

# NEW SPECIES OF CICADINEA (HOMOPTERA) FROM KAZAKHSTAN

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Descriptions are given of several forms of the Cicadinea new to science discovered by the author in recent years in Western and Southeastern Kazakhstan. Holotypes and paratypes of the species described are in the collection of the Zoological Institute, Kazakh Academy of Sciences; some paratypes are in the collection of the Zoological Institute, USSR Academy of Sciences in Leningrad.

*Pentastiridius laevifrons* Mitjaev, sp. n. (Fig. 1, 1-13).

Vertex very short, its width between the eyes 1.6-1.7 times its length, deeply impressed, dark brown to black, carinae clearly expressed, yellowish brown. Frons smooth, shiny, black, its width in the upper part half its basal width. Carinae greatly smoothed, the median carina disappearing at the apex. Transverse carina at apex of frons and pits scarcely apparent. Lateral margins of frons very narrow, light; ocellus small; antennal pits relatively shallow, light. Scape of antennae brown, apically lighter. Rostrum long, extending nearly to middle femora. Pronotum slightly wider than head including eyes, very short, brown or light brown. Mesonotum usually black, less frequently dark brown, carinae not very prominent, especially median carinae. Shoulders ("naplechinki") light. Fore wings hyaline, veins light, light brown; sigma either not at all expressed or weak light brown. Femora brown, light brown, tibiae and tarsi almost invariably yellowish white, especially the hind ones.

In the structure of the male genitalia the species is most similar to *Pentastiridius dagestanicus* Kusn., 1937, while in external appearance it is similar to *P. nanus* Iv., 1885. It is well distinguished from both species by small size, greatly smoothed carinae, some structural details of the aedeagus and the anal tube, and by range. *P. dagestanicus* is widely distributed in the southeast European regions of the USSR, in Western, Central, Southern and Southeastern Kazakhstan and in the Zaysan Basin. *P. nanus* is known only from the left bank steppe in the Ukraine. The new species occurs universally in the wasteland and desert zones of Western Kazakhstan, prefers saline habitats and lives on saltworts and black wormwood.

Length: ♂ 3.5 mm, ♀ 3.8-4.1 mm.

**Material.** Mangyshlak: around Shevchenko, 1 ♀, 19 June 1969, black wormwood, near Fort Shevchenko, 4 ♂♂, 5 ♀♀, 20 June 1969, *Salsola arbuscula*; the Mangyshlak Karatau near Shetpe Station, Siyrsu, 1 ♂, 1 ♀, 24 June 1969, *Halocnemum*; the boundary of the Ustyurt and Mangyshlak near the Kaskan well, 1 ♂, 14 June 1969. Ustyurt: 50 km west of the Kogusem well, 1 ♀, 11 June 1969. Guryev-Ural'sk: near Kalmykovo, 6 ♂♂, 14 ♀♀, 28 June 1970, 1 ♂, holotype, black wormwood habitats with some *Anabasis aphylla*. The south of Aktyubinsk Province: around Sagiz River,

7 ♂♂, 3 ♀♀, 19 June 1970; around Uil River, 4 ♂♂, 2 ♀♀, 12-14 June 1970, floodplain, on saltwort; 15 km west of the Uil River, 3 ♂♂, 2 ♀♀, 15 June 1970, on *Anabasis aphylla*.

*Ribautodelphax kasachstanica* Mitjaev, sp. n. (Fig. 2, 1-9).

Vertex projecting noticeably behind anterior margin of eyes, its length not exceeding its width, lateral margins parallel or converging slightly apically. All carinae prominent, fork of median frontal carina originating at boundary of vertex and frons. Frons practically twice as long as broad, with practically parallel lateral margins, narrowed slightly toward the apex, widest on the level of the lower eye margin. Face and vertex light brown or yellowish, carinae and posterior pits of vertex invariably lighter. Ocellus red. First antennal segment and apex of rostrum often blackened. Pronotum half as long as vertex, all carinae prominent, lateral carinae appreciably diverging caudad, not extending to posterior margin. Scutellum and pronotum with a narrow whitish longitudinal stripe in the middle. Lateral margins usually brownish. Scutellum 2.7 times as long as pronotum. Fore wings with rounded apices in short-winged forms, semi-transparent, usually reaching posterior margin of 6th or 7th abdominal segment. Wings transparent in fully winged forms, extending far behind apex of abdomen. Abdomen dirty yellow, light brown to dark brown. Longitudinal rows of dark dots sometimes present on dorsal surface in lighter forms.

