

Order Diptera, family Ceratopogonidae

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INTRODUCTION

Biting midges (Ceratopogonidae) are a relatively well studied dipteran family that includes over 6 000 extant species in 110 genera (Borkent, 2009). They are present in nearly any semiaquatic and aquatic habitats in all regions of the world except Antarctica. Females usually require a protein-rich meal for maturation of the eggs. Species of *Leptoconops*, *Culicoides*, and the subgenus *Forcipomyia* (*Lasiohelea*) suck vertebrate blood, mainly of mammals and birds. Some *Atrichopogon* and *Forcipomyia* are ectoparasites on large insects or feed on dead insects or pollen. Females of many genera of the subfamily Ceratopogoninae are predaceous on small insects or even on their own males. Both sexes of biting midges may visit flowers with easily accessible nectar. Species of the genus *Dasyhelea* are exclusively flower visiting and feeding on nectar. Most biting midges are crepuscular but *Leptoconops* and a few others fly in full sunshine. Immature stages of most Ceratopogoninae are aquatic or semiaquatic and inhabit mud or wet soil on lake, pond, stream and river margins, salt marshes, tree holes, water holding plants, etc. Larvae of most *Forcipomyia* species are terrestrial and live under rotting bark of trees, among mosses and similar habitats. Larvae of *Leptoconops* burrow in sand or soil, mainly of arid areas and on coastal and inland beaches.

Biting midges of the Arabian Peninsula are relatively poorly studied. From this region only about 100 species were reported by Clastrier & Boorman (1987), Boorman (1989, 1990), Boorman & van Harten (2002) and Szadziewski et al. (2009). The following genera (in parentheses number of species) were recorded in the Arabian Peninsula: *Alluaudomyia* (4), *Atrichopogon* (5), *Bezzia* (5), *Brachypogon* (3), *Culicoides* (37), *Dasyhelea* (16), *Forcipomyia* (10), *Homohalea* (1), *Leptoconops* (4), *Nilobezzia* (1), *Palpomyia* (5), *Phaenobezzia* (1), *Serromyia* (1), *Stilobezzia* (2). From the United Arab Emirates only *Leptoconops mellori* Clastrier & Boorman, 1987, *Culicoides azerbaijdzhanicus* Dzhafarov, 1962, *Culicoides ravus* de Meillon, 1936, *Culicoides wardi* Boorman & van Harten, 2002, *Dasyhelea deemingi* Boorman & van Harten, 2002, *Forcipomyia psilonota* Kieffer, 1911, and *Dasyhelea fasciigera* Kieffer, 1924, were recorded by Boorman (1989) and Boorman & van Harten (2002).

In a small collection of biting midges examined we determined 44 species in 11 genera. Among them eight new species in the genera *Allohelea*, *Atrichopogon*, *Brachypogon*, *Dasyhelea*, *Forcipomyia* and *Serromyia* are described and illustrated and for *Stilobezzia harurii* Boorman & van Harten, 2002, and *Palpomyia ebejeri* Boorman & van Harten, 2002, unknown females are described for the first time. *Forcipomyia mursafae* Ghonaim et al., 2001, is recognized as a junior synonym of *F. pulcherrima* Santos Abreu, 1918.

MATERIALS AND METHODS

Biting midges were collected in the UAE at light and by Malaise traps in 2005–2009. Unless otherwise stated the specimens were collected by Antonius van Harten. For exact data on sampling sites and methods see van Harten (2008). Most specimens are mounted on microscope slides in a mixture of Canada balsam and phenol. They are housed in the collection of the Department of Invertebrate Zoology, University of Gdańsk and in the United Arab Emirates Invertebrate Collection.

Abbreviations used: LT = light trap; MT = Malaise trap.

SYSTEMATIC ACCOUNT

Subfamily **Leptoconopinae** Noè, 1907

Genus **Leptoconops** Skuse, 1889

Subgenus **Holoconops** Kieffer, 1918

Leptoconops kerteszi Kieffer, 1908

Specimens examined: Al-Ajban, 2♂, 1♀, 30.i–26.ii.2006, MT. Hatta, 1♂, 14–21.vi.2008, LT. Sharjah Desert Park, 2♂, 2♀, 11.xii.2008–2.ii.2009, LT; 3♂, 9–21.iii.2005, LT; 1♂, 20.x–8.xi.2005, LT; 1♀, 9.viii–6.ix.2008, LT. Sharjah-Khor Kalba, near tunnel, 2♂, 1♀, 26.iv–3.v.2006, LT. Wadi Bih dam, 1♂, 22–29.iii.2007, LT; 3♂, 1♀, 1–6.iii.2008, LT; 1♂, 13–20.v.2008, LT. Wadi Safad, 4♂, 26.iv–4.v.2006, LT.

Distribution: Widely distributed in the Mediterranean region and Arabian Peninsula (Gutsevich, 1997; Boorman & van Harten, 2002). Reported for the first time from the UAE.

Subgenus **Proleptoconops** Clastrier, 1974

Leptoconops aviarum Gutsevich, 1973

Specimens examined: Bithnah, 1♀, 4–26.iii.2006, LT. Wadi Madaq, 2♀, 6–13.v.2006, LT.

Comments: Anterior anepisternum with two long setae on distal margin is similar to that found in males of *L. bahreinensis*. It is possible that females of *L. aviarum* and males *L. bahreinensis* represent the same species.

Distribution: Tadzhikistan, Algeria. Reported for the first time from the UAE.

Leptoconops bahreinensis Clastrier & Boorman, 1987

Specimens examined: Wadi Safad, 1♂, 26.iv–4.v.2006, LT.

Comments: The species is known from males only. Anterior anepisternum with two long setae on caudal margin is similar to that found in females of *L. aviarum*. Genitalia as described by Clastrier & Boorman (1987).

Distribution: Bahrain. Reported for the first time from the UAE.

Subfamily **Forcipomyiinae** Lenz, 1934

Genus **Atrichopogon** Kieffer, 1906

Subgenus **Atrichopogon** Kieffer, 1906

Atrichopogon arabicus Szadziwski, Gwizdalska-Kentzer & Gilka **nov. spec.** Figure 1

Specimens examined: Holotype: ♂, United Arab Emirates, Wadi Wurayah farm [25°24'N 56°20'E], 15.i–2.ii.2009, light trap, leg. A. van Harten. Paratypes: 3♂, Hatta, 4–11.iv.2006, light trap, leg. A. van Harten. Types are deposited in the Department of Invertebrate Zoology, University of Gdańsk.

Description: Female unknown. Male: Body dark brown, abdomen and legs pale. Eyes pubescent. Palpus 5-segmented; third palpal segment with small sensory pit on apical third. Flagellum with 13 flagellomeres, 2–8 fused, 9–13 elongated; AR 0.92–0.97; length 0.30–0.32 mm. Paratergite bearing one seta. Anterior anepisternum B-shaped. Scutellum with only two submedian bristles. Wing length 0.80–0.95 mm, CR 0.45–0.55, membrane without macrotrichia. First radial cell greatly reduced, linear, second one well developed. TR of fore leg 3.3, mid leg 3.5, of hind leg 2.6. Genitalia as in Figure 1. Sternite 9 with straight caudal

margin, bearing some strong setae. Tergite 9 with evenly rounded apex. Gonocoxite slender. Gonostylus slender, tapering to slightly curved apical third. Aedeagus triangular, with low basal arch, apex with broad median lobe and two lateral projections.

