

A revision of the genus *Psallopsis* (Heteroptera: Miridae)

F.V. Konstantinov

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A key and descriptions are given for all 13 species of this genus, including 3 new species: *Psallopsis neglecta* sp. n. (Ukraine, south of European Russia, Altai, Central Asia, and Mongolia), *P. caspia* sp. n. (Caucasus, northern coast of the Caspi Sea, Central Asia, and Iran) and *P. kalidivcola* sp. n. (Central Asia and Mongolia). The following new synonymies are established: *Psallopsis kirgistica* (Becker) = *Solenoxyphus flavicans* Qi & Nonnaizab; *Psallopsis minima* (Wagner) = *Solenoxyphus viridulus* Qi & Nonnaizab. Data on distribution, mainly based on the collection of the Zoological Institute (St. Petersburg) are illustrated by maps for 9 species.

F.V. Konstantinov, Entomology Department, St. Petersburg State University, Universitetskaya nab. 7/9, St. Petersburg 199034, Russia.

Introduction

This article is based on examination of the material in the collection of Zoological Institute, Russian Academy of Sciences, St. Petersburg. The revision of this group has revealed 3 new species, apart from the 10 ones already described before. The Irano-Turanian distribution is characteristic of many species, some of them are found also in SE Europe, Transcaucasia, Mongolia and NW China. The published keys (Stichel, 1957; Kerzhner & Jaczewski, 1964; Wagner, 1975) include a few species of this genus.

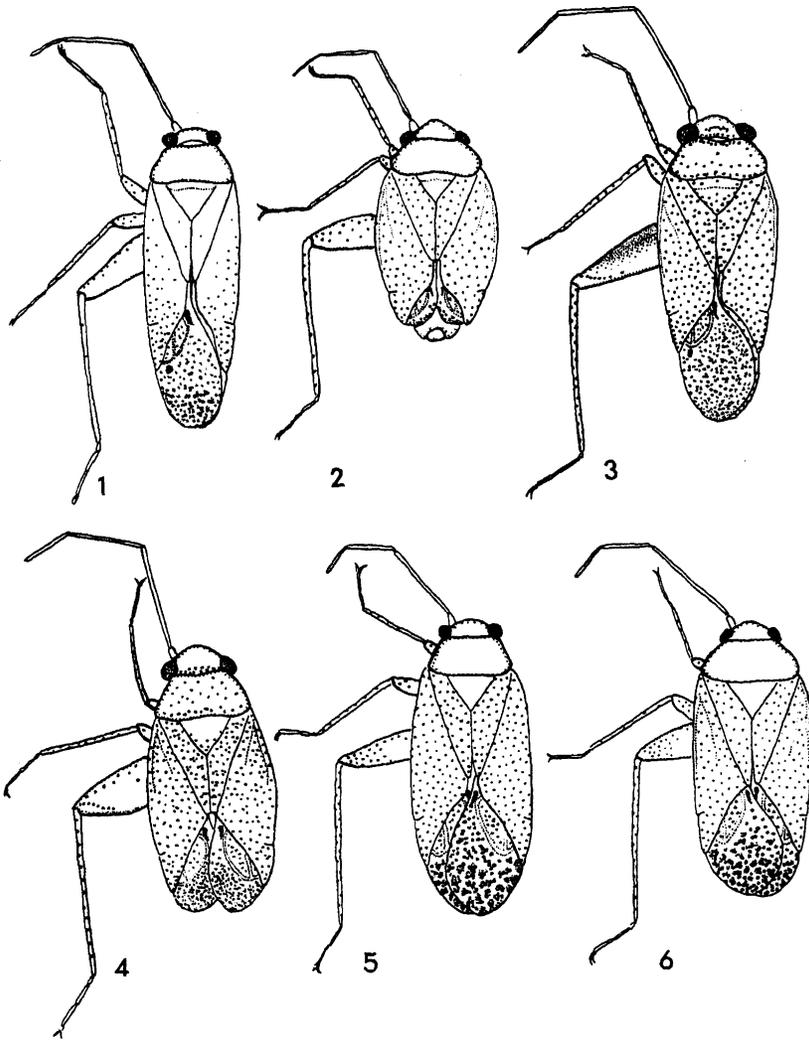
Some species differ mainly in the structure of the male genitalia (vesica of aedeagus), but some have also external distinctions, such as peculiarities of spot pattern. After alkaline boiling or after soaking of the genital segment in 15% KOH for several hours, the weakly sclerotized parts of vesica and parameres change their shape (e.g. the twisting of vesica; the position of paramere hypophysis). Thus, the soaking of genital segment in water within sufficient time and subsequent transfer of samples in glycerol should be used to avoid these alterations of shape. The illustrations were made using the magnification 200x. Sometimes this considerable magnification is necessary for identification. The vesica is figured in lateral and frontal views. They are identical in all species and correspond to the right lateral and ventral views of the vesica located in the body of the insect.

All explanations of terminology used for the description of the vesica are given in the Figs 15-16. The identification in this genus is difficult due to high variability, and detailed morphological description is given for each species. In ratios between antennal segments each unit equals 0.014 mm. All species of *Psallopsis* are specialized feeders of Chenopodiaceae, and knowledge of the host plant is helpful in identification of related species. Unfortunately, for some species host plants remain unknown.

Genus *Psallopsis* Reuter, 1901

Type species *Psallopsis femoralis* Reuter, 1901.

Description. Oblong-oval, small-sized bug (σ of largest species about 4 mm long). Body with whitish, easily obliterated hairs. Males with almost parallel-sided body. Females smaller, more stumpy. Head wider than high, protruding; frons and tylus protuberant, rostrum reaching or nearly reaching hind coxae. Frons in darkest specimens with dark spots arranged in series of rays radiating from its median line. Antennae thin, light. First antennal segment darkened in some species (*P. femoralis*, *P. basalis*). Upper side of body with small spots of different shades of fuscous on hemelytra and legs, in *P. femoralis*, *P. kirgistica*, *P. haloxyli* and *P. neglecta* also on head, pronotum and scutellum, and in φ of *P. haloxyli* often also on second antennal segment. In addition to



Figs 1-6. 1-2, *Psallopsis caspiu*, general view: 1, male; 2, female; 3-4, *P. neglecta*, general view: 3, male; 4, female; 5-6, *P. similis*, general view: 5, male; 6, female.

fuscous spots, upper side of body in *P. kirgistica* and *P. neglecta* covered with reddish spots. These spots usually nearly round, except those on membrane, which are often fused and condensed (especially at apex). Oblique triangular fuscous macula at base of membrane typical of all representatives of the genus, except *P. haloxyli* and ♀ of *P. minima*. In most specimens, a large fuscous spot located behind cells, but this character is rather variable. Males macropterous, females often brachypterous. Hind femora thickened. Legs pale, only in *P. femoralis* all femora entirely dark. Femora of other species, especially hind ones, with fuscous or

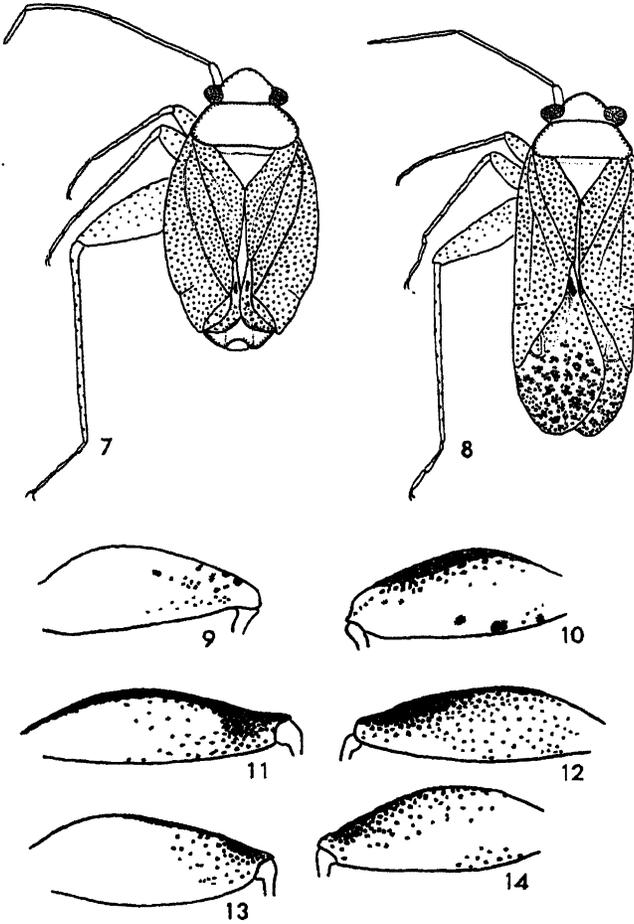
red spots sometimes fused and condensed into stripes on hind femora. Tarsi rather thin; claws thin, pulvilli extremely small and hardly visible in some species. Genital segment of males oblong. Right clasper spoon-shaped, oval, strongly flattened, with short hypophysis. Left clasper larger, with well developed and elongated hypophysis and sensory lobe. Vesica of aedeagus in *P. basalis* and *P. bisulcis* large, comma-like, two-branched, with opening of secondary gonopore located at base of smaller, needle-like branch. In remaining species, vesica S-shaped, thin, opening of secondary gonopore located near apex. In all species, this

opening is surrounded by apical sclerotized stripes of vesica and hardly recognizable, while in other genera of Phylinae the gonopore is usually placed on membrane and distinct. This character, together with peculiarities of coloration, absence of colour pattern except small fuscous spots, presence of fuscous spots on membrane, and pale hairs are the best distinguishing features of the genus.

Key to species

- 1(8). Pronotum and scutellum, usually also head covered (sometimes rather vaguely) with fuscous spots.
- 2(3). Femora entirely dark in both sexes **P. femoralis**
- 3(2). Femora light, only hind femora in some species with brown or grey stripes formed by contacting or fused dark spots.
- 4(5). Upperside in addition to fuscous spots with orange ones, especially bright on cuneus, or cuneus entirely orange. Large species (σ 4.0-4.1; ρ 3.2-3.4 mm). Oblique fuscous macula at base of membrane absent. ρ macropterous. Vesica with hook as in Figs 40-41. On *Haloxylon* **P. haloxyli**
- 5(4). Body with fuscous and red spots. Smaller (σ 2.8-3.0; ρ 2.4-2.6 mm). Oblique fuscous macula at base of membrane present. Females macropterous or brachypterous. Vesica smaller, without typical hook at apex. On annual Chenopodiaceae.
- 6(7). Vesica (Figs 27, 30) smoothly sclerotized, with short, weakly curved apical process directed upward in lateral view and not forming right angle with vesica **P. neglecta**
- 7(6). Vesica (Figs 17, 19-21) more distinctly sclerotized; apical process long, straight, sword-like, forming right angle with vesica in lateral view. On *Petrosimonia* **P. kirgisica**
- 8(1). Head, pronotum and scutellum without dark spots.
- 9(12). Vesica robust, comma-like, two-branched. The larger branch spoon-like, with teeth on inner margin, the smaller branch needle-like, with secondary gonopore opening at its base.
- 10(11). First antennal segment completely dark. Apex of needle-like branch of vesica curved (Figs 38-39) **P. basalis**
- 11(10). First antennal segment pale, with two small fuscous spots or without spots. Apex of needle-like branch of vesica straight (Figs 36-37). On *Aellenia* **P. bisulcis**
- 12(9). Vesica significantly thinner and smaller, S-shaped.
- 13(14). Weakly sclerotized apical lobe of vesica well developed, so at low magnification vesica seems to be two-branched (Figs 24-25) **P. rufifemur**
- 14(13). Weakly sclerotized lobe of vesica absent or small and adjoining vesica; its apex reaches the base of apical process only.

