

On the genus *Nasocoris* REUTER (Heteroptera: Miridae, Phylinae, Phylini) in the Middle East

RAUNO E. LINNAVUORI

FIN - 21220 Raisio, Saukkokuja 10, Finland

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ABSTRACT: The species of the Miride genus *Nasocoris* REUTER from the Middle East are revised. Three new species, *N.convexicollis* sp.n. (Palestine), *N.arabicus* sp.n. (Saudi Arabia) and *N.tuberculicollis* sp.n. (Iraq) are described.

INTRODUCTION

The genus *Nasocoris* was described by REUTER (1879: 205) with *N.argyrotrichus* as the type species. The genus was revised by KERZHNER (1970), LINNAVUORI (1968) and WAGNER (1968). Besides four Westmediterranean species (*N.breviceps* WAGNER, 1968, *N.ephedrae* REUTER, 1902, *N.platycranoides* MONTANDON, 1890, and *N.psyche* LINNAVUORI, 1968) six species have been recorded from the Middle East and Middle Asia. These and three new species are treated below. The revision is based on new material obtained from Palestine and Iran.

TAXONOMY

Genus *Nasocoris* REUTER (Miridae, Phylinae, Phylini)

Nasocoris REUTER, 1879: 206. Type species: *N.argyrotrichus* REUTER.

Diagnosis: A distinctive genus, which is easily recognized by the pale coloring, parallel-sided body, triangular flattish head with strongly protruding tylus, short incrassate rostrum, and gracile antennae and legs.

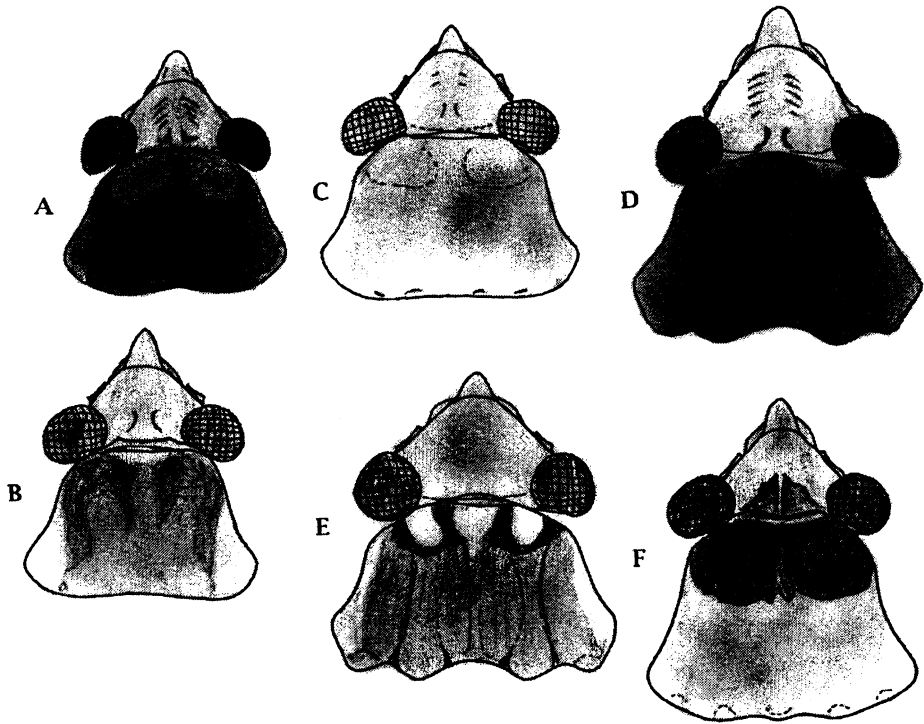


Fig.1. Female head and pronotum of *Nasocoris albipennis* LINDBERG (A), *N.convexicollis* sp.n. (B), *N.psyche* LINNAVUORI (C), *N.arabicus* sp.n. (D), *N.tuberculicollis* sp.n. (E), and *N.tesquorum* KERZHNER (F).

Description: Medium-sized pale ochraceous species. 1st antennal segment pale or reddish. Pronotum often more or less embrowned. Scutellum reddish or brownish. Under surface of thorax and femora often reddish.

Body elongate, parallel-sided. Upper surface with semierect pale or partially dark hairs and, especially on head, pronotum and scutellum, appressed silvery pubescence. Head (Figs 1 A-F, 3 A) nearly as broad as basal width of pronotum, triangular, vertex and frons flat, tylus laterally flattened and strongly protruding, antennal pits near lower corners of eyes, basal margin of vertex keeled. Eyes large and prominent. Antennae long, 1st segment (Fig. 3 F) incrassate, with long and dense semierect whitish or brownish pubescence, other segments gracile with short appressed hair covering. Rostrum incrassate and short, extending only to fore coxae. Pronotum trapezoidal, lateral margins shallowly insinuated, either keeled or rounded ventrad; calli small; disk sometimes with three obtuse longitudinal elevations, basal margin uneven with small or large tubercles provided with erect dark bristles. Hemelytra much longer than abdomen,

costal margins parallel. Under surface of head and fore coxae with long erect pale hairs. Legs long and gracile; fore and middle femora and tibiae (Fig. 3 G-I) with long erect pale hairs. Tibial spines pale. 3rd hind tarsomere longer than 2nd. Claws (Fig. 3 J) gracile with very small triangular pulvilli.

