

A Review of the Fauna of the Planthopper Family Lophopidae (Homoptera, Fulgoroidea) from Vietnam with Descriptions of New Genera and Species and with Taxonomic Notes

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Abstract—Six new species are described from Vietnam, *Apia simplex* sp. n., *Bisma angulata* sp. n., *Pitambara trypetoides* sp. n., *Sarmatoca cathemerina* gen. et sp. n., *Maracota soulieae* gen. et sp. n., and *Serida castanea* sp. n., and *Zezeja thoracalis* sp. n. from Malaysia. Two new genera, *Maracota* gen. n. (type species *M. soulieae* sp. n.) and *Sarmatoca* gen. n. (type species *S. cathemerina* sp. n.), and a new subgenus *Zelomacha* subgen. n. (type species *Zezeja thoracalis* sp. n.) in the genus *Zezeja* are erected. The genus *Binaluana* Soulier-Perkins et Stroński is downgraded to a subgenus of *Zezeja* Melichar. The genus *Silvispina* Wang et Soulier-Perkins with an uncertain systematic position is attributed to the subfamily Lophopinae and the tribe Lophopini. The placement of the genus *Elasmoscelis* Spinola (and, correspondingly, the tribe Elasmoscnelini) in the subfamily Menoscinae, the genus *Epiptyxis* Gerstaecker in the tribe Menoscini, and the genus *Jivatma* Melichar in the tribe Lophopini is substantiated. New records of 11 species are given from Vietnam, some being first records for this country.

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At present, 10 species of the family Lophopidae Stål, 1866 are known from Vietnam (Jacobi, 1905, 1944; Lallemand, 1942; Fennah, 1978; Liang, 2000; Wang Menglin and Wang Yinglin, 2012; Wang Menglin et al., 2016a), including representatives of the monotypical genera *Paracorethrura* Melichar and *Acothrura* Melichar and also the species *Pitambara tonkinensis* Lallemand, *Serida gorgopis* Fennah, and *Sarebasa orientalis* Liang described based on Vietnamese material. *Lophops balteata* Distant, *Jivatma metallica* Distant, *Podoschtroumfa magna* Soulier-Perkins, and *Acothrura fucizona* Wang, Chou et Yan, 2000 were recorded for Vietnam already after their description from the neighboring territories (Liang, 2000; Wang Menglin and Wang Yinglin, 2012; Wang et al., 2016 a).

Specialists from the Laboratory of Insect Systematics, Zoological Institute, Russian Academy of Sciences, who worked in Vietnam during the Soviet–Vietnamese and the Russian–Vietnamese expeditions organized by the Soviet–Vietnamese and, later, the Russian–Vietnamese Tropical Scientific Center (RVTSC), collected extensive material including new species, genera, and interesting faunistic records of Lophopidae. I also visited Vietnam in 2012 as a scien-

tist attached to RVTSC. Together with D.E. Shcherbakov (Paleontological Institute, Russian Academy of Sciences, Moscow) I worked in two localities of Dong-Nai Province in southern Vietnam: Ma Da and Cat Tien.

All or most of the representatives of the family Lophopidae seem to be associated with Monocotyledones, in particular, with bamboos, palm trees, and grassy gramineans. The species of the genera *Lophops* and *Pyrilla* are known as pests of the sugar cane (Soulier-Perkins, 1998). *Lacusa fuscofasciata* Stål has been repeatedly collected by me from gramineans (not bamboos). *Maracota soulieae*, *Pitambara trypetoides*, and *Serida castanea* live on bamboos. *Apia simplex* occurs on bamboos and palm trees. Representatives of the closely related genera *Paracorethrura*, *Acothrura*, and *Katoma* also seem to be associated with bamboos—“forest with bamboo” is indicated on the label of *Acothrura iopunctata* (S.A. Belokobylskij’s collection, Zoological Institute, Russian Academy of Sciences [ZIN]). Baker (1925) recorded *Pitambara radians* Kirby from bamboo. Nearly all the Acarnini are associated with palm trees; *Megacarna* is recorded from banana (Bananaceae); pandan (Pandanaaceae) and ginger (Zingiberaceae) are also men-

tioned among the supposed host plants (Soulier-Perkins, 1998); all the plants are Monocotyledones.

The types of the new species described here are deposited in the collection of the Zoological Institute, Russian Academy of Sciences (St. Petersburg), except for the types of *Zezeja thoracalis* deposited in the Natural History Museum (Vienna, Austria).

Subfamily MENOSCINAE Melichar, 1915

Tribe Menoscini Melichar, 1915

Genus *Apia* Distant, 1909

Apia simplex Emeljanov, sp. n. (Fig. 1, 1–4)

Description. General coloration softly brownish orange. Anterior part of body without pattern; ridges of lateral carinae of coryphe and metope finely filiform blackened. Coryphe and metope darker; median carina of coryphe softly white, shaded laterally by brown stripes with vague lateral margins. Median carina on scutellum also whitish. Pattern on fore wing nearly as that in *A. lineolata*, but with more distinct speckled pattern on inner part of corium and on clavus. Alternating oblique dark brown to black and white stripes at costal and terminal margins of wing and black stigma near posterior angle of membrane same as those in *A. lineolata*.

Male genitalia clearly differing from those in type species (*A. lineolata*) which shown by Yang and Chang (2000). Pygofer with large digitate process in upper part of lateral margin; anal tube with sharp division into basal (stem) and apical part; in lateral view, margin of tube stem and basal part of lower margin of apex forming concave right angle; stylus with entirely convex dorsal margin without dorsoapical lobe. In *A. lineolata*, posterior margin of pygofer without process, only with small projection; in lateral view, anal tube with weak smooth concavity where stem passing into apex; stylus with angularly emarginate dorsal margin, as narrow lobiform apex of stylus deflexed upwards and forwards.

Body length 9.2–10.5 mm in male, 10.0–11.5 mm in female.

Comparative notes. The new species is similar to the type species *A. lineolata* Dist. but differs in a smaller size, in the simple structure of the median carina of the scutellum, and in the absence of dark stripes and spots on the head, pronotum, and scutellum. The coryphe is shorter than that in *A. lineolata*,

and its lateral margins are absolutely straight. The metope is shorter and wider; its median carina, in contrast to that of *A. lineolata*, is less distinct and entirely disappears closer to the clypeus; the median carina of the scutellum is simple, not bifurcate.

Material. Holotype: ♂, Vietnam, Dong Nai Prov., Ma Da, 30.IV.2012 (A.F. Emeljanov). Paratypes: same locality, 26.V.2012 (A.F. Emeljanov), 2 ♂, 3 ♀. Dong Nai Prov., Cat Tien, 5–8.V.2012 (D.E. Shcherbakov), 1 ♂, 1 ♀.

Apia lineolata Distant, 1909

Material. 1 ♂, 1 ♀, Singapore: “Singapore, Biró, 1898, det. Melichar” (Moravian Museum, Brno, Czech Republic).

Genus *Bisma* Distant, 1906

Bisma angulata Emeljanov, sp. n. (Fig. 2, 1–3)

Description. The species is closely related to *B. greeni* Distant and similar to it. Head more elongate. Coryphe subparallel-sided, only slightly narrowed anteriorly, gently longitudinally sulciform; median carina obsolete. Posterior margin of coryphe emarginate; apex of emargination situated approximately at level of middle of eyes (in dorsal view); anterior margin gently convex, with carina less sharply pronounced than lateral carinae, with pair of small granules in middle. Coryphe projecting beyond eyes by 2/3 of its length. In lateral view, metope gently emarginate; en face, it similar to that in figure of Distant (1906) but more elongate, parallel-sided from level of middle of eyes to apex, widened as usual below eyes to clypeus, narrowed only before its margin. Below level of eyes, metope nearly flat, only slightly transversely convex; in upper part, toward apex, its lateral lobes deflexed onto sides. Apex of head truncate in lateral view, formed by apical callus which looking in front view like triangle with apex turned downwards. Lateral and intermediate carinae of metope sharp; median carina weaker but distinct. Carinae of postclypeus sharp; anteclypeus sharply deflexed toward body at obtuse angle, with high median carina; margin of clypeus in lateral view parallel to distal margin of lora. Rostrum projecting slightly beyond apex (beyond condyle) of hind coxa; its apical segment short; its basal end coinciding with midlength of coxa. Bend corresponding to genal carina in some other Lophopidae distinct but smooth. Lateral carinae of pronotum distinct. Pronotal disc narrow and elon-