The general structural plan of the male genitalia is the same as in *R. ochreata* Vilb. The new species is well distinguished from *R. ochreata* by the structure of the aedeagus, the style and the posterior margin of the pygofer lobes. Apex of aedeagus pointed, gonopore half as large as in *R. ochreata*, teeth along left margin extending right to the apex. Notch along posterior margin of pygofer lobe narrower and deeper. The author previously classified this species incorrectly as *R. angulosus* Rib. (Mityayev, 1971a).\*

Length: ♂, ♀ 2.0-4.3 mm.

**Material.** The south of Aktyubinsk Province, 15 km north of Shubarkuduk Village around Kalmykkyrda Village, 3 ♂♂, 6 ♀♀, 3 July 1969, including male holotype, in lyme-grass clumps; 80 km northeast of Aktyubinsk around Leninskoye Village, 1 ♂, 4 June 1970. Southeastern Kazakhstan, Saryozek Pass, 1 ♂, 2 ♀♀, 5 June 1963, cereal grasses. Eastern Kazakhstan: Kalbinskiy Range near the Sibinskiye Lakes, 1 ♂, 20 June 1961, low hill country, cereal grasses: northeast

\*I. D. Mityayev, 1971. The Cicadinea of Kazakhstan. Nauka Press, Alma-Ata.

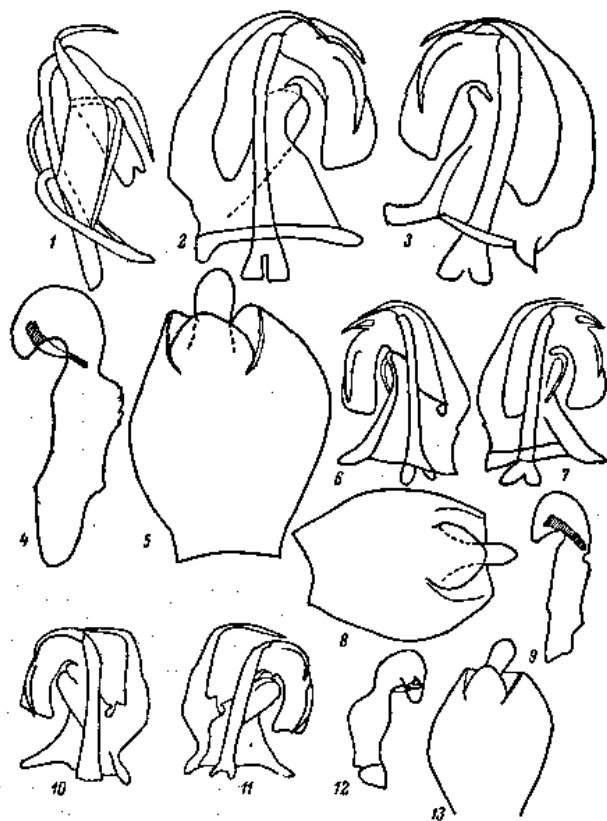


Fig. 1

1-13) *Pentastiridius laevifrons* sp. n. (1-3, aedeagus; 5, anal tube); 6-9) the same parts in specimens from the Mangyshlak Karatau; 10-13) the same parts in specimens from around Fort Shevchenko.

of Zaysan, near Ul'kun-Karatal Village, Aygyr-Kum sands, 3 ♂♂, 6 ♀♀, 4 June 1962.

*Agallia camphorosmatis urdensis* Mitjaev, subsp. n. (fig. 2, 10; 3, 1-2).

Externally practically indistinguishable from *A. camphorosmatis* Emel. Well distinguished by the more slender shaft of the aedeagus and its shorter tip. Gonopore located approximately half as far from the tip of the aedeagus as in the nominate form. Outline of apodemes and of process of anal tube appendage slightly different. Process slightly narrowed toward base, with less markedly elongate apex. Female unknown.

Length: ♂ 2.5-3.2 mm.

**Material.** 18 km east of Urda, 5 ♂♂, 26 June 1971, salt meadow.

*Zygina salicina* Mitjaev, sp. n. (fig. 3, 3-5).

A species of the *Z. flammigera* Fourcr. group. Body generally pale. Vertex and pronotum lacking the usual orange longitudinal stripe. Entire head, pronotum and scutellum pale yellowish or white-yellow. Length of pronotum 1.4 times as long as vertex, posterior margin of pronotum paler and slightly concave. Fore wings hyaline-transparent, clavus pale orange.

