Psylloidea (Insecta: Hemiptera) of the Arabian Peninsula

Daniel Burckhardt and David Mifsud

Abstract: The jumping plant-lice fauna of the Arabian Peninsula is reviewed based on published records and material from Bahrain, Kuwait, Oman, Saudi Arabia, the United Arab Emirates and Yemen, the latter being particularly rich. Fifty-two species, nine of which remain unnamed, of 19 genera are recorded. Ten species are described as new, one species is synonymised and two new combinations are proposed. Keys are provided for the identification of the adults and, where known, of the fifth instar larvae. *Diaphorina* is the most species-rich genus followed by *Acizzia*, both being widely distributed in the Old World. The Fabaceae bear the largest number of psylloids followed by Chenopodiaceae and Tamaricaceae.

INTRODUCTION

The Arabian Peninsula is situated at the junction of three biogeographical realms. The northern lowlands have affinities with the Palearctic, the south with the Afrotropical and the east with the Oriental regions, respectively. Large areas of the peninsula consist of deserts and semi-deserts which stretch, albeit interrupted in places, from Mauritania in the west to India in the east. This area, defined mostly on ecological grounds, is sometimes called the Eremic Zone. In the south-east, south and west of the peninsula are several mountain systems which, in contrast to the lowland deserts, sustain forests (Böttiker 1979, Larsen 1984).

The sternorrhyncho jumping plant-lice are well represented in eremic regions throughout the world (Hodkinson 1980, 1989; Burckhardt & Lauterer 1993). Relatively little is known, however, from the Arabian Peninsula. Loginova (1971, 1974) and Burckhardt & Lauterer (1997) recorded four species from Yemen, and Burckhardt (1981, 1986) listed 24 species from

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Saudi Arabia, based on records in the literature and from available material. Recently, additional collections became available from Yemen, Saudi Arabia, Oman, Kuwait, Bahrain and the United Arab Emirates which are treated here, together with information from the literature. Keys are provided for adults and fifth instar larvae, where known. The keys include a few taxa not reported from the Arabian Peninsula but whose occurrence there is likely. Finally, the biogeographical relationships are briefly discussed, and host plant information is summarised.

MATERIAL AND METHODS

The classification used here is that of White & Hodkinson (1985) with modifications made by Burckhardt (1987, 1991) and Hollis (in prep.). The taxa are listed in alphabetical order. Morphological terminology mostly follows Hollis (1976, 1984), White & Hodkinson (1982) and Ossiannilsson (1992). Measurements are taken from slide-mounted specimens and are given in millimetres. The following abbreviations are used in the keys and descriptions:

Adults:

- AEL: length of distal portion of aedeagus
- AL: antenna length (including scape and pedicel)
- ALHW: ratio of antenna length to head width
- FP: female proctiger length
- FPC: ratio of female proctiger to circumanal ring length
- FPHW: ratio of female proctiger length to head width
- FPS: ratio of female proctiger to subgenital plate length
- HW: head width
- MP: male proctiger length
- MPHW: ratio of male proctiger length to head width
- PL: paramere length
- TLHW: ratio of metatibia length to head width
- WL: forewing length
- WLHW: ratio of forewing length to head width
- WLW: ratio of forewing length to width

Fifth instar larvae:

- AL: antenna length (including scape and pedicel)
- AWL: ratio of antenna length to forewing pad length
- BBL: ratio of body length to breadth
- BL: body length
- CCB: ratio of caudal plate to circumanal ring breadth
- CPB: caudal plate breadth
- CPR: ratio of caudal plate length to breadth
- WL: forewing pad length

Material was examined, or is cited, from the following collections and institutions:

- AROB: Agricultural Research Organization, Bet-Dagan, Israel
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MHNG  Museum d'histoire naturelle, Genève, Switzerland
MIZW  Museum and Institute of Zoology, Warsaw, Poland
NHMB  Naturhistorisches Museum, Basel, Switzerland
NMWC  National Museum of Wales, Cardiff, U.K.
SMNH  Swedish Museum of Natural History, Stockholm, Sweden
ZISP  Zoological Institute, St. Petersburg, Russia

SYSTEMATIC ACCOUNT

Psylloidea

Key to families of Psylloidea

Adults
1  Forewing with a pseudovein between veins Rs and M, lacking a pterostigma. Male subgenital plate with additional lobes
   Carsidaridae: Mesohomotoma (not recorded from the area)
   – Forewing and male subgenital plate different ................................................. 2
2  Antennal flagellar segments thick, flattened laterally and densely covered in conspicuous black setae. Male proctiger distinctly 2-segmented
   Homotomidae: Homotoma (not recorded from the area)
   – Antennal flagellar segment slender, ± rounded in cross-section, not covered in long black setae. Male proctiger usually 1-segmented ........................................ 3
3  Forewing with vein R+M+Cu₁ trifurcating or, rarely, bifurcating; costal break and pterostigma always absent; anal break in distance of apex of vein Cu₁b. Metabasistarsus without apical black spurs ............................................. Triozidae
   – Character combination absent ................................................................. 4
4  Vein Rs of forewing touching vein M₁,₁₂ to form a characteristic cross (Fig. 89)
   Phacopteronidae: Pseudophacopteron
   – Veins Rs and M₁,₁₂ of forewing separated or connected by cross-vein (in Caillardia dilatata Loginova, 1978) Psyllidae

Fifth instar larvae
(Taxon not included: Phacopteronidae)
1  Dorsal surface of thorax, wing pads and abdomen with rod setae which are based on tall tubercles
   Homotomidae: Homotoma (not recorded from the area)
   – Dorsal body surface without rod setae based upon tall tubercles .......................... 2
2  Antennae 10-segmented; tarsal arrolium absent; additional porefields present on caudal plate
   Carsidaridae: Mesohomotoma (not recorded from the area)
   – Character combination absent ................................................................. 3
3  Truncate marginal sectasetae present on wing pads and abdomen; if absent from wing pads then more than 4 + 4 sectasetae present on abdominal margin
   Triozidae
   – Forewing pads without truncate marginal sectasetae. Caudal plate with, at most, 4 + 4 marginal sectasetae Psyllidae
Family Phacopteronidae

_Pseudophacopteron_ sp.  

**Material:** Yemen: 1♀, Taiz, 20.X.1991; 1♀, Mukeiras, 11.IV.1993; both A. van Harten, MHNG.

**Description:** Adult: Coloration: Head bright orange with white markings. Eyes light red in colour. Antennae yellow, distal portion of segments 3-8, and entire segments 1, 2, 9 and 10 dark brown. Dorsal surface of thorax bright orange with fine yellow or white bands. Forewing transparent with brown pattern as in Fig. 89. Abdomen brown.

**Structure:** Head, in dorsal view, about as wide as or slightly wider than mesoscutum; vertex entirely covered in coarse surface sculpturing, lacking coronal suture but with a narrow median ridge, on either side of which is an oblique ridge forming a blunt anterior tubercle; frons forming a narrow parallel-sided sclerite with median ocellus distally; antennal insertion with small transverse tubercle near eye (Figs 45-46). Antennae 10-segmented, segment 3 slightly longer than each of segments 4-8 which are subequal and weakly widened to apex; segments 9 and 10 thicker than 3-8; terminal setae respectively 1 and 2 times as long as segment 10; segments 4-9 each with a subapical rhinarium. Clypeus short, globular. Pronotum short, bearing a small median tubercle. Meso- and metanotum flattened. Propleurites narrow, epimeron larger than episternum. Forewings as in Fig. 89; surface spinules absent apart from a few along the outer margin and in cell _cu_1b. Legs long; metacoxa with short, pointed meracanthus; metatibia without genual spine, apex with a crown of light, weakly sclerotised setae; metabasitarsus with two sclerotised spurs. Female genitalia as in Fig. 106, male unknown.

**Measurements** (1♀): HW 0.33; AL 0.47; WL 1.08; FP 0.27; ALHW 1.41; TLHW 0.94; WLHW 3.27; WLI 2.16; FPHW 0.82; FPC 3.00; FPS 1.29.

Larva and host plant unknown.

**Remarks:** The two specimens available belong to an undescribed species similar to the African _Pseudophacopteron zimmermanni_ (Aulmann, 1912) from which they differ in the presence of a dark band on the forewing. In the absence of more material, in particular males and larvae, the species is not formally named here.

Family Psyllidae

**Key to subfamilies of Psyllidae**

Adults

1. Metacoxae slender, without meracanthus but bearing a weakly sclerotised tubercle at trochanteral cavity **Rhinocolinae** (not recorded from the area)
   - Metacoxae thick with horn-shaped meracanthus, without sclerotised tubercle at trochanteral cavity .............................................................. 2

2. Genae forming flattened anterior lobes, lying in the same plane as vertex and enclosing median ocellus. Antennae arising on the underside of the head **Livinae**
   - Genae rounded or forming conical anterior lobes, if flattened and enclosing median ocellus then not lying in the same plane as vertex. Antennae arising on fore margin of head, bases not concealed from above .............................................. 3

3. Apical spurs of metatibia forming an open crown, if grouped then head bearing preocular sclerite ................................................................................. 4
   - Apical spurs of metatibia always grouped, head without preocular sclerite ...... 5
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4 Head without conical genal processes; occipital margin distant from forewing base. Male proctiger with large wing-like posterior processes
   – Either head bearing conical genal processes (Figs 39-44, 47-50), or occipital margin adjacent to forewing base. Male proctiger straight or weakly produced posteriorly, lacking large wing-like processes (Figs 57, 59)
   Aphalarinnae

5 Head with very short, blunt genal processes. ALHW < 1.2
   – Head with long, pointed genal processes, or ALHW > 1.2
   Diaphorinnae

6 Branches of vein M of forewing longer than stem
   – Branches of vein M of forewing shorter than stem
   Pachypsylloidinae

7 Forewing with brown pattern consisting of an apical and a median transverse band which are fused in the middle (Fig. 95). Distal segment of aedeagus with oval apical dilatation (Fig. 107)
   – Forewing dark or reddish brown with irregular small light spots. Distal segment of aedeagus with apical dilatation forming both a dorsal and a ventral extension
   Euphalerinnae