- 15(18). Femora with dark stripes formed by spots, the latter darker and larger than spots on hemelytra.
- 16(17). Vesica (Figs 33, 35) very thin, significantly curved and less sclerotized; stripes around secondary gonopore so feebly sclerotized that practically invisible; apical process long and smoothly curved, in frontal view its apex folding to the right; weakly sclerotized lobe absent. Dense dark spots on femora located on both sides, but mainly on upper one (Figs 11-14). Females macropterous. Larger (σ : 3.9-4.1; ρ : 3.7-3.9 mm). On *Halostachys helangeriana* **P. halostachydis**
- 17(16). Vesica (Figs 28, 31) more robust; sclerotized stripes around secondary gonopore opening more distinct; apical process shorter and thicker, in frontal view directed upward, with angularly bent projection near base (Fig 31); weakly sclerotized lobe present but closely adjoining vesica. Dense dark spots on femora located mainly on their lower side (Figs 9-10). Females usually brachypterous. Smaller (σ : 3.4-3.7; ρ : 2.3-2.4 mm). On *Halocnemum strobilaceum* **P. longicornis** (part)
- 8(15). Dark stripes on femora absent. Sometimes spots on femora dense but not forming stripes and not differing from those on elytra in size and colour.
- 19(22). Sclerotized stripes around secondary gonopore well developed, not hidden by lateral margin of vesica. Apical process large and sword-shaped, forming right angle with vesica.
- 20(21). Smaller (σ 2.7-3.0; ρ 2.1-2.3 mm). Length of vesica (Figs 17-18) less than 0.07 mm. Females usually brachypterous. Oblique fuscous macula at base of membrane well developed. On *Kochia* sp., *Salsola laricina* **P. caspia**
- 21(20). Larger (σ 3.5-3.6; ρ 3.4 mm). Length of vesica (Figs 15-16) more than 0.1 mm. Females macropterous. Oblique fuscous macula at base of membrane usually absent in females. On *Kalidium foliatum* **P. minima**
- 22(19). Sclerotized stripes around secondary gonopore opening hidden by lateral margin of vesica. Apical process thinner, not forming right angle with vesica.
- 23(24). Vesica (Figs 32, 34) very thin and weakly sclerotized; sclerotized stripes around secondary gonopore opening practically invisible; apical process thin, long and smoothly curved, in frontal view its apex bent to the right; weakly sclerotized lobe absent. Females brachypterous. Males larger (3.7-4.4 mm). On *Kalidium cuspicum* **P. kalidiicola**
- 24(23). Vesica more robust; apical process shorter and thicker, in frontal view directed upward, with angularly bent projection near base; weakly sclerotized lobe present. Males smaller (2.9-3.7 mm).
- 25(26). Eyes usually black (red in teneral specimens). Weakly sclerotized apical lobe not adjoining vesica and visible even in lateral view (Figs 26, 29). Females macropterous. On *Suaeda physophora* **P. similis**



Figs 7-14. 7-8, *Psallopsis kaidiicola*, general view: 7, female; 8, male; 9-10, *P. longicornis*, female, hind femur (9, from upper side; 10, from inner side); 11-14, *P. halostachydis*, hind femur (11-12, male, from upper (11) and inner (12) side; 13-14, female from upper (13) and inner (14) side.

26(25). Eyes usually green or pale grey. Weakly sclerotized apical lobe adjoining vesica invisible in lateral view (Figs 28, 31). Females brachypterous. On *Halocnemum strobilaceum* *P. longicornis* (part)

***Psallopsis femoralis* Reuter, 1901**
(Figs 22, 23)

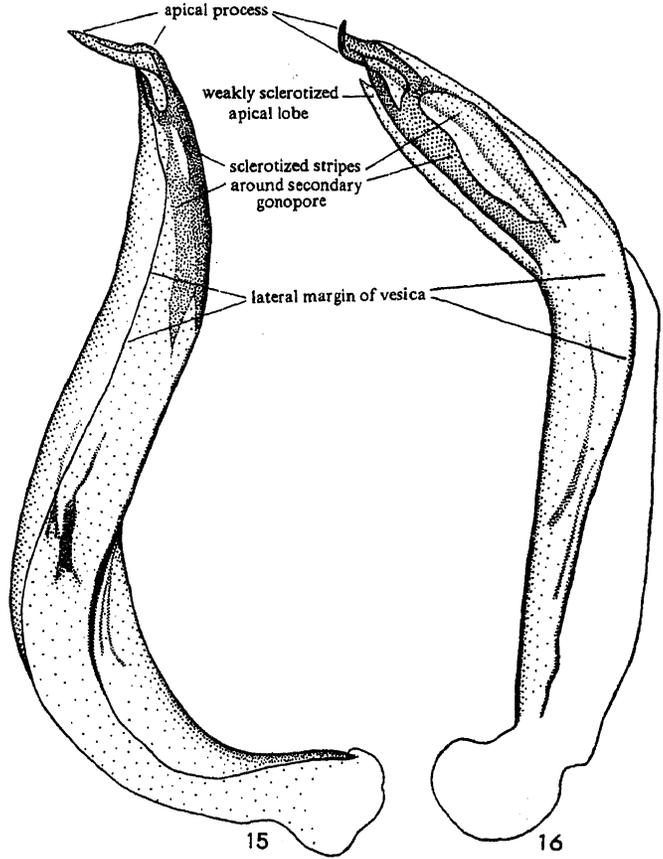
Psallopsis femoralis Reuter, 1901: 199; Eckerlein & Wagner, 1965: 230.

Material examined: 3 specimens from Algeria.

Description. ♂ yellowish grey; basal part of pronotum and scutellum darker than elytra. ♀ with yellowish head and apical and lateral parts of pronotum; basal part of pronotum, scutellum and elytra darker. First antennal segment darkened, with small reddish spots and reddish base. Head, pronotum, scutellum and hemelytra with fuscous spots, in ♂ head also with reddish spots.

Thorax darkened. All femora dark; the very apices of hind and middle femora pale. In ♂, hind margin of hind femora pale with reddish spots at apex (hidden by tibia when adjoining femur); similar spots present also on tibia. Oblique fuscous macula on membrane and spot behind membrane cells well developed. ♀ macropterous. Vesica (Figs 22, 23) S-shaped, rather thin, hardly differing from vesica of *P. caspia* and *P. neglecta*, but apical process larger in *P. femoralis*. Secondary gonopore opening partly hidden by lateral margin. Sclerotized stripes around secondary gonopore opening well developed.

♂. Body 2.9-3.0 times as long as width of pronotum. Vertex 1.8 times as wide as eye. Ratio between antennal segments 15 : 62 : 48 : 28; 2nd segment 1.2 times shorter than basal width of pronotum, 1.1 times as long as width of head. Pronotum 2.6-2.7 times as wide as long, 1.3 times as wide as head. Body length: 3.1 mm.



Figs 15-16. *Psallopsis minima*, vesica: 15, lateral view; 16, frontal view.

♀. Body 2.4-2.6 times as long as width of pronotum. Vertex 2.5-2.8 times as wide as eye. Ratio between antennal segments 15 : 60 : 43 : 27; 2nd segment 1.0-1.2 times shorter than basal width of pronotum, 1.0-1.2 times as long as width of head. Pronotum 2.6-2.7 times as wide as long, 1.3 times as wide as head. Body length: 2.7 mm.

Distribution. Algeria, Tunisia (Wagner, 1975).

Host plant: unknown.

***Psallopsis kirgisisca* (Becker, 1864)**
(Figs 19-21)

Capsus kirgisisca Becker, 1864 (August or September): 485.

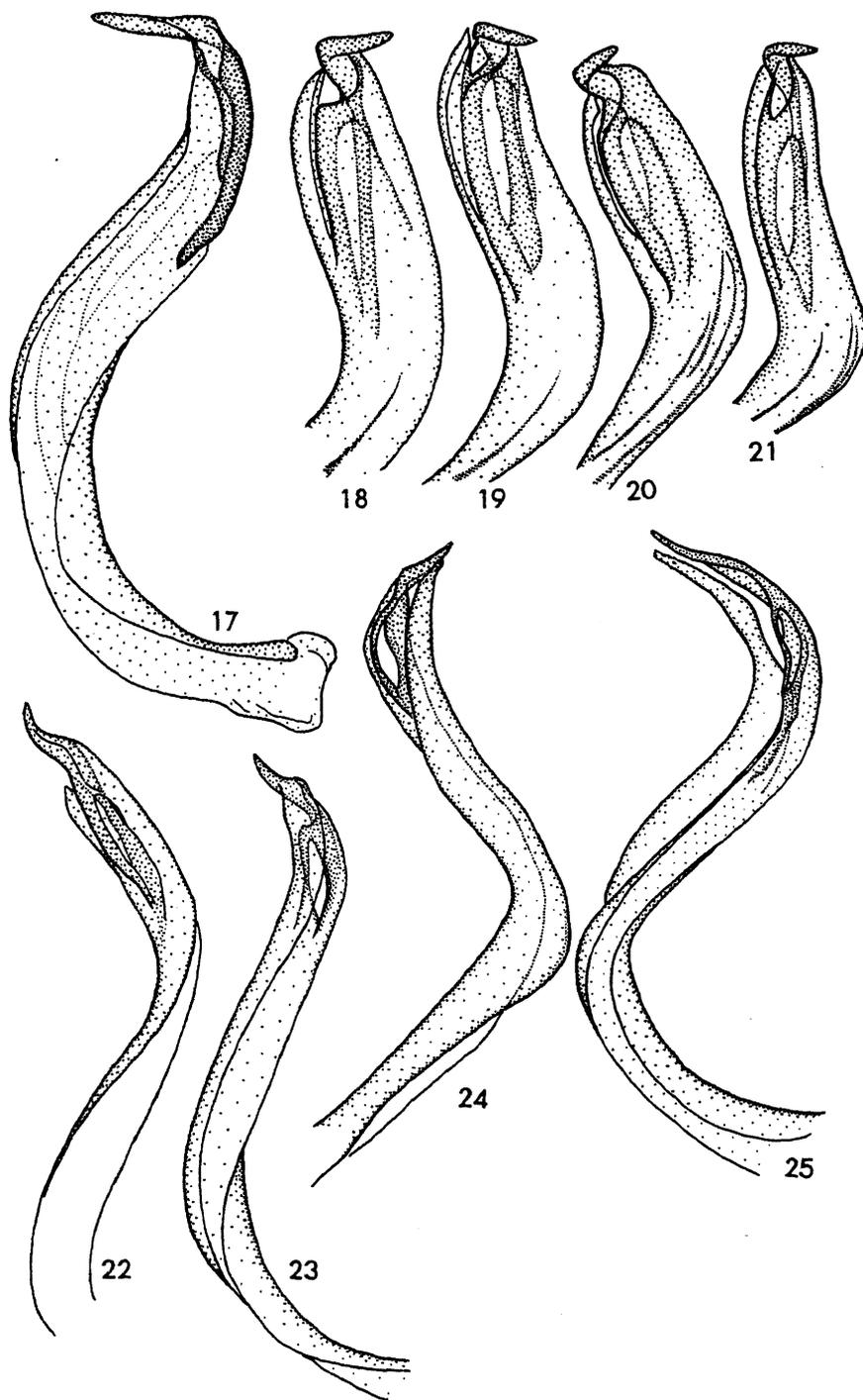
Agalliasstes kirgisisca Frey-Gessner, 1864 (November): 261.