Thorax and abdomen pale yellow, tergites orange, with white edges along posterior margins. Lobes of apodeme short, approximately the same as in *Z. flammigera*, but well distinguished by the concave inner margins and converged apices. In the structure of the male genitalia the species is similar to *Z. yamashiroensis* Mats., but the latter has a more pointed and narrow tip to the aedeagus (side view), whereas in the species described it is broad and straight.

Length: ♂ 2.4-2.6 mm, ♀ 2.5-2.9 mm.

**Material.** 18 km east of Urda, Urda Sands, 7 ♂♂ (including ♂ holotype), 8 ♀♀, 26 June, 1971, on *Salix rosmarinifolia*.

*Tamaricella tumidiuscula* Mitjaev, sp. n. (fig. 3, 6-8, 4, 1-2).

Small, squat, greyish yellow. Vertex usually slightly longer in the middle, occasionally of uniform length throughout its extent, yellow, greyish yellow, with two dark apical dots frequently surrounded by a lighter halo. Frontoclypeus yellow, yellowish-blue-grey, with indistinct transverse bands along edges and a longitudinal blue-grey narrow stripe. Cheeks and lora light yellow, blue-grey. Pronotum half as long as vertex, fumose, with a narrow yellowish-grey band along anterior margin and traces of dark dots arranged in a transverse row. Thorax and legs yellow

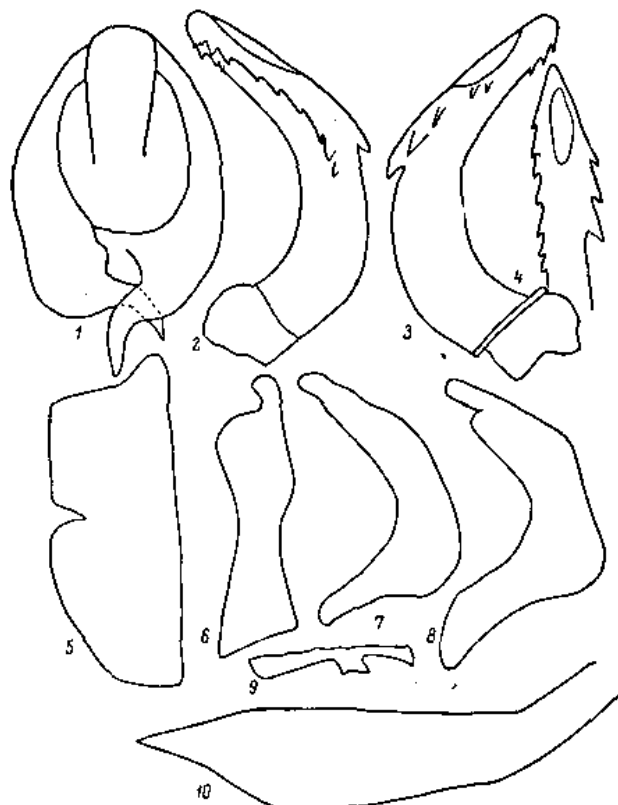


Fig. 2.

1-9) *Ribautodelphax kasachstanica* sp. n. (1, anal tube; 2, aedeagus from left; 3, aedeagus from right; 4, tip of aedeagus from rear; 5, pygofer lobe; 6, style from rear; 7, style from in front; 8, style from side; 9, tooth on posterior wall of genital phragm); 10) *Agallia camphorosmatis urdensis* subsp. n., process of anal tube.