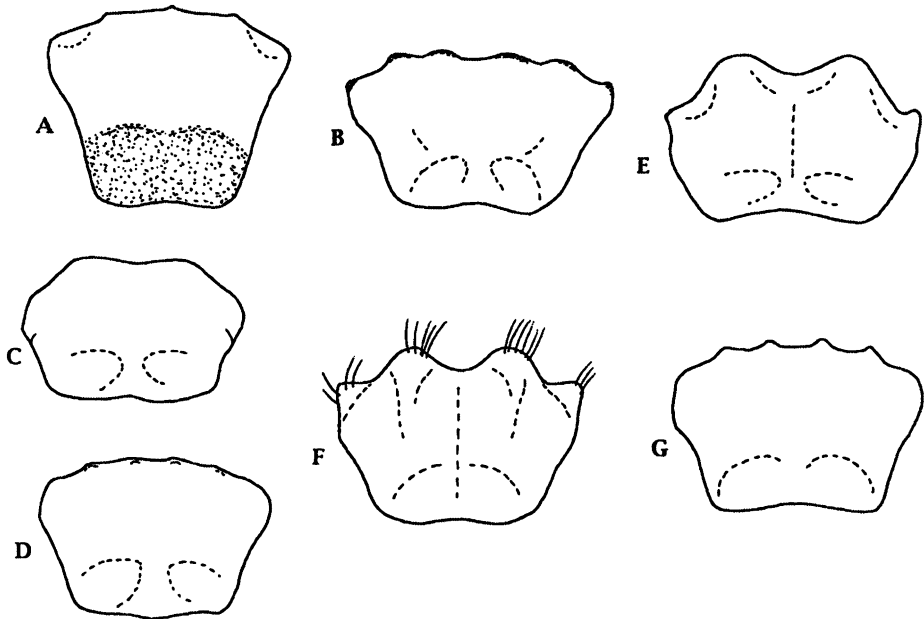


Fig.2. Pronotum in apicodorsal view of *Nasocoris tesquorum* KERZHNER (A), *N. albipennis* LINDBERG (B), *N. convexicollis* sp.n. (C), *N. psyche* LINNAVUORI (D), *N. arabicus* sp.n. (E), *N. tuberculicollis* sp.n. (F), and *N. desertorum* KERZHNER (G).

Male genitalia: Pygofer conical, edentate. Right style elongate. Apical part of left style scoop-like. Theca simple. Vesica long and gracile, shallowly S-shaped, usually simple, sometimes apically bifurcate and provided with a dentate process; secondary gonopore weakly sclerified, subapical, stem near gonopore often finely dentate.

Distribution: The Mediterranean subregion, Middle East and Middle Asia.

Biology: On *Ephedra* spp.

Discussion: The genus *Nasocoris* consists of two groups, which differ from each other in the shape of the pronotum and, at least to some extent, in the shape of the vesica. In the first group (*N. artemis*, *N. serratus*, *N. tesquorum*, and the Westmediterranean *N. platycranoides*) the pronotum (Fig. 3 B-C) is relatively long with

distinctly keeled lateral margins. The vesica in *N. artemis* and *N. serratus* is relatively robust, apically bifid and provided with a coarsely serrate process, while in *N. tesquorum* it is long and gracile as in the following group. In the second group (the other species) the pronotum (Fig. 3 D-E) is shorter and broader and the lateral margins are rounded ventrad being at most basally obtusely keeled. The vesica in this group is gracile, shallowly S-shaped with only slight specific differences in the denticulation behind the secondary gonopore. In contrast, the species are easily recognized by the shape of the basal margin of the pronotum. Other distinctive characters are found in the coloring and proportions between the antennal segments.