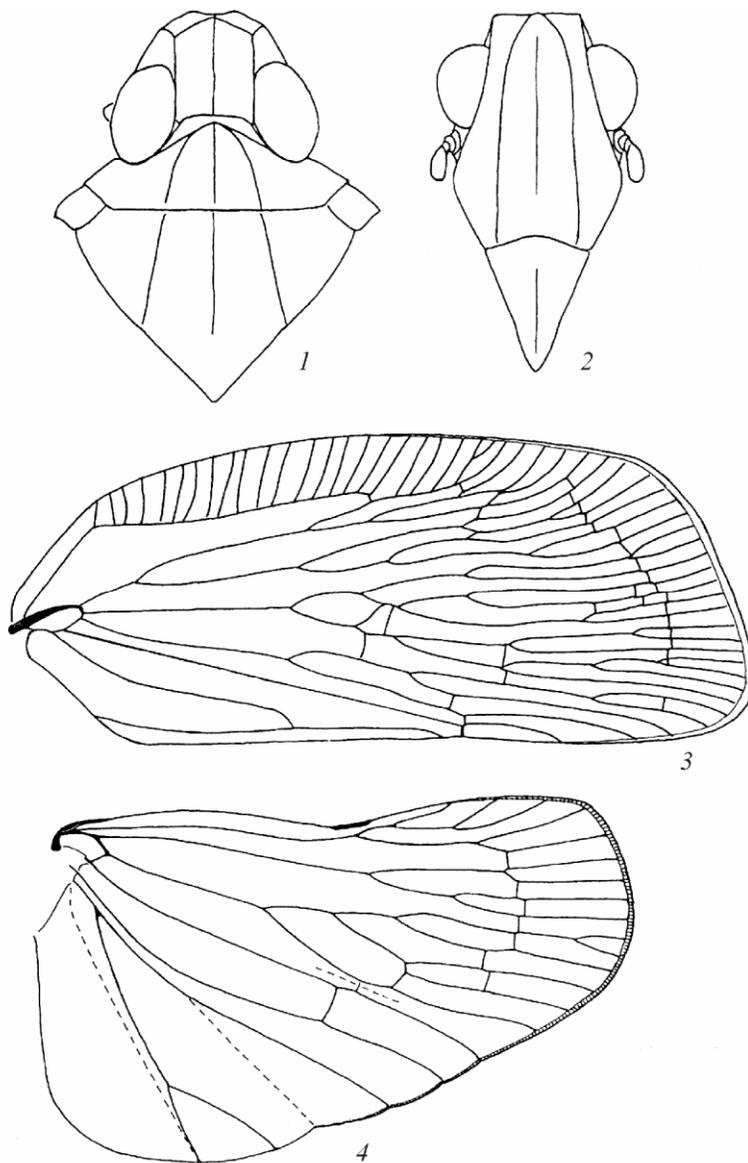


Fig. 1. *Apia simplex* sp. n.: (1) anterior part of body, dorsal view; (2) head, frontoventral view (face); (3) fore wing; (4) hind wing.

gate, as wide as coryphe; its anterior half parabolic, rounded anteriorly; posterior half parallel-sided; median carina of disc sharp; lateral carinae elevated. Antenna small; 2nd segment about twice as long as wide. Scutellum with subrectangular posterior, and straight anterior margin; lateral carinae of scutellum weakly diverging posteriorly, with anterior ends much more widely spaced than posterior ends of lateral carinae of pronotal disc. Tegula with 2 unsharp longitudinal carinae. Fore wing with distinct, obtuse-angularly projecting terminal margin. Precostal area beginning at distance from base of costa subequal to 2 lengths of basal cell. *ScR* bifurcating at distance from arculus not exceeding length of basal cell. 1st fork of median vein

distal to 1st fork of *CuA*. Claval vein (*Pcu + A1*) running into margin of clavus (*A2*) before its apex. Fore and middle legs with moderately widened femora and tibiae. Hind tibia with 3 lateral teeth; distal tooth approximate with apical one; apex with 9 teeth: 4 + 4 and 1 intermediate.

Coryphe black with reddish orange lateral carinae; other parts of head brown to dark brown and black in apical part, with granules-blemms remaining pale. Rest surface of body generally brown. Pronotal disc dark brown with pale yellowish lateral margins; dark stripe with vague lateral margins running along median carina of mesoscutal disc. Fore and middle

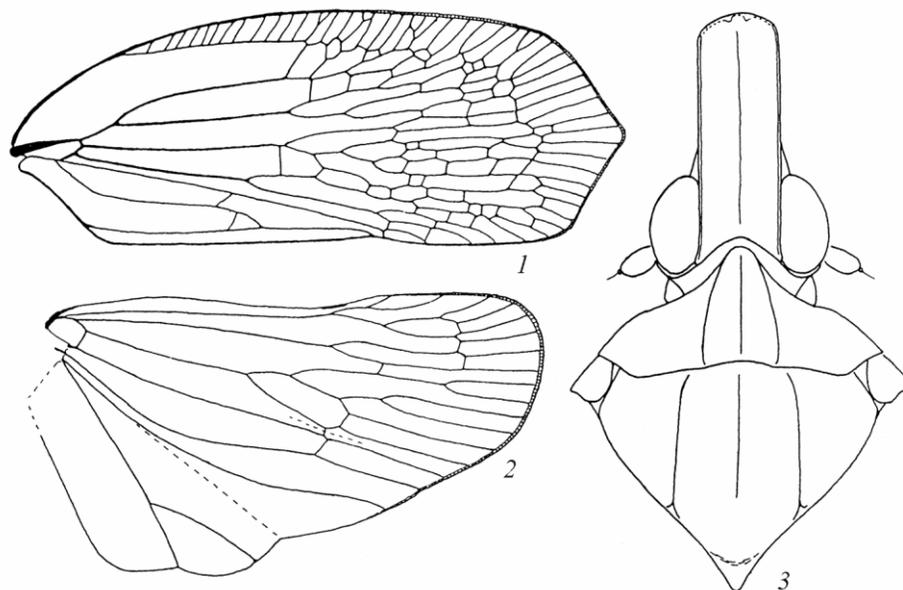


Fig. 2. *Bisma angulata* sp. n.: (1) fore wing; (2) hind wing; (3) anterior part of body, dorsal view.

femora and tibiae with pale narrow bands and spots becoming darker (to dark brown) toward apices of tibiae. Hind tibia generally paler, grayish whitish, darkened in median part and at apex, but with apical teeth (except for their tips) remaining pale. Pattern on fore wing rather similar to that in *B. greeni*. Clear difference in outlines of dark stripes at apex of membrane consisting in presence of only transverse stripe running from longitudinal stripe anteriorly (i.e., toward costal margin) and in absence of stripe running posteriorly, whereas in *B. greeni*, this stripe present, and pattern on whole appearing cruciform. In corial part of wing, precostal and costal areas darkened (as usual, with oblique cuneiform pale spots); anterior part of median area (in male) also occasionally darkened. Rest of corium, in contrast to that of *B. greeni*, brownish, without spots. Clavus also brownish, with large brown spot in middle and with small spots in subsutural area opposite large spot and distally to apex.

Body length 12.0 mm in male, 11.6–12.0 mm in female.

Comparative notes. *Bisma angulata* differs from *B. greeni* in a long head and in the absence of both a spotty pattern on the corium and a posterior transverse hyphen at the apex of the membrane.

Material. Holotype: ♂, Vietnam, Ha Son Binh Prov., Da Bac, Tuly Vill., forest, 23.X.1990 (S.A. Belokobylskij). Paratypes: same locality, 19.X.1990

(S.A. Belokobylskij), 1 ♀; 22.X.1990 (E.P. Nartshuk), 1 ♀.

Genus *Zezeja* Melichar, 1915

Type species *Zezeja solitaria* Melichar, 1915.