Diagnosis: Similar to Afrotropical *A. chrysosphaerotum* Ingram & Macfie, 1921. Differs in having pubescent eyes and aedeagus with low basal arch and bearing more distinct apical median lobe and two lateral projections.

Distribution: UAE.

Genus *Forcipomyia* Meigen, 1818

Subgenus *Euprojoannisia* Brèthes, 1914

Forcipomyia psilonota (Kieffer, 1911)

Specimens examined: Hatta, 1♂, 30.i–26.ii.2006, LT. Sharjah, 1♂, 1–31.i.2005, LT. Sharjah Desert Park, 4♂, 25.i–9.iii.2005, 9.viii–6.ix.2008, LT. Wadi Bih dam, 3♂, 25.ii–8.iii.2009, MT.

Distribution: Widespread Afrotropical species reported from whole Africa, Oriental region and Arabian Peninsula. Reported from the UAE by Boorman & van Harten (2002).

Subgenus *Lasiohelea* Kieffer, 1921

Forcipomyia baltea Boorman, 1990

Specimens examined: Bithnah, 2♂, 4–26.iii.2006, LT. Hatta, 1♂, 30.i–26.ii.2006, LT. Sharjah Desert Park, 1♂, 9.viii–6.ix.2008, LT. Wadi Safad, 2♂, 26.iv–4.v.2006, LT.

Distribution: Oman (Boorman, 1990). Reported for the first time from the UAE.

Subgenus *Lepidohelea* Kieffer, 1917

Forcipomyia pulcherrima Santos Abreu, 1918

Forcipomyia marsafae Ghonaim, Ibrahim & Ali, 2001: 42 (male, female, Egypt). **Nov. syn.**

Specimens examined: Al-Ajban, 3♂, 30.i–26.ii.2006, MT. Bithnah, 2♂, 4–26.iii.2006, LT. Sharjah, 1♂, 1–31.i.2005, LT. Sharjah Desert Park, 1♂, 9–21.iii.2005, LT; 2♂, 27.xi–11.xii.2008, LT. Wadi Bih dam, 3♂, 25.ii–29.iii.2007, LT. Wadi Wurayah farm, 3♂, 22.ii–15.iii.2009, LT.

Discussion: *F. marsafae* described from Egypt does not differ from *F. pulcherrima* now examined. Characters shown as diagnostic by Ghonaim et al. (2001): Tibia and first tarsomere with long bristles, more hairy wing and less expanded tip of gonostylus, we found as infraspecific variation depending also on the state of preservation of specimens. As a result we propose to place *F. marsafae* in the list of junior synonyms of well-known and broadly distributed *F. pulcherrima*.

Distribution: Widely distributed in the Afrotropical, southern Palaearctic (incl. Japan) and Oriental regions. Reported for the first time from the UAE.

Subgenus *Pedilohelea* De Meillon & Wirth, 1980

Forcipomyia eremita Szadziewski, Gwizdalska-Kentzer & Gilka **nov. spec.**

Figures 2–5
Specimens examined: Holotype: ♂, United Arab Emirates, Wadi Wurayah farm [25°24'N 56°20'E], 15.i–22.ii.2009, light trap, leg. A. van Harten. Paratypes: 2♂, same data as the holotype. The holotype and paratypes are deposited in the collection of the Department of Invertebrate Zoology, University of Gdańsk, Poland.

Description: Female unknown. Male: Eyes bare. Flagellum 0.75–0.85 mm, distal 4 flagellomeres elongate, AR 0.76–0.82. 4th and 5th palpal segments completely fused; third

palpal segment 0.076–0.084 mm long, almost cylindrical, with a group of few long capitate setae on surface of basal third (Fig. 2). Wing length 1.09–1.14 mm, CR 0.32–0.38. TR(I) 0.7–0.8, TR(II) 0.4–0.5, TR(III) 0.5–0.6. Genitalia as in Figure 3. Gonocoxite long and slender. Gonostylus sharply slender on distal half. Aedeagus (Fig. 4) long, with evenly rounded apex armed with sharp apical projection; basal arms long. Parameres U-shaped, heavily sclerotized, each arm with ventral triangular expansion at mid length (Fig. 5).

Diagnosis: Males of the new species are characteristic in having parameres U-shaped, each arm with ventral triangular expansion at mid length, aedeagus with simple rounded apex armed with sharp apical projection. Similar to *F. draconis* De Meillon & Wirth, 1980, from South Africa (De Meillon & Wirth, 1980), possibly its sister species. In *F. draconis* apex of aedeagus is trilobed, parameres joined basally for longer distance and each paramere with ventral triangular expansion on basal third.

Distribution: UAE.

Subgenus *Synthyridomyia* Saunders, 1957

Forcipomyia murina (Winnertz, 1852)

Specimens examined: Al-Ajban, 1♂, 21–28.xii.2005, LT. SSW of ad-Dhaid, 1♂, 10–15.xii.2005, LT. Fujairah, 1♂, 16–24.iii.2005, LT. Hatta, 2♂, 30.i–26.ii.2006, LT; 1♂, 4–11.iv.2006, LT. Sharjah Desert Park, 6♂, 25.i–22.ii.2005, LT. Wadi Bih dam, 1♂, 1–15.iii.2007, LT; 2♂, 25.ii–8.iii.2009, MT.

Distribution: Widely spread in the Holarctic and Afrotropical regions. Reported for the first time from the UAE.

Subgenus *Thyridomyia* Saunders, 1925

Forcipomyia litoraurea (Ingram & Macfie, 1924)

Specimens examined: Al-Ajban, 1♂, 30.i–26.ii.2006, MT; 1♂, 21.viii–19.ix.2006, MT. Sharjah Desert Park, 1♂, 30.iv–25.v.2005, LT; 1♂, 27.xi–11.xii.2008, LT; 2♂, 11.xii.2008–6.i.2009, LT; 1♂, 12.i–2.ii.2009, LT.

Distribution: Widespread in whole Africa and Western Palearctic. Reported for the first time from the UAE.

Forcipomyia frutetorum (Winnertz, 1852)

Specimens examined: Hatta, 2♂, 4–11.iv.2006, LT. Sharjah Desert Park, 1♂, 12.i–2.ii.2009, LT. Wadi Bih dam, 1♂, 1–15.iii.2007, LT; 4♂, 25.ii–8.iii.2009, MT.

Distribution: Widespread in the Holarctic and Afrotropical regions. Reported for the first time from the UAE.