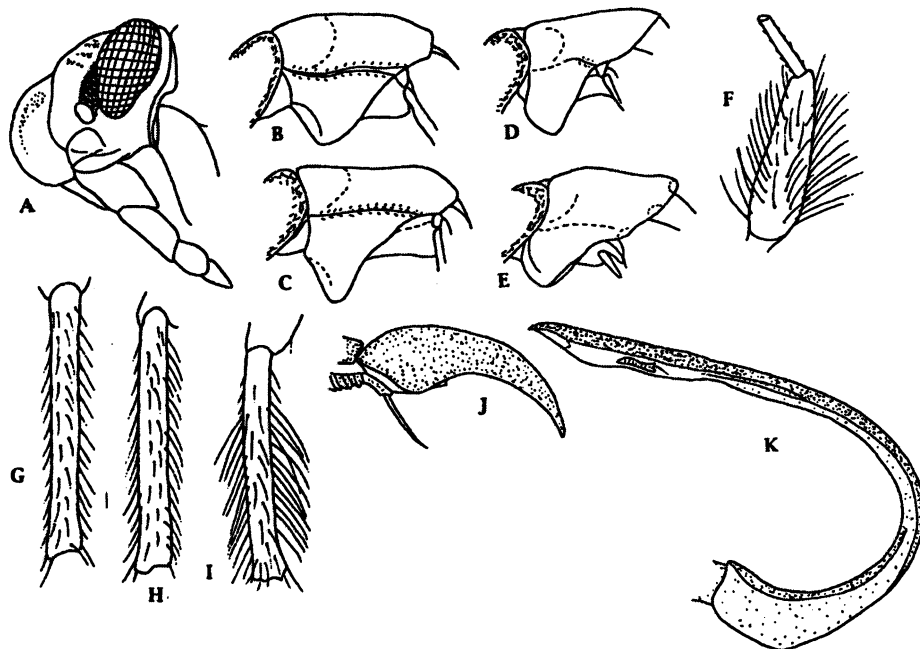


Fig. 3. *Nasocoris argyrotrichus* REUTER: (A) head in lateral view. - *N. tesquorum* KERZHNER: (B) pronotum in lateral view; (K) vesica in lateral view. - *N. artemis* LINNAVUORI: (C) pronotum in lateral view; (G) male fore tibia. - *N. convexicollis* sp.n.: (D) pronotum in lateral view; (F) female 1st antennal segment. - *N. albipennis* LINDBERG: (E) pronotum in lateral view. - *N. psyche* LINNAVUORI: (I) female fore tibia. - *N. tuberculicollis* sp.n.: (H) male fore tibia; (J) claw.

KEY TO THE SPECIES

- 1 Lateral margins of pronotum (Fig. 3 B-C) acute 2
 - Lateral margins of pronotum (Fig. 3 D-E) rounded ventrad, at most basally obtusely keeled 4

- 2 Pronotum (Fig. 1 F) contrastingly bicolored with dark brown anterior and pale basal part *N.tesquorum* KERZHNER, 1970
- Pronotum pale with slight infuscations 3
- 3 1st antennal segment orangish, 0.75-0.8 (♂) or 0.9-1.0 (♀) x as long as diatone. Apical margin of endocorium and inner margin of cuneus narrowly reddish *N.artemis* LINNAVUORI, 1968
- 1st antennal segment pale, 0.50-0.55 (♂) or 0.64-0.67 (♀) x as long as diatone. Apical margin of endocorium and inner margin of cuneus pale *N.serratus* LINNAVUORI, 1984
- 4 Pronotum (Fig. 2 C) with basal margin in apicodorsal view strongly convex, smooth, humeral angles obtusely rounded. 3rd antennal segment longer than 2nd *N.convexicollis* sp.n.
- Basal margin of pronotum with at least slight tubercles 5
- 5 Basal margin of pronotum (Fig. 3 E-F) with two conspicuous humps 6
- Basal margin of pronotum (Fig. 3 B-D, G) with 4 small tubercles 7
- 6 Pronotum (Fig. 1 D) dark brown, humps on basal margin (Fig. 2 E) very broad, humeral angles blunter. 1st antennal segment reddish *N.arabicus* sp.n.
- Pronotum (Fig. 2 F) pale, humps on basal margin (Fig. 2 F) somewhat smaller, humeral angles more prominent. 1st antennal segment pale *N.tuberclicollis* sp.n.
- 7 1st antennal segment dark reddish brown with brown hairs. Sides of frons above antennal pits (Fig. 3 A) dark brown *N.argyrotrichus* REUTER, 1879
- 1st antennal segment pale with whitish hairs. Frons uniformly pale 8
- 8 Eyes and pronotum (Fig. 1 A) dark brown. Body about 3.6 x as long as basal width of pronotum *N.albipennis* LINDBERG, 1939
- Eyes and pronotum pale. Body more gracile, more than 4 x as long as broad at base of pronotum *N.desertorum* KERZHNER, 1970

***Nasocoris artemis* LINNAVUORI (Figs 3 C-G, 4 H)**

Nasocoris artemis LINNAVUORI, 1968: 204.

Types: Israel: Rehovot, female holotype, several paratypes (♂ ♀), 28.VII.1958, Linnavuori. Holotype in the American Museum of Natural History, paratypes in coll. Linnavuori.

Other material: Israel: Yad Hasmona near Qiryat Anavim, several specimens, 15-17.V.1986, Linnavuori.

Description: Length 4.5 mm. Whitish yellow. Antennal tubercles and two small spots on basal margin of vertex fulvous. Eyes pale reddish gray. Antennae pale yellow, 1st segment orangish. Lateral and basal margins of pronotum more or less brownish, often with reddish tinge. Scutellum reddish brown with faint pale median stripe. Hemelytra pale yellowish, reddish or brownish; apical margin of endocorium and inner margin of cuneus narrowly reddish; membrane with veins brownish smoky. Under surface and legs pale, hind femora with reddish tinge. Body relatively robust. Vestiture of upper surface semierect, yellowish, on hemelytra partially dark, silvery subappressed pubescence also present. Ocular index about 1.36 (♂), 1.92-2.0 (♀). Proportions between antennal segments 17:43:43:12, 1st segment long, 0.75-0.8 (♂) or 0.90-1.0 (♀) x as long as diatone, with long semierect pale hair covering, 2nd segment 1.60 -1.72 (♂) or 1.60-1.65 (♀) x as long as basal width of pronotum, 3rd segment as long as 2nd or slightly longer. Pronotum 1.5-1.6 x as broad as long in middle, lateral margins acute, basal margin smooth. Hair covering of legs relatively short. Tibial spines short, pale. Male genitalia: Vesica apically bifid, dentate process narrow.