The description of the genus *Zezeja* should be supplemented. Melichar (1915) and Soulier-Perkins (1998) considered the frons (i.e., the metope) only as its united medial areas not separated by a median carina; this mistake recurred again in the description of the genus *Binaluana* S.-P. et Str. which is similar to *Zezeja* (Soulier-Perkins and Stroiński, 2015) and which I regard as a subgenus of the genus *Zezeja* (see below). Actually the lateral areas of the metope are deflexed to the parasagittal position, not visible in front view, and form one plane with the genae and preocular areas. The homology of this area with the lateral areas of the metope (i.e., of the frons, according to Melichar and Soulier-Perkins with Stroiński (l. c.)) in *Binaluana emarginata* S.-P. et Str. is obvious owing to the blemmes designating larval sensory pits, which is shown in figs. 1, 3 in the paper of Soulier-Perkins and Stroiński. The lateral carinae of the metope are fine but distinct; their apices at the margin of the clypeus are closely approximate with the intermediate carinae. The lateral projections of the metope below (behind) the eyes, characteristic of the whole family, are situated in the genal plane and form a right line with the lower part of the lateral margin of the metope

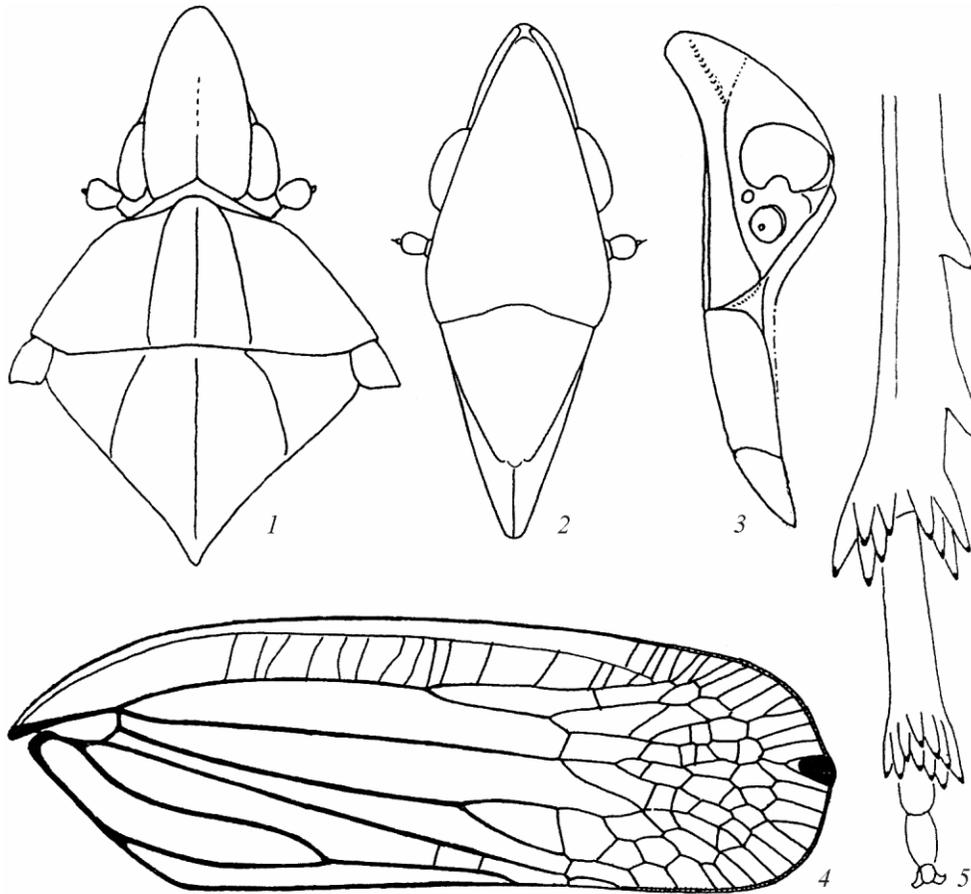


Fig. 3. *Zeleja thoracalis* sp. n.: (1) anterior part of body, dorsal view; (2) head, anteroventral view (face); (3) head, lateral view (from left); (4) fore wing; (5) part of tibia and tarsus, ventral view [left hind leg].

and the posterior margin of the head behind the eyes; the genal area behind the described carina is small and depressed in such a manner that the margin of the metope ledge-like rises above it. Soulier-Perkins and Stroiński name it as “carinated line starting at the edge of frontoclypeal suture and lateral frontal margin, running toward the ocellar carina and disappearing” (Soulier-Perkins and Stroiński, 2015). In *Binaluana*, it really disappears near the ocellus, though a weak trace looking like a modified surface also remains before the eye, as it is seen from the photographs (figs. 20, 22) in Soulier-Perkins and Stroiński (2015). In a figure from Melichar’s monograph, this carina (i.e., the lateral carina of the metope) in *Z. solitaria* extends much farther than that in *Binaluana emarginata* and disappears only before the eye; in *Z. thoracalis* sp. n., it is also clearly visible as far as, and disappears only slightly farther than the anterior margin of the eye.

Apparently, the genus *Zeleja* s. lato is characterized by a very long common stem of *ScR*; it is present in

Z. emarginata and *Z. thoracalis*; the venation of *Z. solitaria* has not been described in detail.

Subgenus *Zelomacha* Emeljanov, subgen. n.

Type species *Zeleja thoracalis* sp. n.

The new subgenus differs from the type, and the only, species of the nominotypical subgenus, *Z. solitaria*, in a shorter arrow-shaped coryphe with a narrow pointed apex, in the intermediate metopal carinae convex along the entire length, and in the complete lateral carinae of the pronotal disc reaching the posterior margin of the pronotum. The coryphe is gently emarginate; its median carina is weak and fine.

Zeleja (Zelomacha) thoracalis Emeljanov, sp. n.

(Fig. 3, 1–5)

Description. Posterior margin of postocular swelling forming rather large obtuse-angled projection. Eyes small, emarginate opposite antennae. Antennae small; 2nd segment (pedicel) subspherical. Lateral

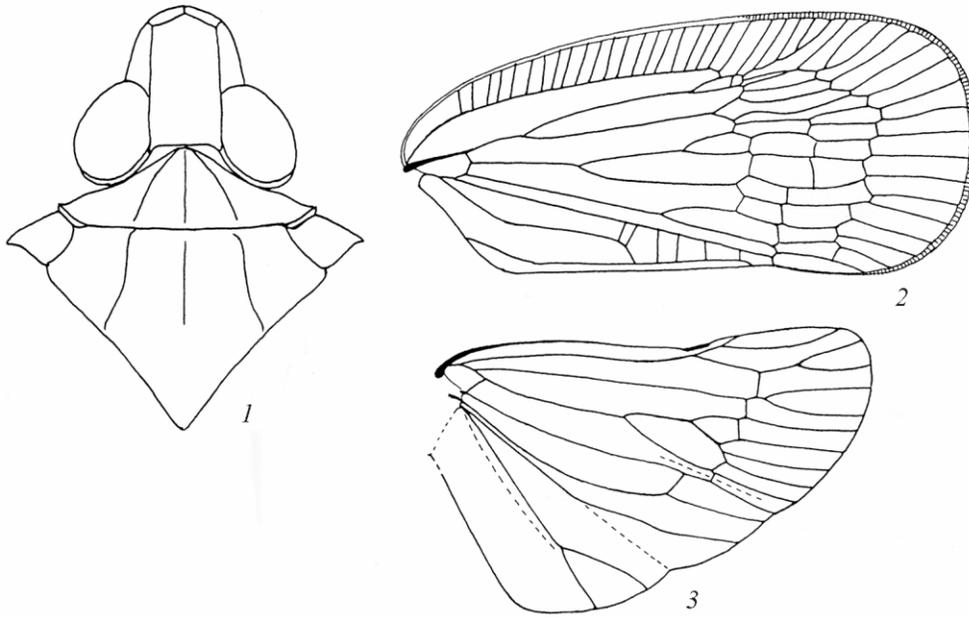


Fig. 4. *Pitambara trypetoides* sp. n.: (1) anterior part of body, dorsal view; (2) fore wing; (3) hind wing.

ocelli small. Rostrum reaching apices of hind coxae; its apical segment nearly as long as wide. Pronotum rather long, with subparallel anterior and posterior margins; anterior margin very weakly, and posterior one more distinctly convex. Pronotal disc narrow, narrower than coryphe; its lateral carinae sharp up to posterior margin of pronotum, slightly diverging posteriorly. Disc anteriorly about 0.67 times as wide as coryphe, posteriorly subequal to coryphe in width. Lateral margins of pronotum only with 1 carina; this carina sharp. Paranotal lobes flat, without any traces of carinae. Anterior ends of lateral carinae of mesoscutal disc slightly more widely spaced than posterior ends of carinae of pronotal disc; median carina double. Venation of fore wing typical of tribe Menoscini: 1st fork of *ScR* proximal to fork of *CuA*; median vein starting branching distal to nodal line; united claval vein slightly not reaching apex of clavus. Precostal area narrow and without cross-veins along nearly entire length, whereas costal area with cross-veins. In *Binaluana emarginata*, precostal area also narrow but with oblique cross-veins, as shown in fig. 33 in Soulier-Perkins and Stroiński (2015). Apical swelling of wing plate lying on 1st terminal branch of median vein. Fore and middle femora and tibiae foliately widened about as those in type species; middle femur and tibia somewhat narrower than fore ones. Hind tibia with 2 lateral teeth in distal half; apex of hind tibia in shape of swallowtail, with small but distinct diastema. Teeth at apex of 1st segment of hind tarsus not pro-

jecting anteriorly in shape of wedge but uniformly occupying entire width of segment.