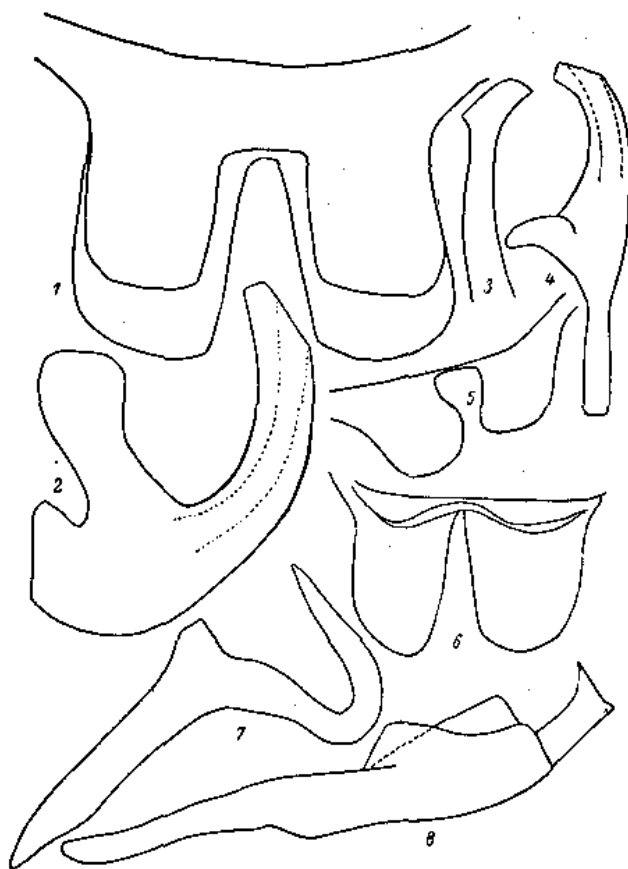


Fig. 3.

1, 2) *Agallia camphorosmatis urdensis* subsp. n., apodeme and aedeagus; 3-5) *Zygina salicina* sp. n. (3, style; 4, aedeagus; 5, apodeme); 6-8) *Tamaricella tumidiuscula* sp. n. (6, apodeme; 7, process of pygofer lobe; 8, style).

or yellowish grey. Fore wings dirty yellow, cells usually less colored, especially apical cells; costal spot yellow or yellow-white. Abdomen light grey below, blackened above, lateral margins of tergites yellow. With respect to genital structure the species belongs to the *T. cypria* Rib., 1948, group and is most similar to *T. lethierryi* Dw., 1971, from which it is well distinguished by structural details of the aedeagus, of the process of the pygofer lobe and the apodeme. Processes on tip of aedeagus widely spread, with straight, appreciably widened ends, gonopore narrower. Shaft of aedeagus strongly distended in basal half on ventral surface (side view). Apodeme with slightly diverging lobes.

Length: ♂ 1.8-1.9 mm, ♀ 1.9-2.2 mm.

**Material.** Southeastern Kazakhstan, 18 km southeast of Chundzha, 2 ♂♂, 18 ♀♀, (including ♂ holotype), 12 Aug. 1969, on *Reaumuria* sp.

*Tamaricella lethierryi apunctata* Mitjaev, subsp. n. (fig. 4, 3-7).

Externally similar to the previous form, greyish yellow, without spots at apex of vertex. Distinguished from the nominate form by the straight, widely spread processes of the aedeagus and a deep U-shaped

gonopore. Lobes of apodeme strongly diverging, as in the nominate form, but distally more broadly rounded. The outlines of the process of the pygofer lobe also differ appreciably.

Length: ♂, ♀ 1.6-1.9 mm.

**Material.** Southeastern Kazakhstan, near Chundzha, 18 km southeast of Chundzha, 2 ♂♂ (including the holotype), 12 Aug. 1969, on *Reaumuria* sp.

*Tamaricella callichroa* Mitjaev, sp. n. (fig. 5, 1-5).

Similar to the species described above, lighter-almost entire integument whitish yellow. Dark spots also absent from apex of vertex, sometimes only traces of them visible. Yellow or whitish-yellow oval discs clearly apparent, occupying almost the entire vertex and extending onto the frons. Frontoclypeus yellow, with traces of transverse bands. Antennae and cheeks whitish yellow. Pronotum and scutellum of same color. Legs, thorax and abdominal sternites light yellow, blue-grey; tergites black. Pygofer basally brownish, apically light.

Well distinguished from the previous species by the shorter processes of the aedeagus, the S-shaped

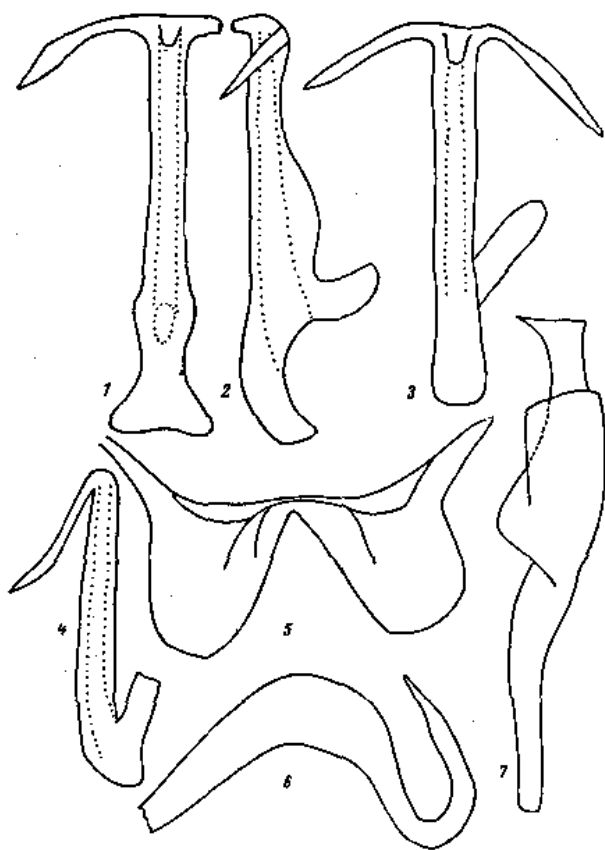


Fig. 4.