Biotope: On *Ephedra* sp. in hilly habitats.

Distribution: Palestine.

Nasocoris serratus LINNAVUORI (Fig. 4 A-G)

Nasocoris serratus LINNAVUORI, 1984: 41.

Types: Iraq: Al Muthanna, As Salman- Takhadid, male holotype, several paratypes (♂♀), 17-18.IV.1980, Linnavuori. Holotype in the American Museum of Natural History, paratypes in coll. Linnavuori.

Other material: Iran: Semnan, 20 km SW of Biyarjomand, several exx, 13-14.V. 1996, Linnavuori.

Description: Length 4.25-4.5 mm. Like the preceding species but uniformly pale greenish ochraceous, only scutellum reddish. Ocular index 1.38 (♂), 2.0-2.2 (♀). Proportions between antennal segments 11:36:31:13 (♂), 14:34:32:13 (♀), 1st antennal segment much shorter, 0.50-0.55 (♂) or 0.64-0.67 (♀) x as long as diatone, 3rd segment shorter than 2nd. Pronotum 1.50-1.75 x as broad as long. Male genitalia: Vesica apically bifid, dentate process triangular.

Biotope: On *Ephedra alata* in steppe and hilly habitats.

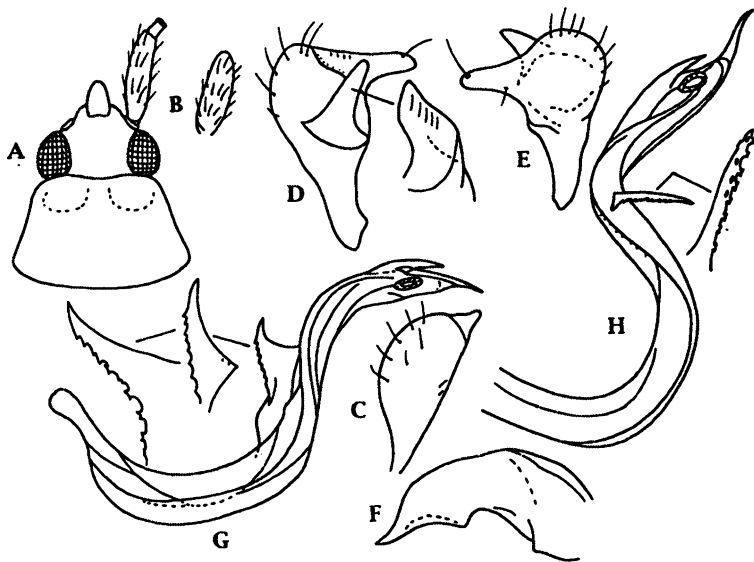


Fig.4. *Nasocoris serratus* LINNAVUORI: (A) female head and pronotum; (B) male 1st antennal segment; (C) right style; (D-E) left style in different views; (F) theca; (G) vesica. - *N. artemis* LINNAVUORI: (H) vesica. - After LINNAVUORI 1984.

Distribution: Previously known from Iraq. New for Iran.

Nasocoris tesquorum KERZHNER (Figs 1 f, 2 A, 3 B and K)

Nasocoris tesquorum KERZHNER, 1970: 642.

Types: Middle Asia: peski r. Emel oz Alakol Kaz. 2 paratypes, 29.VI.1962; Topolevka, O Carcada Dzhug Alatau, 1 paratype, 7.VII.1957, Kerzhner, in coll. Linnavuori.

Description: Length 4.4-4.8 mm (♂), 3.4-4 mm (♀). Pale grayish green. Base of vertex purplish, eyes dark brown. Antennae pale yellowish, 1st segment orange. Anterior part of pronotum contrastingly dark brown. Scutellum red. Membranes of hemelytra pale smoky. Femora red, apically pale. Body gracile. Upper surface with semierect yellowish hairs and silvery appressed pubescence. Ocular index 1.35-1.47 (♂), 2.0 (♀). Proportions between antennal segments 55:108:87:20, 1st segment tapering apicad, 1.1-1.2 x as long as diatone, with long semierect pale hairs, 3rd segment shorter than 2nd. Pronotum about 1.6 x as broad as long in middle, lateral margins acute, basal margin with faint tubercles. Vestiture of legs as in the preceding species. Male genitalia: Vesica very long and gracile, simple.

Biotope: On *Ephedra strobilacea*.

Distribution: Middle and Central Asia.

***Nasocoris convexicollis* sp.n.** (Figs 1 B, 2 C, 3 D, F, 5 A)

Types: Israel: S.Distr. Nahal Ze'elim, female holotype, 1 paratype, 23.VII.1986; 'En 'Aqrabbim, 11 paratypes, 31.VII-9.VIII.1986, Linnavuori, in coll. Linnavuori.