Solenoxyphus flavicans Qi & Nonnaizab, 1996: 293, *syn. n.*

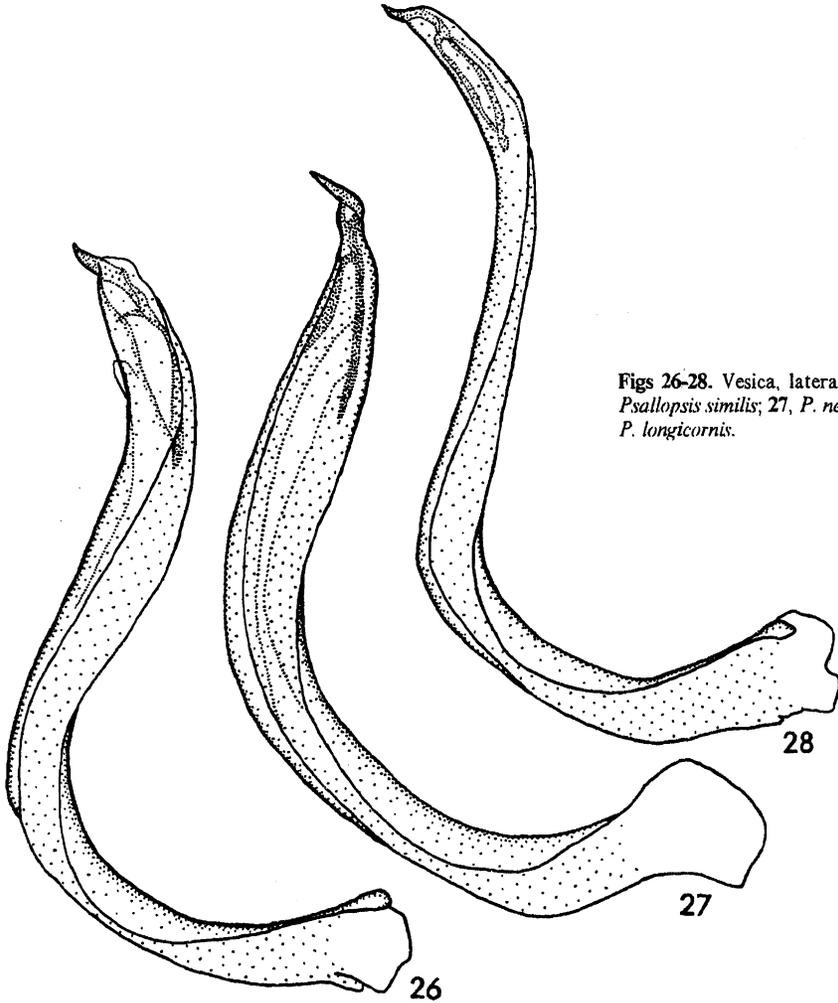
Material examined: 306 specimens from Ukraine, south of European Russia, Caucasus, Central Asia, Kazakhstan, Iran and Mongolia, including the lectotype (Kerzhner, 1996), male from Sarepta (now Krasnoarmeysk nr Volgograd) kept in the Naturhis-

torisches Museum Wien, and paralectotypes, 11 females from the same locality in the Zoological Institute, St. Petersburg.

Description. Pale yellowish, rarely whitish, ♀ sometimes greenish. Antennae uniformly pale yellowish; darkest specimens with darkened apices of 2nd, 3rd and 4th segments. Red and fuscous spots spreading over head, pronotum and scutellum. Reddish and fuscous spots also present on hind femora, not condensed into large spots or stripes. Upper surface of hind femora often with a series of red (rarely fuscous) spots running from apex to hind margin. Oblique fuscous macula at base of membrane present. Fuscous spot behind membrane cells always present in macropterous specimens. Membrane of hemelytra well developed, extending far beyond apex of cuneus in brachypterous females, covering whole abdomen in small specimens. Vesica (Figs 19-21) S-shaped. Apical process comparatively large and smoothly curved, forming right angle with opening of secondary gonopore, the lat-



Figs 17-25. 17-18, *Psallopsis caspia*, vesica: 17, lateral view; 18, frontal view; 19-21, *P. kirgiscu*, vesica, frontal view; 22-23, *P. femoralis*, vesica: 22, frontal view; 23, lateral view; 24-25, *P. rufifemur*, vesica: 24, frontal view; 25, lateral view.



Figs 26-28. Vesica, lateral view: 26, *Psallopsis similis*; 27, *P. neglecta*; 28, *P. longicornis*.

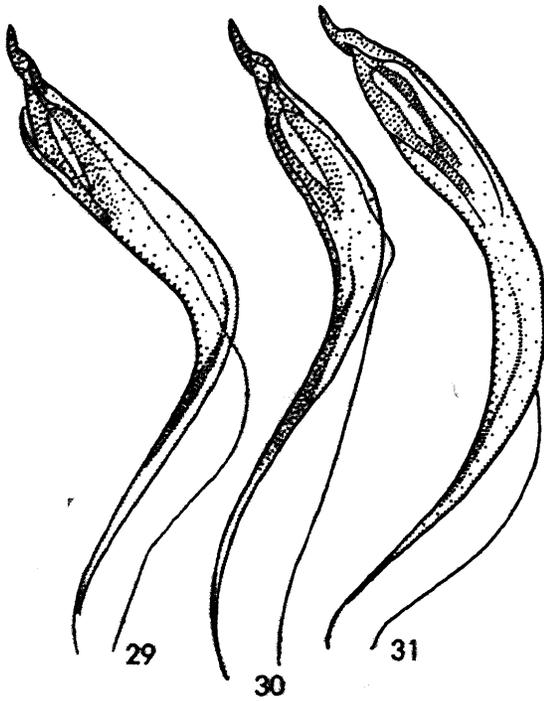
ter not hidden by lateral margins of vesica in lateral view. Apical lobe present, but sometimes hardly visible.

♂. Body 2.8-3.0 times as long as width of pronotum. Vertex 1.7-2.0 times as wide as eye. Ratio between antennal segments 15 : 63 : 46 : 30. Second segment 0.9-1.2 times as long as basal width of pronotum, 1.05-1.17 times as long as width of head. Pronotum 2.5-2.7 times as wide as long, 1.2-1.35 times as wide as head. Body length: 2.6-3.0 mm.

♀. Body 2.5-2.9 times as long as width of pronotum (in specimens from Zhanybek and Khaki, W. Kazakhstan this ratio is 2.1 and 2.3 respectively). Vertex 2.3-2.5 times as wide as eye. Ratio between antennal segments 12 : 50-57 : 37-42 : 25. Second segment 0.7-0.9 times as long as basal width of pronotum, 0.9-1.1 times

as long as width of head. Pronotum 2.5-3.0 times (in specimens from Khaki 2.3 times) as wide as long, 1.2-1.3 times as wide as head. Body length: 2.4-2.7 mm, nearly 3.0 mm in macropterous specimens.

Note. Specimens from Mongolia (Ubsunur Aimak: Dzun-Gobi) collected from *Salsola gemmascens* are very small, with large spots on hemelytra and large black spots on tibiae; possibly they represent a separate subspecies or species. It is clear from the description and figures of *Solenoxyphus flavicans* Qi & Nonnaizab, 1996 that this name is a synonym of *P. kirgistica*. Equal sizes, peculiarities of colour pattern (red spots, presence of spots on head, pronotum and scutellum), vesica and paramere structure are characteristic of both of them.



Figs 29-31. Vesica, frontal view: 29, *Psallopsis similis*; 30, *P. neglecta*; 31, *P. longicornis*.

Comparison. The species is close to *P. neglecta* sp. n. in external characters. The presence of red spots, location of spots on the head, pronotum and scutellum, presence of a series of red spots on the upper surface of hind femora are typical of both species. The females of *P. kirgisisca* have more or less well developed membrane of the hemelytra, while in *P. neglecta* membrane is usually hardly extending to the apex of the cuneus. The specimens of this species are comparatively paler than those of *P. neglecta*. Good distinctions are found in the structure of the vesica, which is more robust in *P. kirgisisca*. Its apical process is comparatively long and forming a right angle with the whole vesica (in lateral view). This genital structure in *P. kirgisisca* is practically indistinguishable from that in *P. caspia*, whereas *P. neglecta* in this character is closer to *P. longicornis* and *P. similis*.

Distribution (Fig. 55). Ukraine (Black Sea coast, Crimea), south of European Russia (Lower Volga region, Dagestan), Georgia, Azerbaijan, Kazakhstan, Uzbekistan, Turkmenistan, Iran, Mongolia (Ubsunur Aimak

and NW China (Nonnaizab & Yang, 1994; Qi & Nonnaizab, 1996).

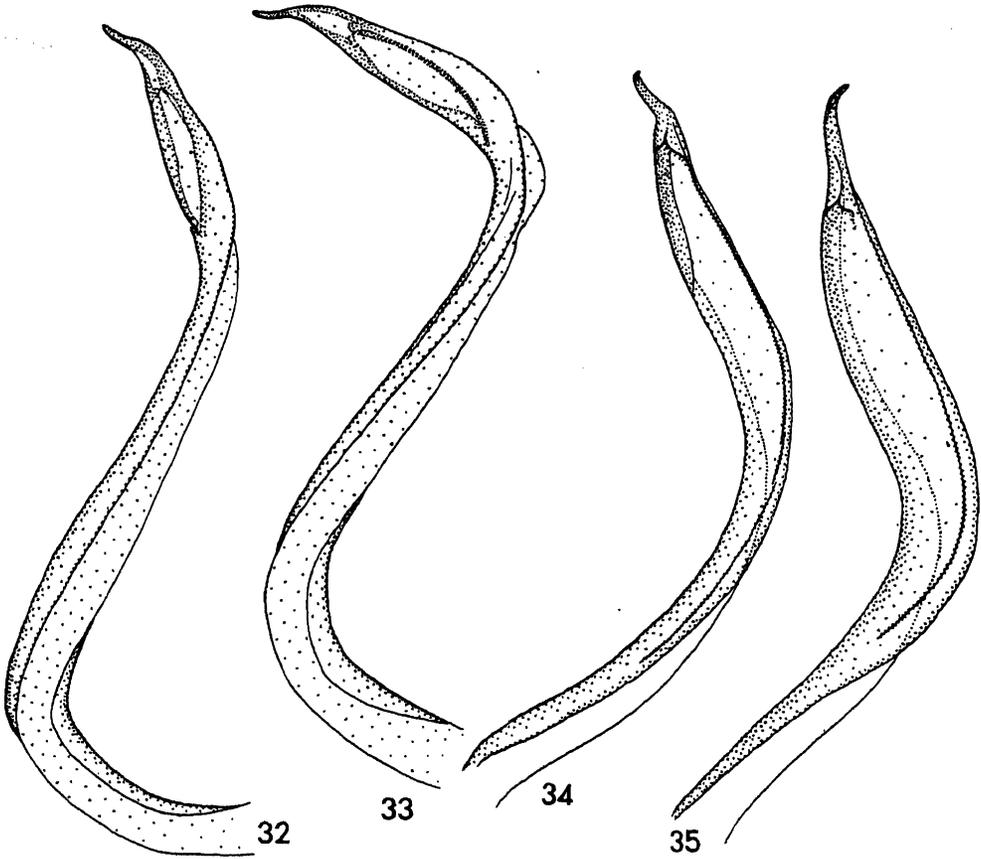
Host plants. Becker (1864) described this species from "*Halimocnemis*", but judging from the names of species which he mentioned on the same page (*crassifolia* and *glauca*) he had in mind species of plants currently placed in *Petrosimonia*. The same genus of plants is indicated on labels of some specimens examined. A series of aberrant specimens from NW Mongolia (see above) is collected from *Salsola gemmascens*. *Artemisia* was erroneously indicated as host plant by Qi & Nonnaizab (1996).