General coloration brown with reddish tint. Coryphe reddish brown; preocular and supraocular areas and genae slightly more strongly darkened, especially at apex of head. Lateral areas of metope lying in one plane with genae, bearing preocular areas, pale brown, but their apical half (opposite eyes) bearing 5 nearly black spots separated by intervals equal to their own width. United medial area dark brown to black. Postclypeus dark brown, becoming paler toward pale brown anteclypeus. Lora brown to dark brown. Antennae and rostrum brown. Pronotum brown dorsally; carinae slightly reddish. Scutellum brown, with pair of pale vague spots in lateral corners; interval between ridges of bifurcate median carina darker. Fore wing with more or less vague small transverse pale spots-strikes partly merging into transverse uneven narrow stripes. Costal and precostal areas with more distinct pale strokes characteristic of many representatives of family. Indistinctly bounded, slightly noticeable, dark brown band extending from apex of costal area to middle of clavus. In apical part of membrane, veins reddish, cells dark brown, convex nodule black. Body ventrally brown; fore and middle legs reddish brown; hind leg brown. Abdomen ventrally dark brown with pale brown posterior margins of anterior sternites (III–VI).

Body length of female 9.2–9.3 mm.

Material. Holotype, ♀: **Malaysia**, “Malaysia, W. Perak, 25 km NE of IPOH, 1200 m, Banjaran Titiwangsa Mts., Korbu Mt., 1–15 IV, 2000, P. Cechovsky leg.” (Natural History Museum in Vienna). Paratype, ♀, same data.

Subgenus *Binaluana* Soulier-Perkins et Stroiński, 2015, stat. n.

Type species *Binaluana emarginata* Soulier-Perkins et Stroiński, 2015.

The structure of the head of *B. emarginata* is rather similar to that in *Zezeja solitaria*, judging by the figure in Melichar (1915), and differs from *Zezeja (Zelomacha) thoracalis* sp. n. in the shape of the apex of the head. In general, the genus *Zezeja* differs in unique autapomorphy of the metopal lateral areas deflexed to the plane of the genae and also in the lateral metopal projections closely approximate to the posterior margin of the head capsule; as the convergent development of this character is extremely improbable, I consider that Soulier-Perkins and Stroiński (2015) erroneously related *Binaluana* to *Bisma*, instead of to *Zezeja* s. str. The relationship between *Binaluana* and *Zezeja* is also substantiated by the presence of a long common stem of *ScR* in the fore wing, which was discussed above. In the genus *Bisma*, the plesiomorphic state of the metope is preserved, so that its lateral and medial areas are situated in one plane, and the apices of the lateral and intermediate carinae are widely spaced.

Soulier-Perkins and Stroiński (2015) erroneously translated the word “emarginata” [in the Melichars description.—Ed.]. Melichar undoubtedly meant the emarginate margin at the apex of the fore wing. The Latin “emarginatus” is equivalent to the German “eingebuchtet” and the French “échancré”.

Subfamily LOPHOPINAE Stål, 1866

Tribe Lophopini Stål, 1866

Genus *Pitambara* Distant, 1906

Pitambara trypetoides Emeljanov, sp. n. (Fig. 4, 1–3)

Description. Rather pale colored species, with pale spots and stripes more extensive than those in similar species, such as *Jivatma metallica* Dist. (Fig. 5). Males darker than females.

Head white. In female, coryphe with dark brown longitudinal stripe not reaching its anterior and posterior margins; in male, this stripe black, running from

posterior margin and passing onto apical carina of metope. Preocular area with black oblique spot-band situated above ocellus and extending from margin of eye to margin of metope. In male, anteclypeus and lora almost entirely blackened. Rostrum white. Pronotum of female with darkened postocular areas; separate dark spot present below level of antennae. In male, pronotum widely blackened, only stripe running along midline of disc and also posterior margins of paranotal lobes remaining pale. In female, scutellum pale, with pair of uneven brown stripes along lateral carinae of disc. In male, scutellum blackened, except for middle white stripe widening posteriorly. Tegula white, blackened along posterior margin. Fore wing of male black, with white oblique spots on costal area; corium with large round spot in median part and with small rounded white spot before it; apex of membrane white, with 2 dark stripes diverging from one point; clavus with 3 pale transverse spots separated by dark intervals. Thorax ventrally more or less darkened. Fore and middle legs almost entirely white, with blackened coxae, base of fore femur, and posterior surface of middle femur; hind femur blackened, tibia white except for blackened apex with teeth. Abdomen almost entirely black; posterior and lateral margins of segments narrowly paler. In female, dark elements of pattern on fore wing brown to dark brown; pale areas wider than those in male; large pale spot merging with pale area along costal margin and in anterior part of corium—with paler median part of corium; body and legs ventrally entirely pale.

Body length 7.1–7.5 mm in male, 7.5–7.9 mm in female.

Comparative notes. *Pitambara trypetoides* differs from *P. metallica* and from the species similar to the latter in an entirely pale (white) face and in a fully isolated pale spot in the median part of the corium. In the other species of the genus, these spots cuneiformly widen toward the costal margin and reach it.

Material. Holotype, ♂: **Vietnam**, *Dong Nai Prov.*, Ma Da, 25.V.2012 (A.F. Emeljanov). Paratypes: same locality, 22.V.2012 (D.E. Shcherbakov), 1 ♀; 25.V.2012 (A.F. Emeljanov, D.E. Shcherbakov), 1 ♂, 1 ♀; 26.V.2012 (A.F. Emeljanov), 1 ♂, 1 ♀; 27.V.2012 (A.F. Emeljanov, D.E. Shcherbakov), 2 ♂, 1 ♀; 28.V.2012 (A.F. Emeljanov), 1 ♀. *Dong Nai Prov.*, Cat Tien, 15.XI.2012 (V.M. Gnezdilov), 1 ♂.

All the specimens were collected by sweeping on bamboo.

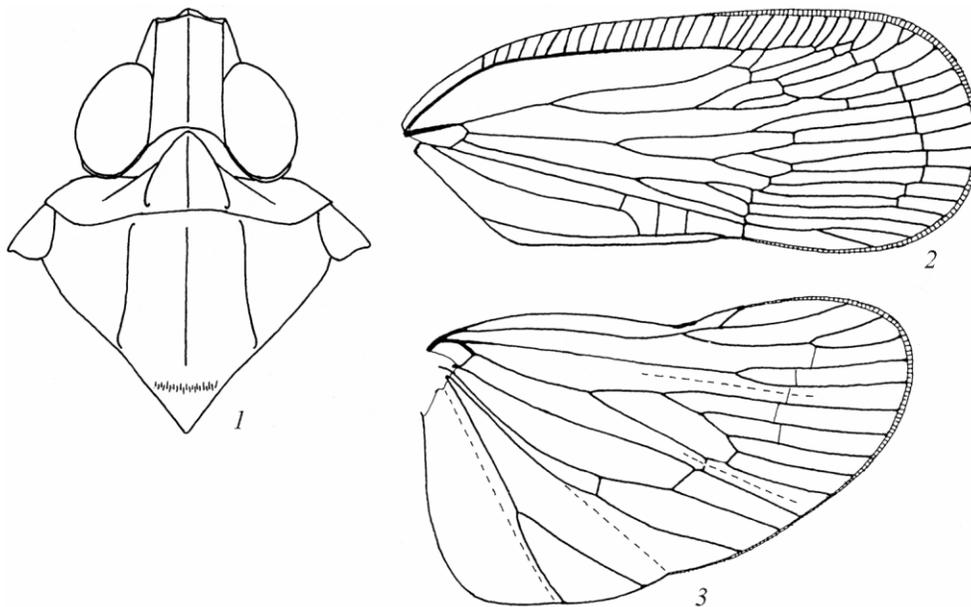


Fig. 5. *Jivatma metallica* Distant (Vietnam): (1) anterior part of body, dorsal view; (2) fore wing; (3) hind wing.

Genus *Sarmatoca* Emeljanov, gen. n.

Type species *Sarmatoca cathemerina* sp. n.

Description. Head short. Coryphe transverse; anterior margin straight; lateral margins also straight, slightly diverging posteriorly; posterior margin emarginate; median carina absent. Metope in lateral view convex, gently arcuate; its upper part visible dorso-anteriorly to coryphe. Metope strongly widened toward lateral projections, more than twice as wide there than dorsally; intermediate carinae subparallel from level of middle of eyes to clypeus, as sharp as median carina, separated by gently sulciform medial areas; median carina widened and flattened in upper part and transforming into vague callus-shaped thickening. Median carina of postclypeus ridge-like projecting before anteclypeus. Apical carina (of metope) short, distinct. Lateral carinae of pronotal disc fused anteriorly to form parabolic arc; median carina weak. Lateral and collateral carinae smoothed. All carinae on scutellum sharp; lateral carinae slightly diverging posteriorly. Venation of fore wing similar to that in *Acothyrura* and *Paracorethrura*. Fore and middle femora parallel-sided, flattened and moderately widened, similar to those in closely related genera mentioned above; fore tibia lanceolate, with arcuately projecting anterior, and straight posterior margin; middle tibia parallel-sided. Hind tibia apically bearing numerous small teeth forming indistinct transverse rows shifted in half-step relative to one another to be situated in intervals

of preceding and succeeding rows; number of rows exceeding 5 (7 or 8).

