix* Enderlein, 1942

Diagnosis. Slender and smaller species: wing length 5–8 (–9) mm; scutellum with one pair of sctl setae, if with 2 pairs, then fore trochanter of female without spiny setulae, ventral hooks of oviscape sharp and slender; male genitalia (known only for *E. spinifemur* and *E. pictiventris*): surstylus short, epandrium subquadrate in lateral view.

Species included. Four species are known to occur in the Oriental (and partly in Palearctic), and two in Afrotropical Regions: *E. formosana* (Hennig, 1938) (*Apyrgota*) (Taiwan), **comb. n.**; *E. griseipennis* (Hendel, 1933) (*Adapsilia*) (China: Szechwan; Laos; Indonesia: Sumatra) (= *Taeniomastix sumatrana* Enderlein, 1942, **syn. n.**); *E. pictiventris* (Hendel, 1914) (*Apyrgota*), **comb. n.** (Sri Lanka; India, Thailand, Malaysia, Taiwan; Korea) (= *Adapsilia facialis* Hendel, 1933, **syn. n.**; = *E. tigrina* Kim & Han, 2000 **syn. n.**); *E. saegeri* (Vanschuytbroeck, 1963) (*Lygiohypotyphla*) (Nigeria, DR Congo, Côte-d'Ivoire); *E. spinifemur* (Hendel, 1934) (*Adapsilia*) (Nigeria, DR Congo); *E. unicolor* (Hendel, 1914) (*Apyrgota*) (Sri Lanka), **comb. n.** In addition, four to five undescribed species from the Oriental Region (India, Sri Lanka) and the Papuan Subregion of Australasian Region are recognized in collections; I do not describe them here, as the condition of specimens is poor and range of character variability is poorly understood.

Key to species of the subgenus *Taeniomastix*

1. Fore femur with 2–7 long posterodorsal setae (fig. 3, 9), mid femur with long and dense setae on anteroventral surface and large kidney-like femoral organ in distal one-third of femur; medioventral cape of femoral organ densely white microtrichose (fig. 3, 10–11). Scutellum with one pair of apical setae. Abdominal tergites with wide black pattern. *E. pictiventris*.
 - Fore femur only with short posterodorsal setae not longer than its width, mid femur with short setae on anteroventral surface; femoral organ in female either oval, without white microtrichose parts, or absent. Scutellum with one or two pairs of apical setae. 2.
2. Scutellum with one pair of apical setae. Africa. 3.
 - Scutellum usually with additional pair of subapical setae half as long as apical. Asia. (Males unknown.) 4.
3. Postpronotal seta and anepisternal setae present; postpronotal lobe with 4–8 setulae. Female: midfemur with femoral organ (Korneyev, 2006 a: fig. 3, 4). Oviscape on ventral side with numerous thickened setae (Korneyev, 2006 a: fig. 3, 8). Nigeria, Democratic Republic of Congo. *E. spinifemur*
 - Postpronotal seta and anepisternal setae absent; postpronotal lobe with 0–2 setulae. Female: midfemur without femoral organ (fig. 1, 6). Oviscape on ventral side with sparse and thin setae (Korneyev, 2006 a): fig. 3, 1–2). *E. saegeri*.
4. Female: oviscape geniculate, its narrow apical half sharply bent ventrally (fig. 1, 8); mid femur without femoral organ. Taiwan. *E. formosana*.
 - Female: oviscape evenly bent and narrowed ventrally (fig. 1, 8); mid femur with femoral organ (male unknown). Other regions of Asia. 5.
5. Mid femur of female short setulose on whole anterior surface; femoral organ at or basally of mid femur middle. Mesonotum and abdomen with contrasting black pattern (fig. 2, 8, 11). *E. griseipennis*.
 - Mid femur of female with clutch of longer suberect setulae at middle and femoral organ in distal one-third of mid femur. Mesonotum and abdomen yellow to reddish yellow, without contrasting black pattern (fig. 4, 6, 10). *E. unicolor*.

E. formosana (Hennig, 1936), **comb. n.** (fig. 1)

Apyrgota formosana Hennig, 1936: 253; Steyskal, 1977: 39.