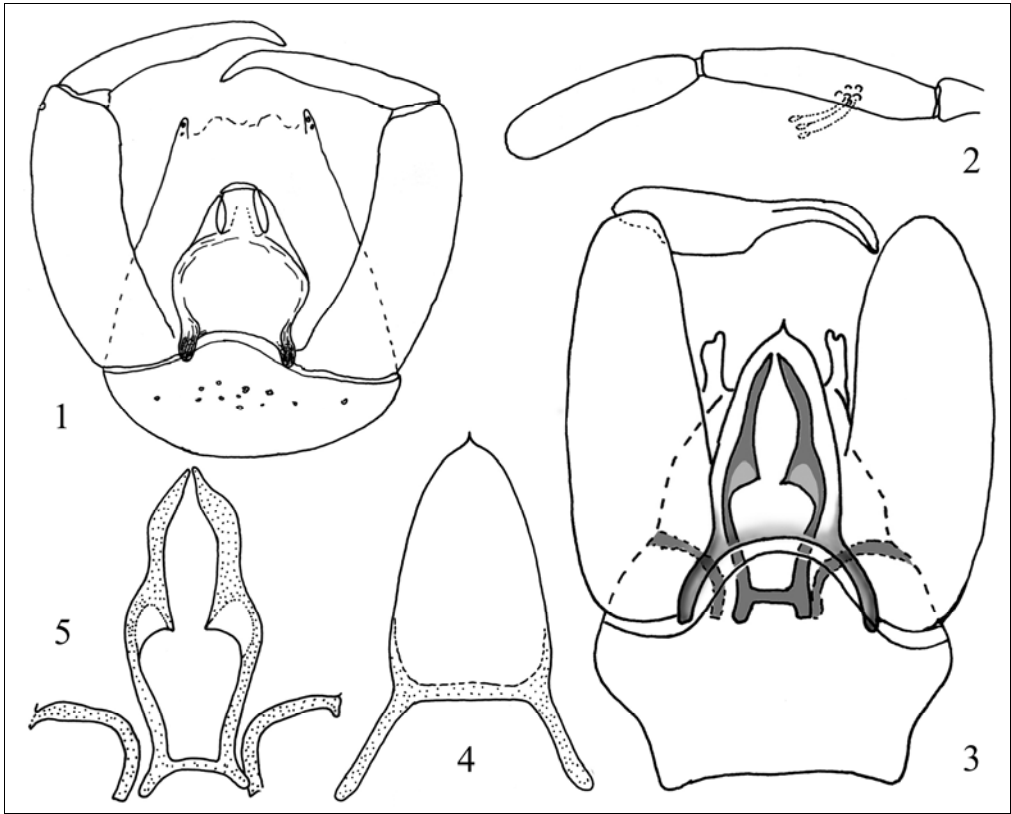
Subfamily **Dasyheleinae** Lenz, 1934

Genus ***Dasyhelea*** Kieffer, 1911

Subgenus ***Dasyhelea*** Kieffer, 1911

Dasyhelea kruppi Boorman & van Harten, 2002

Specimens examined: Fujairah, 3♂, 27.v–17.vi.2006, LT. Sharjah-Khor Kalba, near tunnel, 1♂, 26.iv–3.vi.2006, LT.



Figures 1–5. Males of *Atrichopogon arabicus* nov. spec. (1) and *Forcipomyia eremita* nov. spec. (2–5). 1, 3: Genitalia, 2: Palpus, 4: Aedeagus, 5: Parameres.

Distribution: Oman (Boorman & van Harten, 2002). Reported for the first time from the UAE.

Dasyhelea tibestiensis Clastrier, Rioux & Descous, 1961

Specimens examined: Al-Ajban, 5♂, 30.i–26.ii.2006, MT. Fujairah, 2♂, 27.v–17.vi.2006, LT. Hatta, 2♂, 30.i–26.ii.2006, 14–21.vi.2008, LT. Sharjah Desert Park, 1♂, 27.x–11.xii.2008, LT; 1♀, 1–30.xi.2008, LT; 1♂, 11.xii.2008–6.i.2009, LT; 1♂, 1♀. 12.i–2.ii.2009, LT. Wadi Safad, 3♂, 26.iv–4.v.2006, LT. Wadi Wurayah farm, 1♂, 22.ii–2.iii.2009, LT.

Distribution: Chad (Clastrier, Rioux & Descous, 1961), Oman, Yemen (Boorman & van Harten, 2002). Reported for the first time from the UAE.

Subgenus *Dicryptoscena* Enderlein, 1936

Dasyhelea biannulata Clastrier, Rioux & Descous, 1961

Specimens examined: Al-Ajban, 1♂, 30.i–26.ii.2006, MT. Sharjah Desert Park, 1♂, 15.xii.2008–12.i.2009, LT; 2♂, 12.i–2.ii.2009, LT. Wadi Safad, 1♂, 26.iv–4.v.2006, LT. Wadi Bih dam, 1♂, 1–6.iii.2008, LT.

Distribution: Chad (Clastrier, Rioux & Descous, 1961), Yemen (Boorman & van Harten, 2002). Reported for the first time from the UAE.

Dasyhelea desertorum Szadziewski, Gwizdalska-Kentzer & Gilka **nov. spec.** Figures 6–9
Specimens examined: Holotype: ♂, United Arab Emirates, Hatta [24°49'N 56°07'E], 4–11.iv.2006, light trap, leg. A. van Harten. The holotype is deposited in the collection of the Department of Invertebrate Zoology, University of Gdańsk, Poland.

Description: Thorax brownish with yellow humeri and scutellum, abdomen and legs yellowish. Flagellum 0.376 mm long. Last flagellomere with rounded apex. Palpus 5-segmented. Wing pale, length 0.60 mm, CR 0.29. First radial cell present, linear. TR(I) 2.0, TR(II) 2.2, TR(III) 2.0. Male genitalia as in Figure 6. Sternite IX with two long caudosubmedian processes (Fig. 7). Tergite IX with rounded apex, without apicolateral processes. Gonocoxite without special armature. Gonostylus evenly curved. Aedeagus well sclerotized, H-shaped (Fig. 8). Parameres composed of two basal arms and single long and curved medial process (Fig. 9).

Diagnosis: The species is characteristic in having unique male genitalia with sternite IX bearing two long submedian projections on caudal margin.

Distribution: UAE.

Subgenus *Pseudoculicoides* Malloch, 1915

Dasyhelea arenivaga Macfie, 1943

Specimens examined: Sharjah Desert Park, 1♂, 9.viii–6.ix.2008, LT.

Distribution: Poland, Czech Republic, Switzerland, Romania, Ukraine (Crimea), Bulgaria, Spain, Algeria, Egypt, Israel. Reported for the first time from the UAE.

Dasyhelea deemingi Boorman & van Harten, 2002

Specimens examined: Al-Ajban, 1♂, 30.i–26.ii.2006, MT. SSW of ad-Dhaid, 2♂, 10–15.xii.2005, LT. Sharjah Desert Park, 4♂, 11.xii.2008–6.i.2009, LT. Wadi Bih dam, 1♂, 25.ii–8.iii.2009, MT. Wadi Maidaq, 1♂, 27.xi–23.xii.2005, LT. Wadi Safad, 1♂, 26.iv–4.v.2006, LT. Wadi Wurayah farm, 2♂, 15.i–22.ii.2009, LT.