8 Male proctiger bearing a large posterior lobe (Fig. 15). Genal processes less than half vertex length (Fig. 10), or if longer then ALHW > 1.6
   – Male proctiger without posterior lobe. Genal processes more than half vertex length, ALHW < 1.6
   Acizzinnae

9 Metatibia with large genual spine
   – Metatibia without genual spine, at most a small tubercle
   Ayrtaoinnae

Fifth instar larvae
(Taxa not included: Pachypsylloidinae and Psyllinae)

1 Extra pore fields on caudal plate present
   – Extra pore fields on caudal plate absent
   Rhinocolinae (not recorded from the area)

2 Tarsal arolium sessile
   – Tarsal arolium petiolate
   Ayrtaoinnae

3 Abdominal margin with some sectasetae
   – Abdominal margin without sectasetae
   Liviiinae

4 Tarsal arolium membranous, without unguitractor
   – Tarsal arolium with well-developed unguitractor
   Ayrtaoinnae

5 Antennae 9-segmented
   – Antennae 3- to 8-segmented
   Acizzinnae

6 Usually without capitate setae, at most short club-shaped setae
   – Always with long capitate setae
   Diaphorininae

7 Antennae 3-segmented
   – Antennae 7 -segmented
   Ayrtaoinnae

Subfamily Acizzininae

Key to species of Acizzia

Adults

1 Genal processes half vertex length or more (Fig. 12). Vein C+Sc of forewing thick (Fig. 7)
   – Genal processes less than half vertex length (Fig. 10). Vein C+Sc of forewing slender (Fig. 5)
Forewing (Fig. 7) with distinct brown band along outer margin. Genal processes blunt apically (Fig. 14). Genitalia as in Figs 27-29

\textit{Acizzia virgata} n. sp.

- Forewing (Fig. 3) without distinct brown band along outer margin. Genal processes subacute apically (Fig. 12). Genitalia as in Figs 21-23

\textit{Acizzia hirsuticauda} n. sp.

3 Pterostigma of forewing sessile, wing pattern as in Fig. 8. Genitalia as in Fig. 30

\textit{Acizzia wittmeri}

- Pterostigma of forewing petiolate, wing pattern and genitalia different

4 AL > 1.0 mm

- AL < 1.0 mm

5 Forewing with well-defined brown submarginal band (Fig. 5). Male proctiger with narrow posterior lobe

\textit{Acizzia marginata}

- Forewing with indistinct brown submarginal band (Fig. 4). Male proctiger with broad posterior lobe

6 Surface spinules of forewing covering the whole surface apart from stripes along the veins (Fig. 9). Genitalia as in Figs 15-17; male proctiger, in profile, with angular posterior lobes; apex of female proctiger relatively massive

\textit{Acizzia didyma} n. sp.

- Surface spinules of forewings restricted to base and apex of wing. Male proctiger, in profile, with broadly rounded posterior lobe; apex of female proctiger relatively slender

\textit{Acizzia hollisi}

7 Head black, pronotum ochreous, mesonotum brown. Genual spine present. Surface spinules arranged in irregular hexagonal pattern. Genitalia as in Figs 24-26

\textit{Acizzia melanocephala} n. sp.

- Head lighter, about the same colour as pro- and mesonotum. Genual spine indistinct or absent. Surface spinules of forewing irregularly spaced. Genitalia different

8 Forewing widest in the middle (Fig. 1). Paramere with hook in the middle of fore margin. Female subgenital plate truncate apically

\textit{Acizzia bona}

- Forewing widest in apical fifth (Fig. 2). Paramere without hook on fore margin (Fig. 19). Female subgenital plate acute apically

\textit{Acizzia balperini} n. sp.

Fifth instar larvae

(Taxa not included: \textit{Acizzia didyma} n. sp., \textit{A. hirsuticauda} n. sp., \textit{A. virgata} n. sp. and \textit{A. wittmeri})

1 Caudal plate without long dorsal capitate setae

- Long capitate setae present on dorsum of caudal plate

2 Margin of caudal plate with long rod setae (Fig. 34)

\textit{Acizzia melanocephala} n. sp.

- Margin of caudal plate with a few long capitate setae (Fig. 31)

\textit{Acizzia bona}

3 Forewing pad with long dorsal capitate setae (Fig. 36)

\textit{Acizzia balperini} n. sp.

- Forewing pad without or with short dorsal capitate setae (Fig. 37)

4 Forewing pad without dorsal capitate setae. Wing pads and caudal plate ochreous dorsally, weakly sclerotised

\textit{Acizzia hollisi}

- Forewing pad with short dorsal capitate setae. Wing pads and caudal plate brown dorsally, strongly sclerotised

\textit{Acizzia marginata}

\textit{Acizzia bona} Loginova, 1967


Reported from Sudan (LOGINOVA 1967) and Saudi Arabia (BURCKHARDT 1986).

Host plants: \textit{Acacia ehrenbergiana} Hayne, \textit{A. seyal} Del. (Fabaceae)
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Figs 1-8: Forewing of *Acizzia* species. 1: *A. bona*. 2: *A. halperini* n. sp. 3: *A. hirsuticauda* n. sp. 4: *A. hollii*. 5: *A. marginata*. 6: *A. melanocephala* n. sp. 7: *A. virgata* n. sp. 8: *A. wittmeri*.

*Acizzia didyma* n. sp.

*Holotype*: ♂, Yemen, West Aden Protectorate, Jabal Jihaf, c. 7000 feet, 19.IX.1937, swept from low herbage between rocks, B.M. Exp. to SW Arabia, H. Scott & E.B. Britton, BMNH. — *Paratypes*: Yemen: 18 ♀♂, 24 ♀♀, same data as holotype but BMNH, NHMB; 1 ♀, same data but c. 7100 feet, 29.IX.1937, from edges of terraced fields, BMNH.

*Diagnosis*: Genal processes short. Male proctiger, in profile, with angular posterior lobes; male subgenital plate long. Fore margin of parameres bearing a hook.

*Description*: Adult: Coloration: Head whitish yellow with extended brown patches on vertex; eyes reddish. Antennal segments pale yellow with distal portions of segments 3-7 and entire segments 8-10 brown to dark brown. Dorsal face of thorax and abdomen yellow to orange with extended brown pattern, forming longitudinal stripes on mesopraescutum and mesoscutum. Head and thorax laterally and ventrally whitish to yellow with dark spots. Abdomen whitish ventrally,
genitalia reddish to brown. Forewings transparent, veins yellow, membrane whitish with indistinct light brown band along outer wing margin and slightly darker brown spots in the middle of the cells along the outer wing margin (Fig. 9). Legs brown with yellowish tibiae and tarsi.

Structure: Head (Fig. 10) with short genal processes which bear several long hairs; vertex covered in short hairs, microsculpture restricted to margins. Forewing (Fig. 9) oblong-oval, widest in the middle, vein C+Sc slender, pterostigma petiolate. Surface spinules covering all cells, leaving narrow spinule-free stripes along the veins; irregularly and densely spaced, fine; radial spinules forming indistinct patches along wing margin in cells rs, m$_1$+2, m$_3$+4 and cu$_1$+a. Metatibia with distinct, small genual spine. Genitalia as in Figs 15-17.

Measurements (2♂♀, 2♀♀): HW 0.61-0.66; AL 1.09-1.29; WL 1.57-1.98; MP 0.19-0.20; PL 0.25-0.26; AEL 0.20-0.22; FP 0.64-0.67; ALHW 1.79-2.02; TLHW 0.69-0.79; WLHW 2.57-3.00; WLL 2.21-2.38; MPHW 0.31-0.32; FPHW 0.97-1.02; FPC 3.94-4.27; FPS 1.42-1.46.

Larva and host plant unknown.

Remarks: Acizzia didyma shares with A. bona, A. hollisi, A. marginata and A. melanocephala n. sp. the short genal processes, the long male subgenital plate and the hook on the fore margin of the parameres. Based on the shape of the distal portion of the aedeagus and of the male proctiger, A. didyma may be most closely related to A. hollisi. It differs from similar species as indicated in the key.

Acizzia halperini n. sp.


Diagnosis: Genal processes short. Antennae shorter than 1.0 mm. Forewings transparent, evenly spotted. Male subgenital plate short. Fore margin of parameres without hook.

Description: Adult: Coloration: Head yellow with light grey eyes. Antennal segments pale yellow with distal portion of segments 3-10 slightly darker. Dorsal surface of thorax bright yellow, usually with white and orange markings. Abdomen yellow to orange. Venter of body white to light yellow. Forewings transparent, evenly spotted as in Fig. 2.

Structure: Head (Fig. 11) with short genal processes which bear several long hairs; vertex covered in fine sculpture and short hairs. Forewing (Fig. 2) gradually widening to apical fifth, vein C+Sc slender, pterostigma petiolate. Surface spinules covering all cells, leaving narrow spinule-free stripes along the veins; irregularly and densely spaced, fine; radial spinules forming indistinct patches along wing margin in cells rs, m$_1$+2, m$_3$+4 and cu$_1$+a. Metatibia with indistinct genual spine. Genitalia as in Figs 18-20.

Measurements (1♂, 3♀♀): HW 0.54-0.58; AL 0.84-0.95; WL 1.54-1.87; MP 0.16; PL 0.22; AEL 0.20; FP 0.49-0.54; ALHW 1.47-1.74; TLHW 0.72-0.86; WLHW 2.85-3.22; WLL 2.11-2.23; MPHW 0.30; FPHW 0.84-0.93; FPC 3.27-3.38; FPS 1.36-1.48.

**Figs 9-14: Acizzia species**: Forewing (9) and head in dorsal view (10-14). 9-10: *A. didyma* n. sp. 11: *A. halperini* n. sp. 12: *A. hirsuticauda* n. sp. 13: *A. melanocephala* n. sp. 14: *A. virgata* n. sp.

**Structure**: Body elongate. Antenna 9-segmented with each a subapical rhinarium on segments 3, 5, 7 and 8; segment 3 with two, and segments 4 or 5 with one capitate setae which are about as long as diameter of segments. Thoracic tergites small. Legs with normal, long setae and a few long capitate setae; tarsal arolium triangular, with unguitractor and long pedicel. Surface of wing pads and caudal plate covered in spine-like microsculpture. Forewing pads (Fig. 36) elongate with several long lateral and dorsal capitate setae. Caudal plate (Fig. 32) with many dorsal and lateral capitate setae. Outer circumanal ring small, consisting of a single row of pores.