Description: Length 3.75 mm. Whitish ochraceous. Vertex with two faint curved orangish stripes; eyes pale grayish brown. Antennae pale yellow. Pronotum with faint orangish pattern as indicated in Fig. 2 B. Scutellum reddish with pale midline. Hemelytra uniformly pale, membranes with veins dark brown. Under surface of thorax, save pro- and mesopleura, reddish. Basal half of hind femora purplish. Body gracile, nearly 4 x as long as broad at base of pronotum. Upper surface with semierect pale hairs and, on head and pronotum especially, appressed silvery pubescence. Head slightly broader than basal width of pronotum, eyes large, ocular index 1.08-1.12 (σ), 1.35 (φ). Proportions between antennal segments 35:80:85:38 (σ), 45:82:90:39 (φ), 1st segment 0.58-0.61 (σ) or 0.76-0.80 (φ) x as long as diatone, with long semierect pale hairs, 2nd segment 1.46-1.48 (σ) or 1.32-1.47 x as long as basal width of pronotum, 3rd segment distinctly longer than 2nd. Pronotum 1.7-1.9 x as broad as long in middle, lateral margins shallowly insinuated, apically rounded ventrad, basally obtusely keeled; basal margin smooth, in apicodorsal view distinctly curved with bluntly rounded humeral angles. Fore and middle coxae and femora with long semierect whitish hairs. Tibiae with longish pale hairs and spines. Male genitalia: Vesica gracile with several small teeth behind secondary gonopore.

Biotope: On *Ephedra* sp. in sandy habitats.

Differential diagnosis: Resembling *N.psyche* LINNAVUORI from Sardinia in the long 3rd antennal segment (proportions between antennal segments in *N.psyche* 32:64:67:27) but readily distinguished by the shape of the pronotum: basal margin in *N.psyche* (Figs C, 2 D) less convex and provided with 4 small tubercles, humeral angles in apicodorsal view more prominent, lateral margins rounded ventrad. Moreover, the pronotum is uniformly pale, the eyes are smaller, ocular index 1.82, the 1st antennal segment is shorter, 0.62 x as long as diatone, and the 2nd segment is 1.2 x as long as the basal width of the pronotum.

Material of *N.psyche*: Sardinia: Platamona, female holotype, 11.VII.1949, Servadei, in coll. Linnavuori.

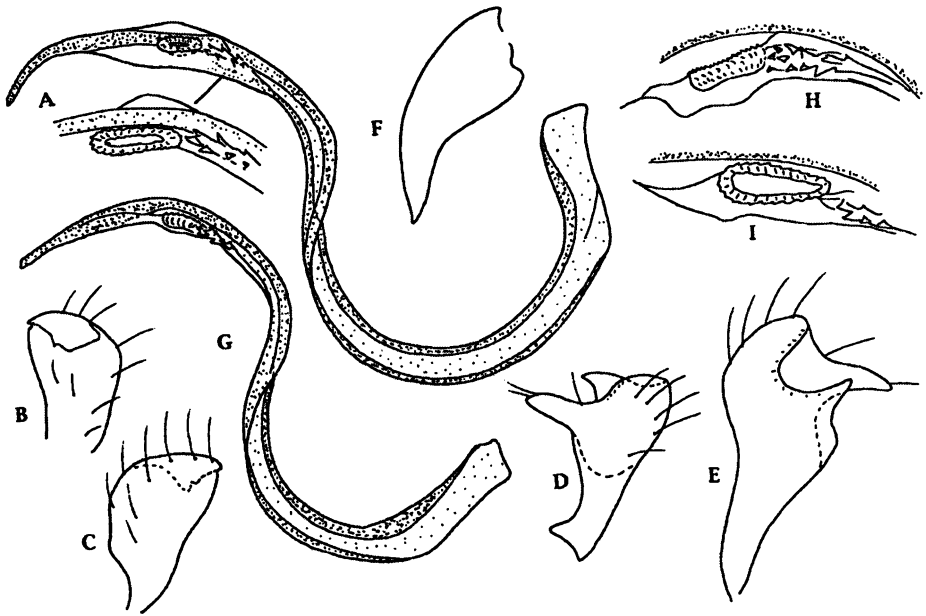


Fig.5. *Nasocoris convexicollis* sp.n.: (A) vesica . - *N.albipennis* LINDBERG (ex from Wadi Feiran); (B-C) right style; (D-E) left style; (F) theca; (G) vesica; (H) dentate subapical area of vesica; (I) same (ex from Manjil).

***Nasocoris arabicus* sp.n.** (Figs. 1 D, 2 E, 6 A)

Nasocoris albipennis: LINNAVUORI, 1986: 154, misidentification.

Types: Saudi Arabia: N. Jubbah, female holotype, 20-21.XI.1977; Hail- Jubbah, 4 paratypes (♂ ♀), 20.XI.1977, Linnavuori, in coll. Linnavuori.