1, 2) *Tamaricella tumidiuscula* sp. n., rear and side view of aedeagus; 3-7) *T. lethierryi apunctata* subsp. n. (3, 4, rear and side view of aedeagus; 5, apodeme; 6, process of pygofer lobe; 7, style).

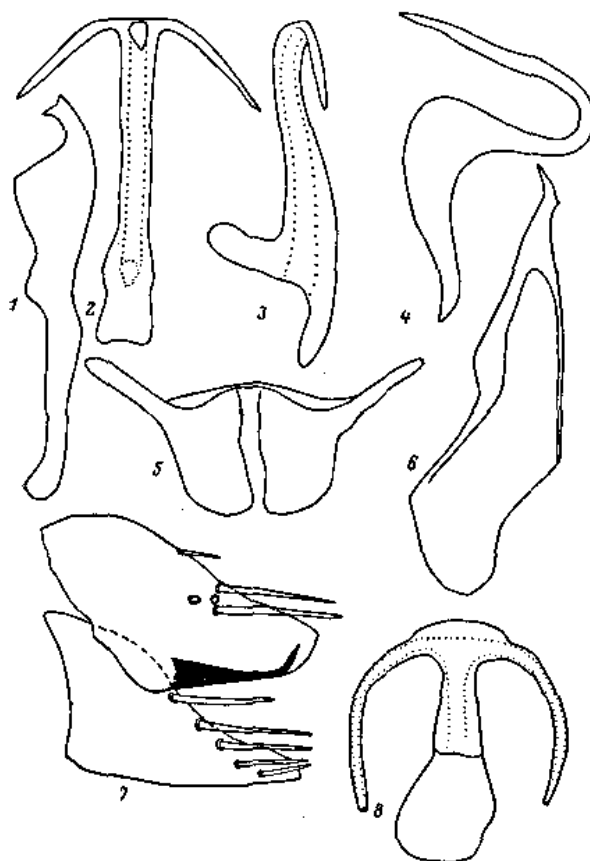


Fig. 5.

1-5) *Tamaricella callichroa* sp. n. (1, style; 2, 3, rear and side view of aedeagus; 4, process of pygofer lobe; 5, apodeme); 6-8) *Neoaliturus argillaceus* sp. n. (6, style; 7, pygofer lobe with genital plate; 8, aedeagus from above).

shaft, wedge-like gonopore, parallel lobes of the apodeme, longer apical ends to the process of the pygofer lobe and some structural details of the style.

Length: ♂, ♀ 1.8-2.1 mm.

**Material.** Southeastern Kazakhstan, 18 km north of Chilik near Ayak-Kalkan, 2 ♂♂, 14 ♀♀ (♂ holotype), 8 Aug. 1969, *Reaumuria turcestanica*.

*Neoaliturus dumetosus* Mitjaev, sp. n.

Externally very well distinguished from all known species of *Neoaliturus* Dist. by the variegated dark or light brown fore wings. Vertex equal in length to its own width between the eyes at the posterior margin, pale grey, with pale brownish markings. Frontoclypeus light grey, with darker transverse bands divided in the middle by a narrow light grey longitudinal stripe. Cheeks, lora and anteclypeus light, outer suture of lora with a black dot in apical third. Pronotum 1.2 times as long as vertex, with pale and light grey spots along anterior margin, elsewhere dark fumose. Scutellum small, with grey and pale brownish spots. Elytra rather variegated, dark or light brownish, with white spots in cells. Venter yellowish grey or light grey. Dorsal surface of abdomen with brown spots. Male unknown.

Length: ♀ 3.1-3.2 mm.

**Material.** Southeastern Kazakhstan, floodplain of the Charyn River, Sartagoy, 22 ♀♀, with dark brownish elytra and 6 ♀♀ with light brownish elytra (♀ holotype), 13 June 1963, a monophage on *Lycium ruthenicum*.

*Neoaliturus argillaceus* Mitjaev, sp. n. (fig. 5, 6-8; 6, 1-2).