**Measurements** (3 larvae): AL 0.52-0.57; WL 0.51; BL 1.15-1.29; CPB 0.59-0.69; AWL 1.02-1.12; BBL 1.22-1.24; CPR 0.58-0.65; CCB 8.43-9.29.

Reported as *Acizzia* sp. 2 from Saudi Arabia (Burckhardt 1986) and as *Acizzia* sp. from Palestine (Burckhardt & Halperin 1992).

**Host plants**: *Acacia tortilis* (Forsskål) Hayne ssp. *tortilis* (Forsskål) Hayne and ssp. *raddiana* (Savi) Brenan (Fabaceae).

**Remarks**: Based on the structure of the male genitalia *Acizzia halperini* is related to *A. bona* from which it differs as indicated in the above key.
Acizzia hirsuticauda n. sp.  
Figs 3, 12, 21-23


Diagnosis: Genal processes long. Vein C+Sc of forewing thick. Female proctiger strongly setose dorsally.

Description: Adult: Coloration: Dorsal surface of head and thorax bright orange. Abdomen light yellow. Eyes dark orange to light red. Antennal segments yellow with only last two segments dark brown. Forewing with no distinct pattern (Fig. 3). Venter of body white to light yellow.

Structure: Head (Fig. 12) with subacute conical genal processes which are about half the vertex length and bear long hairs; vertex covered in fine sculpture and short hairs. Forewing (Fig. 3) widest in the middle, vein C+Sc thick, pterostigma petiolate. Surface spinules covering all cells, leaving broad spinule-free stripes along the veins in basal portion and narrow stripes apically; irregularly and densely spaced, fine, slightly denser apically; radular spinules forming indistinct patches along wing margin in cells rs, m1+2, m3+4 and cu1a. Metatibia with distinct genual spine. Genitalia as in Figs 21-23.

Measurements (1 ♂, 1 ♀): HW 0.59-0.71; AL 1.10-1.17; WL 1.81-2.08; MP 0.17; PL 0.24; AEL 0.23; FP 0.64; ALHW 2.93-3.07; TLHW 2.13-2.29; MPHW 0.29; FPHW 0.90; FPC 4.00; FPS 2.78.

Larva and host plant unknown.

Remarks: *Acizzia hirsuticauda* shares with *A. virgata* n. sp. the relatively long genal processes, the widened vein C+Sc of the forewing and the presence of a genual spine. It differs as indicated in the key. The species is unusual for its modified female genitalia which are similar to those of *Acizzia dodonaeae* Tuthill, 1952, from New Zealand and several undescribed species on *Dodonaea* spp. and *Amyema* spp. from Australia (MHNG data).

Acizzia hollisi Burckhardt, 1981


Acizzia marginata Burckhardt, 1986


Reported from Saudi Arabia, Kenya and Tanzania (BURCKHARDT 1986).

Host plants: *Acacia abyssinica* Hochst. ex Benth., *A. hockii* De Wild., *A. labai* Steud. & Hochst. ex Benth., *Albizia gymnifera* (J.F. Gmel.) C.A. Sm. (Fabaceae).
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Figs 15-23: Genitalia of *Acizzia* species: Male genitalia in lateral view (15, 18, 21), inner face of paramere (16, 19, 22) and female genitalia in lateral view (17, 20, 23). 15-17: *A. didyma* n. sp. 18-20: *A. halperini* n. sp. 21-23: *A. hirsuticauda* n. sp.
Acizzia melanocephala n. sp.

**Holotype:** ♂, Oman, Dhofar, Mughsayl, near Salalah, 19.II.1989, W. Wittmer, NHMB. — **Paratypes:** Oman: 2 ♂♂, 9 ♀♀, 1 larva, same data as holotype, MHNG, NHMB. — Kenya: 5 ♂♂, 9 ♀♀, Malili Ranch, 18.VI.1991, on *Acacia nilotica*, D. Hongo, BMNH, NHMB; 2 ♂♂, 2 ♀♀, 6 km W of Witu, 17.X.1986, on *Acacia nilotica*, C.I.E. 18446/8a, BMNH; 2 ♂♂, 1 ♀, Mtondia, 3°35’S 39°52’E, 11.X.1986, on *Acacia nilotica*, D. Hongo, BMNH, NHMB; 2 ♂♂, 2 ♀♀, 6 km W of Witu, 17.X.1986, on *Acacia nilotica*, C.I.E. A19004, BMNH; 3 ♂♂, 8 ♀♀, 2 larvae, Malindi, 18.V.1988, on growing shoots of *Acacia nilotica*, J.H. Martin, BMNH.

**Diagnosis:** Colour of head jet black. Genal processes short. Antennae shorter than 1.0 mm. Surface spinules of the forewings forming hexagonal pattern.

**Description:** Adult: Coloration: Head jet black with greyish eyes. Antennae yellowish except for last two segments being dark brown. Thorax usually brownish with pronotum lighter than rest of body. Forewing transparent without colour pattern (Fig. 6). Dorsal surface of abdomen dark brown.

**Structure:** Head (Fig. 13) lacking genal processes; vertex with surface sculpture only in anterior portion, setae short and scattered, one long seta on either side on ventral genal face. Forewing (Fig. 6) oval, widest in the middle, vein C+Sc slender, pterostigma petiolate. Surface spinules covering all cells, leaving narrow spinule-free stripes along the veins; fine, arranged in slightly irregular hexagonal pattern; radular spinules forming distinct triangular patches along wing margin in cells m_{1+2}, m_{3+4} and cu_{1+2}. Metatibia with distinct genual spine. Genitalia as in Figs 24-26.

**Measurements** (1 ♂, 2 ♀♀): HW 0.49-0.53; AL 0.68-0.79; WL 1.28-1.51; MP 0.13; PL 0.16; AEL 0.14; FP 0.39-0.43; ALHW 1.39-1.55; TLHW 0.51-0.61; WLHW 2.51-2.88; WLF 2.29-2.52; MPHW 0.25; FPHW 0.80-0.83; FPC 3.00-3.14; FPS 1.56-1.69.

Fifth instar larva: Coloration (of slide-mounted specimen). Body ochreous with tips of antennae and legs brown.

**Structure:** Body elongate. Antenna 9-segmented each with a subapical rhinarium on segments 3, 5, 7 and 8; without capitate setae. Body surface leathery, thoracic tergites indistinct. Legs with some normal and some rod-shaped setae of moderate length; tarsal arolium triangular, with unguitractor and long pedicel. Forewing pads (Fig. 38) elongate, subtrumbooidal; both forewing and hindwing pads each with a single clavate or rod-shaped seta at the tip. Caudal plate (Fig. 34) with a few lateral clavate, rod-shaped or indistinctly capitate setae. Outer circumanal ring moderately large, consisting of a single row of pores.

**Measurements** (2 larvae): AL 0.50; WL 0.45-0.48; BL 1.25-1.29; CPB 0.53-0.57; AWL 1.03-1.11; BBL 1.49-1.55; CPR 0.60-0.61; CCB 3.91-4.60.

**Host plant:** *Acacia nilotica* (L.) Willd. ex Del. (Fabaceae).

**Remarks:** *Acizzia melanocephala* is well characterised by head colour and shape as well as the hexagonal pattern of the surface spinules of the forewings and the genitalia.

Acizzia virgata n. sp.

**Holotype:** ♂, Yemen, Taiz to At Turba, 14.III.1993, A. van Harten, MHNG. — **Paratypes:** Yemen: 3 ♂♂, 3 ♀♀, same data as holotype, MHNG, NHMB; 1 ♀, West Aden Protectorate, Dhala, 4800 feet, 14.IX.1937, taken at moth-screen near rest-house, B.M. Exp. to SW Arabia, H. Scott & E.B. Britton, BMNH.

**Diagnosis:** Genal processes long. Forewing with brown band along outer wing margin, vein C+Sc thick.

**Description:** Adult: Coloration: Body uniformly yellow to light brown. Antennal segments pale yellow with only distal two segments dark brown. Forewings with a distinct brownish band as in Fig. 7.

**Structure:** Head (Fig. 14) covered in long setae, with blunt to subacute conical genal processes which are slightly more than half vertex length; vertex covered in fine sculpture. Forewing
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Figs 24-30: Genitalia of Acizzia species: Male genitalia in lateral view (24, 27), inner face of paramere (25, 28) and female genitalia in lateral view (26, 29, 30). 24-26: A. melanocephala n. sp. 27-29: A. virgata n. sp. 30: A. wittmeri.

(Fig. 7) widest in the middle, vein C+Sc thick, pterostigma petiolate. Surface spinules covering all cells, leaving broad spinule-free stripes along the veins in basal portion and narrow stripes apically; fine, irregularly and densely spaced apically, much sparser basally, sometimes absent from the base of cells rs and m; radular spinules forming indistinct patches along wing margin in cells rs, m₁+₂, m₃+₄ and cu₁₃. Metatibia with distinct genual spine. Genitalia as in Figs 27-29.

Measurements (1 ♂, 1 ♀): HW 0.72-0.79; AL 1.53-1.56; WL 2.33-2.63; MP 0.24; PL 0.30; AEL 0.30; FP 0.80; ALHW 1.97-2.13; TLHW 0.74-0.75; WLHW 3.24-3.33; WLW 1.65-2.16; MPHW 0.33; FPHW 1.01; FPC 3.33; FPS 1.86.

Larva and host plant unknown.

Remarks: See remarks for A. hirsuticauda.
Figs 31-38: Last instar larva of *Acizzia* species: Abdomen in dorsal view on the left and in ventral view on the right (31-34) and wing buds (35-38). 31, 35: *A. bona*. 32, 36: *A. halperini* n. sp. 33, 37: *A. hollisi*. 34, 38: *A. melanocephala* n. sp.

*Acizzia wittmeri* Burckhardt, 1981


**Material:** Yemen: 7 ♂♂, 4 ♀♀, Taiz to Mafraq, 15.III.1993, A. van Harten, MHNG.

**Description:** For the original description only males were available (BURCKHARDT 1981). Here we illustrate the previously unknown female genitalia (Fig. 30).