Comparative notes. *Sarmatoca* is similar to the genera *Paracorethrura* Mel. and *Acothyrura* Mel. It differs from *Paracorethrura* in sulciform medial areas of the metope and in the pronotal disc arcuately instead of angularly terminating anteriorly, and from *Acothyrura*, in the median metopal carina flattened out in the upper (basal) part. It differs from both the genera in the presence (though inconspicuous) of a collateral carina; this genus is also characterized by one-colored coloration, in contrast to the multicolored *Paracorethrura* Mel. and *Acothyrura* Mel.

Sarmatoca cathemerina Emeljanov, sp. n.

(Fig. 6, 1–4)

Description. Contrasting whitish and brownish gray areas and spots prevailing. Coryphe pale, with pair of dark oblique stripes clipping pale posterolateral corners; posteriorly in middle, these stripes connected by similar narrow stripe along margin of coryphe. Upper part of metope dark brown to black, with small pale spots in lateral areas at place of larval sensory pits; lateral areas darkened down to level of lower margins of eyes; median carinae darkened down to level of middle of eyes. Clypeus and lora entirely blackened. Rostrum pale. Posterior part of disc and sides of its upper part whitish; anterior part of disc and postocular areas and paranotal lobes pale brown. Scutellum

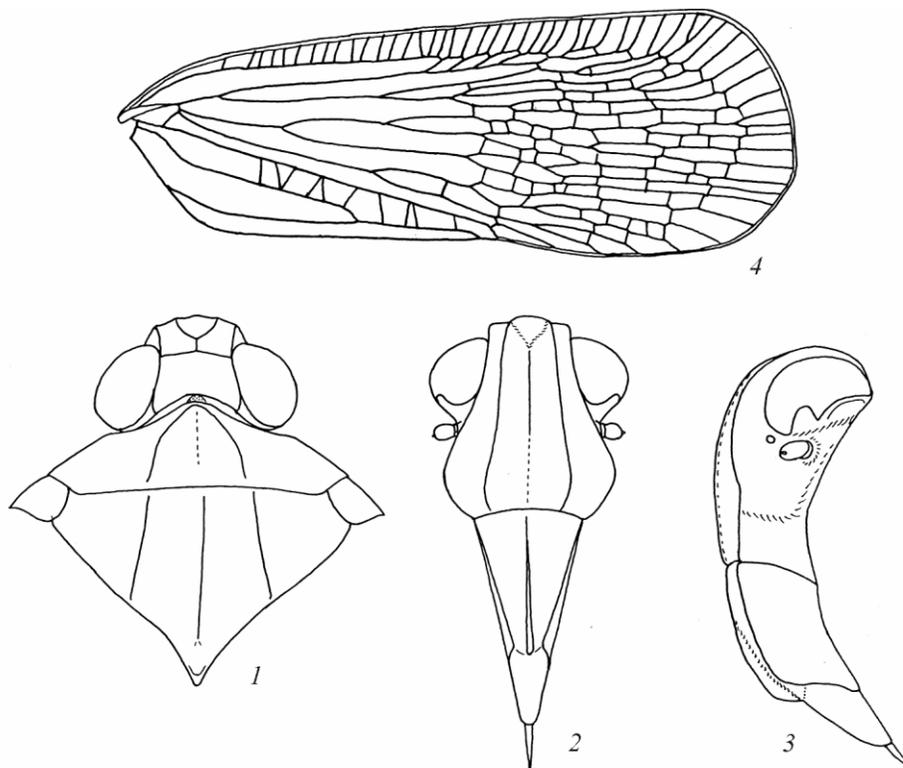


Fig. 6. *Sarmatoca cathemerina* gen. et sp. n.: (1) anterior part of body, dorsal view; (2) head, anteroventral view (face); (3) head, lateral view (from left); (4) fore wing.

brown. Fore wing with alternating dark brown to black and whitish semi-transparent areas. Postcubital area of clavus darkened nearly as far as its apex; corium with pale stripe extending along clavus and passing onto membrane; anterior margin of this stripe incised into 3 parts by projections of dark brown stripe which running anterior of it from anterior third of costal margin to apex of membrane; anterior margin of this stripe broken, appearing to be gnawed out due to large pale spots: one longitudinally elongate, lying in distal third of costa, other cuneiformly running into it from anterior margin of membrane; apex of membrane covered with irregular pale spots separated by dark stripes and spots most of which transversely elongate. Pattern sharply differing from that in *Lacusa* Stål and *Sarebasa* Dist. in presence of longitudinally elongate stripes. Sclerites of ventral surface of thorax grayish brown or brown; membranous areas pale. Legs almost entirely dark brown; fore and middle femora ventrally with 3 pale bands; hind leg brown, without bands. Abdomen ventrally brown with pale brown specks at sides of sternites; posterior margins of sternites paler.

Female unknown.

Body length of male 13.7–13.8 mm.

Material. Holotype, ♂: **Vietnam**, Vinh Phuc Prov., Tam Dao, 100 m, forest, 10.XI.1990 (S.A. Belokobylskij). Paratype, ♂, same data (A.V. Gorochoy).

Genus *Maracota* Emeljanov, gen. n.

Type species *Maracota soulierae* sp. n.

Description. Similar to genera *Jivatma* Dist. and *Pitambara* Dist. in many characters. Carina between coryphe and metope indistinct. Lateral carinae of coryphe slightly approximate from posterior margin of head to level of furcation of intermediate metopal carinae, then smoothly diverging. Supposedly, border of coryphe running slightly posterior to point of divergence of intermediate carinae of metope where apical carina of metope passing into median carina of coryphe. Metope rather strongly widened from top to level of antennae, then sharply bent outwards and forming lateral projections characteristic of most of Lophopidae; lower margins of projections steeply converging to clypeus; clypeal border of metope slightly wider than coriphial border. Intermediate carinae of metope parallel to lateral carinae in part from top to level of antennae, then smoothly bent and slightly approximate opposite lateral projections, reaching clypeal suture.

Median carina of coryphe and intermediate carinae of metope sharp; former obsolete distal to furcation of intermediate carinae, disappearing near clypeus. Eye slightly wider than coryphe. Posterior margin of pronotum gently arcuately convex; pronotal disc nearly as wide as coryphe, with sharp carinae among which lateral ones slightly not reaching posterior margin. Scutellum convex, with inconspicuous carinae; median carina distinct; lateral carinae hardly visible, spaced much more widely than carinae (margins) of pronotal disc, similarly to those in *Jivatma*. Fore wing rather wide, roundly truncate posteriorly. Precostal area rather wide, bearing cross-veins beginning nearly with its base—approximately from level of first branching of *ScR*. Fork of *M* lying distal to fork of *ScR*; succeeding furcations of *RP*, *MA*, *MP*, and *CuA* situated at nearly one level opposite claval fork; succeeding furcations of nearly all mentioned veins originating approximately at nodal level; some of them furcating again; approximately 16 veins confined to terminal margin. Postnodal cross-veins absent or single ill-defined vein present. Fork of clavus lying at level of distal third of sutural margin of clavus; first claval area with 2 or 3 cross-veins, one of them confined to combined claval vein *Pcu + A1*, others to vein *Pcu*; vein *Pcu + A1* running into posterior margin of clavus (vein *A2*), not reaching its apex; apex of clavus slightly truncate. Hind wing with non-furcating *RP* and with bifurcate *M*; *CuA* forming posterior comb, but with bifurcate posterior branch. Distal part of remigium with obsolete postnodal cross-veins (*rm*, *ir*, *mcu*, *icua*). Lophopid cross-vein *cup-pcu* strong. Autapomorphy of *Maracota*, unique within Lophopidae, consisting in intermediate anastomosis of *Pcu + A1* instead of the cross-vein typical of closely related genera. Legs rather short. Fore and middle femora and tibiae rather strongly foliately widened, more strongly widened than those in species of *Pitambara* but less strongly than those in *Lacusa*. Apex of hind tibia with only 3 complete rows of teeth; 4th row incomplete, irregular. Apex of 1st segment of hind tarsus mostly with 1 tooth at outer side; inner surface mostly without teeth; 2nd segment very small.