Comments: *Dasyhelea deemingi* from the Arabian Peninsula and *D. labinoda* Mazumdar & Chaudhuri, 2009, from India have identical male genitalia. The morphology of genitalia described by the Indian authors (Mazumdar & Chaudhuri, 2009) and presented in figs 3a–h (l.c.), is wrongly illustrated and interpreted (male paratype examined). It seems that these names are conspecific, and *D. labinoda* will probably be recognized as a junior synonym in the future.

Distribution: Bahrain, Dubai, Oman, Saudi Arabia (Boorman & van Harten, 2002). Reported for the first time from the UAE.

Dasyhelea egypti Macfie, 1943

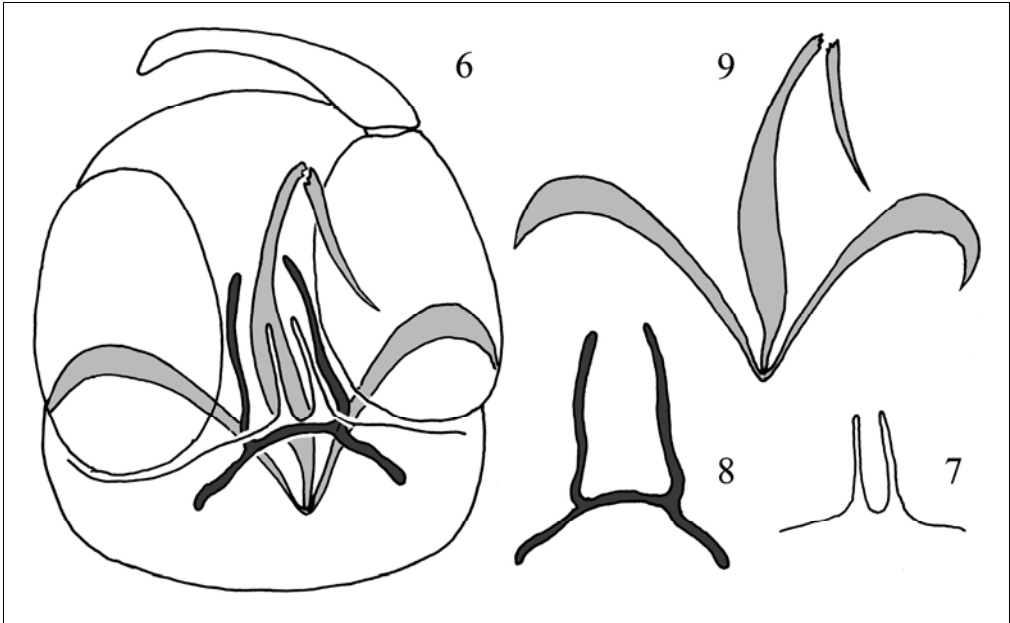
Specimens examined: Al-Ajban, 2♂, 30.i–26.ii.2006, MT; 7♂, 21.viii–19.ix.2006, MT. Hatta, 2♂, 30.i–11.iv.2006, LT. Sharjah Desert Park, 1♂, 30.vi–21.vii.2005, LT; 1♂, 9.viii–6.ix.2008, LT; 3♂, 12.i–2.ii.2009, LT. Wadi Safad, 1♂, 26.iv–4.v.2006, LT.

Distribution: Egypt. Reported for the first time from the UAE.

Dasyhelea eremita Remm & Nazarmukhamedov, 1969

Specimens examined: Al-Ajban, 3♂, 21.viii–19.ix.2006, MT.

Distribution: Tajikistan. Reported for the first time from the UAE.



Figures 6–9. *Dasyhelea desertorum* nov. spec., male. 6: Genitalia; 7: Projections of sternite IX; 8: Aedeagus; 9: Parameres.

***Dasyhelea fasciigera* Kieffer, 1925**

Specimens examined: Al-Ajban, 1♂, 30.i–26.ii.2006, MT. Bithnah, 1♂, 4–26.iii.2006, LT. Hatta, 1♂, 4–11.iv.2006, LT. Sharjah Desert Park, 2♂, 9.viii–6.ix.2008, LT; 4♂, 15.xii.2008–2.ii.2009, LT. Sharjah–Khor Kalba, near tunnel, 2♂, 26.iv–3.v.2006, LT. Wadi Bih dam, 2♂, 25.ii–8.iii.2009, MT. Wadi Safad, 2♂, 26.iv–4.v.2006, LT. Wadi Wurayah farm, 1♂, 15.i–22.ii.2009, LT; 2♂, 22.ii–2.iii.2009, LT.

Distribution: Widely spread in the Holarctic region. Reported from the UAE by Boorman & van Harten (2002).

***Dasyhelea fosteri* Clastrier, 1983**

Specimens examined: Hatta, 1♂, 4–11.iv.2006, LT. Sharjah Desert Park, 1♂, 15.xii.2008–12.i.2009, LT.

Distribution: Seychelles (France). Reported for the first time from the UAE.

***Dasyhelea ismailiae* Macfie, 1943**

Specimens examined: Sharjah Desert Park, 2♂, 12.i–2.ii.2009, LT. Wadi Bih dam, 1♂, 22–29.iii.2007, LT.

Distribution: Egypt, Arabian Peninsula, South Africa. Reported for the first time from the UAE.

***Dasyhelea noctuabunda* Remm, 1980**

Specimens examined: Hatta, 2♂, 4–11.iv.2006, LT. Sharjah–Khor Kalba, near tunnel, 1♂, 26.iv–3.v.2006, LT. Wadi Bih dam, 1♂, 13–20.v.2008, LT.

Distribution: Tajikistan. Reported for the first time from the UAE.

Dasyhelea sternalis Remm, 1980

Specimens examined: Fujairah, 1♂, 27.v–3.vi.2006, LT. Hatta, 1♂, 30.i–26.ii.2006, LT. Wadi Bih dam, 1♂, 22–29.iii.2007, LT.

Distribution: Tajikistan (Remm, 1980), Oman, Yemen (Boorman & van Harten, 2002). Reported for the first time from the UAE.

Subgenus ***Prokempia*** Kieffer, 1913

Dasyhelea flava Carter, Ingram & Macfie, 1921

Specimens examined: Wadi Safad, 3♂, 26.iv–4.v.2005, LT.

Distribution: Widely distributed Afrotropical species. Reported for the first time from the UAE.

Dasyhelea flaviformis Carter, Ingram & Macfie, 1921

Specimens examined: Bithnah, 1♂, 4–26.iii.2006, LT. Fujairah, 1♂, 27.v–3.vi.2006, LT. Hatta, 1♂, 4–11.iv.2006, LT.

Distribution: Afrotropical species. Reported for the first time from the UAE.

Subgenus ***Sebessia*** Remm, 1979

Dasyhelea latiforceps Clastrier, 1983

Specimens examined: Bithnah, 1♂, 4–26.iii.2006, LT. Hatta, 3♂, 30.i–11.iv.2006, LT. Sharjah-Khor Kalba, near tunnel, 1♂, 26.iv.2006–3.v.2006, LT. Wadi Bih dam, 1♂, 22–20.iii.2007, LT.

Distribution: Seychelles. Reported for the first time from the UAE.