Reported from Saudi Arabia (BURCKHARDT 1981) and Palestine (BURCKHARDT & HALPERIN 1992).

**Host plants:** *Acacia tortilis* (Forsskål) Hayne ssp. *tortilis* (Forsskål) Hayne and ssp. *raddiana* (Savi) Brenan (Fabaceae).
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**Acizzia** sp. 1

Recorded by Burckhardt (1981) as *Acizzia* sp., and by Burckhardt (1986) as *Acizzia* sp. 1.

**Acizzia** sp. 2

Material: Yemen: 1 ♀, near Zinjibar, 27.X.1992, A. van Harten, MHNG.

**Acizzia** sp. 3

Material: Yemen: 1 ♀, Sanhan, IX.1992, on apple, M. Knapp, MHNG.

Subfamily Aphalarinae

**Key to genera and species of Aphalarinae**

**Adults**

1  Vein C+Sc of forewing (Fig. 90) angularly bent  *Rhombaphalara insolita* n. sp.  
   – Vein C+Sc of forewing weakly or strongly curved, but not angularly bent ............... 2

2  Head strongly inclined downwards at an angle of about 90° to longitudinal body axis . 3
   – Head only weakly inclined from longitudinal body axis .................. *Colposcenia* 5

3  Head slightly narrower than mesoscutum  *Crastina linnavuorii*  
   – Head much narrower than mesoscutum ........................................ *Caillardia* 4

4  Forewing with one or several cross-veins between veins Rs and M₁,₂  
   – Forewing without cross-vein between veins Rs and M₁,₂  *Caillardia dilatata*  
   – Apices of veins along outer forewing margin same colour as surrounding membrane 6
   – Apices of veins along outer forewing margin black, contrasting with surrounding membrane ....................................................... 7

5  Branches of vein M of forewing strongly curved away from each other  *Colposcenia elegans*  
   – Both branches of vein M of forewing weakly curved to hind margin or straight  *Colposcenia jakowleffi*  

6  Posterior lobes of male proctiger relatively short and strongly expanded posteriorly  
   – Posterior lobes of male proctiger long, only weakly expanded posteriorly  *Colposcenia arabica*  

**Fifth instar larvae**

(Taxa not included: *Crastina linnavuorii, Colposcenia arabica* and *C. elegans*)

1  Margin of forewing pad with deep notch in the middle ................ *Colposcenia* 2
   – Margin of forewing pad not notched ............................................... 3

2  Head with lanceolate setae anteriorly  *Colposcenia arabica*  
   – Head without lanceolate setae anteriorly  *Colposcenia aliena*  

3  Outer circumanal ring with one row of pores  *Caillardia inedita*  
   – Outer circumanal ring with several rows of pores ................................ 4

4  Circumanal ring close to hind margin of caudal plate; distance between posterior margins of circumanal ring and caudal plate less than length of circumanal ring in the middle  
   – Circumanal ring distant from hind margin of caudal plate; distance between posterior margins of circumanal ring and caudal plate about equal to length of circumanal ring in the middle  *Rhombaphalara insolita* n. sp.
**Gaillardia dilatata** Loginova, 1978


Reported from Egypt and Iran (LOGINOVA 1978 b), Saudi Arabia (BURCKHARDT 1981, 1986) and Palestine (BURCKHARDT & HALPERIN 1992).


**Gaillardia inedita** Loginova, 1978


Reported from Saudi Arabia (BURCKHARDT 1986), Kazakhstan, Turkmenistan and Uzbekistan (GEGECHKORI & LOGINOVA 1990).


**Golposcenia aliena** (Loew, 1882)


Widely distributed throughout the Mediterranean, the Middle East and Central Asia to Mongolia and China, Ethiopia and Sudan (GEGECHKORI & LOGINOVA 1990). Not previously known from the Arabian Peninsula.

Host plant: *Tamarix* spp. (Tamaricaceae).

**Golposcenia arabica** Loginova, 1974


Material: Yemen: 6 ♂♂, 10 ♀♀, Sana'a, 8-12.I.1991, on *Tamarix* sp.; 3 ♂♂, 7 ♀♀, same data but II.1991; 1 ♀, same data but light-trap; 1 ♂, same data but IV.1992, Malaise-trap; 99 ♂♂, 86 ♀♀, same data but VII.1991, light-trap; 4 ♂♂, 6 ♀♀, same data but IX.1991; 1 ♂, same data but light-trap and Malaise-trap; 1 ♀, Mabar to Medinat al-Shirq, 12.III.1992, on *Acacia* sp.; all A. van Harten, MHNG; 1 ♂, Rayda, 20.X.1991, on apple; 1 ♀, Sanhan, V.1992, on peach; all M. Knapp, MHNG; 1 ♀, Mabar, V.1992, light-trap, M. Mahyoub, MHNG.

Recorded from Yemen (LOGINOVA 1974).

Host plant: *Tamarix* sp. (Tamaricaceae).

**Golposcenia elegans** (Bergevin, 1932)


Material: Oman: 3 ♂♂, 5 ♀♀, 4 km W of Qiffa, Wadi Dima, 22°21'N 58°22'E, 25.X.1990, on *Tamarix aphylla*, M.D. Gallagher & J.C. Deeming, BMNH, NMWC, NHMB.

Reported from Algeria, Egypt, Palestine, Yemen (LOGINOVA 1971, 1974) and Iran (BURCKHARDT & LAUTERER 1993).


**Golposcenia jakowleffi** (Scott, 1879)


Material: Yemen: 7 ♂♂, 8 ♀♀, 2 larvae, Sana'a, 8-12.I.1991, on *Tamarix* sp.; 1 ♂, 2 ♀♀, same data but II.1991; 1 ♀, Mabar to Medinat al-Shirq, 12.III.1992, on *Acacia* sp.; all A. van Harten.

Recorded from Yemen, Astrakhan, the Caucasus and Central Asia (LOGINOVA 1974, GEGECHKORI & LOGINOVA 1990).

Host plant: *Tamarix* sp. (Tamaricaceae).
Remarks: *Colposcenia jakowleffi* and *C. arabica* probably occur together on the same host plant. The larvae are attributed to *C. jakowleffi* on the basis of the presence of 5-6 apical metatibial spurs, rather than 7, present in the adult legs which are recognisable through the larval skin in the specimens available for examination.

*Colposcenia* sp.
A single female was reported from Saudi Arabia (Burckhardt 1986).

*Crastina linnavuorii* Loginova, 1974


Material: Yemen: 2 ♂, 5 ♀, Hamam Ali, 5.VIII.1991, on *Tamarix* sp., A. van Harten; 1 ♂, Sanhan, VI.1992, on peach, M. Knapp; all MHNG.

Recorded from Palestine and Jordan (Loginova 1974), not previously known from the Arabian Peninsula.

Host plants: *Tamarix* spp. (Tamaricaceae).

*Rhombaphalara insolita* n. sp. Fig. 90

*Rhombaphalara achaetae* sensu Burckhardt, 1986, nec Klimaszewski, 1967 [misidentification].

Holotype: ♂, Saudi Arabia, Wadi Dawasir, 20.XI.1983, on *Suaeda fruticosa*, A. Talhouk, NHMB. — Paratypes: Saudi Arabia: 26 ♂♂, 37 ♀♀, 32 larvae, same data as holotype; MHNG, NHMB; 4 ♂♂, 3 ♀♀, 7 larvae, same data but, 7.III.1984, NHMB. — Yemen: 1 ♀, near Zinjibar, 27.X.1992; 1♀, Aden to Little Aden, 10-12.IV.1993; all A. van Harten, NHMB.

Diagnosis: Adult: Vertex flattened, angular, more than half as long as wide; anteriorly relatively well defined, abruptly passing into genae. Clypeus flat, adpressed to lower head surface, not visible from above. Forewings (Fig. 90) rhomboidal, coriaceous; margin of cell c+sc with small lobe in the middle. Wing-like processes of male proctiger bearing an inwardly directed hook on the lower margin. Paramere rounded apically with a distinct subapical thumb-like process along the fore margin. Distal portion of aedeagus with oval apical dilatation, sclerotised end tube relatively long and straight. Dorsal margin of female proctiger angularly convex with weakly inflated apex.

Descriptions of adult and fifth instar larva, including illustrations, by Burckhardt (1986).

Previously reported from Saudi Arabia as *Rhombaphalara achaetae* (Burckhardt 1986).

Host plant: *Suaeda fruticosa* Forsskål ex J.F. Gmelin (Chenopodiaceae).

Remarks: In the absence of material of *Rhombaphalara achaetae*, Burckhardt (1986) referred a series of Saudi Arabian specimens collected on *Suaeda fruticosa* to this species. Subsequently specimens of *R. achaetae* became available which showed that the material from Saudi Arabia belongs to a different species which is named here as *R. insolita*. The two species can be separated as follows: vertex flattened, relatively longer and ± clearly separated from genae in *R. insolita*; clypeus flattened, not visible in dorsal view in *R. insolita*, but large, globular and visible in dorsal view in *R. achaetae*; margin of cell c+sc of the forewing with small lobe in the middle in *R. insolita*, evenly rounded in *R. achaetae*; wing membrane coriaceous in *R. insolita*, semi-transparent in *R. achaetae*; apex of paramere more rounded in *R. insolita*; in *R. insolita* the female proctiger is inflated apically but slender in *R. achaetae*, the host plants are *Suaeda* for *R. insolita* and *Kalidium* for *R. achaetae*. The difference in the forewing shape of the Saudi Arabian specimens in comparison to the description of *R. achaetae* by Klimaszewski (1967) was already noted by Burckhardt (1986) who attributed it to intraspecific variation. The material from Yemen, however, suggests that this character is stable and diagnostic for *R. insolita*. *Rhombaphalara insolita* differs from *R.
halocnemi Loginova, 1964, and R. halostachydis Loginova, 1970, the other two members of Rhombaphalara, in the absence of a dark wing pattern.

The structure of head and clypeus of R. insolita is more similar to that of Caillardia than that of its congeners; the genitalia, however, place it into Rhombaphalara. In the absence of a cladistic analysis of the subfamily we follow Loginova (1972).