Material. Type. Holotype ♀: “West-Formosa, Kagi”, 12.06.1907 (H. Sauter leg.) (not located; specimen was deposited in ZMSH, destroyed in the WWII). **Non-type. Taiwan:** Kaohsiung, Shanping, 640 m, 1–10.05.1988, 1 ♀ (R. Davidson, C. Young, J. Rowlinson) (CMNH).

Diagnosis. This species can be recognized from the combination of concave face without facial carina; one pair of long ocellar setae; parafacial in profile half as wide as flagellomere 1, mesonotum and abdomen with brown pattern; scutellum with two pairs of long setae (basal short); wing hyaline, grey microtrichose in anterior half, yellow cell r1, and brown radial fork and spot at apex of R_{2+3} and spurious vein; all femora without strong dorsal setae, with basal ventral, 2 long posteroventral setae near middle and two rows of moderately strong, spurious apicoventral setae; fore femur with 2–3 long subbasal ventral (in addition to common basal), mid femur without strong anterior setae and femoral organ; abdominal sternites moderately long and densely setulose; oviscape geniculate, its narrow apical half bent ventrally; ventral hooks on oviscape slender.

Remarks. The presence of narrow parafacial, long antenna and slender hooks of oviscape along with the lack of facial carina, support its placement to *Taeniomastix*. Steyskal (1977) erroneously dated *Apyrgota formosana* Hennig as “1938”, but actually the journal, where article was published, is dated from 1936.

E. griseipennis (Hendel, 1933) (fig. 2)

Adapsilia griseipennis Hendel, 1933: 9; 1934: 148; Malloch, 1934: 262; Chen, 1947: 68. — Soós, 1984: 36 (*Adapsila*). — Korneyev, 2004: 39 (*Eupyrgota*).

Taeniomastix sumatrana Enderlein, 1942: 113, Steyskal, 1977: 41, **syn. n.**



Fig. 1. *Eurygota formosana*, ♀: 1-3 — head (1 — left, 2 — anterior, 3 — dorsal view); 4 — mesonotum, dorsal view; 5 — wing; 6 — mid femur, anterior; 7, 8 — abdomen (7 — dorsal, 8 — lateral view); 9 — apex of oviscapae.

Рис. 1. *Eurygota formosana*, ♀: 1-3 — голова (1 — слева, 2 — спереди, 3 — сверху); 4 — среднеспинка, сверху; 5 — крыло; 6 — среднее бедро, спереди; 7, 8 — брюшко (7 — сверху, 8 — сбоку); 9 — вершина основного членика яйцеклада.