Subfamily **Ceratopogoninae** Newman, 1834

Tribe **Culicoidini** Kieffer, 1911

Genus ***Culicoides*** Latreille, 1809

Culicoides arabiensis Boorman, 1989

Specimens examined: Wadi Bih dam, 1♂, 22–29.iii.2007, LT.

Distribution: Oman (Boorman, 1989). Reported for the first time from the UAE.

Culicoides azerbaijdzhanicus Dzshafarov, 1962

Specimens examined: Al-Ajban, 1♂, 30.i–26.ii.2006, MT. Hatta, 1♂, 4–11.iv.2006, LT. Sharjah Desert Park, 1♂, 27.xi–11.xii.2008, LT; 6♀, 11.xii.2008–6.i.2009, LT.

Distribution: North Africa, Arabian Peninsula, Middle East, Central Asia. Reported from the UAE by Boorman (1989).

Culicoides badooshensis Khalaf, 1961

Specimens examined: Al-Ajban, 1♂, 30.i–26.ii.2006, MT. Sharjah Desert Park, 2♂, 25.i–22.ii.2005, LT; 1♂, 1–30.11.2008, LT; 2♂, 1♀, 12.i–2.ii.2009, LT.

Distribution: Iraq, Oman. Reported for the first time from the UAE.

Culicoides buettikeri Boorman, 1989

Specimen examined: Sharjah Desert Park, 1♀, 11.xii.2008–6.i.2009, LT.

Distribution: Oman. Reported for the first time from the UAE.

Culicoides imicola Kieffer, 1913

Specimens examined: Al-Ajban, 2♀, 30.i–26.ii.2006, MT; 1♀, 21.viii–19.ix.2006, MT. Bithnah, 1♀, 4–26.iii.2006, LT. Hatta, 2♀, 30.i–26.ii.2006, LT; 1♀, 14–21.vi.2006, LT. Sharjah Desert Park, 1♂, 21.vii–5.viii.2005, LT; 1♂, 1♀, 9.viii–6.ix.2008, LT; 1♀, 1–30.xi.2008, LT; 1♂, 27.xi–11.xii.2008, LT; 1♀, 12.i–2.ii.2009, LT. Sharjah-Khor Kalba, near tunnel, 1♀, 26.iv–3.v.2006, LT. Wadi Bih dam, 1♂, 1–6.iii.2008, LT. Wadi Wurayah farm, 1♂, 15.i–22.ii.2009, LT.

Distribution: Widely distributed in Africa, Arabian Peninsula, Mediterranean region, India. Reported from the UAE by Boorman (1989).

Culicoides kingi Austen, 1912

Specimens examined: Al-Ajban, 1♂, 2♀, 30.i–26.ii.2006, MT; 1♀, 2–9.iv.2006, LT. Fujairah, 1♂, 6♀, 27.v–3.vi.2006, LT; 1♂, 6♀, 10–17.vi.2006, LT. Sharjah Desert Park, 2♀, 9.viii–6.ix.2008, LT; 1♂, 1♀, 27.xi–11.xii.2008, LT; 1♀, 11.xii.2008–6.i.2009, LT; 1♂, 4♀, 12.i–2.ii.2009, LT. Sharjah-Khor Kalba, near tunnel, 2♀, 26.iv–3.v.2006, LT. Wadi Bih dam, 1♀, 1–6.iii.2008, LT. Wadi Safad, 1♂, 1♀, 26.iv–4.v.2006, LT.

Distribution: Africa, Arabian Peninsula. Reported for the first time from the UAE.

Culicoides mesghalii Navai, 1973

Specimens examined: Sharjah Desert Park, 2♀, 27.xi–11.xii.2008, LT; 1♀, 11.xii.2008–6.i.2009, LT. Wadi Bih dam, 1♀, 1–15.iii.2007, LT; 3♂, 22–29.iii.2007, LT; 1♀, 13–20.v.2008, LT. Wadi Safad, 1♂, 1♀, 26.iv–4.v.2006, LT.

Distribution: Iran, Egypt, Arabian Peninsula. Reported for the first time from the UAE.

Culicoides odiatus Austen, 1921

Specimens examined: Al-Ajban, 1♀, 30.i–26.ii.2006, MT. Sharjah Desert Park, 1♂, 12.i–2.ii.2009, LT.

Distribution: Central Asia, Caucasus, Ukraine, Middle East, Arabian Peninsula. Reported for the first time from the UAE.

Tribe ***Ceratopogonini*** Newman, 1834Genus ***Allohelea*** Kieffer, 1917***Allohelea vespertilio*** Szadziewski, Gwizdalska-Kentzer & Gilka **nov. spec.**

Plates 1–2, Figures 10–13

Specimens examined: Holotype: ♂, United Arab Emirates, Wadi Wurayah farm [25°24'N 56°20'E], 15.i–22.ii.2009, light trap, leg. A. van Harten. The holotype is housed in the Department of Invertebrate Zoology, University of Gdańsk.

Description: Female unknown. Male. Body brown, scutellum and legs brownish with hind femur darker in apical part (Plate 1). Palpus 5-segmented, yellowish, fifth palpal segment dark; third palpal segment with small sensory pit at apex; fourth palpal segment with one seta. Flagellum 0.727 mm long, all flagellomeres well separated, ultimate flagellomere with long apical projection armed with one seta. Scutellum with two submedian and two lateral bristles. Wing length 1.30 mm, CR 0.68. Wing membrane without marking pattern, only with slightly darkened veins M1, M2 and Cu. Both first radial cells well developed. Femur and tibia of hind leg stout. Claws of fore and mid leg short, equal, each with basal tooth. Hind leg with single long claw (Plate 2). TR(I) 2.5, TR(II) 2.8, TR(III) 2.4. Genitalia as in Figure 10. Apex of tergite IX narrow with strong horn-like apicolateral processes (Fig. 11). Gonocoxite with long ventromedian process at mid length. Gonostylus strongly curved, with widened subapical portion. Aedeagus composed of two pieces; distal piece long and narrow, with two



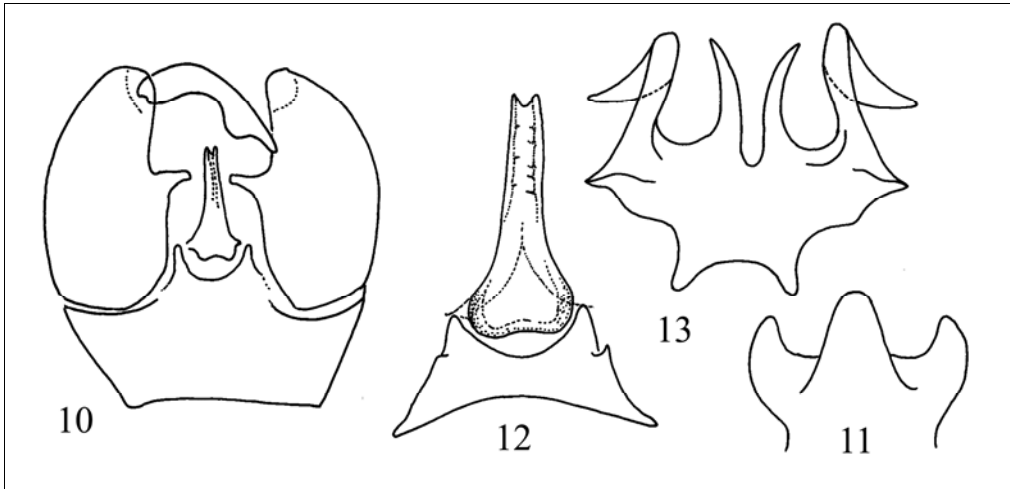
Plates 1–2. *Allohelea vesperilio* nov. spec., male. 1: Thorax in lateral aspect, 2: Tarsus of hind leg,

rows of ventral spines (Fig. 12). Parameres broad, with two strong submedian and two curved stout apicolateral arms (Fig. 13).