Comparative notes. *Maracota* most sharply differs from *Jivatma* (Fig. 5) and *Pitambara* (Fig. 4) in the absence of a carina between the coryphe and metope and also in anastomosis *Pcu + A1* in the hind wing. *Maracota* is similar to *Jivatma* in the lateral carinae of the mesoscutal disc (scutellum) spaced more widely than those on the pronotal disc; in *Pitambara*, these carinae are situated, as usual, in a line.

Maracota soulieriae Emeljanov, sp. n. (Fig. 7, 1–4)

Description. Head entirely pale, whitish (in males) or greenish (in females), except for clypeus and lora; metope with vague arcuate cinnabaric spot between lateral projections, convexity of spot directed upwards; clypeus and lora dark brown; postclypeus in median part of disc and carinae pale. Disc and paraclypeal areas of pronotum brown to black; carinae pale; other parts of pronotum pale; pale brown stripe running from antennae to lower margins of tegulae. Scutellum dark brown to black, including carinae. Tegulae yellowish white. Fore wing black except for white stripe on terminal margin and area at base of precostal area; in addition, chain of small pale oblique spots (remnants of oblique stripes typical of many representatives of the family) situated along anterior (precostal) margin. Fore wing occasionally with paler rectangular area situated behind scutellum (with wings folded) and extending to nodal line; veins remaining brown. Thorax ventrally pale with dark spots. Fore femur ventrally with 4 pale spots separated by brown crosspieces; fore tibia dorsally brown to black, with paler carinae; middle femur pale brown to black; spots, similar to those on fore femur, shifted to anterior margin and less distinct, mostly only two distal spots distinct; tibia brown with paler middle part. Hind femur with uneven vague darkening ventrally; hind tibia darkened along margin bearing teeth and also ventrally in basal 2/3; apical and lateral teeth blackened. All tarsi pale. Abdomen ventrally darkened; visible basal sternite (III) pale; posterior margins of other sternites paler; genital section blackened.

Body length 6.1–6.7 mm in male, 6.4–7.2 mm in female.

Material. Holotype, ♂: Vietnam, Dong Nai Prov., Cat Tien, 13.V.2012 (A.F. Emeljanov). Paratypes: same locality, 13–18.V, 29.V–11.VI.2012 (A.F. Emeljanov, D.E. Shcherbakov), 10 ♂, 12 ♀.

Genus ***Serida*** Walker, 1857

Serida castanea Emeljanov, sp. n. (Fig. 8, 1)

Description. Coryphe subrectangular, with lateral margins only slightly diverging in posterior half, with posterior margin trapeziform emarginate because of posterior angles attenuate posterolaterally; length of coryphe about twice its anterior width. Apical part of metope, continuing coryphe and bounded by apical carina, about 1/4 as long as coryphe; all margins of coryphe keel-shaped; median carina absent. Anterior

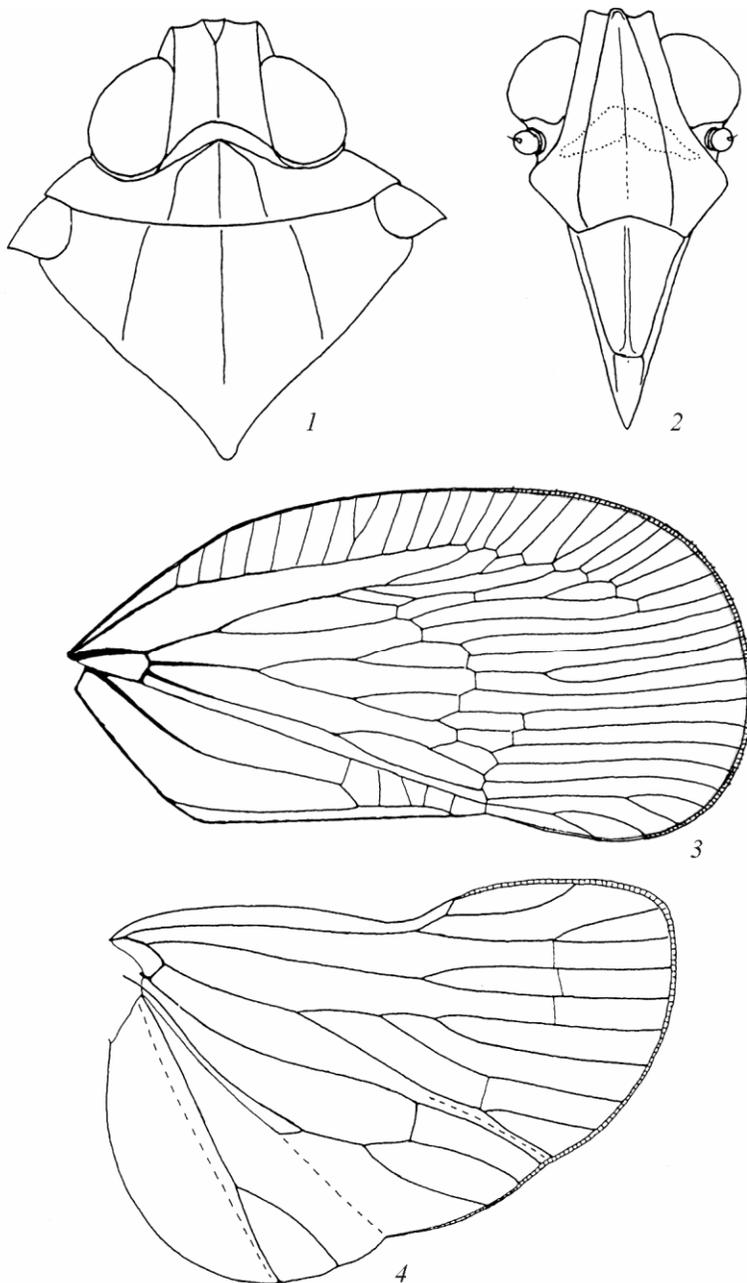


Fig. 7. *Maracota soulierae* gen. et sp. n.: (1) anterior part of body, dorsal view; (2) head, anteroventral view (face); (3) fore wing; (4) hind wing.

side of humeral areas of pronotum tuberculiform swollen.

General coloration pale brown, paler ventrally, darker and with rather poor black and brown pattern dorsally. Black line, instead of carina, running along midline of coryphe; areas of coryphe at sides of it occupied by wide brown stripes separated from sides and from midline by narrow pale stripes; supraocular areas with black stripe running in parallel to margin of cory-

phe and separated from carina by subequally narrow pale stripe. Ridges of lateral carinae of coryphe entirely or partly filiform blackened. Lateral areas of metope with one row of black transverse spots in upper half. Larger black triangular spot situated near apical carina; apex of spot directed anteriorly; lateral corner of metope, opposite angle of coryphe, with 3 black spots merging into angular spot. Pronotal disc with lightened median carina and pale lateral carinae; rest of space between carinae brownish; along lateral

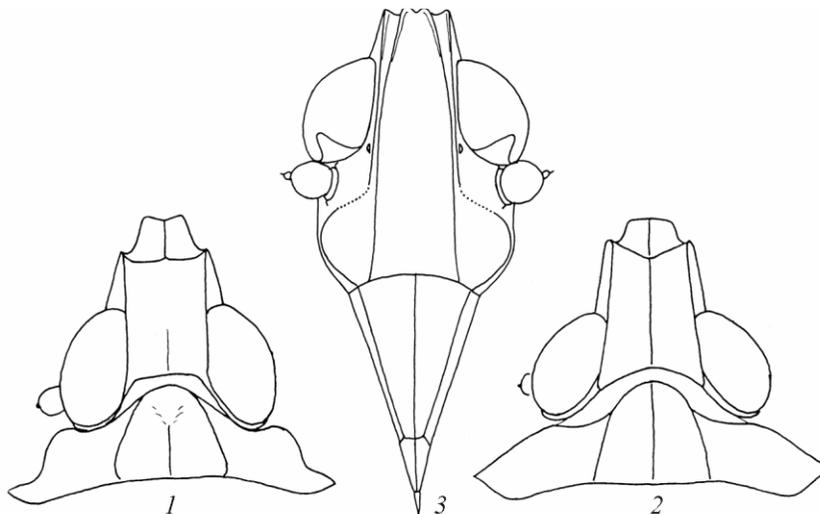


Fig. 8. *Serida* spp., *Elasmoscelis* sp.: (1) *Serida castanea* sp. n., (2) *S. shcherbakovi* sp. n., (3) *Elasmoscelis* sp. (Ethiopia, Ambo).

carinae, coloration condensed into brown stripe shading lateral carinae; paired discal pits punctiform darkened. Dark brown stripe also extending outside lateral carinae of disc in parallel to them. Paradiscal areas of pronotum with row formed by 4 black spots and extending up to level of antennae. Scutellum brownish; median carina and lateral areas paler; indistinct brownish spots visible near tegulae. In fore wing, precostal area with oblique transverse stripes; rest of surface of corium with scattered brownish spots; membrane with dark, partly merging, uneven vague transverse stripes which almost entirely merging before wide pale brownish terminal area bearing characteristic angularly broken black band of irregular shape. Body ventrally pale, nearly without pattern; genitalia darkened. Carinae and teeth on tibiae and femora slightly darkened.