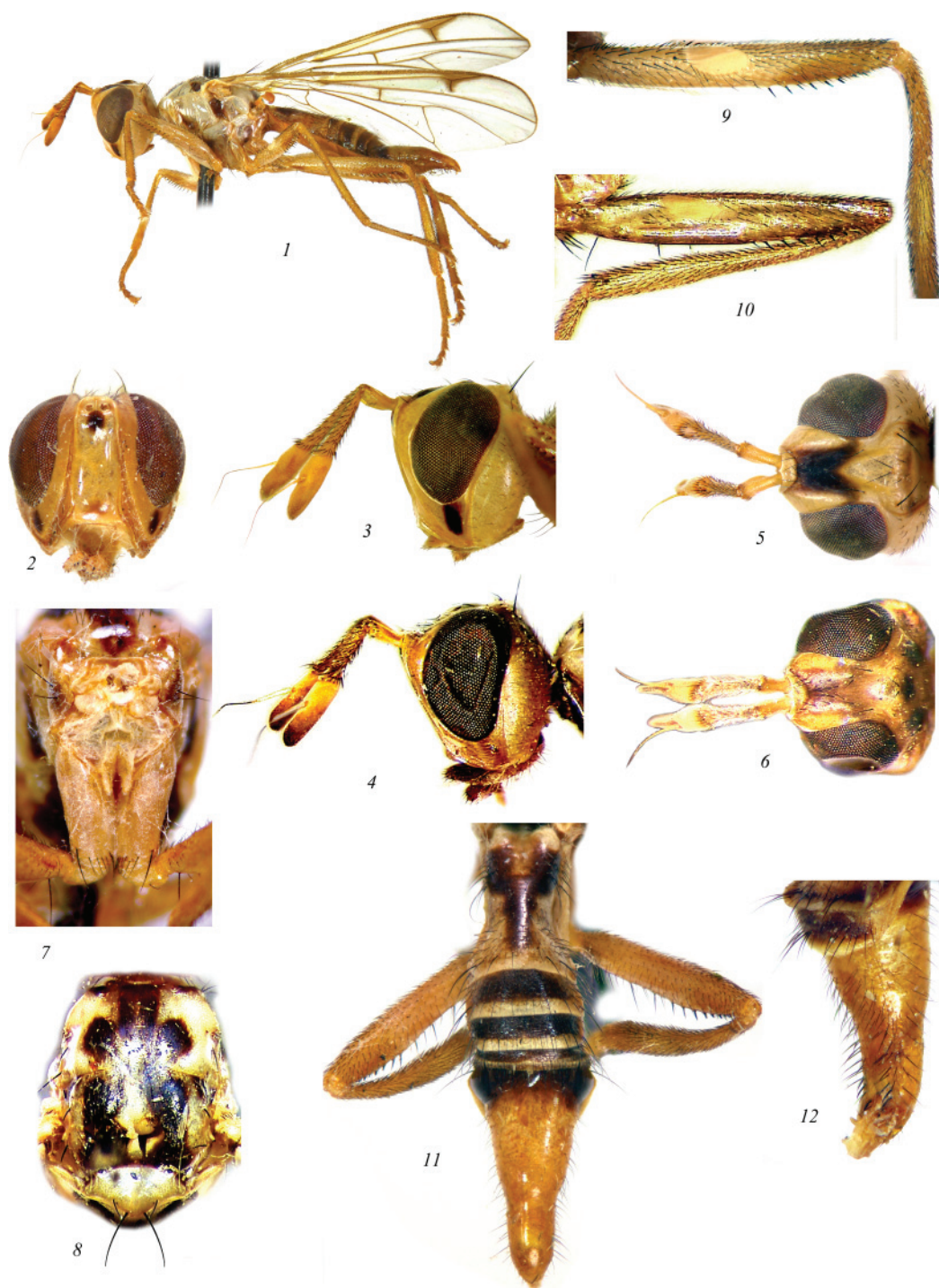


Fig. 2. *Eupyrgota griseipennis* (1, 3, 5, 7-9 — topotypic ♀ from Mt. Omei; 2, 4, 6, 10-12 — holotype ♀ *Taenio-mastix sumatrana*): 1 — habitus, left; 2-6 — head (2 — anterior; 3, 4 — left; 5, 6 — dorsal view); 7 — prothorax and fore coxa; 8 — mesonotum, dorsal view; 9, 10 — mid femur, anterior view; 11 — abdomen, dorsal view; 12 — oviscape, lateroventral view.

Рис. 2. *Eupyrgota griseipennis* (1, 3, 5, 7-9 — топотипическая ♀ с г. Омей; 2, 4, 6, 10-12 — голотип ♀ *Taenio-mastix sumatrana*): 1 — общий вид, слева; 2-6 — голова (2 — спереди; 3, 4 — слева; 5, 6 — сверху); 7 — переднегрудь и передние тазики; 8 — среднеспинка, сверху; 9, 10 — среднее бедро, спереди; 11 — брюшко, сверху; 12 — основной членок яйцеклада, вид сбоку и снизу.

Material. Type. Holotype *Adapsilia griseipennis* ♀: **China:** “Shin Kai Si / Mt Omei / Szechuen China / 4400 ft”, “July 1–30 / 1921”, “DCGraham / Collector” (USNM). Holotype *Taeniomastix sumatrana* ♀: **Indonesia:** “Sumatra / Nonfried S.”, “Typus [pale red, Enderlein’s style]”, “*Taeniomastix / sumatrana* / Type Enderl. ♀ / Dr. Enderlein det. 19341” (ZMB); paratype *Taeniomastix sumatrana*, 1 ♀, idem, “Paratypus [pale red, Enderlein’s style]”, “*Taeniomastix / sumatrana* / Paratype Enderl. ♀ / Dr. Enderlein det. 19341” (ZMB). **Non-type. China:** “Shin Kai Si / Mt Omei / Szechuen China”, 4000 ft”, “[no date], 2 ♀, idem, 2000–6000 ft [no date], 1 ♀ (D. C. Graham); Kwanhsien, 07.1930, 1 ♀, idem, [no data], 1 ♀, “Kwan”, 28.07.1930, 1 ♀, (A.L.Melander coll.) (USNM); **Laos:** Vientian Prov., Ban Van Eue, 15–31.05.1965, 1 ♀ (native collector); Sedone Province, Pakse, 31.05.1967, 1 ♀ (native collector) (BBMH).