***Psallopsis neglecta* sp. n.**

(Figs 3, 4, 27, 30, 42-44)

Holotype. ♂, Russia, Altai Terr., Kosh-Agach, 26.VI.1964 (Kerzhner).

Paratypes (255 specimens). Ukraine: 7 ♂, 27 ♀, Odessa, Khadzhibey estuary nr Odessa, 6.VIII. and 28.IX.1922 (Kiritschenko); 1 ♀, Luzanovka nr Odessa, 23.VII.1922 (Kiritschenko); 1 ♂, 6 ♀, Kuyalnik estuary nr Odessa, 27.VIII.1920, 23.IX.1923 (Kiritschenko); 2 ♂, 3 ♀, Crimea, Kerch, 22.VII.1907 (Kiritschenko); 5 ♂, 1 ♀, Crimea, Eupatoria, 27.VIII.1904 (Jakovlev); Russia: Stavropol' Terr.: 1 ♂, Sengileevskoe Lake nr Stavropol, 26.V.1914 (Uvarov); Dagestan: 1 ♂, Petrovsk [= Makhachkala] (Jakovlev's coll.); 2 ♂, 3 ♀, Makhachkala, 16-17.VII.1926, 7.VIII.1943, 13.IX.1944, 30.VIII.1946 (Ryabov); 2 ♀, Beryuzyak, Kizlyar Distr., 25.V.1925 (Kiritschenko); Astrakhan' Prov.: 14 ♂, 6 ♀, 100 SW of Astrakhan, 15.VII.1961 (Emeljanov & Kerzhner); Altai Terr.: 43 ♂, 25 ♀, Kosh-Agach, 16-26.VI.1964 (Kerzhner); Kazakhstan: Ural'sk Prov.: 16 ♂, 12 ♀, Saikhin, 30.VI.1961 (Emeljanov & Kerzhner); 1 ♂, Urda, 2.VII.1962 (Emeljanov & Kerzhner); 1 ♂, Khaki nr Urda, 3.VII.1962 (Emeljanov & Kerzhner); Gur'ev Prov.: 1 ♂, Ural River nr Saraychik, 8.VI.1932 (Lukyanovich); 2 ♂, 1 ♀, Balykty Lake, 8.IX.1931 (Lukyanovich); Aktyubinsk Prov.: 2 ♂, 1 ♀, Chelkar, 10.VII.1932 (Lukyanovich); 1 ♂, Kara-Chokat, 17.VII.1901 (Androssov); Kustanay Prov.: 13 ♂, 2 ♀, Ak-Suat Lake, 250 km S Kustanay, 19.VI.1936 (Formozov); 1 ♂, Chushka-Kul' Lake, 275 km S of Kustanay, 29-30.VI.1936 (Formozov). Kokchetav Prov.: 1 ♂, Koturkul', 18 km SE of Borovoe, 16.VIII.1937 (Zimin); Akmoła Prov.: 2 ♂, 1 ♀, Tengiz Lake, 12 km S of Kulan-Utpes issue, 9.VI.1962 (Kerzhner); Zhetkazgan Prov.: 1 ♂, Kyzylzhhar, 4.VI.1961 (Emeljanov); 5 ♂, 12 ♀, Koksengir Hills and Taldy-Manaka River, 40 km S of Zhana-Arka (= Atasu), 17.VI.1958, 3.VII.1960 (Loginova, Kerzhner); Uzbekistan: 2 ♂, Khiva, 2-4.V.1927 (Gussakovskiy, Zimin); 1 ♀, Shirabad, 28.V.1912 (Kiritschenko); 1 ♂,



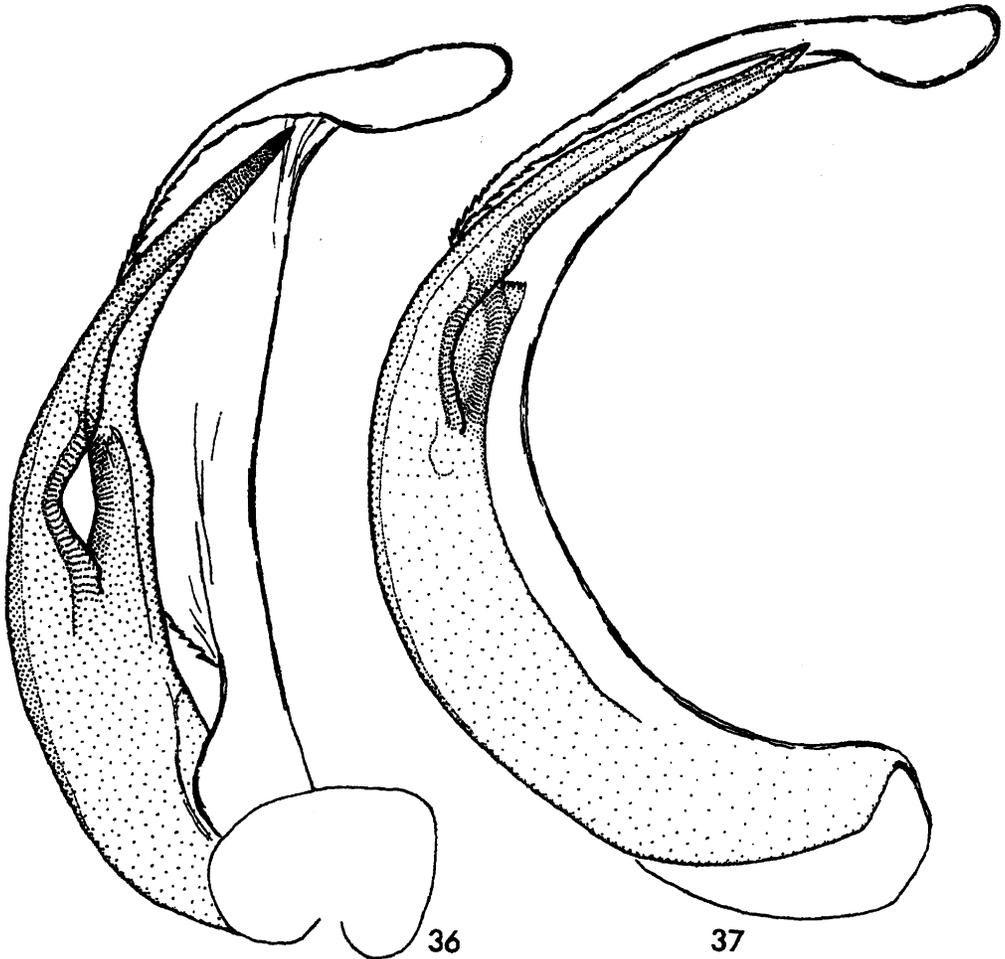
Figs 32-35. 32, *Psallopsis kalidicola*, vesica, lateral view; 33, *P. halostachydis*, vesica, lateral view; 34, *P. kalidicola*, vesica, frontal view; 35, *P. halostachydis*, vesica, frontal view.

Yargak nr Khatyrchi, 9.VI.1928 (Zimin); **Mongolia:** *Central Aimak:* 1 ♂, Tukhmiin-Nur Lake, 7.VII.1970 (Kerzhner); *Hovd Aimak:* 1 ♂, 7 ♀, 15 km S of Bulgan, 29.VII.1970 (Kerzhner). *Gobi Altai Aimak:* 11 ♂, 3 ♀, 15 km WNW Dzakhoi, 24-26.VIII.1970 (Emeljanov, Kerzhner, Nartshuk); *Bayan Hongor Aimak:* 1 ♂, N. shore of Orog-Nur Lake, 15-16.VIII.1967 (Emeljanov); *South Gobi Aimak:* 1 ♂, Bain-Tukhum Lake, 30 km WNW Bayan-Dalay, 31.VII.1967 (Emeljanov).

Description. ♂. Yellowish grey or greenish. Oblong-oval, body 2.6-2.9 times as long as width of pronotum. Eyes often with dark reddish facets. Vertex 1.9-2.4 times as wide as eye. All segments of antennae pale, sometimes apices of 2nd, 3rd and 4th segments darkened. Ratio between antennal segments 12 : 60 : 45 : 28. 2nd segment 1.1-1.3 times shorter than basal width of pronotum, 1.0-1.1 times as long as width of head. Pronotum 2.5 times as wide as long, 1.3 times as wide as head. Rostrum extending to first or

second abdominal segment. Red and fuscous spots overspreading head, pronotum and scutellum. Reddish spots spreading also over legs, especially hind femora, but not condensed into large spots or stripes. Anterior margin of hind femora in darkest specimens darkened. Upper side of femora often with a number of spots running from apex to middle (as in *P. kirgisisca*). Hemelytra long, usually extending beyond apex of abdomen. Oblique fuscous macula on membrane present. Fuscous spot behind membrane cells often well developed. Hemelytra uniformly pale yellow. Vesica (Figs 27, 30) S-shaped, rather thin. Sclerotized stripes around secondary gonopore opening hidden by lateral margin of vesica in lateral view. Apical lobe absent. Parameres as in Figs 42-44. Body length: 2.8-3.0 mm.