Diagnosis: Males of the new species can be easily distinguished by having wings without marking pattern, gonostylus subapically expanded and apicolateral arms of parameres strongly sclerotized, pointed and sharply curved, and gonocoxite with distinct ventral extension at mid length. Most similar to *A. pallifemorata* (Remm, 1980) from Tadjikistan, which probably is a sister species (see Remm, 1980; Clastrier & Delecolle, 1990).

Distribution: United Arab Emirates.

Etymology: The specific name refers to parameres which resemble a bat (Latin *vesperilio*).



Figures 10–13. *Allohelea vespertilio* nov. spec., male. 10: Genitalia; 11: Apex of tergite IX; 12: Aedeagus; 13: Parameres.

Genus *Brachypogon* Kieffer, 1899

Subgenus *Brachypogon* Kieffer, 1899

Brachypogon arabicus Szadziewski, Gwizdalska-Kentzer & Gilka nov. spec.

Figures 14–17

Specimens examined: Holotype: ♂, United Arab Emirates, Hatta [24°49'N 56°07'E], 4–11.iv.2006, light trap, leg. A. van Harten. The holotype is housed in the Department of Invertebrate Zoology, University of Gdańsk.

Description: Female unknown. Male. Body brown, with paler legs. Palpus 5-segmented, third palpal segment with sensory pit at apex (Fig. 14). Fourth palpal segment with one seta. Flagellum 0.37 mm long, composed of 9 flagellomeres. Flagellomeres 2–7 fused. Katepisternum with single seta. Scutellum with two submedian and two lateral setae. Wing length 0.54 mm, CR 0.33. Wing membrane pale, transparent. Both radial cells reduced. Median veins invisible. First tarsomere of hind leg with simple spine-like palisade setae. Tibial comb composed of 7 spines, tibial spur short. Tarsus of hind leg elongated, femur slightly enlarged. TR(I) 1.6, TR(II) 1.2, TR(III) 1.6. Genitalia as in Figure 15. Sternite IX short with straight caudal margin. Tergite IX with two short and blunt apicolateral processes. Gonocoxite without special armature. Gonostylus slender, curved, tapering to pointed apex. Aedeagus shield-shaped, with rounded apex; basal arch low (Fig. 16). Parameres fused, with long basal arms (Fig. 17).

Diagnosis: The species can be easily separated from other species of the genus by having nine flagellomeres, the slender gonostylus and shield-shaped aedeagus (see Grogan & De Meillon, 1993).

Distribution: United Arab Emirates.

Brachypogon obesus Szadziewski, Gwizdalska-Kentzer & Gilka **nov. spec.** Figure 18
 Specimens examined: Holotype: ♂, United Arab Emirates, Hatta [24°49'N 56°07'E], 4–11.iv.2006, light trap, leg. A. van Harten. The holotype is housed in the Department of Invertebrate Zoology, University of Gdańsk.

Description: Female unknown. Male. Body dark brown. Legs brownish with more pale tarsi. Palpus 5-segmented, third palpal segment with sensory pit at apex. Fourth palpal segment with one seta. Flagellum missing. Katepisternum with single seta. Scutellum with two submedian and two lateral setae. Wing membrane extremely pale, transparent. Both radial cells reduced. Median veins invisible. First tarsomere of hind leg with simple spine-like palisade setae. Tibial comb composed of 8 spines, tibial spur short. Tarsus of hind leg elongated, femur slightly enlarged. Genitalia as in Figure 18. Sternite IX moderately long, with weak caudomedian excavation. Apical portion of tergite IX narrow, with broad blunt apicolateral processes armed with single seta each. Gonocoxite robust. Gonostylus short, triangular, slightly curved and apically pointed. Aedeagus long and slender, with simple apex; basal arch low. Parameres indistinct, barely visible.

Diagnosis: The species is characteristic within other species of the genus in the following combination of features: gonostylus short and stout, aedeagus slender triangular with simple apex (see Grogan & De Meillon, 1993).

Distribution: United Arab Emirates.

Etymology: Specific name refers to stout (Latin *obesus*) gonocoxites in male genitalia.

Subgenus *Isohelea* Kieffer, 1899

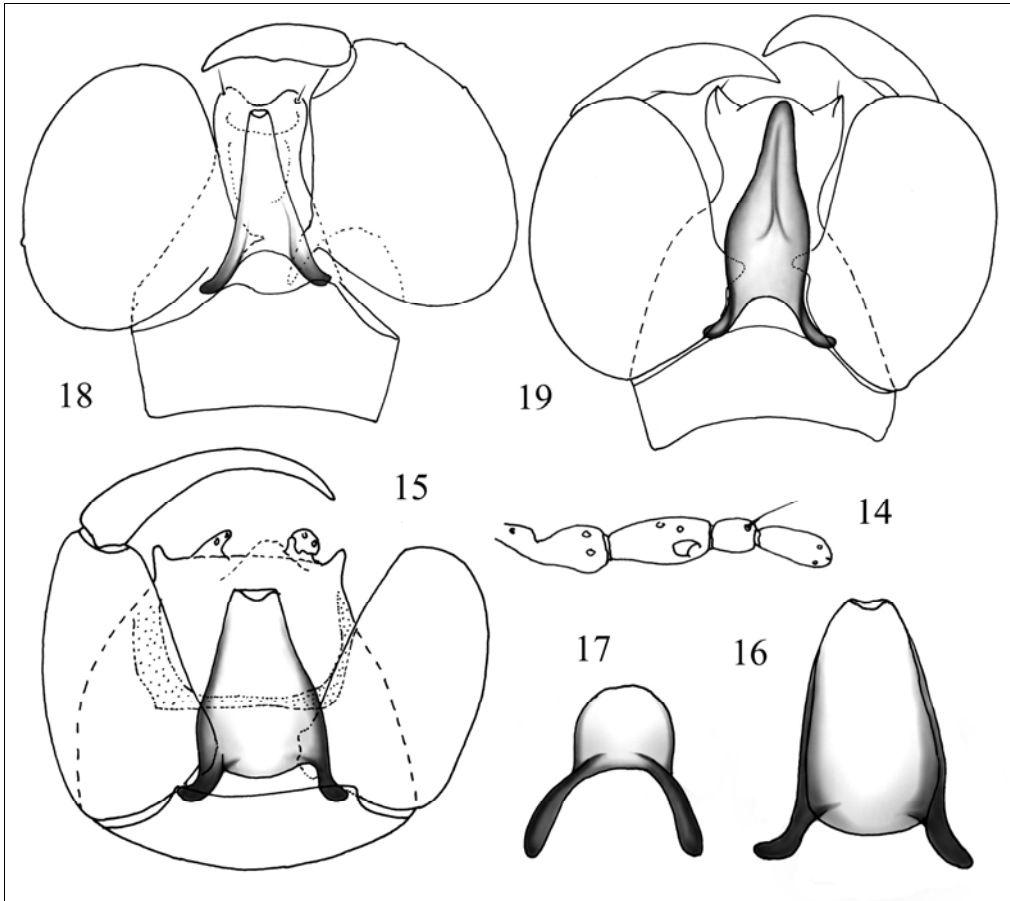
Brachypogon vanharteni Szadziewski, Gwizdalska-Kentzer & Gilka **nov. spec.** Figure 19
 Specimens examined: Holotype: ♂, United Arab Emirates, Hatta [24°49'N 56°07'E], 4–11.iv.2006, light trap, leg. A. van Harten. The holotype is deposited in the Department of Invertebrate Zoology, University of Gdańsk.