Diagnosis. This species can be distinguished by the combination of face without facial carina; one pair of long ocellar setae; parafacial in profile as wide as flagellomere 1, mesonotum and abdomen with black (in type of *A. facialis* brown, rather faded) pattern; scutellum with two pairs of setae (basal short); wing grey microtrichose, without spots or bands; fore femur with 2 long subbasal ventral (in addition to common basal) and 2–7 long posterodorsal setae, mid femur with long and dense setae on anteroventral surface and large kidney-like femoral organ in distal one-third of femur; medioventral cape in femoral organ densely white microtrichose; abdominal sternites with transverse rows of long suberect setae at posterior margins; ventral hooks on oviscape slender; 1–2 pairs of erect thick black setae on ventral surface of oviscape anterior of hooks. The presence of narrow parafacial, long antenna and slender hooks of oviscape along with the lack of facial carina, support its placement to *Taeniomastix*.

Remarks. The holotype of *A. griseipennis* has been briefly redescribed (Korneyev, 2004); the size and position of femoral organ among the topotypic specimens from Mt. Omei slightly vary and thus the difference of this character between *Taeniomastix sumatrana* and *A. griseipennis* holotypes do not differ significantly. I therefore synonymize these nominal species.

E. pictiventris (Hendel, 1914) **comb. n.** (fig. 3)

Apyrgota pictiventris Hendel, 1914: 107; Bezzi, 1914: 156; Steyskal, 1977: 41.

Adapsilia facialis Hendel, 1934: 148; Séguy, 1948: 167; Steyskal, 1977: 38, **syn. n.**

Eupyrgota tigrina Kim, Han, 2000: 227; Korneyev, Nartshuk, 2004: 307, **syn. n.**

Material.Type. Holotype *Apyrgota pictiventris* ♀: “Ceylon / E. E. Green / 90–115”, “Newiapettia”, “Nipitia” “*Apyrgota // pictiventris*, H. / det. Hendel”, “Type ♀ [red bordered circle]”, “Holo / type [red bordered circle]”, “Holotype *Apyrgota pictiventris* Hendel verified J. E. Chainey 2002”, “BMNH # 252174”. Directly pinned (BMNH). Holotype *Eupyrgota tigrina* ♀: **Korea:** Gang-won-do: Wonju-si: Maeji-ri, Yonsei Univ. campus, on mercury light, 13.07.1999 (S.-K. Kim) (YSUW); paratypes, 2 ♂, 2 ♀, idem, attracted to light, 6 & 13.07.1999 (S.-K. Kim) (USNM). **Non-type. India:** Anamalai Hills, Cinchona, 3500 ft, 05.1959, 1 ♀ (P.S.Nathan) (BBMH); **Thailand:** “loei, Na-Haeo (field res. stat.”, light trap, 15–19.05.2003, 2 ♂, 4 ♀, idem, Malaise trap, 22.05.2003 (J. Constant, K. Smets, P. Grootaert) (BINH; SIZK); **West Malaysia:** Selangor, Tg. Karang, Mardi M., 3532, 7568, 6.02.1980, 7.04.1981 2 ♀ (Khesgiyah leg.) (BMNH); **Philippines:** Busuanga Is., 4 km N San Nicolas, Malaise trap, 22, 24, 26.05.1962, 2 ♂, 3 ♀ (H. Holtmann) (BBMH).