♀. Pale yellowish or greenish. Body short and stump, 2.3 times as long as width of

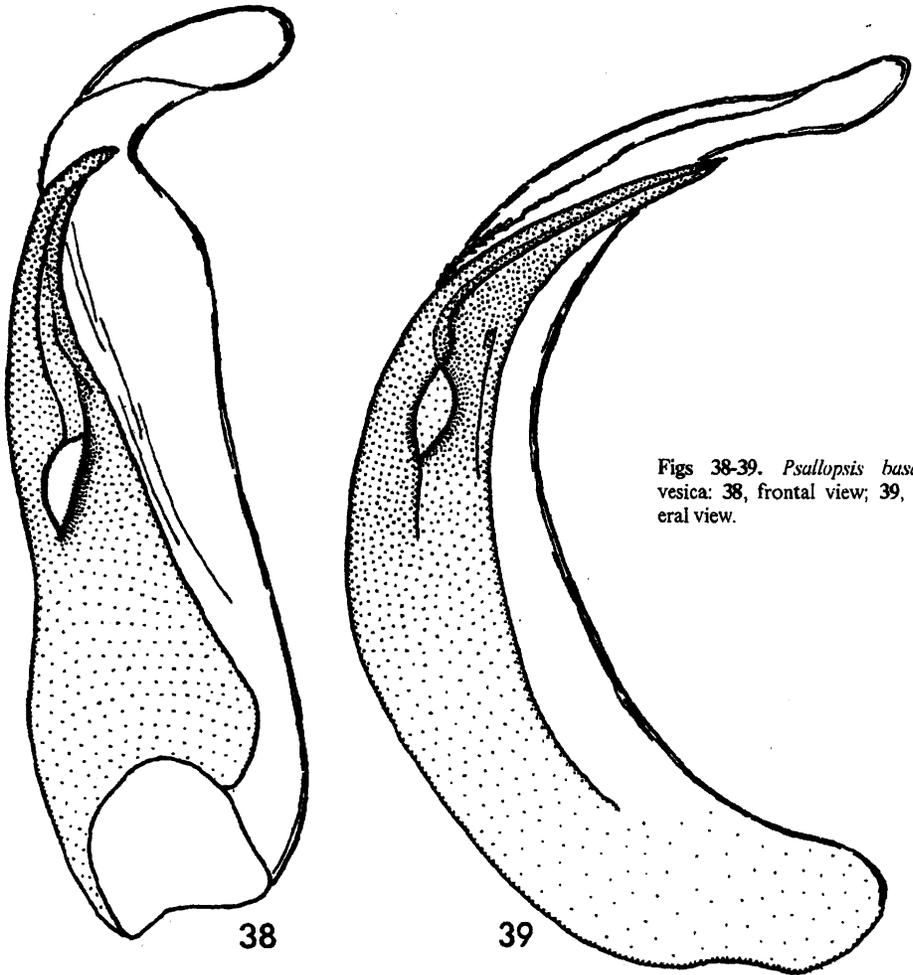


Figs 36-37. *Psallopsis hisulcis*, vesica: 36, frontal view; 37, lateral view.

pronotum. Eyes with reddish or grey-greenish facets. Head light, vertex 2.3-2.5 times as wide as eye, often covered with fuscous, sometimes red spots. All antennal segments light. Ratio between antennal segments 15 : 60 : 50 : 27. Second segment 1.1-1.3 times shorter than basal width of pronotum, 1.0-1.1 times as long as width of head. Rostrum extending beyond second abdominal segment. Pronotum 2.6-2.7 times as wide as long, 1.2-1.3 times as wide as head, together with scutellum covered with fuscous spots. Macropterous females rare. Brachypterous females usually with short membrane, scarcely extending beyond apex of cuneus. Oblique fuscous macula at base of membrane present in macropterous females. Fuscous spot behind membrane cells often

hardly visible. Hemelytra uniformly coloured. Body length: 2.4-2.6 mm.

Comparison. This species is similar to *P. longicornis* and *P. similis* in the structure of vesica, but shows good distinctions in the colour pattern. It is similar to *P. kirgisica* in the presence of dark spots on head, pronotum and scutellum, but in the average larger, scutellum with numerous dark spots or a red or brown pattern (in *P. kirgisica* usually pale with a few dark spots), and the ventral side of hind femora with dense, bright red, sometimes connected spots (in *P. kirgisica* usually the spots are sparser and at least some of them fuscous), also the apex of vesica shows distinctions (see key).



Figs 38-39. *Psallopsis basalis*, vesica: 38, frontal view; 39, lateral view.

Distribution (Fig. 56). Ukraine, south of European Russia (N. Caucasus, Lower Volga region), S. Altai, Kazakhstan, Uzbekistan, Mongolia.

Host plants: not clarified, but certainly annual Chenopodiaceae. Some specimens are labelled as collected from annual *Suaeda*, *Halogeton* (?) and *Petrosimonia*.

***Psallopsis caspia* sp. n.**
(Figs 1, 2, 17, 18, 51-53)

Holotype ♂, **Kazakhstan**, Zhezkazgan Prov., 25 km SW Kense, 30.V.1962, probably collected on *Kochia* sp. (Kerzhner).

Paratypes (112 specimens). **Russia**, Dagestan: 7 ♂, Buynaksk Distr., Kapchugay, 2.X.1937 (Ryabov); 1 ♂, 2 ♀, Mal. Areshhevka, 22 km of Kizlyar, 10.VII.1934, 18.VII.1934 (Formozov); **Kazakhstan**: Ural'sk Prov.: 6 ♂, 15 ♀, Dzhanibek, 28.VI.1961 (Kerzhner);

Zhezkazgan Prov.: 20 ♂, 9 ♀, 25 km SW Ken. 30.V.1962 (Kerzhner); **Uzbekistan**: 11 ♂, 17 ♀, Te mez, 17-27.VI.1912 (Kiritshenko); **Turkmenistan**: ♂, Kara-Kala, 12.X.1930 (Bianchi); 1 ♂, 1 ♀ Kope dag Mts, Nouo, 26.IX.1930 (Bianchi); **Armenia**: 1 ♂ 2 ♀, Darasham railway station, on Araks River 25.VIII.1932 (Ryabov); 2 ♂, Kamarlyu railway station, 14.VII, 11.VIII.1931 (Korinek); **Azerbaijan**: 1 ♂, Geok-Tapa (A. Schelkownikow); **Iran**: 2 ♂, Shahrud, 6.IV.1914 (Kiritshenko).

♂. Yellowish, sometimes partly greenish, shining. Oblong-oval, 2.9-3.3 times as long as width of pronotum. Eyes protuberant, with yellow-greenish or grey facets; head light, without spots. Vertex 1.7-1.8 times as wide as eye. Antennae light, apex of 2nd, 3rd and 4th segments slightly darker in some specimens. Ratio between antennal segments 14 : 67 : 46 : 30. Second antennal segment 0.89-0.94 times as long as width of pronotum, 1.18 times as long

as width of head. Rostrum extending to first abdominal segment. Pronotum 2.5-2.8 times as wide as long, 1.34 times as wide as head. Pronotum and scutellum without spots. Hemelytra long, apex of cuneus extending beyond apex of abdomen. Hemelytra uniformly pale yellow, but usually with broad whitish belt (its colour close to basic colour of membrane) behind apex of scutellum. This belt in some specimens transformed into large spot at center of hemelytra. Second belt of the same colour narrower, separating cuneus from corium. Spots on corium, cuneus and especially clavus pale, smaller than, rarely equal to diameter of second antennal segment at base. Spots on the very apex of cuneus fuscous, membrane with denser fuscous spots. Fuscous oblique macula at base of membrane always present. Fuscous spot behind cells well developed in most specimens. Legs yellowish, femora not darkened, only on fore margin of hind femora fuscous spots more condensed. Apex of upper surface of hind femora often with narrow reddish stripe. Hemelytra well developed; base of cuneus reaching apex of abdomen. Vesica as in Figs 17-18; parameres as in Figs 51-53. Body length: 2.7-3.0 mm.

♀. Body short and stumpy, yellowish or greenish, shining, 1.9-2.2 times as long as width of pronotum. Eyes with grey-greenish or grey facets; vertex 2.35-2.70 times as broad as eye. Head without spots. Antennae pale, not darkened, ratio between antennal segments 12 : 52 : 42 : 23. Second antennal segment 0.8 times as long as width of pronotum, about as long as width of head. Rostrum extending far beyond hind coxae. Pronotum 2.6-2.7 times as wide as long, 1.30-1.36 times as wide as head. Pronotum and scutellum without spots. Hemelytra and legs covered with fuscous spots equal to or smaller than basal width of second antennal segment. Spots denser at lateral margins of cuneus. Hemelytra usually uniformly pale yellowish, but in some specimens whitish belts well developed. Brachypterous, hemelytra not covering apex of abdomen. Membrane usually not extending beyond apex of cuneus. Cells always present, but hardly visible. Oblique fuscous macula at base of membrane always present. Femora more or less regularly spotted (only with fuscous spots). Reddish stripe on fore femora well developed only in some specimens. Body length: 2.1-2.3 mm.

Comparison. The species is close to *P. kirgistica* in the vesica structure, but differs from it in the absence of fuscous spots on the head, pronotum and scutellum. This spe-

cies is comparatively smaller and more stumpy.

Distribution (Fig. 57). Russia (Dagestan), Armenia, Azerbaijan, Kazakhstan, Uzbekistan, Turkmenistan, Iran.

Host plants: *Salsola laricina* recorded in Dzhanlybek and *Kochia?* sp. (annual plant) in Central Kazakhstan.

***Psallopsis minima* (Wagner, 1967)**
(Figs 15, 16)

Malthacosoma minima Wagner, 1967: 69.

Psallopsis minimus: Kerzhner, 1970: 635.

Solenoxyphus viridulus Qi & Nonnaizab, 1996: 295.
syn. n.

Material examined: 654 specimens from Central Kazakhstan and Mongolia.

Description. Yellowish or light greenish. All antennal segments pale. Fuscous spots on head, pronotum and scutellum absent. Fore femora without considerable condensations of spots. Oblique fuscous macula at base of membrane present in males, but absent in females. Females brachypterous, membrane of hemelytra hardly extending beyond apex of cuneus. Vesica (Figs 15-16) S-shaped, large and robust, 1.5 times longer than in other species. Sclerotized stripes around secondary gonopore opening not hidden or partly hidden by lateral margin of vesica (in lateral view).

♂. Body 2.9-3.1 times as long as width of pronotum. Vertex 1.8-2.0 times as wide as eye. Ratio between antennal segments 15 : 79 : 70 : 28. Second segment about as long as basal width of pronotum, 1.2-1.3 times as long as width of head. Pronotum 2.4-2.5 times as wide as long, 1.3 times as wide as head. Body length: 3.5-3.6 mm.

♀. Body 2.4-2.6 times as long as width of pronotum. Vertex 2.5-2.8 times as wide as eye. Ratio between antennal segments 15 : 80 : 65 : 27. Second segment 1.0-1.2 times shorter than basal width of pronotum, 1.0-1.2 times as long as width of head. Pronotum 2.6-2.7 times as wide as long, 1.3 times as wide as head. Body length: 3.4 mm.

Note. Judging from the peculiarities of elytra dotting, measurements and vesica structure, *Solenoxyphus viridulus* Qi & Nonnaizab, 1996 is conspecific with *P. minima* Wagn.

Distribution (Fig. 54). Central and Eastern Kazakhstan, Mongolia and N China (Qi & Nonnaizab, 1996).

Host plant: *Kalidium* spp. (*K. foliatum* in Kazakhstan). *Artemisia* was erroneously indicated as host plant by Qi & Nonnaizab (1996).

***Psallopsis longicornis* (Jakovlev, 1902)**
(Figs 28, 31)

Solenoxypus longicornis Jakovlev, 1902: 338.

Psallopsis longicornis: Reuter, 1904: 16.

Material examined: 104 specimens from Crimea, Lower Volga region, Kazakhstan and Central Asia.