Description: Length 4.25-4.75 mm. Coloring as in *N.albipennis* but 1st antennal segment reddish.

Body elongate, 4.0-4.3 x as long as broad at base of pronotum. Vestiture as in the related species. Head 0.92-0.98 x as broad as basal width of pronotum; ocular index 1.20-1.35 (♂), 1.63-1.77 (♀). Proportions between antennal segments 35:95:86:35 (♂), 39:89:83:♀ (♀), 1st segment 0.53-0.56 (♂) or 0.64-0.68 (♀) x as long as diatone, 2nd (♂♀) 1.34-1.50 x as long as basal width of pronotum, distinctly longer than 3rd. Pronotum about 1.7-1.8 x as broad as long in middle, lateral margins shallowly insinuated, rounded ventrad; disk with 3 longitudinal elevations, a weak one in middle, the others starting from basal tubercles more distinct, sides of pronotum strongly sloping ventrad; basal margin with two large tubercles, humeral angles in apicodorsal

view distinct, slightly upcurved, tubercles and humeral angles with erect black hairs. Male genitalia: Vesica long and gracile, with two small teeth behind secondary gonopore.

Biotope: On *Ephedra* sp. in desert habitats.

Differential diagnosis: Easily recognized by the dark pronotum with two voluminous basal humps.

***Nasocoris tuberculicollis* sp.n.** (Figs 1 E, 2 F, 3 H, J, 6 B)

Nasocoris albipennis: LINNAVUORI, 1993: 255 (misidentification).

Types: Iraq: Dhi Gar, Abu Ghar, male holotype, several paratypes (♂♀), 16.IV.1980; Nasiriyah-Abu Ghar, 4 paratypes (♂♀), 15.IV.1980, Linnavuori, in coll. Linnavuori.

Description: Length 4.0-4.25 mm. Pale ochraceous. Eyes pale grayish brown. Antennae uniformly pale yellow. Pronotum pale brownish, anterior margin with 3 pale ochraceous spots. Scutellum reddish with pale midline. Hemelytra pale ochraceous, membranes with veins brown. Under surface and legs pale ochraceous.

Body relatively robust, 3.45-3.75 x as long as broad at base of pronotum. Vestiture as in the related species. Head (♂♀) 0.9-1.0 x as broad as basal width of pronotum; ocular index 1.2-1.3 (♂), 1.70-1.75 (♀). Antennae relatively short, proportions between segments 33:90:83:36 (♂), 34:77:66:32 (♀), 1st segment 0.42-0.48 (♂) or 0.56 (♀) x as long as diatone, 2nd segment 1.18-1.32 (♂) or 1.13-1.2 (♀) x as long as basal width of pronotum, distinctly longer than 3rd. Pronotum about 1.7 x as broad as long in middle, lateral margins shallowly insinuated, rounded ventrad; disk uneven with 3 longitudinal elevations as in *N.arabicus*, sides of pronotum sloping ventrad; basal margin with two large tubercles, humeral angles in apicodorsal view distinct, slightly upcurved, tubercles and humeral angles with erect stiff black hairs. Male genitalia: Vesica gracile with two very indistinct teeth behind the secondary gonopore.

Biotope: On *Ephedra alata* in desert habitats.

Differential diagnosis: Differing from *N.arabicus* in the broader body, shorter antennae and pale pronotum and eyes.

***Nasocoris albipennis* LINDBERG, 1939** (Figs 1 A, 2 B, 3 E, 5 B-I)

Nasocoris albipennis LINDBERG, 1939: 19-20.

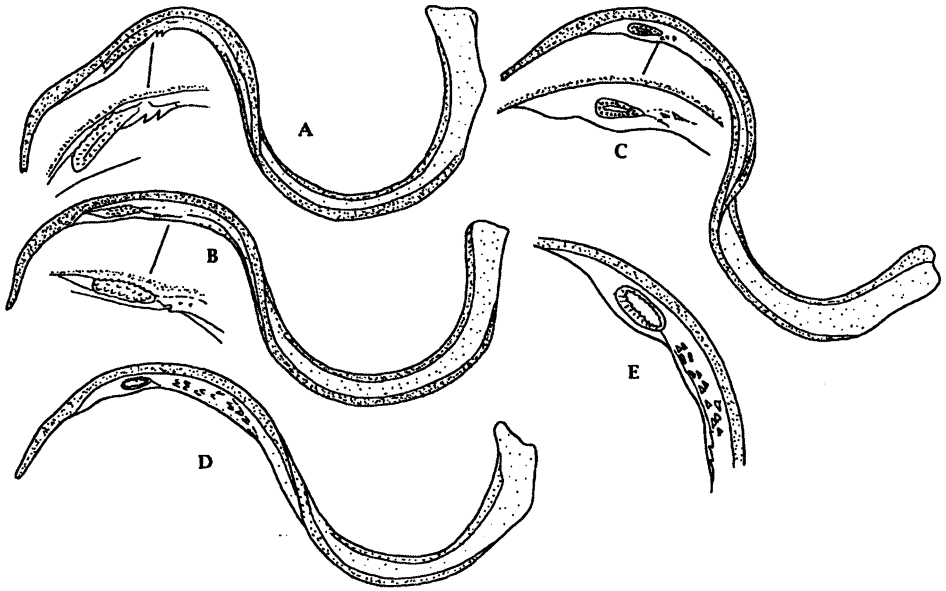


Fig.6. *Nasocoris arabicus* sp.n.: (A) vesica. - *N.tuberculicollis* sp.n. (B) vesica. - *N.argyrotrichus* REUTER (ex from Zaman Soofi); (C) vesica. - *N.desertorum* KERZHNER (ex from Ispas, Turkmenistan): (D) vesica; (E) dentate subapical area of vesica