Diagnosis. This species can be recognized from the combination of face without facial carina; one pair of long ocellar setae; parafacial in profile as wide as flagellomere 1, mesonotum and abdomen with black (in type of *A. facialis* brown, rather faded) pattern; scutellum with one (apical) pair of long setae; wing grey microtrichose, without spots or bands; fore femur with 2 long subbasal ventral (in addition to common basal) and 2–7 long posterodorsal setae, mid femur with long and dense setae on anteroventral surface and large kidney-like femoral organ in distal one-third of femur; medioventral cape in femoral organ densely white microtrichose; abdominal sternites with transverse rows of long suberect setae at posterior margins; ventral hooks on oviscape slender; 1–2 pairs of erect thick black setae on ventral surface of oviscape anterior of hooks.

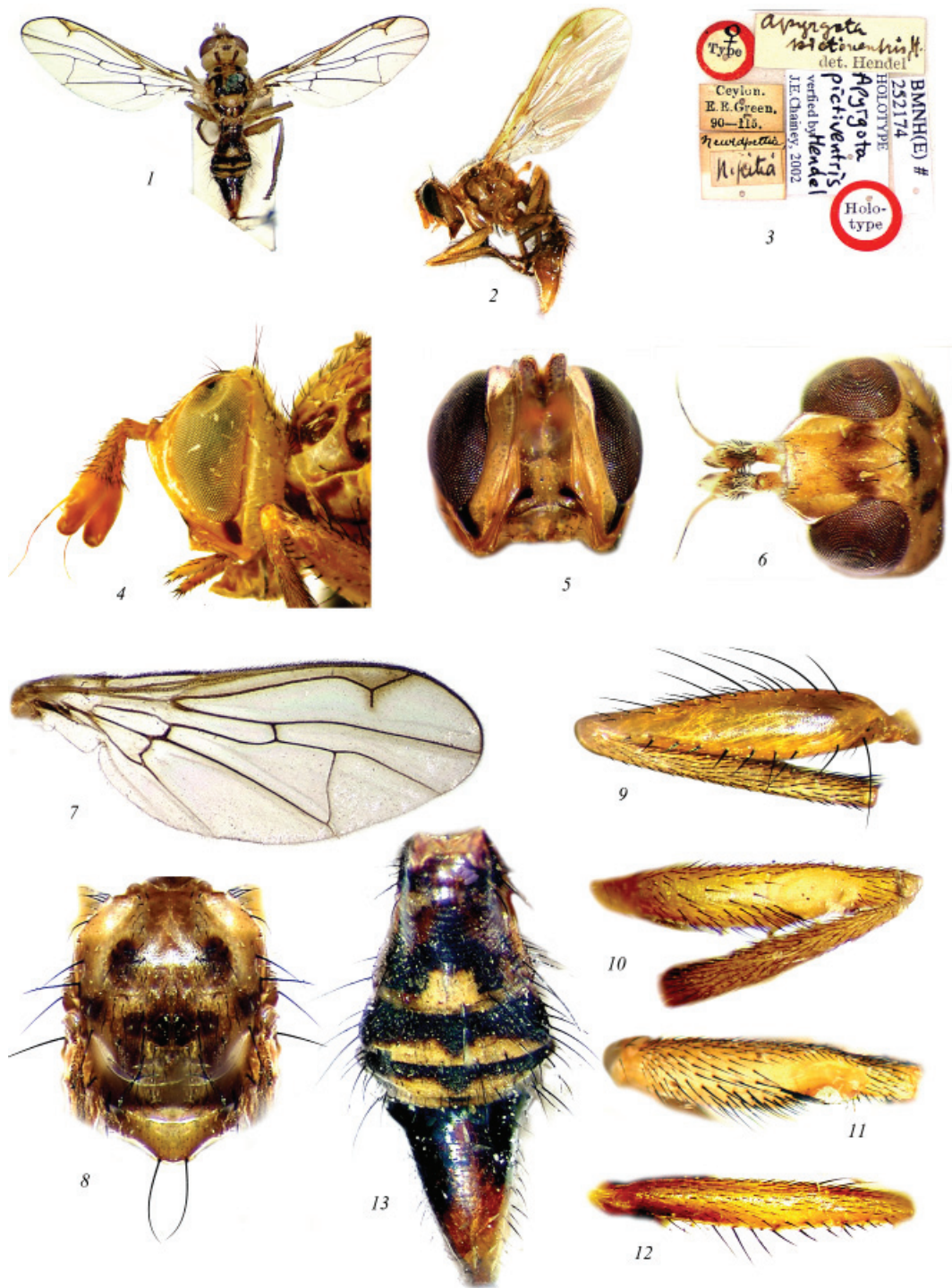


Fig. 3. *Eupyrgota pictiventris* ♀ (1, 3-7, 9-10, 12-13 — holotype *Apyrgota pictiventris*; 2, 8, 11 — holotype *Adapsilia facialis*): 1 — habitus, dorsal; 2 — same, left; 3 — labels; 4-6 — head (4 — left, 5 — anterior, 6 — dorsal view); 7 — wing; 8 — mesonotum, dorsal view; 9 — fore femur; 10, 11 — mid femur; 12 — hind femur; 13 — abdomen, dorsal view.

Рис. 3. *Eupyrgota pictiventris* ♀ (1, 3-7, 9-10, 12-13 — голотип *Apyrgota pictiventris*; 2, 8, 11 — голотип *Adapsilia facialis*): 1 — общий вид, сверху; 2 — то же, слева; 3 — этикетки; 4-6 — голова (4 — слева, 5 — спереди, 6 — сверху); 7 — крыло; 8 — среднеспинка, сверху; 9 — переднее бедро; 10, 11 — среднее бедро; 12 — заднее бедро; 13 — брюшко, сверху.