Description. Yellowish. All antennal segments pale. Head, pronotum and scutellum without spots. Fore femora without considerable condensations of spots in both sexes, but in some females, mostly collected near Balkhash Lake (Kazakhstan), inner surfaces of hind femora with stripes formed by dark fuscous spots (much darker than those on elytra, Figs 9, 10) and several large dark fuscous spots on hind margin. Oblique fuscous macula at base of membrane always present. ♀ brachypterous; membrane of hemelytra shortened, hardly reaching to slightly surpassing apex of cuneus. Vesica (Figs 28, 31) S-shaped, rather thin. Sclerotized stripes around secondary gonopore opening hidden by lateral margin of vesica in lateral view. Apical process comparatively short and curved. Apical lobe adjoining vesica and not visible in lateral view.

♂. Body 3.5 times as long as width of pronotum. Vertex 2.1 times as wide as eye. Ratio between antennal segments 17 : 73 : 55 : 27. Second segment approximately equal to basal width of pronotum, 1.5 times as long as width of head. Pronotum 2.4-2.5 times as wide as long, 1.3 times as wide as head. Body length: 3.4-3.8 mm.

♀. Body 2.4-2.6 times as long as width of pronotum. Vertex 2.5-2.8 times as wide as eye. Ratio between antennal segments 17 : 65 : 47 : 26. Second segment 1.0-1.2 times shorter than basal width of pronotum, 1.0-1.2 times as long as width of head. Pronotum 2.6-2.7 times as wide as long, 1.3 times as wide as head. Body length: 2.3-2.4 mm.

Note. The record by Linnavuori (1961: 12) from S. Uzbekistan (Termez) is based on specimens of *P. caspia*.

Distribution (Fig. 54). Crimea, Lower Volga region, Kazakhstan, Uzbekistan (Bukhara Prov.).

Host plant: *Halocnemum strobilaceum*.

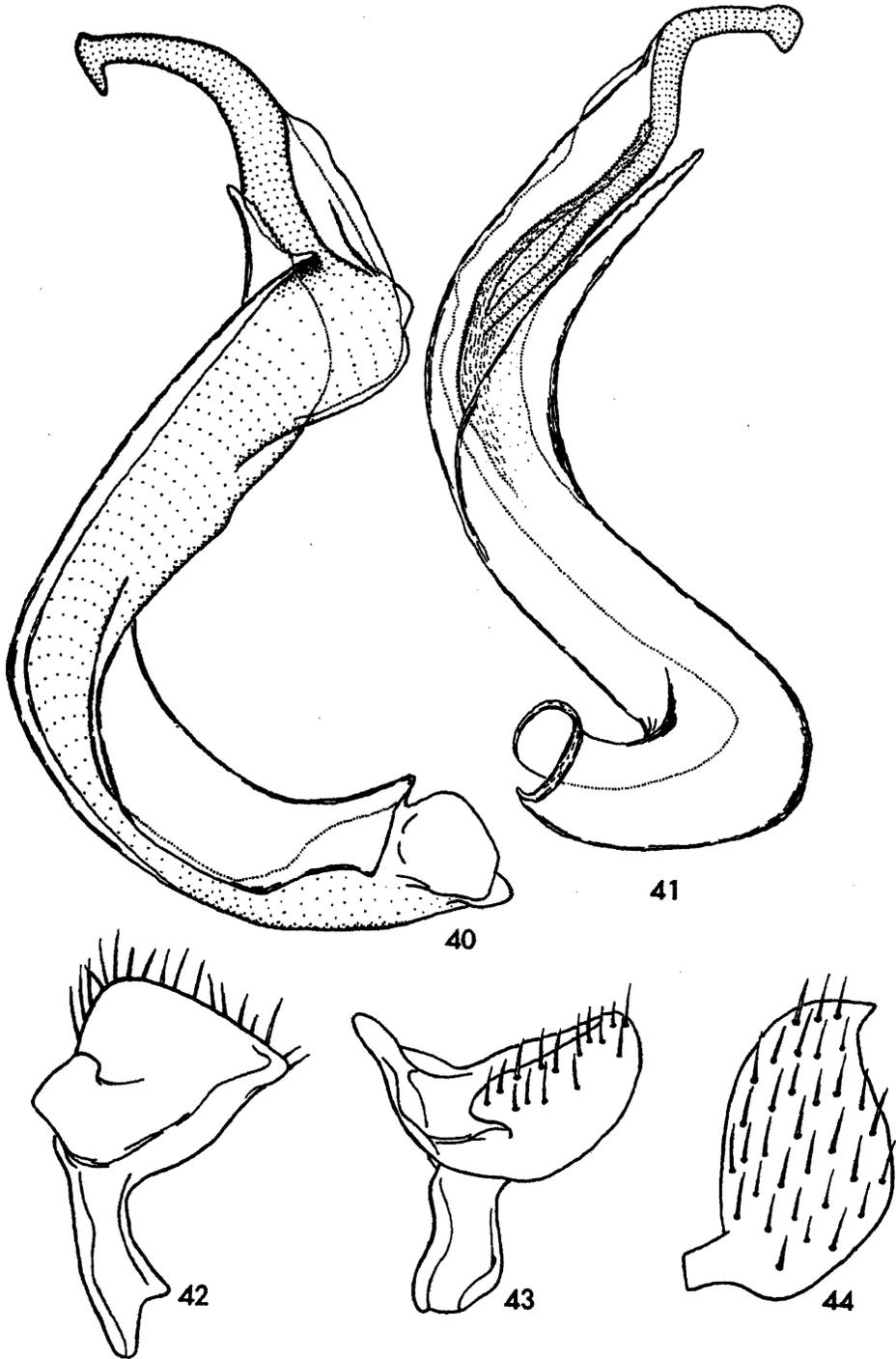
***Psallopsis similis* Wagner, 1958**
(Figs 5, 6, 26, 29, 45-47)

Psallopsis similis Wagner, 1958: 6.

Material examined: 175 specimens from Iran (including 6 paratypes from Khuzistan), South Russia (Lower Volga region), Armenia, Azerbaijan, Kazakhstan, Turkmenistan, Uzbekistan and Tadjikistan.

Description. ♂ (Fig. 5). Body yellow-greenish, almost parallel-sided, 3.9-4.0 times as long as width of pronotum. Eyes protruding, with dark facets. Head light, without spots or colour pattern. Antennae uniformly pale yellow. Ratio between antennal segments 13 : 65 : 50 : 25. Second antennal segment 0.9-1.0 times as long as basal width of pronotum, 1.25-1.34 times as long as width of head. Rostrum extending to hind coxae. Pronotum 2.40-2.75 times as wide as long, 1.30-1.35 times as wide as head. Pronotum and scutellum without spots. Hemelytra with comparatively dense and regular fuscous spots. Density of spots on membrane quite variable (from similar to that on corium to almost entirely darkened membrane). Oblique fuscous macula at base of membrane present. Fuscous spot behind cells of membrane well developed to entirely absent. Legs pale, with fuscous spots not condensed into larger spots or stripes. Vesica (Figs 26, 29) thin, secondary gonopore opening hidden by lateral margin in lateral view. Apical process comparatively small, its apex directed upward. Apical lobe well developed. Hypophysis of left paramere rather thin and oblong. Parameres as in Figs 45-47. Body length: 2.9-3.2 mm.

♀ (Fig. 6). From dark yellowish, even greyish to green. Robust, body 2.6-2.8 times as long as width of pronotum. Eyes protruding, with black or grey facets. Head light, the darkest specimens with series of dark rays radiating from middle line of frons. Antennae uniformly yellow, ratio between antennal segments 14 : 70 : 56 : 25. Second antennal segment 0.88 times as long as width of pronotum, 1.16-1.29 times as long as width of head. Rostrum extending to third abdominal segment. Pronotum 2.6-2.8 times as wide as long, 1.3-1.5 times as wide as head. Pronotum and scutellum without spots. Hemelytra always well developed, extending beyond apex of abdomen, uniformly yellow, with dense, equally distributed fuscous spots. Spots on membrane denser than on corium. Oblique fuscous macula at base of membrane present. Fuscous spot behind cells usually well developed. Legs pale, without any



Figs 40-44. 40-41, *Psallopsis haloxyli*, vesica: 40, lateral view; 41, frontal view; 42-44, *P. neglecta*: 42-43, left paramere; 44, right paramere.

condensations of fuscous spots. Body length: 2.6-3.0 mm.

Note. *P. similis* was placed by Linnavuori (1961: 11) in synonymy with *P. longicornis*, but reinstated by Wagner (1975: 387). This species is close to *P. longicornis*, they are very similar in external features of males. Eyes of examined specimens are black or reddish, while in *P. longicornis* they are greenish or pale greyish. There are some distinctions in the degree of development of apical lobe and apical process of vesica. ♀ is always macropterous in *P. similis*, while in *P. longicornis* it is brachypterous. *P. similis* was collected on *Suaeda physophora*, in contrast to *P. longicornis*, which feeds on *Halocnemum strobilaceum*.

Distribution (Fig. 57). Saudi Arabia, Israel, Syria, Iraq, Iran (Linnavuori, 1986), South Russia (Lower Volga region), Armenia, Azerbaijan, Kazakhstan, Turkmenistan, Uzbekistan, Tajikistan.

Host plant: *Suaeda physophora* in South Russia and Kazakhstan; *Calligonum comosum* was named as a host plant by Linnavuori (1986), probably in error.

***Psallopsis halostachydis* Putshkov, 1976**
(Figs 33, 35)

Psallopsis halostachydis Putshkov, 1976: 370.

Material examined: 68 specimens from Dagestan and Central Asia.

Description. Yellowish or greenish. All antennal segments pale. Fuscous spots on head, pronotum and scutellum absent. Fore femora without considerable condensations of fuscous spots. Oblique fuscous macula at base of membrane present. Females macropterous. Vesica (Figs 33, 35) S-shaped, very thin and weakly sclerotized. Sclerotized stripes around secondary gonopore opening hardly visible and hidden by lateral margin of vesica in lateral view. Vesica practically indistinguishable from that of *P. kalidicola*, but in *P. halostachydis* apical process 1.5 times shorter.

♂. Body 3.3-3.4 times as long as width of pronotum. Vertex 1.6-1.7 times as wide as eye. Ratio between antennal segments 14 : 80 : 65 : 40. Second segment approximately as long as basal width of pronotum, 1.3-1.4 times as long as width of head. Pronotum 2.4-2.5 times as wide as long, 1.3-1.4 times as wide as head. Body length: 3.9-4.1 mm.

♀. Body 2.7 times as long as width of pronotum. Vertex 2.3-2.6 times as wide as eye. Ratio

between antennal segments 17 : 86 : 72 : 32. Second segment 1.0-1.1 times shorter than basal width of pronotum, 1.1-1.4 times as long as width of head. Pronotum 2.6 times as wide as long, 1.3-1.5 times as wide as head. Body length: 3.7-3.9 mm.

Distribution (Fig. 54). European Russia (Dagestan: Adzhi Lake), Turkmenistan, Uzbekistan, Tajikistan. The species is recorded also from Inner Mongolia (Nonnaizab & Yang, 1994).