Material: Egypt: Sinai, Wadi Feiran, several exx (♂♀), 25-29.IX.1962, Linnavuori. Iran: Gilan, Manjil, 2 ♂♂, 20-26.IX.1998; Khorasan, near Parvand 70 W of Sabzevar, 1 ♀, 31.V-1.VI.1994, Linnavuori, in coll. Linnavuori.

Description: Length 3.75-4.3 mm. Whitish ochraceous. Vertex with two small curved red stripes; eyes dark brown. Antennae pale yellowish. Pronotum dark brown, callal area slightly paler. Scutellum dark reddish brown with faint pale midline. Membranes of hemelytra with veins dark brown. Under surface purplish. Femora basally reddish. Body about 3.6 x as long as broad at base of pronotum. Vestiture of upper surface and extremities as in the related species. Head about 0.9 x as broad as basal width of pronotum; ocular index 1.20-1.33 (♂), about 1.5 (♀). Proportions between antennal segments 36:83:70:34 (♂), 40:70: ♀ (♀), 1st segment 0.60-0.63 (♂) or 0.70 (♀) x as long as diatone, with long semierect pale pubescence, 2nd segment (♂♀) about 1.23 x as long as basal width of pronotum, distinctly longer than 3rd. Pronotum about 1.9 x as broad as long in middle, lateral margins shallowly insinuated or nearly straight, rounded ventrad; basal margin with 4 roundish dark tubercles with stiff erect black hairs, in apicodorsal view only weakly curved, humeral angles bluntly prominent. Male genitalia: Vesica gracile, with two rows of teeth behind the secondary gonopore.

Biotope: On *Ephedra alata* in desert habitats.

Distribution: Known from Egypt, new for Iran.

***Nasocoris desertorum* KERZHNER, 1970** (Figs 2 G, 6 D-E)

Nasocoris desertorum KERZHNER, 1970: 642-643.

Nasocoris argyrotrichus: LINNAVUORI, 1968: 202-203 (misidentification).

Types: Middle Asia: Ispas 70 km NW of Chardzhou, 4 paratypes, 31.V.1965, Kerzhner, in coll. Linnavuori.

Material: Iran: Fars, 14 km E of Sa'adatshahr, 6 exx, 6-7.VI.1996, Linnavuori. Turkmenistan: Turcom, 2 exx, J.Sahlberg, in coll. Linnavuori.

Description: Length 3.75-4.5 mm. Whitish. Eyes grayish brown. Antennae uniformly pale. Calli of pronotum surrounded by orange circle, disk with orangish tinge, anterior margin and faint median stripe whitish. Scutellum orangish. Hemelytra whitish, membranes with veins pale smoky. Under surface and femora pale yellow. Tibiae and tarsi whitish. Body elongate, 4.1-4.2 x as long as broad at base of pronotum. Vestiture as in the related species. Head nearly as broad as pronotum; ocular index 1.20-1.32 (♂), 1.70-1.75 (♀). Antennae long, proportions between segments 32:97:88:45 (♂), 35:102:90:45 (♀); 1st segment with long semierect white hairs, about 0.5-0.6 (♂♀) x as long as diatone, 2nd segment 1.4 (♂) or 1.65 (♀) x as long as basal width of pronotum, longer than 3rd. Pronotum about 1.7 x as broad as long in middle, lateral margins distinctly insinuated, rounded ventrad; basal margin in apicodorsal view weakly curved, with 4 small dark tubercles with erect short blackish setae. Male genitalia: Vesica gracile with numerous small teeth behind secondary gonopore.

Biotope: On *Ephedra strobilacea* in dry habitats.

Distribution: Known from Middle Asia. New for Iran.

***Nasocoris argyrotrichus* REUTER, 1879** (Figs 3 A, 6 C)

Nasocoris brevicornis (KIRITSHENKO) LINNAVUORI, 1968: 202 (synonymized by KERZHNER 1970: 640).

Material: Mongolia: Sredne Gobii-skii aimak, Gory Delger-Khangai-Ula, 1 ex, 25.VII.1967, Kerzhner. Middle Asia: Vanch 12 km O of Potov Eap. Pamir, 3 exx, 5.VII.1965, Narchuk. Iran: Khorasan, many exx from Darreh Gaz, 15.VI.1994; Zaman Soofi 65 km W of Bojnurd, 12-13.VII.1994, Linnavuori, in coll. Linnavuori.