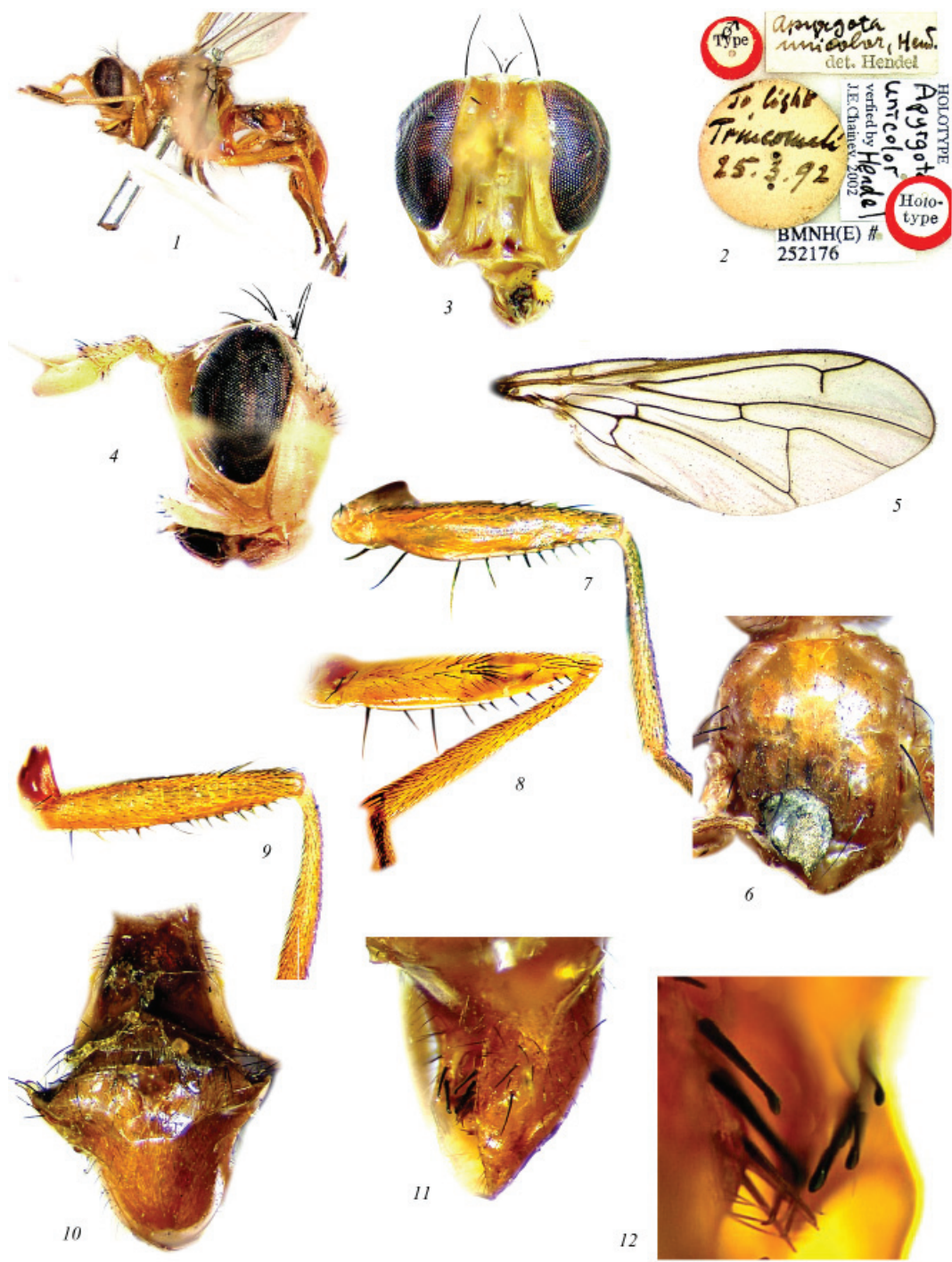


Fig. 4. *Eupyrgota unicolor*, holotype ♀: 1 — habitus, left; 2 — labels; 3, 4 — head (3 — anterior view, 4 — left); 5 — wing; 6 — mesonotum, dorsal view; 7 — fore femur; 8 — mid femur; 9 — hind femur; 10 — abdomen, dorsal view; 11 — oviclip, lateroventral view; 12 — same, setae enlarged.

Рис. 4. *Eupyrgota unicolor*, голотип ♀: 1 — общий вид, слева; 2 — этикетки; 3, 4 — голова (3 — спереди, 4 — слева); 5 — крыло; 6 — среднеспинка, сверху; 7 — переднее бедро; 8 — среднее бедро; 9 — заднее бедро; 10 — брюшко, сверху; 11 — основной членик яйцеклада, сбоку и снизу; 12 — то же, щетинки, увеличено.

Remarks. The presence of reduced basal pair of sclt and slender hooks of oviscapae support its placement to *Taeniomastix*. The only syntype of *A. facialis* (Hendel has not indicated the number of type specimens) is a teneral specimen with collapsed head and brown abdominal and thoracic pattern, but otherwise shows no differences from types of *E. tigrina*, and I consider them conspecific and synonymize these names.

E. saegeri (Vanschuytbroeck, 1963)

Lygiohypotyphla saegeri Vanschuytbroeck, 1963: 46. — *Eupyrigota saegeri*: Korneyev, 2006 a: 8.

E. spinifemur (Hendel, 1934)

Adapsilia spinifemur Hendel, 1934: 148; Steyskal, 1980: 556. — *Eupyrigota spinifemur*: Korneyev, 2006 a: 11. — *Metropina nigra* Vanschuytbroeck, 1963: 25, synonymized by Korneyev, 2006 a.