Subfamily Aphalaroidinae

Pachyparia dimorpha Loginova, 1967


Reported from Sudan (Loginova 1967) and Saudi Arabia (Burckhardt 1981).

Host plants: Acacia ehrenbergiana Hayne, A. nilotica (L.) Willd. ex Del., A. tortilis (Forsskål) Hayne (Fabaceae).

Remarks: In the current definition the Aphalaroidinae comprise eight New World genera (Burckhardt 1987). However, D. Hollis (in prep.) also includes Old World taxa such as Pachyparia.

Subfamily Arytaininae

Cyamophila coluteae (Baeva, 1966)


Material: Oman: 1 ♂, 1 ♀, Musandam, Ebel Harim, 25°59'N 56°14'E, 2000 m, 26.IX.1990, M.D. Gallagher & M.J. Ebejer, NHMB.

Reported from the Caucasus, Tadzhikistan, Turkmenistan and Iran (Gegechkori & Loginova 1990).

Host plants: Colutea spp. (Fabaceae).

Subfamily Diaphorininae

Key to genera and species of Diaphorininae

Adults

1 Occipital margin of head adjacent to forewing base (Fig. 98). Forewing (Fig. 97) subelliptical, widest in the middle; pterostigma large; vein R and M+Cu₁ of subequal length. Metacoxae with two tubercles on the outer face in addition to meracanthus. Aedeagus 2-segmented ........................................... Peripsyllopsis

2 Occipital margin of head distant to forewing base (Figs 39-44, 47-50). Forewing (Figs 81-88, 92-94) oval, usually widest in apical third to fifth; pterostigma narrow; vein R about twice as long as M+Cu₁. Metacoxae without tubercles on the outer face. Aedeagus 3-segmented ........................................... Diaphorina

3 Head without genal processes. Apical dilatation of distal segment of aedeagus irregularly rounded. Female genitalia cuneate Peripsyllopsis obsolenta

4 Head with flattened genal processes (Fig. 98). Apical dilatation of distal portion of aedeagus hooked (Fig. 104). Female genitalia as in Fig. 100

Peripsyllopsis dodonaeae n. sp.

5 Genal processes < 0.8 times as long as vertex along mid-line ......................... 4

Genal processes > 1.0 times as long as vertex along mid-line ......................... 8

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Forewing pattern consisting of well-defined brown to dark brown spots which are also present in basal half of wing ................................................................. 5
– Forewing pattern indistinct or restricted to apical half of wing .......................... 6
5 Fore margin of forewings evenly rounded (Fig. 95). Paramere with apical hook directed forward (Fig. 58). Ventral margin of female subgenital plate evenly rounded

**Diaphorina enderleini**
– Fore margin of forewings almost straight with indistinct angle in distal fifth (Fig. 88). Male paramere clavate in profile (Fig. 72). Ventral margin of female subgenital plate angular (Fig. 73) ................................. 6

**Diaphorina luteola**
6 Fore margin of forewing strongly angular in distal fifth; pattern as in Fig. 82. Genal processes strongly asymmetrical (Fig. 47) ......................... 7
– Fore margin of forewing weakly angular or rounded in distal fifth (Fig. 86); pattern different. Genal processes ± symmetrical (Fig. 50) ................................. 7

Genal processes blunt apically. Forewing with light pattern as in Fig. 86

**Diaphorina leptadeniae** n. sp.
– Genal processes pointed apically (Fig. 50). Forewing without distinct pattern

**Diaphorina lamproptera**
8 Forewing pattern consisting of stripes or bands ............................................... 9
– Forewing pattern consisting of well-defined brown spots which can be confluent along outer wing margin ................................................................. 10

**Diaphorina dakariensis**
9 Forewing with pattern as in Fig. 92; fore margin rounded

**Diaphorina enormis**
– Forewing with pattern as in Fig. 84; fore margin distinctly angular in apical fifth

**Diaphorina citri**
10 Genal processes slender (Fig. 39). Forewing pattern consisting of a band of confluent brown spots along vein Rs and another along outer margin, the two areas are well separated by a white gap in the subapical region of Rs, membrane whitish (Fig. 81) ........................... 11

**Diaphorina acokantherae**
– Genal processes massive (Fig. 42). Forewing not consisting of two well-separated bands of confluent spots. Membrane variable ........................................ 11

11 Forewing membrane whitish, dark brown pattern relatively restricted, consisting of small spots (Fig. 85). Genitalia as in Figs 62-64

**Diaphorina harteni** n. sp.
– Forewing membrane yellow, brown pattern extensive, consisting of confluent patches

**Diaphorina acokantherae**
12 Head and genal processes yellowish. Paramere elongate; ventral margin of female subgenital plate angular

**Diaphorina acokantherae**
– Head reddish brown, strongly contrasting with yellowish genal processes. Genitalia as in Figs 68-70. Paramere relatively stout; ventral margin of female subgenital plate with large hump

**Diaphorina linnavuorii**

Fifth instar larvae
(Taxa not included: *Diaphorina acokantherae*, *D. dakariensis*, *D. elegans* n. sp., *D. enderleini*, *D. harteni* n. sp. and *D. linnavuorii*)

1 Antenna 7- to 8-segmented ................................................................. **Peripsyllopsis** 2
– Antenna 3-segmented ............................................................................. **Diaphorina** 3

2 Wing buds and caudal plate with many lanceolate setae. Outer circumanal ring with a single row of pores

**Peripsyllopsis dodonaeae** n. sp.
– Wing buds and caudal plate without or, at most, with a few lanceolate setae. Outer circumanal ring with several rows of pores

**Peripsyllopsis obsoleta**
Margins of head, wing buds and/or caudal plate with small but distinct club-shaped setae (magnification 200 x) (Fig. 78) ................................... . 3

Margins of head, wing buds and caudal plate without visible club-shaped setae (magnification 200 x) ............................................... . 4

BL > 1.8 mm  
Diaphorina enormis

BL < 1.8 mm  
Diaphorina leptadeniae n. sp.

Antennal flagellum dark brown to black, strongly contrasting with basal segments  
Diaphorina citri

Antennal flagellum light, dark at apex only ............................................. . 6

On Zygophyllum species  
Diaphorina lamproptera

On Solanum species  
Diaphorina luteola

Diaphorina acokantherae (Pettey, 1924)


Material: Yemen: 12 ♀♂, 16 ♀♀, West Aden Protectorate, Jabal Harir, western face, c. 6000 feet, 4.XI.1937, on *Acokanthera schimperi var. deflersii*, B.M. Exp. to SW Arabia, H. Scott & E.B. Britton, BMNH, NHMB.

Recorded from South Africa (Pettey 1924, Capener 1970).

Host plants: *Acokanthera oppositifolia* (Lam.) L.E. Codd, *A. schimperi var. deflersii* (Schweinf.) Stapf (Apocynaceae).

Diaphorina citri Kuwayama, 1908  
*Diaphorina citri* Kuwayama, 1908. — Transactions of the Sapporo Natural History Society 2: 160.

Material: Yemen: 5 ♀♂, Jabal Jelal, above Nakil Isla, 9600-10,000 feet, 8.III.1938, B.M. Exp. to SW Arabia, H. Scott & E.B. Britton, BMNH, NHMB.

Recorded from Saudi Arabia (Commonwealth Institute of Entomology 1974, Burckhardt 1981); widely distributed throughout tropical Asia, the Middle East, the Mascarene Islands, Hawaii, Brazil, Uruguay, Honduras, Guadeloupe and Florida (Commonwealth Institute of Entomology 1974, Etienne et al. 1998, Halbert 1998).

Host plants: *Citrus spp.*, *Murraya spp.* (Rutaceae).

Diaphorina dakariensis Boselli, 1930  

Material: Yemen: 1 ♀, Taiz to Mafraq, 15.III.1993, A. van Harten, MHNG.

Reported from Senegal and India (Hodkinson 1986).

Host plant unknown.

Diaphorina elegans n. sp.  
Figs 47, 55-56, 82

Holotype: ♀, Yemen, Socotra, Nogeed, 16.IV.1993, on *Suaeda sp.*, A. van Harten, MHNG. — Paratype: Yemen: 1 ♀, same data as holotype but Nogeed to Habido.

Diagnosis: Genal processes broadly truncate anteriorly. Forewing angular apically, with dark pattern along outer margin.

Description: Adult: Coloration: Head dirty white to light orange. Eyes dark brown. First two and last two antennal segments brown to dark brown, rest of antenna whitish. Pronotum and

mesothoracic scutellum with coloration as on head, rest of thorax bright orange with dorsal reddish longitudinal markings. Forewing (Fig. 82) somewhat transparent with brown spots concentrated at the posterior part; two dark spots are situated on the beginning of veins M+Cu₁ and Cu₁a. Femur light brown, rest of leg white. Abdomen light orange to brown.

**Structure:** Head (Fig. 47) coarsely sculptured and moderately densely covered in long setae; genal processes strongly asymmetrical, rounded externally, angular internally, about 0.8 times as long as vertex along mid-line. Antenna (Fig. 55) with slender segments 3, 5 and 7 which are hardly widened apically; segments 4 and 6 slightly thicker and a bit more inflated apically, segment 8 strongly widened to apex; segments 9 and 10 thick; segment 10 with one terminal seta slightly shorter and one slightly more than twice as long as segment. Forewing (Fig. 82) strongly widening to about apical fifth, fore margin strongly angular apically; setae along veins short, much shorter than distance between them; surface spinules coarse, densely covering all cells up to veins. Male unknown; female genitalia as in Fig. 56.

**Measurements** (1 ♂): HW 0.46; AL 0.35; WL 1.53; FP 0.44; ALHW 0.76; TLHW 0.76; WLHW 3.33; WLW 2.04; FPHW 0.96; FPC 4.00; FPS 1.26.

Larva unknown.

**Host plant:** The holotype was collected on *Suaeda* sp. (Chenopodiaceae) which may be the host.

**Remarks:** *Diaphorina elegans* is well defined by its apically angular forewing, in addition to head and genital structure. The species is therefore described, even though only one sex is represented in the available material.