Description: Length 3.75-4.25 mm. Head whitish ochraceous, base of vertex with two small reddish spots, sides of frons above antennal pits dark brown; eyes grayish brown. 1st antennal segment dark reddish brown, other segments pale yellowish. Pronotum brown, humeral angles pale. Scutellum reddish brown with pale midline. Hemelytra pale ochraceous, membranes with veins brown. Under surface orangish or yellow-brown. Femora reddish, tibiae and tarsi pale ochraceous, base of hind tibia reddish. Body 3.6-4.0 x as long as broad at base of pronotum. Vestiture as in the related species but hairs on 1st antennal segment brown. Head about 0.9 x as broad as base of pronotum; ocular index 1.21-1.42 (♂), 1.80-1.85 (♀). Proportions between antennal segments 28:80:79:38 (♂), 30:78:78:40 (♀), 1st segment 0.50-0.53 (♂) or 0.57-0.67 (♀) x as long as diatone, 2nd (♂♀) 1.25-1.30 x as long as basal width of pronotum, about as long as 3rd. Pronotum nearly twice as broad as long in middle, lateral margins shallowly insinuated, rounded ventrad, hind margin with 4 faint tubercles as in *N.psyche*. Male genitalia: Vesica relatively short with three very small teeth behind secondary gonopore.

Biotope: On *Ephedra distachya* in dry habitats.

Distribution: Known from Iran, Middle and Central Asia.

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BOOK REVIEW

CHANDLER P., 1998: Checklists of Insects of the British Isles (New Series) Part 1: Diptera. *Handbooks for the Identification of British Insects*, Vol.12, 234 pp. Price not given. Royal Entomological Society, London.

This British Checklist may be regarded as an ideal model how such lists should be organised: to show not only the present state of the fauna of the studied territory, but to show also all the significant changes and additions to the previous state, with a full reference and justification for them. The List includes besides additions also accepted synonymies with a full reference to the source of the change, given are even yet unpublished sources with a recorder name as „by personal communication“ or cited as „in press“. The published sources included in the publication are by April 1998. This is possible, however, only in a List with its own long history as are just the British checklists, published already in several editions and many current published „Additions and Corrections“. Such a List cannot be compared for instance with the Swiss or German checklists (reviewed in the present issue as well) that have appeared recently in their first editions.

The first British List of Diptera has actually been published already by F.WALKER in 3 volumes in 1851-1856 as „*Insecta Britannica Diptera*“, followed by „A list of British Diptera“ of G.H.VERRALL in 1888 and then in 1901; WALKER listed 2074 species, VERRALL in 1901 2881 species with about 300 additions and 500 other changes from his first edition of 1888. The real precursors of the recent CHANDLER's Diptera Checklist were the two editions of „A check list of British Insects“ published by G.S.KLOET & W.D.HINCKS in 1945 and 1976, these already included 5218 and 5997 species of Diptera respectively.

The present British Checklist includes 6668 valid species classified in 102 families, and further 690 nomina dubia and 193 „excluded“ species are also listed under relevant families. All changes, additions and new taxonomical views since the 2nd edition of KLOET & HINCKS in 1976 are fully commented and justified. An admirable work of Peter Chandler who has intensively worked on the new British List since 1993 and who consulted the manuscript with further 48 contributors and advisers from Great Britain and from abroad. The list of all collaborators is presented in the introductory part with listing the family names to which they contributed.

The Introduction (pp.iii-xix) includes all necessary data to the history and arrangement of the publication. The chapter „Higher classification and Taxonomic Arrangement“ might be criticised from many points of view especially as the authors did not take up an attitude towards the higher classification, on the other hand they accepted in several cases the modern views to natural classification on the family level. The List of families gives the numbers of species included in the present checklist, compared with the numbers of the previous two checklists of KLOET & HINCKS of 1945 and 1976. Further detailed information are given on Nomina dubia, Excluded species, Nomenclature, followed by a List of preoccupied generic names, the names missing in the NEAVE's „*Nomenclator Zoologicus*“ of 1939-1996, though especially interesting and useful are detailed chapters on the grammatic gender of generic and specific names.

Every family is headed by a concise taxonomical characteristic of the taxon with given literary sources of the used classification. The fully documented lists of species are arranged alphabetically at all levels (except for the Cecidomyiidae where subfamilies are listed in phylogenetic relationships) and, as given above, all changes, corrections or additions are explained by corresponding „Notes“ with full references. The type of the print of different classification levels (subfamily, tribe, genus, species and their synonyms) is very easy to survey, the printing is well-arranged and the reader's orientation is really simple.

A real novelty of this edition of the British Checklist is an indication of the Irish species by a cross (+) and, as given in the Introduction by the editor, a future aim would be to indicate also the Scottish, Welsh and English species. A very good idea if the next British checklists would indicate more detailed distribution of the species within the British Isles; surely there are for example many species of northern distribution, the Fennoscandian elements, that are known in Britain only from Scotland and the proposed arrangement would add very much to our knowledge on zoogeography of individual species.

Congratulations to Peter Chandler, the Checklist is excellent, it contains much general information and will be an important source to anyone interested in the Diptera and biodiversity of insects.

M.CHVALA