A species of the *N. fenestratus* H.-S. group, light grey, with brownish spots, externally resembling *N. lituratus* Dub., but most similar in genital structure to *N. guttulatus* Kbm. Vertex grey, with traces of brownish transverse spots, darker around its base, broadly rounded in front, width of vertex between eyes at posterior margin 1.3 times its length. Frontoclypeus with transverse brownish bands or traces of them, sutures often blackened. Anteclypeus grey, with a narrow brownish longitudinal stripe in the middle. Cheeks and lora grey or light grey, their sutures usually blackened. Antennal sockets black, antennal segments brownish, light on upper part. Pronotum 1.4-1.6 times as long as vertex, grey, with light or dark brown transverse spots and striae, and a transverse row of dark brown dots around anterior margin. Scutellum yellowish, with a square brown or dark grey apical spot and a transverse basal row of four spots. Outer spots usually larger, often square, inner spots dot-like. Thoracic sclerites

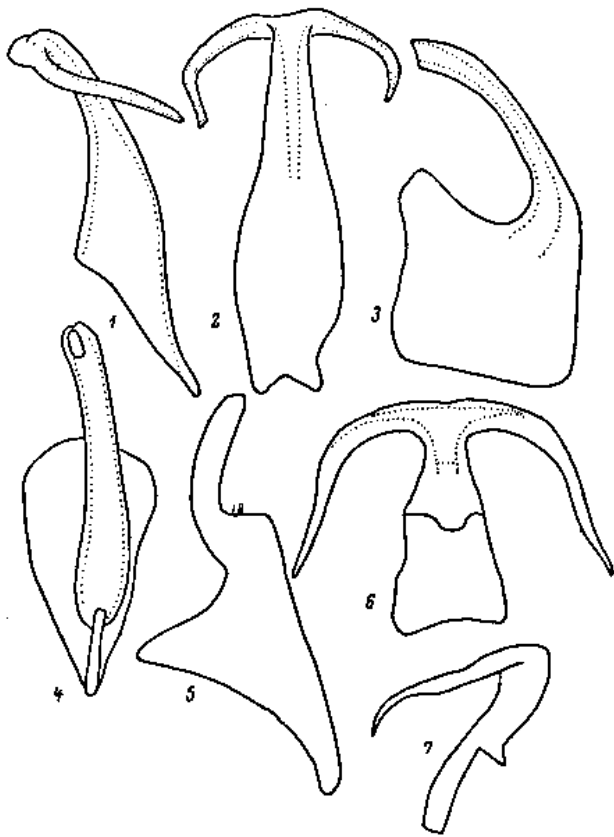


Fig. 6.

1, 2) *Neocaliturus argillaceus* sp. n. side and rear view of aedeagus; 3-5) *Neophlepsius marmoratus* sp. n. (3, 4; side and rear view of aedeagus; 5, style); 6, 7) *Handianus fartilis* sp. n., rear and side view of aedeagus.

black, light along margins. Legs grey and light grey, with brown dots at bases of setae. Fore wings grey, with brown spots, veins brown, cells frequently light grey. Abdomen black and dark brown, margins of tergites and sternites often lighter. Genital valve of male with a broadly rounded posterior margin, yellowish brown, dark brown or black. Genital plates yellowish grey macrochaetae light grey. Pygofer dark brown or black. Pygofer in female usually yellow, with brown spots, ovipositor brown.

Length: ♂, ♀ 2.2-2.6 mm

**Material.** Western Kazakhstan, around Urda, 1 ♂, 1 ♀, 27 June 1971, sands, among clumps of *Calligonum* sp.; 8 km northwest of Urda, 3 ♂♂, 5 ♀♀, 28 June 1971, solonchak, among clumps of *Atriplex cana* and *Halogeton*; 48 km northwest of Urda, 12 ♀♀, 8 ♀♀, 28 June 1971, black wormwood mixed with *Pyrethrum* sp.; 18 km west of Urda, 1 ♂, 26 June 1971, salt meadow, among clumps of wheat-grass and licorice; right bank of the Ural River along the Gur'yev-Ural'sk route, Khar'kino-Kalmykovo area, 1 ♀, 27 June 1970, wormwood, licorice; 20 km northwest of Khar'kino-Kalmykovo, 1 ♂, 1 ♀, 27 June 1970, wormwood, licorice; Antonovo-Sakharnaya, 1 ♀, 29 June 1970, *Anabasis aphylla*; Ural'sk-Burli, 1 ♂, 1 ♀, 4 July 1970, wormwood-cereal grass steppe; the south of Aktyubinsk Province, Uil-Shubarkuduk, 2 ♂♂, 1 ♀, 16 June 1970, wormwood-cereal grass steppe; 7 km