Comparative notes. *Serida castanea* is closely related to *S. gorgopis* Fenn. in the habitus but differs in the head less strongly projecting anteriorly and in details of the coloration: the head is paler, not brownish; the supraocular area bears a black stripe parallel to the coryphe (this stripe is missing in *S. gorgopis*); the fore wing is uniformly colored, without pale spots characteristic of *S. gorgopis*; the angular dark band at the terminal margin of the fore wing forms a characteristic maculiform interval near the break.

Body length 11.0–11.6 mm in male, 12.0–12.8 mm in female.

Material. Holotype, ♂: **Vietnam**, *Dong Nai Prov.*, Ma Da, 13.V.2012 (A.F. Emeljanov). Paratypes: **Vietnam**, *Dong Nai Prov.*, Ma Da: 28.IV.2012 (D.E. Shcherbakov), 1 ♂; 30.IV.2012 (D.E. Shcherbakov), 1 ♂, 1 ♀; 19.V.2012 (A.F. Emeljanov), 1 ♂; 21.V.2012 (D.E. Shcherbakov), 1 ♂; 22.V.2012 (D.E. Shcherbakov), 2 ♀; □ p□m tr□□ 28.V.2012 (A.F. Emeljanov), 1 ♂; (D.E. Shcherbakov), 1 ♂, 2 ♀; Cat Tien: 8.V.2012 (D.E. Shcherbakov), 1 ♂; (A.F. Emeljanov), 1 ♀; 15.V.2012 (Emeljanov), 1 ♂, 1 ♀; 6.VI.2012 (D.E. Shcherbakov), 1 ♂; 5–6.VI.2012 (A.F. Emeljanov), 1 ♀; 7.VI.2012 (D.E. Shcherbakov), 1 ♀; 8.VI.2012 (A.F. Emeljanov), 1 ♀.

***Serida shcherbakovi* Emeljanov, sp. n. (Fig. 8, 2)**

Description. Coryphe slightly widening posteriorly, with straight lateral margins; anterior margin gently obtuse-angularly emarginate; posterior margin trapeziform emarginate. Length of coryphe nearly 3 times its width across anterior margin. Apical carina of metope slightly inclined downwards from plane of coryphe, nearly 1/4 as long as coryphe along median carina. All marginal carinae of coryphe sharp; median carina longitudinal, smoothed, unsharp. Intermediate carinae of metope slightly diverging from apex of head to clypeus. Fore tibia slightly widened and flattened.

Body whitish with black pattern dorsally and pale, brownish yellowish ventrally. Ridges of lateral carinae of coryphe filiform darkened; carina of its anterior margin narrowly darkened; pair of black longitudinal stripes situated at sides of pale median carina at distance from it and from lateral carinae; posterior ends of stripes L-shaped projecting outwards (laterally). Upper area of metope at sides of apical carina black; this blackening broken by pale specks: 2 anteriorly and 4 posteriorly; united medial area, at distance away

from intermediate carinae, with dark brown to black longitudinal stripe continuing onto postclypeus where it divided by pale median carina; anteclypeus entirely dark; lora with longitudinal arcuate stripe. Supraocular area with black stripe extending along and at distance away from carina of coryphe; below, similar pale stripe running, bounded ventrally by black elongate spot confined to margin of eye posteriorly; black spot situated between antenna and eye. Pronotal disc with black longitudinal stripes at sides of median carina and outside lateral carinae; each of sides of upper part with 3 longitudinally elongate spots; black longitudinal stripe extending below collateral carina, beginning from black spot between eye and antenna. Scutellum with round black spots inwards from lateral carinae anteriorly and posteriorly and with longitudinal black spot and 3 merging rounded spots outside these carinae anteriorly: 1st spot anteriorly near tegula, 2nd posteriorly at lateral carina of disc, and 3rd at posterior margin between them; 2 former spots mostly connected by less bright narrow crosspiece. Disc of scutellum occasionally with brownish darkening, then posterior spots obtaining pale margination and becoming ocellate. Fore wing nearly without brown tint; pattern black; membranes of cells nearly transparent, grayish but not brownish; veins on pale areas nearly black or brownish black. Two pairs of large transparent spots remaining between darkened areas of fore wing: posterior pair passing onto anterior margin of wing. Anterior half of costal and precostal areas blackened; clavus blackened, frequently vaguely spotted. Wide black band extending from costal darkening across middle of corium and clavus; band narrowed in median part of corium near medial veins. Membrane almost entirely blackened, crossed by 2 or 3 incomplete pale narrow transverse stripes. Intact wings covered with brownish granular pruinosity. Thorax ventrally pale; mesothorax with black elongate spot at sides of fore coxae; pleurotergal area also darkened near costal margin of folded wing. In fore and middle femora, carinae slightly darkened; wide ventral planes with longitudinal line of specks in basal 2/3 and with band at border between 2nd and 3rd thirds. Fore and middle tibiae with darkened carinae and with less strongly darkened intervals. Hind femur pale brownish to brown; tibia with dark brown to black carinae and teeth. Abdomen ventrally brown with pale posterior margins of sternites; basal sternite (III) entirely pale.

Comparative notes. *Serida shcherbakovi* differs from the congeners in prevalence of gray and dark

gray tones in the coloration of the dorsal side and also in the absence of an angular band at the apex of the membrane: the apices of the wings are blackened, each bears a narrow pale transverse stripe without a break. The face has a peculiar dark median stripe crossing the metope and clypeus.

Body length 10.6–11.6 mm in male, 13.0 mm in female.

Material. Holotype, ♂: **Vietnam**, *Dong Nai Prov.*, Cat Tien, 11.V.2012 (A.F. Emeljanov). Paratypes: same locality, 1 ♀, 5.V.2012 (A.F. Emeljanov); 1 ♂, 10.V.2012 (D.E. Shcherbakov); 1 ♂, 11.V.2012 (D.E. Shcherbakov); 1 ♂, 16.XI.2012 (V.M. Gnezdilov).

New Faunistic Records

Elasmoscelis perforata Walker.

Vietnam. *Ba Ria Vung Tau Prov.*, Binh Chau—Phuoc Buu National Park, 5 km E of Bung Rieng Village, 10°32.320'N, 107°28.952'E, 5–11.VI.2014 (V.M. Gnezdilov), 2 ♂, 1 ♀.

Lacusa fuscofasciata Stål.

Vietnam. *Ha Son Binh Prov.*, Da Bac, Tuly, 16.X.1990 (S.A. Belokobylskij), 1 ♂; 20 km S of H Binh, 29.X.1978 (L.N. Medvedev), 1 specimen (abdomen missing). *Dong-Nai Prov.*, Cat Tien: 6–11.V.2012 (A.F. Emeljanov), 1 ♀; 18.I.2012 (V.M. Gnezdilov), 1 ♂.

Sarebasa celebris Distant.

Vietnam. *Dong-Nai Prov.*, Cat Tien, at light, 13.V.2012 (D.E. Shcherbakov), 1 ♂.

Acothyrura impunctata Jacobi.

Vietnam. *Ha Son Binh Prov.*, Tuly, forest with bamboo, 22.X.1990 (S.A. Belokobylskij), 1 ♀.

Paracorethrura iocnemis Jacobi.

Vietnam. *Vinh Phuc Prov.*, Tam Dao, 10.XI.1990 (E.P. Nartshuk), 2 ♀; (A.V. Gorochoy), 1 ♀; 11–13.V.1975 (L.N. Medvedev), 1 ♀. *Hanoi Municipality*, 70 km NW of Hanoi, Bavi, 22.XI.1990 (S.A. Belokobylskij), 1 ♀.

Podoschtroumpfa magna Soulier-Perkins.

Vietnam. *Dak Lak Prov.*, Yok Don National Park: Ban Don Village, 23.XI.1993 (Gorochoy), 1 ♀; 20 km

NE of Ban Don, 13°01.09'N, 107°50'E, 330 m, bamboo forest, 17.VI.2014, 2 ♀; 194 m, Podocarpaceae forest on shore of storage reservoir, on bamboo, 19–20.VI.2014 (V.M. Gnezdilov), 1 ♂, 1 ♀; 10 km NE of Ban Don, 12°57'N, 107°47'E, Dipterocarpaceae forest with grassy layer formed by bamboo, 200–250 m, 18–20.VI.2014 (V.M. Gnezdilov), 1 ♂.