Description: Female unknown. Male. Body including scutellum dark brown. Legs yellowish. Palpus 5-segmented, third palpal segment with distinct sensory pit at apex. Fourth palpal segment with 1 seta. Flagellum composed of 13 flagellomeres. Flagellomeres 2–11 fused. Katepisternum with 1 long seta. Scutellum bearing 4 bristles. Vein M2 reduced. Wing membrane bare. Two very small and indistinct first radial cells present. First tarsomere of hind leg with simple spine-like palisade setae. Tibial comb of hind leg composed of 7 spines, tibial spur short. Genitalia as in Figure 19. Sternite IX without caudomedian excavation. Tergite IX with narrow apical portion; apicolateral processes ear-shaped, each with one small apical seta. Gonocoxite stout, ventral expansion triangular. Gonostylus short, stout, slightly curved, distal half gradually tapering to sharp apex. Aedeagus long and narrow, tongue-like, well sclerotized, apex blunt, single; basal arms relatively long. Parameres barely visible, fused, indistinct.

Diagnosis: In male genitalia the following characters form the unique combination of short and stout gonostylus, tongue-like aedeagus and tergite IX bearing ear-like apicolateral processes.

Distribution: United Arab Emirates.

Etymology: The species is named after Antonius van Harten in recognition of his valuable contributions to the study of the insect fauna of the Arabian Peninsula.



Figures 14–19. Males of *Brachypogon arabicus* nov. spec. (14–17), *B. obesus* nov. spec. (18), and *B. vanharteni* nov. spec. (19). 14: Palpus; 15, 18, 19: Genitalia in ventral aspect; 16: Aedeagus; 17: Parameres.

Genus *Serromyia* Meigen, 1818

***Serromyia arabica* Szadziewski, Gwizdalska-Kentzer & Gilka nov. spec.** Plates 3–6
 Specimens examined: Holotype: ♀, United Arab Emirates, Wadi Madaq [25°19'N 56°08'E], 6–13.v.2006, light trap, leg. A. van Harten. The holotype is deposited in the collection of the Department of Invertebrate Zoology, University of Gdańsk, Poland.

Description: Male unknown. Female. Body including legs brown to pale brown with distinct pattern of darker areas (Plates 3, 4). Palpus 5-segmented, fifth palpal segment darker. Flagellum with distal five flagellomeres elongate, AR 1.36. Scutellum with four long bristles. Wing length 1.15 mm, CR 0.57. Wing membrane without markings. Fore and mid legs slender, unarmed, with short equal simple claws. Hind femur enlarged, 4.6 times as long as greatest width, with a double row of 13–14 short, strong, black spines along ventral margin (Plate 3). Hind leg with single claw armed with short slender and sharply pointed basal spur. Hind claw 1.83 times longer than 5th tarsomere, about as long as tarsomeres 4 and 5 combined

(Plate 5). TR(I) 2.0, TR(II) 2.1, TR(III) 2.1. Two large subequal, ovoid seminal capsules present, 0.121 and 0.128 mm; neck not developed (Plate 6).

Diagnosis: The only species within the genus with females having two large seminal capsules, claw of hind leg 1.8 times longer than fifth tarsomere, body including legs brownish with pattern of pale and dark areas (see De Meillon & Wirth, 1983). *Serromyia mangrovi* Delecolle & Braverman (1987: 57) from Sinai in Egypt has smaller and spherical seminal capsules, shorter hind claw, 1.2 times longer than fifth tarsomere and body uniformly coloured without pattern of pale and dark areas, with almost yellow abdomen (paratypes examined).

Distribution: United Arab Emirates.

Genus *Stilobezzia* Kieffer, 1911

Stilobezzia harurii Boorman & van Harten, 2002 Plate 7–8, Figures 20–23

Specimens examined: Al-Ajban, 1♂, 10–17.x.2005, MT; 1♂, 4♀, 21.vii–19.ix.2006, MT. Sharjah Desert Park, 2♂, 18.i–25.ii.2005, LT; 5♂, 30.vi–21.vii.2005, LT. Sharjah-Khor Kalba, near tunnel, 1♂, 26.iv–3.v.2006, LT. Wadi Safad, 1♀, 26.iv–4.v.2006, LT.

First description of female: Similar to male described by Boorman & van Harten (2002) from Yemen, with usual sexual differences. Body yellowish, palp dark brown, legs with brownish unclear rings, abdominal tergites with darker margins (Plate 8). Mandible armed with 7 strong teeth. Wing length 1.11–1.16 mm, CR 0.71, marking pattern as in Plate 7. Scutellum bearing 2 lateral and 2 submedian bristles. Fifth tarsomeres in all legs with single long claw armed with basal spur; basal spur of fore and mid legs long, slender and sharply pointed (Figs 20, 21); claw of hind leg shorter, basal spur short and blunt (Fig. 22). Fifth tarsomere of fore and mid legs armed with two ventral blunt spines, of hind leg unarmed (Figs 20–22). TR(I) 3.0–3.4, TR(II) 2.2–2.5, TR(III) 2.1–2.4. Seminal capsules symmetrical, 0.056–0.064 mm, well sclerotized, ovoid, with short neck (Plate 8, Fig. 23).

Distribution: Yemen (Boorman & van Harten, 2002). Reported for the first time from the UAE.