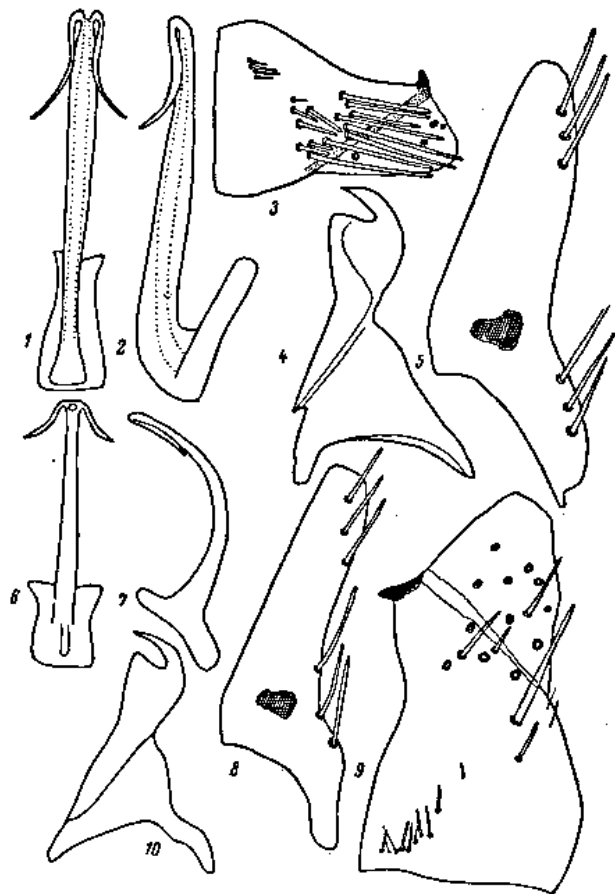


Fig. 7.

1-5) *Praganus admirabilis* sp. n. (1, 2, rear and side view of aedeagus; 3, pygofer lobe; 4, style; 5, genital plate); 6-10) *P. hofferi* Dlab. for comparison (6, 7, rear and side view of aedeagus; 8, genital plate; 9, pygofer lobe; 10, style).

north of Shubarkuduk, near Kalmykkyrda, 1 ♀, 3 July 1969; 20 km north of Karaul'kel'da, 1 ♂, 2 July 1969 (holotype), feathergrass-grey wormwood steppe.

*Neophlepsius marmoratus* Mitjaev, sp. n. (fig. 6, 3-5).

Squat, head and eyes no narrower than pronotum, light grey, with brownish markings. Width of vertex between eyes 1.1-1.2 times its length, vertex angulate, yellowish grey with a pair of large brown square spots on the light grey ground of the basal part. Spots connected at upper inner angles by a longitudinal sutural brown stripe divided at the end. Entire face yellow, slightly greyish. Frontoclypeus covered with indistinct brownish transverse bands interrupted in the middle by a longitudinal greyish-yellow stripe broadening below. Antennae light grey, antennal sockets and sutures of frontoclypeus brown. Pronotum practically same length as vertex, light grey, with blurred brown spots around anterior margin. Scutellum greyish yellow, with a broad brown band in the middle. Fore wings light grey, veins brown. Cells bearing traces of light brown spots or lacking them. Thorax, femora and abdomen light grey, tibiae with brownish spots at bases of setae. Pregenital sternite of female with a

sharply projecting lobe along posterior margin, with a distinct longitudinal straight carina in the middle and with two less clear concave lateral carinae. Pygofer yellow-greyish, with a longitudinal brown apical groove along the sides. Ovipositor brown, macrochaetae light grey. Genital valve of male transverse-triangular, relatively small, yellow. Genital plates not closed basally and apically, medial margin convex, lateral margin slightly concave, plates yellow; macrochaetae light grey. Pygofer and anal tube brownish yellow. Pygofer apically covered with dense light grey macrochaetae. Well distinguished from N. concinnus Dub. by the structure of the genitalia.

Length: ♂ 4.1 mm, ♀ 4.6 mm.

**Material.** Southeastern Kazakhstan, Temerlik, 2 ♂♂, 1 ♀, 13 Aug. 1969, stony mountain slopes, on Ilijinia regellii.

Handianus fertilis Mitjaev, sp. n. (fig. 6, 6-7).