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*Diaphorina enderleini* Klimaszewski, 1964


**Material:** Yemen: 1 ♂, Sumara Pass, 13.III.1993, A. van Harten, MHNG. — Kenya: 1 ♂, 45 km NE of Ekericho, 2200 m, III.1993, B. Merz, MHNG. — Sudan: holotype ♀, 1 ♀ paratype of *Diaphorina siluncula*, Equatoria, Yambio, 17-25.IV.1963, Linnavuori, ZISP.

Recorded from Tanzania (Enderlein 1910, Klimaszewski 1964) as *Gonanoplicus guttulatus* and from Sudan (Loginova 1978 a) as *Diaphorina siluncula*.

Host plant unknown.

**Remarks:** *Diaphorina enderleini* is well defined by its forewing shape and pattern as well as the apically hooked paramere and the concave dorsal margin of the female proctiger. Enderlein's (1910) description of *Gonanoplicus guttulatus* is sufficiently precise to indicate that this is the same species as Loginova's *D. siluncula* of which we have examined types. The two are, therefore, synonymised.

Diaphorina enormis Loginova, 1978


Recorded from Iran, Sudan (LOGINOVA 1978 a) and Saudi Arabia (BURCKHARDT 1981).

Host plant: A single specimen was collected on Leptadenia sp. (Asclepiadaceae) which may be its host plant (BURCKHARDT 1981).
Figs 59-67: Genitalia of *Diaphorina* species: Male genitalia in lateral view (59, 62, 65), inner face of paramere (60, 63, 66), and female genitalia in lateral view (61, 64, 67). 59-61: *D. enormis*. 62-64: *D. harteni* n. sp. 65-67: *D. leptadeniae* n. sp.
Figs 68-76: Genitalia of *Diaphorina* species: Male genitalia in lateral view (68, 71, 74), inner face of paramere (69, 72, 75), and female genitalia in lateral view (70, 73, 76). 68-70: *D. linnavuorii*. 71-73: *D. luteola*. 74-76: *Diaphorina* sp. 2.
Psylloidea of the Arabian Peninsula

Diaphorina harteni n. sp.

Holotype: ♂, Yemen, Mafhaq to Khamis Bani Sa’ad, 9.III.1993, A. van Harten, MHNG. — Paratypes: Yemen: 5 ♂♂, 10 ♀♀, 1 adult without abdomen, same data as holotype but MHNG, NHMB, ZISP.

Diagnosis: Genal processes long. Forewing gradually widening to apical fifth, bearing small, well-defined brown spots on membrane.

Description: Adult: Coloration: Head creamy white to brown. Eyes dark brown. Antennae yellowish except for last two segments being dark brown. Usually thorax darker than head, sometimes of a bright orange colour with longitudinal dark bands on the dorsum. Forewing transparent to translucent with small brown spots, denser at the distal part of wing (Fig. 85). Femur brown with rest of leg somewhat lighter. Abdomen yellow to light brown.

Structure: Head (Fig. 41) coarsely sculptured and moderately densely covered in long setae; genal processes symmetrical, conical, about as long as vertex along mid-line. Antennae with slender segments 3, 5 and 7 which are hardly widened apically; segments 4 and 6 slightly thicker and a bit more inflated apically, segment 8 strongly widened to apex; segments 9 and 10 thick; segment 10 with one terminal seta slightly shorter and one almost twice as long as segment. Forewing (Fig. 85) gradually widening to about apical fifth, fore margin evenly curved subapically; setae along veins...
long, slightly shorter than distance between them; surface spinules coarse, densely covering all cells, leaving narrow spinule-free stripes along the bases of the veins. Genitalia as in Figs 62-64.

Measurements (1 $\sigma$, 1 $\varphi$): HW 0.55-0.56; AL 0.30-0.38; WL 1.78-1.85; MP 0.27; PL 0.23; AEL 0.20; FP 0.51; ALHW 0.55-0.68; TLHW 0.80; WLHW 3.24-3.30; WLY 2.31-2.51; MPH 0.49; FPH 0.91; FPC 3.64; FPS 1.38.

Larva and host plant unknown.

Remarks: Diaphorina harteni resembles D. aegyptiaca Puton, 1892, in the spotted forewings and the long genal processes. It differs from it in the more slender, oval-shaped forewings and details in the genitalia.

Diaphorina lamproptera Burckhardt, 1981


Material: Bahrain: some 100 $\sigma$ and $\varphi$, Satellite Station, 12.VI.1992, on Zygophyllum qatareme, N. Lavoyer, MHNG; 6 $\sigma$, 1 $\varphi$, same data but Chenopodiaceae; about 100 $\sigma$ and 9 $\varphi$, road to the Interior, 12.VI.1992, on Zygophyllum qatareme, N. Lavoyer, MHNG; 1 $\varphi$, Awali, 12.VI.1992, on Salsola imbricata, N. Lavoyer, MHNG. — Kuwait: 18 $\sigma$, 22 $\varphi$, 36 larvae, Messila, 0 m, 9.XII.1991, on Zygophyllum cocineum; 2 $\sigma$, 3 $\varphi$, 2 larvae, same data but 16.XII.1991; 118 $\sigma$, $\varphi$, larvae, same data but 5.II.1992; 13 $\sigma$, 9 $\varphi$, many larvae, same data but 6.II.1992; 48 $\sigma$, 42 $\varphi$, 1 larva, same data but 15.II.1992; 4 $\sigma$, 1 $\varphi$, 6 larvae, same data but 10.IV.1992; all N. Lavoyer, MHNG. — Saudi Arabia: 1 $\sigma$, surroundings of Riyadh, 30-31.X.1977, W. Büttriker, NHMB; 9 $\sigma$, 6 $\varphi$, Haddat ash-Sham, 3.VI.1972, water trap, BMNH; 2 $\sigma$, 2 $\varphi$, same data but 23.V.1972. — United Arab Emirates: 4 $\sigma$, 3 $\varphi$, Abu Dhabi, Ruwais, 6-9.XI.1985, M.J. Ebejer, BMNH; 1 $\varphi$, same data but 10-13.XI.1985. — Yemen: 1 $\varphi$, al-Kowd, 1-15.I.1993, in Malaise-trap; 2 $\sigma$, same data but 15-28.II.1993; 1 $\sigma$, 1 $\varphi$, same data but IV.1993; 9 $\sigma$, 5 $\varphi$, 7 larvae, Qatabah to Aden, 19.III.1993; 1 $\varphi$, Mukeiras, 11.IV.1993; all A. van Harten, MHNG.
Psylloidea of the Arabian Peninsula


Recorded from Saudi Arabia, Egypt (Burckhardt 1981, 1985) and Palestine (Burckhardt & Halperin 1992).


Diaphorina leptadeniae n. sp.


Holotype: ♂, Saudi Arabia, Kheys Road, 8.V.1984, on Leptadenia pyrotechnica, A.S. Talhouk, NHMB. — Paratypes: Saudi Arabia: 13 ♂♂, 33 ♀♀, numerous larvae, same data as holotype, MHNG, NHMB; 14 ♂♂, 10 ♀♀, numerous larvae, Dirab, 8.V.1984, on Leptadenia pyrotechnica, A.S. Talhouk, NHMB.

Diagnosis: Forewing oval with brown pattern consisting of irregular patches along the apices of the veins. Male proctiger moderately produced posteriorly. Female proctiger and subgenital plate subacute apically.
**Description:** Adult: Coloration: Ochreous, head and thorax covered in whitish waxy secretions. Antennal segments 4 and 6 brown apically, segments 9 and 10 dark brown to black. Forewings whitish, semi-transparent with light brown pattern as in Fig. 86. Apicocotarsi brown. Genitalia light brown to brown.

**Structure:** Head coarsely sculptured and moderately densely covered in long setae; genal processes symmetrical, conical, blunt apically, about 0.6 times as long as vertex along mid-line. Antennae with flagellar segments of about the same width, only very slightly widened apically; segment 10 with one terminal seta distinctly shorter and one about as long as segment. Forewing (Fig. 86) gradually widening to about apical fifth, fore margin evenly curved subapically; setae along veins short, shorter than distance between them; surface spinules relatively fine, densely covering all cells up to veins. Genitalia as in Figs 65-67.

**Measurements (3♂♀, 1 ♀):**
- HW 0.66-0.71; AL 0.52-0.57; MP 0.33-0.34; PL 0.26-0.28; AEL 0.18-0.21; FP 0.61; ALHW 0.76-0.83; TLHW 0.70-0.74; WLHW 2.97-3.09; MWL 2.24-2.34; MPHW 0.50; FPHW 0.86; FPC 3.39; FPS 1.33.

**Fifth instar larva** (Fig. 79): described by BURCKHARDT (1986) as *D. bikanerensis.*

Recorded as *Diaphorina bikanerensis* from Saudi Arabia (BURCKHARDT 1986).

**Remarks:** *Diaphorina leptadeniae* resembles *D. bikanerensis* superficially in the forewing pattern and shares the same host genus. It differs from it in the slightly narrower forewing with a more restricted pattern, the shorter and more symmetrical genal processes, and the posteriorly more produced male proctiger.

---

**Diaphorina linnavuorii** Loginova, 1978


**Material:** Yemen: 27♂♂, 34♀♀, 2 adults without abdomen, Jabal Jelal, above Nakil Isla, 9600-10,000 feet, 8.III.1938, B.M. Exp. to SW Arabia, H. Scott & E.B. Britton, BMNH, NHMB; 1♂, same data but Jabal Masnah, SW of Mabar, c. 8400 feet, 9.III.1938, BMNH; 1♀, Mabar, 28.VII.1992, in light-trap, M. Mahyoub, MHNG; 1♀, Sana'a, II.1993, in Malaise-trap, A. van Harten, MHNG. — Ethiopia: 1♂, Belleta forest, 13-14.VI.1963; 1♀, near Lake Langanno, 6-7.VI.1963; all Linnavuori, paratypes of *D. linnavuorii,* ZISP. — Kenya: 19♂♂, 27♀♀, Lake Naivasha, W of shore road, c. 6200 feet, on *Psidium punctulatum*, D. Hollis, BMNH, NHMB. — Tanzania: 2♀♀, Kilimanjaroh National Park, Momella Lodge, 21.II.1981, on *Crassocephalum* sp., Chr. Burckhardt, MHNG.