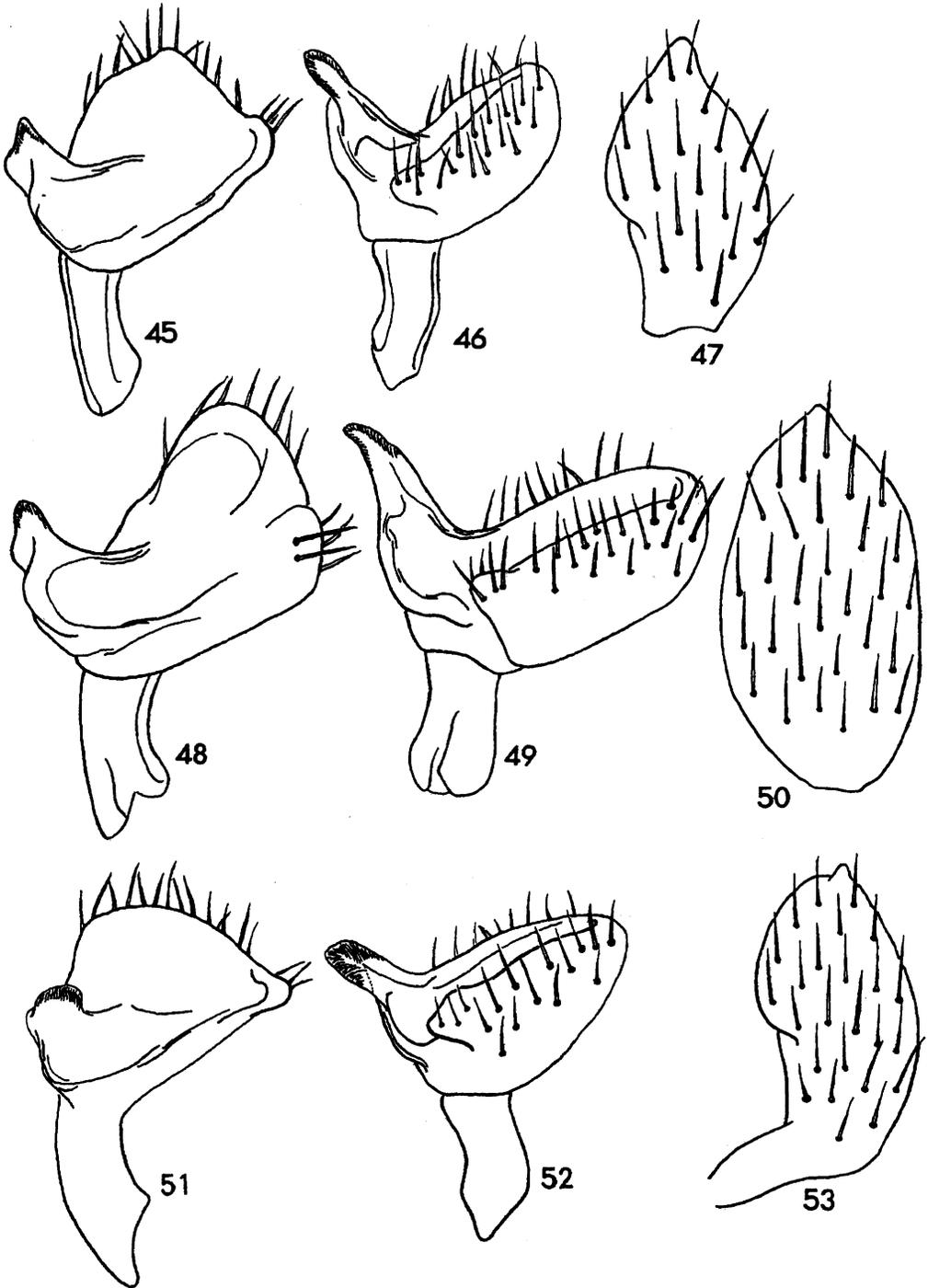
Host plant: *Halostachys belangeriana* (caspia auct.).

***Psallopsis kalidicola* sp. n.**
(Figs 7, 8, 32, 34, 48-50)

Holotype. ♂, Turkmenistan, Kyzyl-Atrek, 8.V.1947 (Borchsenius).

Paratypes (141 specimens). Turkmenistan: 32 ♂, Kyzyl-Atrek, 8.V.1947 (Borchsenius); Uzbekistan: 1 ♀, Termez, 23-30.V.1910 (Zarudny); Kirgizia: 5 ♂, 6 ♀, S shore of Issyk-Kul Lake, 40 km E of Rybachi, 20.VII.1962 (Kerzhner); Kazakhstan: 2 ♂, 6 ♀, N of Balkhash Lake, 40 km W of Sayak, 20.VI.1962 (Kerzhner); 3 ♂, Mangyshlak, Karchauk mountain, 17.IX.1955 (Grunin); Mongolia: South Gobi Aimak: 6 ♂, 1 ♀, Khushu-Sair, 25 km SW of Khaylastyn-Khuduk, 21.VI.1966 (Kerzhner); 2 ♂, Dzemgin-Gobi, 25 km SSW of Khaylastyn-Khuduk, 20.VI.1971 (Kerzhner); 3 ♀, near Dund-Gol, 20-21.VIII.1969 (Kerzhner); Bayan-Hongor Aimak: 5 ♂, 15 ♀, Taly-Bilgekh-Bulak spring, 16-19.VIII.1969 (Kerzhner, Kozlov); Over-Hangay Aimak: 1 ♂, E shore of Tatsyn-Tsagan-Nur Lake, 2-4.VIII.1969 (Kerzhner); Hovd Aimak: 12 ♂, 7 ♀, Bodonchin-Gol River, 20 km SW of Altai, 4.VIII.1968 (Emeljanov); 2 ♂, 6 ♀, locality Elkhon, 20 km SE of Altai, 27.VII.1970 (Emeljanov, Kerzhner); Gobi-Altai Aimak: 1 ♂, 7 ♀, 25 km SW of Bur-Nur Lake, 17.VII.1970 (Emeljanov, Kerzhner); 1 ♂, Khaychi-Bulak spring, 60 km SE of Bugat, 19.VII.1970 (Kerzhner); 1 ♂, 15 km WNW of Zakhui, 24-26.VIII.1970 (Emeljanov).

Description. ♂ (Fig. 8). Body yellowish green or pale green, nearly parallel-sided, 3.1-3.5 times as long as basal width of pronotum. Eyes projecting, with yellowish-green facets. Head without spots or stripes. Antennae uniformly pale yellow. Ratio between antennal segments 13 : 96 : 82 : 31. Second segment 0.95-0.96 times as long as basal width of pronotum, 1.12-1.13 times in specimens from Mongolia (25 km SW of Khailastun-Khuduk), 1.3-1.6 times as long as width of head. Rostrum extending beyond hind coxae. Pronotum 2.4-2.6 times as wide as long, 1.27-1.32 times as wide as head; pronotum and scutellum without spots. Hemelytra uniformly yellow, densely covered with minute fuscous spots, less evenly dis-



Figs 45-53. 45-47, *Psallopsis similis*: 45-46, left paramere; 47, right paramere; 48-50, *P. kalidiicola*: 48-49, left paramere; 50, right paramere; 51-53, *P. caspia*: 51-52, left paramere; 53, right paramere.

tributed on membrane than on clavus, corium and cuneus and often forming fusions, but not large condensations, becoming denser to distal end. Fuscous spot behind cells of membrane absent. Spots inside cells usually smaller. Oblique fuscous macula at base of membrane always present. Apex of abdomen reaching middle part of cuneus. Legs uniformly light, with fuscous spots, denser on anterior margin of femora, especially of hind ones, but not fused into unbroken stripe. Vesica (Figs 32, 34) thin, secondary gonopore opening hidden by lateral margin. Apical process comparatively short. Apical lobe absent. Parameres as in Figs 48-50. Body length: 3.6-4.4 mm.

♀ (Fig. 7). Body pale greenish, robust, oblong-oval, 2.3-2.6 times as long as basal width of pronotum. Eyes with greenish facets. Head pale. Vertex 2.2-2.5 times as wide as eye. Antennae uniformly pale yellow. Ratio between antennal segments 14 : 77 : 60 : 26. Second antennal segment approximately as long as basal width of pronotum, 1.2-1.35 times as long as width of head. Rostrum extending beyond hind coxae. Pronotum 2.5 times (rarely up to 2.7 times) as wide as long, 1.15-1.25 times as wide as width of head, without spots, as well as scutellum. Elytra uniformly coloured, without light belts, densely and evenly irrorated with spots, usually more bright on external margins of corium and cuneus. Membrane strongly shortened, its apex usually not reaching apex of cuneus. Oblique fuscous macula at base of membrane always present. Spots on membrane smaller than in the remaining part of hemelytra. Spots on legs evenly distributed, without condensations, even at femora. Body length: 2.6-3.2 mm.

Comparison. The new species is closer to *P. halostachydis*, especially in the structure of vesica (there are small distinctions in length and in the way of curving of apical process). But in males of *P. halostachydis* distinct dark stripes are developed at the anterior margin of the hind femora. These stripes are composed by condensation of fuscous spots, and not by darkening of the basic colour. It is apparent on the stripe margin, where the stripe is dissociated into separate spots. Besides, bases of hairs covering the stripe are surrounded by small light specks (in the case of darkening of the basic colour the whole surface is uniformly dark). ♀ of *P. halostachydis* in distinction from females of the new species have a dark stripe at the fore margin of hind femora as in males and the membrane is always well de-

veloped. The host plant is *Halostachys* in *P. halostachydis* and *Kalidium* in *P. kalidiicola*. *P. minima* is also feeding on the last plant genus but it has clear distinctions in the vesica structure, the fuscous spots on its hind femora are located separately, without fusions. From all the other representatives of the genus, *P. kalidiicola* has good distinctions in the size, peculiarities of the spot covering, genitalia structure of ♂ and in the development of ♀ membrane. The series from Issyk-Kul Lake collected on *Kalidium* is aberrant: females have no distinctions from the typical form, while in males all femora are darkened, the ventral side of thorax, scutellum and part of the pronotum completely or partly darkened or pronotum and scutellum with fuscous spots. Nevertheless, this series belongs to *P. kalidiicola* taking into account the structure of vesica and the appearance of females.

Distribution (Fig. 54). Turkmenistan, Kazakhstan, Kirgizia, Mongolia.

Host plants: *Kalidium* spp. (*Kalidium caspicum* in Kazakhstan).

***Psallopsis rufifemur* Wagner, 1958** (Figs 24, 25)

Psallopsis rufifemur Wagner, 1958: 5.

Material examined: 6 specimens from Iraq (including 4 paratypes).

Description. Pale yellow. All antennal segments pale. Fuscous spots on head, pronotum and scutellum absent. Hind femora with very few fuscous spots; ventral side of femora in males often with light reddish stripe in the middle, apices of femora in females with fuscous spots. Middle part of hemelytra crossed by indistinct light grey belt, which is practically invisible in females. Apex of cuneus also lightly infuscated. Oblique grey macula and spot behind cells on membrane well developed. ♀ macropterous. Vesica (Figs 24, 25) S-shaped. Apical lobe very large, approximately equal in size to apical process and covered with small pins. Sclerotized stripes around secondary gonopore opening not hidden or partly hidden by lateral margin of vesica in lateral view.