E. unicolor (Hendel, 1914), **comb. n.** (fig. 4)

Apyrgota unicolor Hendel, 1914: 108. — *Taeniomastix unicolor*: Enderlein, 1942: 156; Steyskal, 1977: 41.

Material Type. Holotype *Apyrgota unicolor* ♀: [Sri Lanka:] “Trincowali / To light, 25.3.[18]92”, [“leg. col. Yerbürg”], “*Apyrgota // unicolor*, Hend. / det. Hendel”, “Type ♂ [red bordered circle]”, “Holo / type [red bordered circle]”, “Holotype *Apyrgota unicolor* Hendel verified J. E. Chainey 2002”, “BMNH # 252176”. Directly pinned (BMNH).

Diagnosis. This species is very similar to *E. pictiventris*, sharing with it the vestiture of body and legs, kidney-like shape and distal position of femoral organ and presence of stiff, erect and apically blunt setae on ventral side of oviscapae anterior of hooks, differing mainly by the wing without spots or bands, entirely reddish yellow thorax and abdomen without black or brown pattern; and three pairs of thick setae on ventral surface of oviscapae (instead of one or two).

Remarks. As the variability of *E. pictiventris* is poorly understood, and *E. unicolor* is known from a single female, we prefer to leave their possible synonymy pending until more specimens are available. Hendel (1914) mentioned “oviscapae” in the original description, that means he described a female; the original description includes a female character turned, which was later erroneously considered a male character.

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