Recorded from Ethiopia (LOGINOVA 1978 a) and Saudi Arabia (BURCKHARDT 1986).

**Host plant:** A series of adult specimens was collected on *Psidium punctulatum* (DC.) Varke (Asteraceae) which may be the host plant.

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**Diaphorina luteola** Loginova, 1978


Recorded from Sudan and Iran (LOGINOVA 1978 a, BURCKHARDT & LAUTERER 1993).

**Host plants:** *Solanum sepicula* Dunn., *Solanum* sp. (*Solanaceae*).

---

**Diaphorina sp. 1**

**Material:** Yemen: 1♂, al-Mahwit to Khamis Bani Sa'ad, Wadi Sara'a, 17.III.1992, A. van Harten, MHNG.
Psylloidea of the Arabian Peninsula

Figs 89-96: Forewing of various Psylloidea species. 89: Pseudophacopteron sp. 90: Rhombaphalara insolita n. sp. 91: Gymophila prohaska. 92: Diaphorina dakariensis. 93: D. lamproptera. 94: Diaphorina sp. 2. 95: Colophorina sp. 96: Psylla sp.

Remarks: The single male resembles D. linnatuorii in forewing shape and colour but differs in the slightly shorter genal processes and the posteriorly more produced male proctiger.

Diaphorina sp. 2

Material: Yemen: 1♂, 2♀, Socotra, Nogeed to Habido, 16.IV.1993, A. van Harten, MHNG.

Remarks: In head (Fig. 44) and forewing structure (Fig. 94), the specimens at hand resemble D. chobauti Puton, 1898. They differ in the posteriorly less produced male proctiger (Fig. 74), the slightly shorter and broader paramere (Fig. 75) and the straight dorsal margin of the female proctiger (Fig. 76). Additional material is needed for a proper identification.
Genus *Peripsyllopsis* Enderlein, 1926

**Type species:** *Arytaina ramakrishni* Crawford, 1924, by original designation and monotypy.

**Remarks:** Among the material from Yemen is a species, similar to *Euphyllura speciosa* Capener, 1973 from South Africa, which is described below. Despite a superficial resemblance in the lobular genal processes, these two species differ considerably in detail from the Oleaceae-feeding members of *Euphyllura*. The presence of lanceolate setae and the absence of additional anal pore fields in the larvae (see below) place them in the Diaphoriniinae rather than the Livininae (as genuine *Euphyllura* [(White & Hodkinson 1985)]). Similarly, *E. obsoleta* Mathur, 1975, whose problematical attribution to *Euphyllura* was commented on by [Mathur (1975)] and [Burckhardt (1986)], belongs to the Diaphoriniinae.

In their present definitions, none of the genera currently included in the Diaphoriniinae [(Hodkinson 1991)] can, however, accommodate these species. To redefine existing genera or to erect new ones is undesirable without a sound phylogenetic base. Pending a revision which will provide such a base, we propose to place the three species in *Peripsyllopsis*. Based on the presence of an incomplete crown of apical spurs on the metatibia and of long thick setae on the inner face of the paramere, *P. ramakrishni* (Crawford, 1924), the type species of the monotypic Indian genus, belongs to the Diaphoriniinae, rather than the Arytainini as was suggested by [Heslop-Harrison (1951)].

Including *E. obsoleta*, *E. speciosa* and the new species from Yemen, *Peripsyllopsis* can be characterised as follows: forewing oval to subrhomboidal, veins R and M+Cu₁ subequal, pterostigma large, body size small, antenna short, about as long as head width, metabasitarsus with two black spurs, and male proctiger tubular, wide at base and narrowing to apex. The new combinations: *Peripsyllopsis speciosa* (Capener, 1973), n. comb. (from *Euphyllura*) and *Peripsyllopsis obsoleta* (Mathur, 1975), n. comb. (from *Euphyllura*) are introduced here.

*Peripsyllopsis dodonaeae* n. sp.  
**Figs 97-105**


**Diagnosis:** Genal processes forming lobes. Forewing with straight vein C₁-Sc, with short branches of vein M and with light and sparse pattern. Male proctiger simple. Female proctiger with large lateral lobes.

**Description:** Adult: Coloration of teneral specimens: Ochreous, head and thorax with white and brown pattern. Tips of antennal segments 4 and 6 brown, segments 9 and 10 black. Forewing straw-coloured to light brown, with indistinct brown dots (Fig. 97).

**Structure:** Head (Fig. 98) strongly deflexed from longitudinal body axis; vertex covered in microsculpture and short hairs; genae forming flattened lobes; preocular sclerite developed. Eyes recessive, their hind margin near base of forewing. Antenna 10-segmented with rhinaria on segments 4, 6, 8 and 9; both terminal setae longer than segment 10 (Fig. 99). Clypeus small, flattened. Labium short. Pronotum short, propleurites narrow. Mesonotum flattened. Forewing (Fig. 97) oval, widest in the middle with large pterostigma; surface spinules present in all cells, forming irregular, indistinct hexagonal cells, leaving spine-free stripes along the veins. Hindwing with ungrouped costal setae. Metacoxa (Fig. 101) narrow, with short, fusiform meracanthus and two lateral tubercles. Metatibia without genual spine. Metabasitarsus with two black spurs. Genitalia as in Figs 100, 102-104.
Measurements (2 ♂♂, 2 ♀♀): HW 0.51-0.60; AL 0.39-0.43; WL 1.10-1.41; MP 0.14; PL 0.07-0.09; AEL 0.09-0.10; FP 0.34-0.39; ALHW 0.75-0.82; TLHW 0.53-0.56; WLHW 2.16-2.45; WLW 2.24-2.39; MPHW 0.27; FPHW 0.61-0.65; FPS 2.83-3.25; FPS 3.00-3.09.


Structure: Body (Fig. 105) elongate. Antenna 8-segmented with each a rhinarium on segments 3, 5, 7 and 8; with scattered short setae. Thoracic tergites small. Pro- and mesotibia with an outer row of lanceolate setae; tarsal arrolium triangular, with unguistractor and short pedicel. Surface of wing pads and caudal plate densely covered in short, thick, slightly curved setae. Forewing pads elongate without humeral lobes, margin bearing lanceolate setae or indistinct setasetae. Caudal plate with numerous marginal lanceolate setae or indistinct setasetae. Outer circumanal ring of moderate size, consisting of a single row of pores; extra pore field absent.

Measurements (4 specimens): AL 0.30-0.41; WL 0.40-0.47; BL 0.95-1.21; CPB 0.41-0.48; AWL 0.68-0.93: BBL 1.25-1.38; CPR 0.67-0.74; CCB 3.29-3.43.

Host plant: Dodonaea viscosa (L.) Jacq. (Sapindaceae).

Discussion: Based on the lobed genal processes, the simple male proctiger, the short, stout parameres and the large lateral lobes on the female proctiger, *P. dodonaeae* is most closely related to *P. speciosa* from which it differs in the narrower genal lobes; the forewing with an almost straight vein C+Sc, with shorter branches of vein M and with a much lighter and sparser pattern; and details in the genitalia.

*Peripsyllopsis obsoleta* (Mathur, 1975), n. comb.


Reported from India (MATHUR 1975) and Saudi Arabia (BURCKHARDT 1986).

Host plant: Salvadora oleoides Dene (Salvadoraceae).

Subfamily Euphalerinae

*Colophorina* sp.

Material: Yemen: 1 ♂, Taiz to Mafraq, 15.III.1993, M. Knapp, MHNG.

Coloration: Body uniformly black except for antennae and tarsi. Antennal segments yellow, except for distal portion of segments 3-8 and entire segments 9 and 10 being black. Forewing with distinct black pattern as in Fig. 95.

Description: Adult: Coloration of teneral specimens: Ochreous, head and thorax with white and brown pattern. Tips of antennal segments 4 and 6 brown, segments 9 and 10 black. Forewing straw-coloured to light brown, with indistinct brown dots (Fig. 95).

Structure: Head (Fig. 108) with short blunt genal processes. Antenna 10-segmented with each a subapical rhinarium on segments 4, 6, 8 and 9; both terminal setae about as long as segment 10. Clypeus pyriform. Labium short. Propleurites narrow with oblique suture. Forewing (Fig. 95) subrhomboidal, with short pterostigma; surface spinules almost entirely absent from basal portion of wing, present in apical two thirds where they are mostly associated with the dark coloured areas; irregularly, densely spaced. Hindwing with ungrouped costal setae. Metacoxa with short, conical meracanthus. Metatibia without genual spine and four grouped apical spurs. Metabasitarsus with two black spurs. Male genitalia as in Fig. 107; female unknown.

Measurements (1 ♂): HW 0.65; AL 0.71; WL 1.55; MP 0.23; PL 0.13; AEL 0.23; ALHW 1.09; TLHW 0.62; WLHW 2.39; WIW 2.35; MPHW 0.35.
Larva and host plant unknown.

Discussion: The specimen examined belongs to an undescribed species resembling the South African “Euphalerus” marginalis Capener, 1973 (see Hollis & Martin 1997 for definition and discussion of Euphalerus). It differs in the shorter genal processes, in the forewing pattern and the basally narrower parameres. Without additional material the species is not formally named.

Subfamily Liviinae

Key to species of Euphyllura

Adults

1 Pterostigma of forewing without cross-veins, short, about twice as long as distance between apices of pterostigma and veins Rs  
   - Pterostigma of forewing with several cross-veins, long, about three times as long as distance between apices of pterostigma and veins Rs  

Larva: (No material available for Euphyllura aethiopica).
**Euphyllura aethiopica** Silvestri, 1915


Reported from Ethiopia (SILVESTRI 1915) and Saudi Arabia (BURCKHARDT 1986).

**Host plant:** *Olea chrysocephylla* Lam. (Oleaceae).

**Euphyllura olivina** (Costa, 1839)


Reported from Saudi Arabia (MARTIN 1972); otherwise widely distributed in the West Mediterranean (BURCKHARDT 1986).