♂. Body 3.0-3.2 times as long as width of pronotum. Vertex 1.6-1.7 times as wide as eye. Ratio between antennal segments 15 : 75 : 55 : 32. Second segment approximately as long as basal width of pronotum, 1.1-1.2 times as long as width of head. Pronotum 3.0-3.2 times as

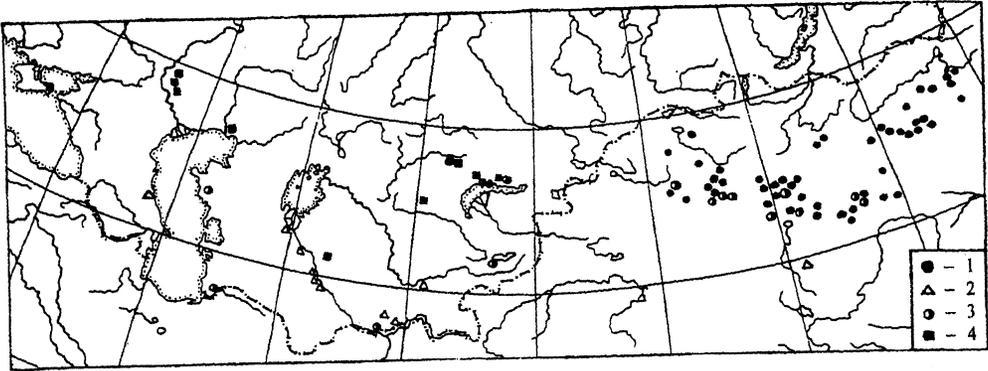


Fig. 54. *Psallopsis*, distribution: 1, *P. minima*; 2, *P. halostachydis*; 3, *P. kalidiicola*; 4, *P. longicornis*.

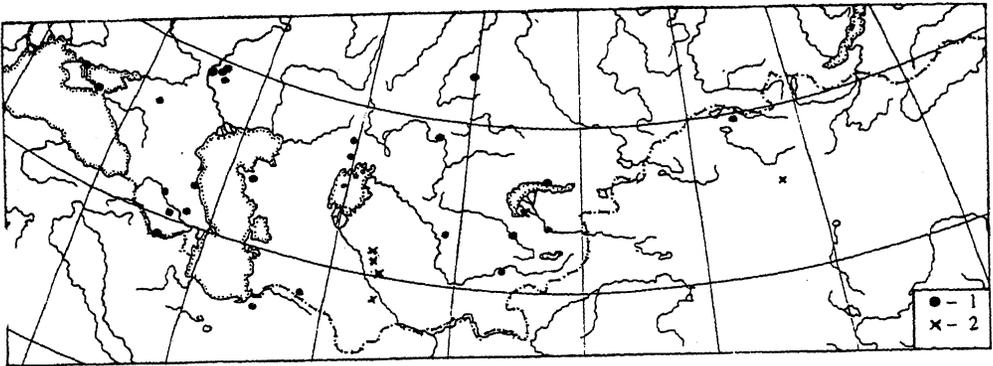


Fig. 55. *Psallopsis*, distribution: 1, *P. kirgisisca*; 2, *P. haloxylti*.

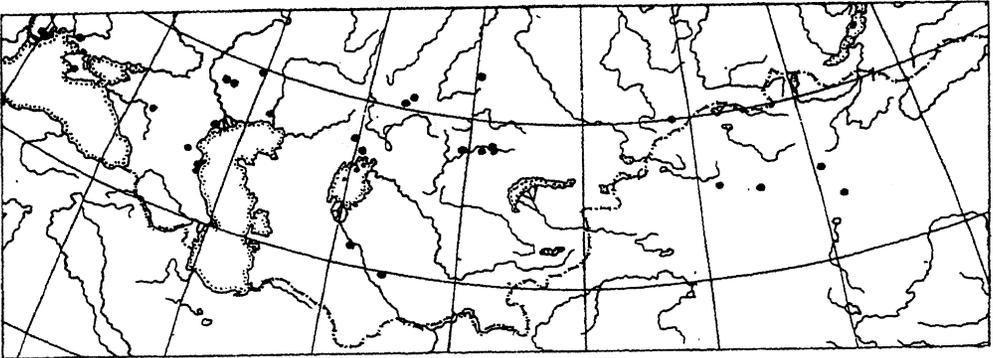


Fig. 56. *Psallopsis neglecta*, distribution.

wide as long, 1.2-1.3 times as wide as head. Body length: 3.7-3.9 mm.

♀. Body 2.8-2.9 times as long as width of pronotum. Vertex 2.0-2.1 times as wide as eye. Ratio between antennal segments 13 : 70 : 50 : 25. Second joint 1.2 times shorter than basal width of pronotum, as long as width of head.

Pronotum 3.0-3.2 times as wide as long, 1.2-1.3 times as wide as head. Body length: 3.2-3.3 mm.

Distribution. Iran, Iraq, Saudi Arabia.

Host plants: *Arthrocnemum glaucum*, *Salicornia herbacea*, *Seidlitzia rosmarinus* (Linnavuori, 1986); these data should be verified.

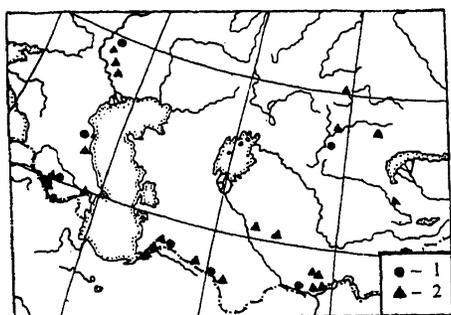


Fig. 57. *Psallopsis*, distribution: 1, *P. caspia*; 2, *P. similis*.

Psallopsis haloxyl Putshkov, 1976
(Figs 40, 41)

Psallopsis haloxyl Putshkov, 1976: 371.

Material examined: 92 specimens from Turkmenistan, Uzbekistan (Bukhara Prov.), Kazakhstan (Ili River) and Mongolia (South Gobi Aimak).

Description. Whitish. All antennal segments light, in ♀ antennae covered with fuscous spots. Upperside covered with spots; their colour varies from pale fuscous to ochreous (last type of spots located at cuneus or, in some specimens on head and pronotum). Spots often fused on hemelytra, composing larger ones. Hind femora with fuscous stripe at fore margin in both sexes. Oblique grey macula at base of membrane absent. ♀ macropterous, apex of abdomen extending beyond middle of cuneus. Vesica peculiar (Figs 40-41), S-shaped, large and robust, two-branched at apex; largest branch forming apical hook.

♂. Body 3.5 times as long as width of pronotum. Vertex 2.1 times as wide as eye. Ratio between antennal segments 15 : 81 : 70 : 28. Second segment approximately as long as basal width of pronotum, 1.5 times as long as width of head. Pronotum 2.5 times as wide as long, 1.5 times as wide as head. Body length: 4.0-4.1 mm.

♀. Body 2.6 times as long as width of pronotum. Vertex 2.6 times as wide as eye. Ratio between antennal segments 16 : 75 : 52 : 27. Second segment 1.0-1.2 times shorter than basal width of pronotum, 1.3 times as long as width of head. Pronotum 2.4 times as wide as long, 1.5 times as wide as head. Body length: 3.2 mm.

Distribution (Fig. 55). Turkmenistan, Uzbekistan, Kazakhstan, Mongolia.

Host plants: *Haloxylon ammodendron*, *H. aphyllum*.

Psallopsis basalis Reuter, 1904
(Figs 38, 39)

Psallopsis basalis Reuter, 1904: 7, 16.

Material examined: 4 specimens from Iran including a female with golden circle and labels "Duruh - Gezik, Nehbendan, Pers., 1-10.X.98 (Zarudny)" [in Cyrillic characters] and "*Graphymemus* [sic] *basalis* Reut. n. g. & sp." [Reuter's handwriting]. The latter is kept in the collection of the Zoological Institute, St. Petersburg and is designated here as lectotype.

Description. Pale yellow. Antennae pale with first antennal segment dark brown. Spots above antennal pits usually darkened. Fuscous spots on head, pronotum and scutellum absent. Hind femora practically without any spots in both sexes. Fuscous spots distinct on fore tibia, less distinct on middle and absent on hind ones. Spots on elytra pale and small, entirely absent at clavus and adjoining part of cuneus. Oblique grey macula and spot behind cells at membrane well developed. ♀ macropterous. Vesica (Fig 38-39) comma-like, large and robust, divided into two branches from the very base. Larger branch spoon-shaped, with teeth on inner margin; smaller branch needle-shaped, with secondary gonopore opening at its base. Apex of needle-shaped branch smoothly curved.

♂. Body 2.8-3.6 times as long as width of pronotum. Vertex 1.7-2.0 times as wide as eye. Ratio between antennal segments 14 : 73 : 61 : ?. Second segment approximately as long as basal width of pronotum, 1.1-1.2 times as long as width of head. Pronotum 2.7-2.9 times as wide as long, 1.3 times as wide as head. Body length: 3.2-4.0 mm.

♀. Body 2.8-2.9 times as long as width of pronotum. Vertex 2.6 times as wide as eye. Ratio between antennal segments 14 : 63 : 56 : ?. Second segment 1.3-1.4 times shorter than basal width of pronotum, 1.3 times as long as width of head. Pronotum 2.9-3.0 times as wide as long, 1.4 times as wide as head. Body length: 3.2-3.5 mm.

Distribution. Saudi Arabia, Israel, Jordan, Iraq, Iran (Linnavuori, 1993).

Host plant: *Zygophyllum* (Linnavuori, 1993); these data require confirmation, as other species of the genus live on Chenopodiaceae.

Psallopsis bisulcis Linnavuori, 1961
(Figs 36, 37)

Psallopsis bisulcis Linnavuori, 1961: 12; Wagner, 1975: 388 (as synonym of *P. basalis* Reut.); Linnavuori, 1993: 257 (as separate species).

Material examined: 43 specimens from Iraq, Iran, Turkmenistan and Uzbekistan.

Description. Pale yellow, partly greenish. All antennal segments pale, first segment sometimes with two pale fuscous spots. Fuscous spots on head, pronotum and scutellum absent. Hind femora with few fuscous spots. Fuscous spots distinct on fore tibiae, less distinct on middle and absent on hind ones. Spots on elytra small and pale, a few of them on clavus in pale specimens. Oblique grey macula at base of membrane well developed, spots behind cells in various degrees of development. ♀ macropterous. Vesica (Figs 36-37) closer to that of *P. basalis* but needle-shaped branch not curved, straight.

♂. Body 2.5-3.1 times as long as width of pronotum. Vertex twice as wide as eye. Ratio between antennal segments 15 : 75 : 60 : 27. Second segment 1.2-1.4 times shorter than basal width of pronotum, 1.1-1.2 times as long as width of head. Pronotum 2.9-3.1 times as wide as long, 1.4-1.5 times as wide as head. Body length: 2.9-3.9 mm.

♀. Body 2.4-2.7 times as long as width of pronotum. Vertex 2.5-2.6 times as wide as eye. Ratio between antennal segments 15 : 62 : 50 : 22. Second segment 1.3-1.5 times shorter than basal width of pronotum, as long as width of head. Pronotum 2.6-2.8 times as wide as long, 1.3-1.4 times as wide as head. Body length: 2.9-3.2 mm.

Distribution. Turkmenistan, Uzbekistan, Israel, Iraq, Iran.

Host plant: *Aellenia subaphylla*.

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