Externally practically indistinguishable from H. eurotia Emel., integument the same, without markings, pale, yellowish white or blue-grey. It is only at the apex of the vertex that a pair of brownish dots sometimes appears and the vertex itself is slightly more angulate. Fore wings the same, but with a more developed network of subsidiary crossveins. Obviously distinguished from H. eurotia by the structure of the genitalia: Pygofer lobes with greatly elongated pointed lobe-like ends, projecting noticeably above the ends of the genital plates; processes of aedeagus subulate, with only slightly curved pointed ends, whereas in H. eurotia they are geniculate.

Length: ♂ 5.0-5.6 mm, ♀ 5.1-6.1 mm.

**Material.** Western Kazakhstan, the south of Aktyubinsk Province, near Uil, 6 ♂♂, 4 ♀♀, 14 June 1970, steppe, winterfat; 15 km west of Uil, 15 June 1970, 2 ♂♂, 1 ♀ (♂ holotype), 15 June 1970, winterfat; 40 km south of Irgiz, 2 ♂♂, 3 ♀♀, 13 July 1969.

Praganus admirabilis Mitjaev, sp. n. (fig. 7, 1-15).

Externally similar to P. hofferi Dlab., but squatter and with well developed brownish markings. Vertex with a strongly angulate forward projection, especially in females, and a pair of brownish longitudinal stripes divided in the middle by a light narrow cruciform band. Frontoclypeus covered with transverse arcuate bands interrupted in the middle by a dark grey longitudinal stripe widening below. Antoclypeus, cheeks and lora dirty yellow, antennae dark grey. Pronotum brownish grey, scutellum the same. Fore wings with light veins and brown cells bordered in places. Wings extending slightly beyond tip of abdomen in males, slightly shorter in females. Thorax and abdomen yellow or brownish yellow, tergites usually darker. Pregenital sternite of female with a long lobe in the middle, broader than in P. hofferi. Genital valve of male triangular, genital plates long,

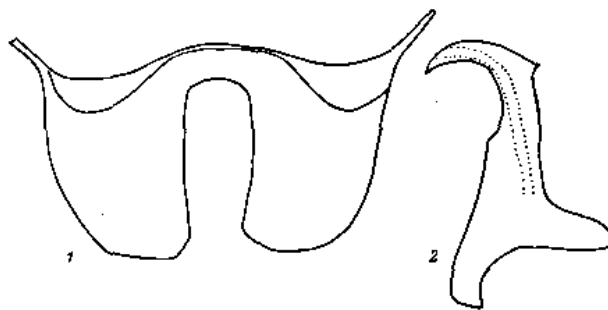


Fig. 8.

Paralimnus aralensis sp. n., 1) apodeme, 2) side view of aedeagus.

slender, with concave outer margins and a black basal dot. Aedeagus with straight slender shaft, apical processes longer than in P. hofferi and appressed to the shaft.

Length: ♂ 2.6-2.8 mm, ♀ 3.1-3.3 mm.

**Material.** 70 km northwest of Aktyubinsk, near Martuk, 2 ♂♂, 3 ♀♀ (♂ holotype), 7 June 1970, feather-grass-sheep's fescue steppe.

Paralimnus aralensis Mitjaev, sp. n. (fig. 8, 1-2).

Pale yellow, brownish. Externally similar to P. dentipes Mit. Vertex yellow-white, with indistinct brownish spots, suture black. Anterior margin of vertex with a bright dark brown narrow band; a second such band extends parallel to it at the apex of the frontoclypeus, and slightly below it to undate less bright brown bands. Remainder of face light yellow. Entire venter light yellow, tergites bearing brownish spots in places, ovipositor black. Pregenital sternite of female with a straight posterior margin and slightly rounded lateral margins. Pronotum yellowish, with traces of brownish and orange spots, finely rugose in basal half. Elytra brownish yellow, veins lighter, with brown borders, third apical cell with a small brown spot. Pygofer of female covered with not particularly dense long light hairs, ovipositor projecting noticeably beyond apex of pygofer lobes. Apodemes similar to those of P. dentipes Mit., but with broader lobes. Aedeagus externally the same as in P. dentipes, but well distinguished by a number of details: lateral projections are absent from the shaft, which is more slender, with a less massive base; tip of aedeagus more strongly bent at right angles.

Length: ♂ 3.2 mm, ♀ 4.0-4.1 mm.

**Material.** Western Kazakhstan, near Irgiz, 1 ♂, 3 ♀♀ (♂ holotype), 13 July 1969, depressions between sand dunes, reed.