**Host plant:** *Olea* spp. (Oleaceae).

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**Subfamily Pachypsylloидinae**

**Key to genera and species of Pachypsylloидinae**

**Adults**

1. Forewing with brown dots. Antennae distinctly 10-segmented
   - Forewing whitish, without brown dots. Antennae indistinctly 5-7-segmented

**Eremopsylloides loewii**

**Pachypsylloides shalmoni** Burckhardt & Halperin, 1992


Reported from Palestine (BURCKHARDT & HALPERIN 1992).

**Host plant:** *Calligonum comosum* L'Héritier (Polygonaceae).

---

**Subfamily Psyllinae**

**Key to genera and species of Psyllinae**

**Adults**

1. Forewing widest in apical third, with a brown band along the outer margin
   - Forewing (Fig. 96) widest in the middle, without pattern

**Cacopsylla (Thamnopsylla) talhouki**

**Psylla** sp.

Larva: (No material available).
Psylloidea of the Arabian Peninsula

Cacopsylla (Thamnopsyllla) talhouki Burckhardt, 1986


Material: Yemen: 1 ♀, West Aden Protectorate, Jabal Jihaf, c. 7000 feet, 19.IX.1937, swept from low herbage between rocks, B.M. Expedition to SW Arabia, H. Scott & E.B. Britton, BMNH.

Described from Saudi Arabia (BURCKHARDT 1986).

Host plant unknown.

Psylla sp.

Material: Yemen: 1 ♀, al-Mahwit, 7.VI.1991, on Ficus sp., A. van Harten, MHNG.

Description: Adult: Coloration of slide-mounted specimen: Ochreous, pronotum brown, mesonotum with longitudinal brown stripes. Antennae ochreous with apices of segments 4-7 and entire segments 8-10 dark brown. Forewing transparent, with brown veins (Fig. 96). Abdominal tergites light brown.

Structure: Head (Fig. 109) bearing slender genal processes which are about as long as vertex along mid-line; vertex covered in microsculpture and short hairs; genae with long hairs. Antenna 10-segmented with each a subapical rhinarium on segments 4, 6, 8 and 9; segment 3 longest; one terminal seta about as long as, the other one about two thirds as long as segment 10. Clypeus small, pyriform. Labium short. Ppropleurites narrow with oblique suture; suture with only one dorsal branch developed. Forewing (Fig. 96) oval, widest in the middle with relatively short pterostigma; surface spinules present in all cells, sparsely spaced, leaving broad spinule-free stripes along the veins, reduced at bases of some cells. Hindwing with ungrouped costal setae. Metacoxa with large, horn-shaped meracanthus. Metatibia without genual spine, with grouped apical spurs as 1 + 4 + 1. Metabasitarsus with two black spurs. Female genitalia as in Fig. 110. Male unknown.

Measurements (1 ♀): HW 0.78; AL 1.18; WL 2.58; FP 1.04; ALHW 1.51; TLHW 0.85; WLHW 3.31; WLW 2.46; FPHW 1.33; FPC 4.16; FPS 1.32.

Larva and host plant unknown.

Discussion: The specimen examined is similar to Psylla loranthi Capener, 1973, from South Africa but differs in the more oval forewing and the longer processes of the female genitalia. The insect from Yemen resembles a series of psyllids from Kenya (BMNH) with which it may be conspecific, but differs in the slightly smaller body dimensions and the shorter genal processes. Pending more material the species is not formally described here.

Family Triozidae

Key to genera and species of Triozidae

Adults

1 Forewing broadly rounded apically; vein R+M+Cu1 bifurcating into R and M+Cu1

   Pauropsylla trichaeta

2 Forewing narrowly rounded or angular apically; vein R+M+Cu1 of forewing trifurcating into R, M and Cu1 ................................................................. 2

2 Genal processes less than half as long as vertex along mid-line

   Bactericera petiolata

3 Genal processes more than half as long as vertex along mid-line ........................................ 3

3 Metatibia with 1 + 3 apical spurs

   Trioza erytreae

4 Metatibia with 1 + 2 apical spurs .......................................................... 4

4 Forewing narrowly rounded apically

   Trioza buxtoni

5 Forewing angular apically ..............................
5 Distal portion of aedeagus with two subapical ventral sac-like processes. Female subgenital plate pointed apically 
  - Distal portion of aedeagus with one apical ventral beak-like process. Female subgenital plate truncate apically

Trioza chenopodii

Trioza lienhardi

Larvae

1 Wing pads without marginal sectasetae
  - Wing pads with marginal sectasetae

Trioza buxtoni

Bactericera petiolata

2 Antennal flagellum 1-segmented
  - Antennal flagellum subdivided

Bactericera petiolata

3 Claws well developed
  - Claws absent

Trioza chenopodii

4 Marginal sectasetae broad and convex apically
  - Marginal sectasetae conical

Trioza lienhardi

5 Marginal sectasetae on forewing pad dense, distance between them less than diameter of a sectaseta
  - Marginal sectasetae on forewing pad sparse, distance between them more than diameter of a sectaseta

Trioza chenopodii

Pauropsylla trichaea

Bactericera petiolata (Loginova, 1960)


Material: Yemen: 1 ♂, Sana'a, 1.I.1993, in Malaise-trap; 1 ♂, same data but II.1993; 1 ♂, Shuqra to Lauder, 21.III.1993; 1 ♂, Mukeiras, 11.IV.1993; all A. van Harten, MHNG.

Reported from the Caucasus, Central Asia, Mongolia, Japan and Yemen (BURCKHARDT & LAUTERER 1997).

Host plant: Lycium depressum Stocks (Solanaceae).

Pauropsylla willcocksi Dębski, 1918


Reported from Saudi Arabia (MARTIN 1972), the Cape Verde Islands, Senegal, Egypt and Sudan (HOLLIS 1984, BURCKHARDT 1986).


Trioza buxtoni Laing, 1924


Reported from Palestine (HALPERIN et al. 1982) and Saudi Arabia (BURCKHARDT 1986).

Host plants: The larvae form pit-galls on the leaves of Ficus carica L., F. exasperata Vahl., and F. pseudo-sycomorus Decaisne (Moraceae).

Trioza chenopodii Reuter, 1876

Trioza chenopodii Reuter, 1876. — Memoranda Societatis pro Fauna et Flora Fennica 1: 76.

Widely distributed throughout the Palaearctic, introduced into the New World (Ossiannilsson 1992, Burckhardt 1994 a, Wheeler & Hoebecke 1997). Not previously reported from the Arabian Peninsula.

Host plants: Oligophagous on Chenopodiaceae.

*Trioza erytreae* (del Guercio, 1918)


Material: Yemen: 1 ♂, Hamam Ali, 6.II.1992, on *Citrus* sp.; 14 ♂♂, 9 ♀♀, Sana'a, 9.V.1992, on *Citrus* sp.; 1 ♂, 3 ♀♀, Sumara Pass, 13.III.1993; all A. van Harten, MHNG; 13 ♂♂, 8 ♀♀, 10 larvae, Taiz, 16-18.II.1993, on *Citrus* sp.; 1 ♀, Taiz to ar-Rahidah, 14.III.1993; all M. Knapp, MHNG.


*Trioza lienhardi* Burckhardt, 1981


Reported from Saudi Arabia and Tunisia (Burckhardt 1981).

Host plant: *Lycium* sp. (Solanaceae).

DISCUSSION

Biogeography: Of the 52 species listed here, 24 are reported the first time from the Arabian Peninsula, 10 are described as new and 9 are not identified due to insufficient material. This indicates that the present knowledge of the Arabian psylloid fauna is still very incomplete. The number of existing species is certainly much higher but it is difficult to estimate how much, as information from neighbouring countries is also incomplete.

The number of species with Afrotropical affinities is high and some Palaearctic genera are absent from the material (e.g. *Craspedolepta*, *Acaerus*). This suggests similar biogeographical patterns as those in butterflies (Larsen 1984). However, the scarcity of the material at hand as well as the absence of detailed phylogenetic hypotheses render biogeographic conclusions weak.

Host plants: Known host plants are summarised in the appendix. They belong to 14 families of dicotyledons. In terms of psylloid diversity, the Fabaceae (7 species) is the richest family followed by Chenopodiaceae and Tamaricaceae (5 species each). Here, also, the information is too sparse to derive general patterns.

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APPENDIX

The host plants of Arabian Psylloidea are listed in alphabetical order of families, genera and species. Doubtful records are marked with “?”. 

<table>
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<tr>
<th>Host plants</th>
<th>Psylloid species</th>
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<td><strong>Family Apocynaceae</strong></td>
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<tr>
<td>Acokanthera oppositifolia</td>
<td>Diaphorina acokantherae</td>
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<td>Acokanthera schimperi var. deflersii</td>
<td>Diaphorina acokantherae</td>
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<tr>
<td><strong>Family Asclepiadaceae</strong></td>
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<tr>
<td>Leptadenia pyrotechnica</td>
<td>Diaphorina leptadeniae n. sp.</td>
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<td>Leptadenia sp.</td>
<td>?Diaphorina enormis</td>
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<tr>
<td><strong>Family Asteraceae</strong></td>
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<tr>
<td>Priadia punctulata</td>
<td>?Diaphorina linnavuorii</td>
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<tr>
<td><strong>Family Chenopodiaceae</strong></td>
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<tr>
<td>Haloxylon aphyllum</td>
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<td>Haloxylon persicum</td>
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<td>Hammada elegans</td>
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<td>Hammada salicornica</td>
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<td>Hammada sp.</td>
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<td>Suaeda fruticosa</td>
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<td>Suaeda sp.</td>
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<td>Oligophagous on various genera</td>
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<tr>
<td><strong>Family Fabaceae</strong></td>
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<tr>
<td>Acacia abyssinica</td>
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<td>Acacia ehrenbergiana</td>
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<td>Acacia hockii</td>
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<td>Acacia labei</td>
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<td>Acacia tortilis</td>
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<td>Acacia tortilis ssp. raddiana</td>
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<td>Acacia tortilis ssp. spirocarpa</td>
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<td>Acacia tortilis ssp. tortilis</td>
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<td>Acacia sp.</td>
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<td>Albizia gummifera</td>
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<td>Colutea spp.</td>
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<tr>
<td><strong>Family Moraceae</strong></td>
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