Tribe **Palpomyiini** Enderlein, 1936

Genus *Bezzia* Kieffer, 1899

Bezzia albicornis (Meigen, 1818)

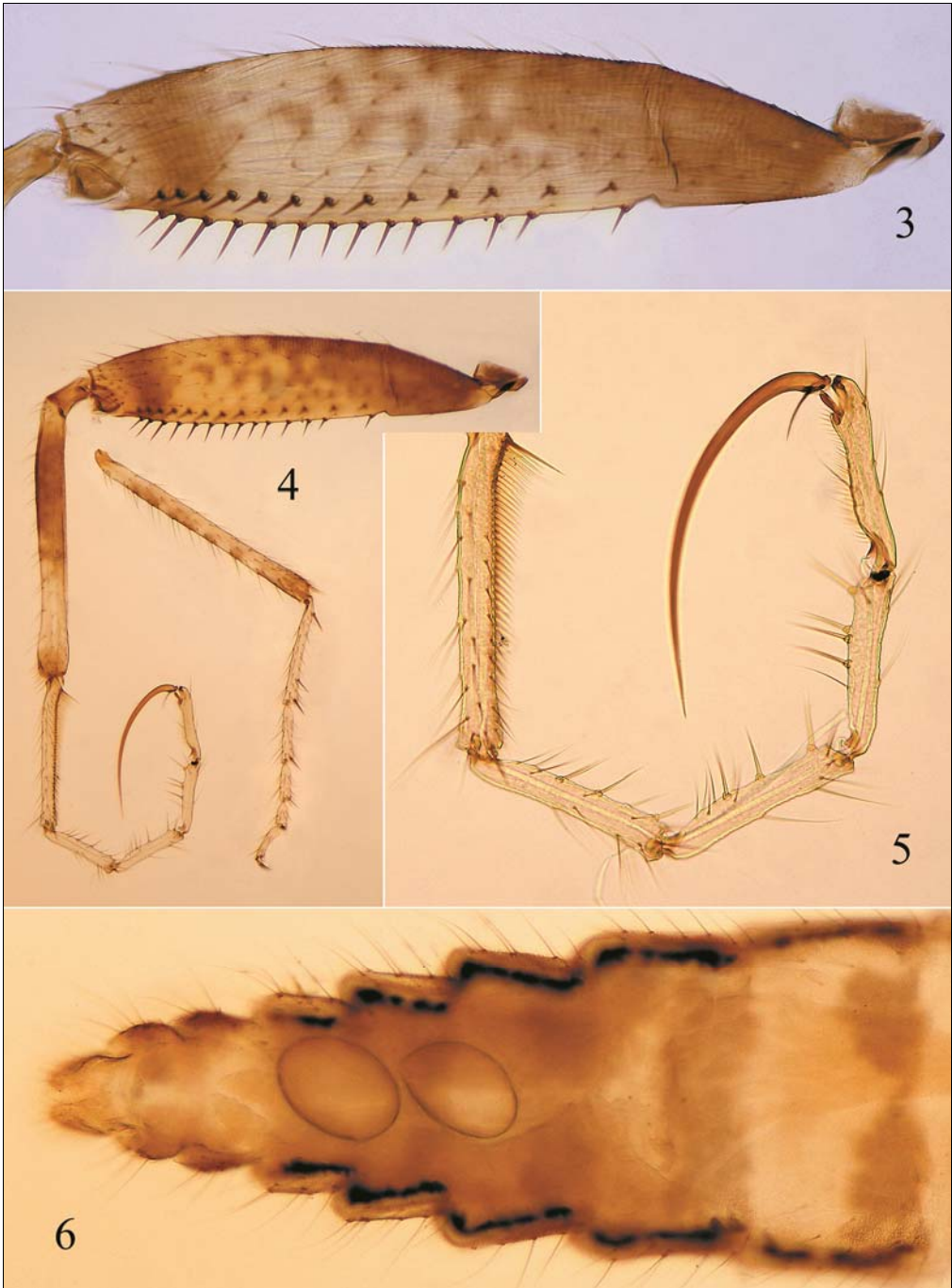
Specimens examined: Al-Ajban, 2♂, 1♀, 10–17.x.2005, MT; 1♂, 21.xii.2005, LT; 1♀, 2–9.iv.2006, LT. Sharjah Desert Park, 1♀, 30.vi–21.vii.2005, LT; 1♀, 15.xii.2008–12.i.2009, LT.

Distribution: Widely distributed in Palaearctic and Afrotropical regions. Reported for the first time from the UAE.

Bezzia omanensis Boorman & van Harten, 2002

Specimens examined: Fujairah, 1♂, 16–24.ii.2005, LT. Sharjah Desert Park, 9♂, 18–20.x.2005, LT; 1♂, 1–30.xi.2008, LT. SSW of ad-Dhaid, 1♂, 10–29.xii.2005, LT.

Distribution: Oman (Boorman & van Harten, 2002). Reported for the first time from the UAE.



Plates 3-6. *Serromyia arabica* nov. spec., female. 3: Femur of hind leg; 4: Hind leg, tibia and tarsus of fore leg; 5: Tarsus of hind leg; 6: Abdomen.



Plates 7-8. *Stilobezzia harurii* Boorman & van Harten, female. 7: Wing, 8: Abdomen.

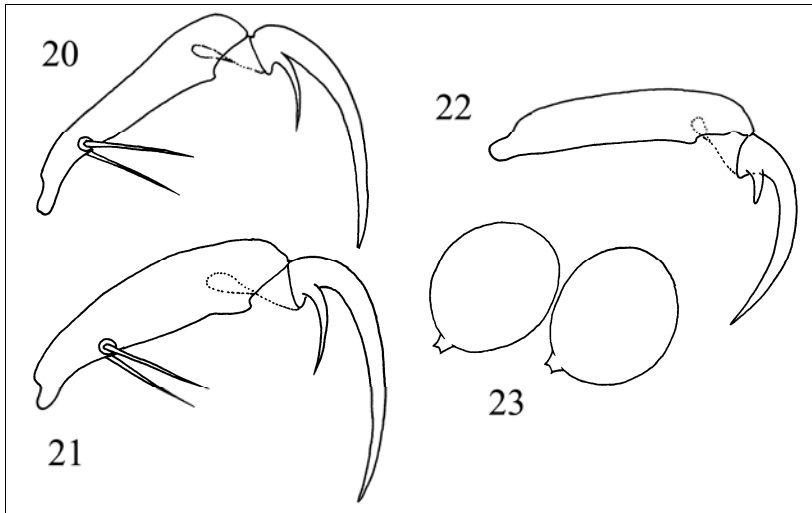
Genus *Palpomyia* Meigen, 1818

Palpomyia ebejeri Boorman & van Harten, 2002

Specimens examined: Hatta, 1♀, 30.i-26.ii.2006, LT. Wadi Madaq, 1♂, 27.xi.2005, LT.

First description of female: *P. ebejeri* was described by Boorman & van Harten (2002: 458) based on male. At present we found a female which is briefly described below. Similar to male with usual sexual differences. Length of flagellum 0.73 mm, AR 1.22. Wing length 1.77 mm, CR 0.78. Femora of all legs armed with ventral spines. TR(I) 1.8, TR(II) 2.5, TR(III) 2.8. Paratergite bare; anterior anepisternum with some simple setae; katepisternum bare; scutellum with four bristles. Seminal capsules small, spherical, with short neck, diameter 0.052 and 0.044 mm.

Distribution: Oman (Boorman & van Harten, 2002). Reported for the first time from the UAE.



Figures 20-23. *Stilobezzia harurii* Boorman & van Harten, female. 20: Fifth tarsomere of fore leg; 21: Fifth tarsomere of mid leg; 22: Fifth tarsomere of hind leg; 23: Seminal capsules.

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