Jivatma metallica Distant (? = *Pitambara dawnana* Dist.).

Vietnam. *Ha Son Binh Prov.*, Mai Chau, 30.X.1990 (E.P. Nartshuk), 1 ♀; □□ Phōng, 26–27.X.1990 (E.P. Nartshuk), 4 ♂, 1 ♀; 15.□.1990 (S.A. Belokobylskij), 3 ♂, 6 ♀; 25.□.1990 (A.V. Gorochoy, E.P. Nartshuk), 2 ♂, 3 ♀; 22.□.1990 (S.A. Belokobylskij), 2 ♂, 2 ♀; D□B□, 22.□.1990 (E.P. Nartshuk), 1 ♂, 1 ♀; Tuly, 21.□.1990 (S.A. Belokobylskij), 3 ♂, 4 ♀.

Serida gorgopis Fennah.

Vietnam. *Ha Son Binh Prov.*, Hoa Binh, Cao Phong, 28.X.1990 (S.A. Belokobylskij), 2 ♂. *Hanoi Municipality*, 70 km NW of Hanoi, 24.XI.1990 (E.P. Nartshuk), 1 ♂. *Quang Tri Prov.* (Kuang Chi), “Bachthai, Phu Luong District, Quang Chu,” 15–23.IV.1986 (A.V. Gorochoy), 1 ♀.

Serida latens Walker.

Vietnam. *Hanoi Municipality*, 70 km WNW of Hanoi, meadow, bush, 24.XI.1990 (S.A. Belokobylskij), 1 ♀.

Lophops carinata Kirby.

Vietnam. *Vinh Phuc Prov.*, Tam Dao, 1000 m, 10.XI.1990 (A.V. Gorochoy), 1 ♂. *Ha Son Binh Prov.*, Cao Phong, 27.X.1990 (E.P. Nartshuk), 6 ♂. *Gia Lai Con Tum Prov.*, Trai Lap, 20 km N of Buon Luoi, 6–9.XII.1988 (V. Sharkov), 2 ♂, 3 ♀; 20 km N of Buōn Luoi, 25–30.XI.1988 (A.V. Gorochoy), 1 ♂. *Dong Nai Prov.*, Cat Tien, 5.V–2.VI.2012 (A.F. Emeljanov), 12 ♂, 9 ♀. *Kien Giai Prov.*, Gulf of Thailand, Nam I, 14.VI.1984 (N.V. Kurzenko), 2 ♀.

Pyrilla perpusilla Walker.

Vietnam. *Ha Son Binh Prov.*, Da Bac, 21.X.1990 (E.P. Nartshuk), 1 ♀. *Dong Nai Prov.*, Cat Tien, 10.V, 2–3.VI.2012 (A.F. Emeljanov, D.E. Shcherbakov), 2 ♂, 3 ♀.

TAXONOMIC NOTES

1. Some Characters of the Fore-Wing Venation in the Family Lophopidae

Each tribe of this family can be characterized according to the features of the arrangement of the first forks of *ScR*, *M*, and *CuA*. The plesiomorphic state is represented in the tribes Virgiliini and Menoscini and also in Elasmoscnelini. It consists in the fact that the second fork (*M*) is situated distal to the first (*ScR*) and third (*CuA*) ones, near the nodal line; the first fork is situated most basally. In the tribe Acarnini, all its representatives, except for the genus *Jugoda* (Fig. 9), demonstrate anastomosis of the adjoining branches of *M* and *CuA* in the fore wing, with approximation of their forks according to the distance from the base of the wing. The position of fork *ScR* widely varies within the tribe; it can be shifted far distally, but not in *Jugoda*. Another character of the fore wing of Acarnini is its narrowing and disappearing precostal area. In *Jugoda*, the precostal area is present. The tribe Lophopini is characterized by a consistent growing of the distance between the forks of *ScR*, *M*, and *CuA* and the base of the wing, which takes place owing to an earlier furcation of *M* in comparison with the first type (i.e., with the plesiomorphic state). A similar furcation is observed in *Jugoda* (and *Asantorga*) which, however, lacks anastomosis of *M* + *CuA* but has a rather wide precostal area and, thus, can be considered the most primitive representative of the tribe Acarnini.

It is noteworthy that a representative of a completely different genus of the tribe Menoscini might be named as *Asantorga* by Soulier-Perkins. She did not list material on which her data on the structure of *Asantorga* were based and did not disclose whether the types had been examined. According to the characters listed by Melichar (1915) in the description, *Asantorga* should be attributed to the tribe Lophopini within the current meaning, as well as within Melichar's concept. In compliance with Melichar, the 1st segment of the hind tarsus is thickened (“das Basalglied der Hintertarsen verdickt”)—it occurs when a spongy sole surface is developed (a character of Lophopini). Also, as it can be seen from the figure in Melichar's paper, the apical carina is situated in the plane of the coryphe, similarly to that in *Lophops* and in some others Lophopini (item 25 in the list of the characters given by Soulier-Perkins: “In lateral view, the base of the frons continues the vertex”), and the forks of *ScR*, *M*, and *CuA* are situated in a similar order as those in Lophopini.

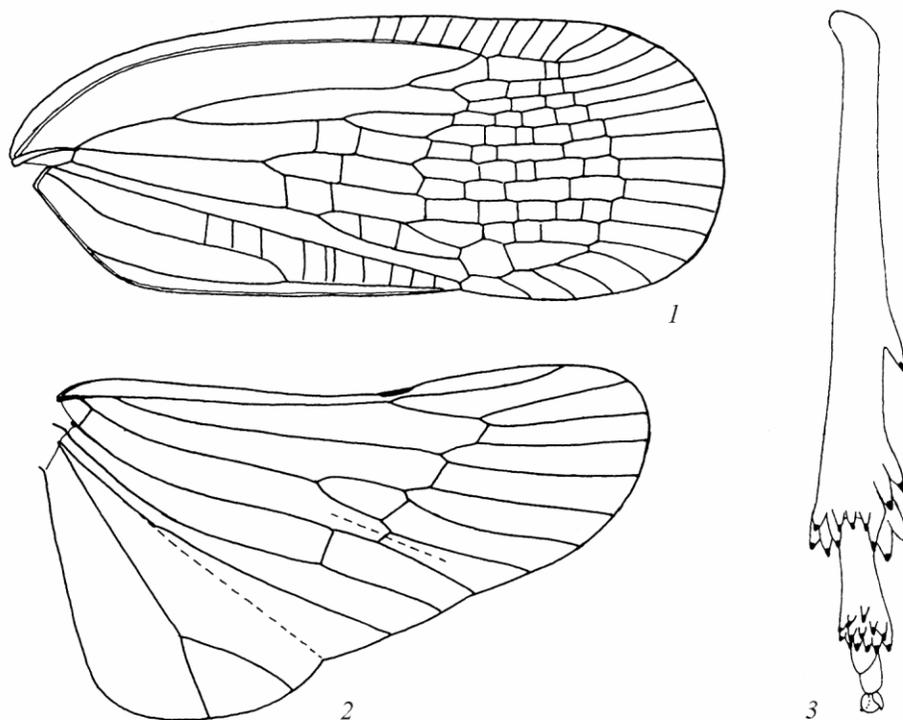


Fig. 9. *Jugoda zebrina* Melichar: (1) fore wing; (2) hind wing; (3) hind left tibia and tarsus, ventral view.

2. Taxonomic Position of the Genus *Silvispina* M. Wang et Soulier-Perkins, 2016

Describing the genus *Silvispina*, the authors could not attribute it to any subfamily (Wang et al., 2016b). However, the presence of a so-called “felt area” [the “felt of minute setae” after Fennah (1956), “dense crochets” after Yang Chung-Tu and Wen-Bien Yeh (1994) who have shown that these setae are hook-shaped (Fig. 10), “pad of microsetae” after Soulier-Perkins (2000), “dense vestiture of adhesive setae” after Liang (2000)] on the 1st segment of the hind tarsus *prima facie* shows that the genus belongs to the tribe Lophopini (the apex of the hind tibia lacks felt formations; the 1st segment of the hind tarsus bears a felt area). The felt area on the 1st segment of the hind tarsus is autapomorphy of the subfamily Lophopinae (see also item 3); the members of Menoscinae lack this field. One more character showing that this genus belongs to the subfamily Lophopinae and to the tribe Lophopini is the presence of a supporting subrectangular or transversely oval plate situated at the apex of the hind tibia and covered with numerous small teeth arranged in straight transverse rows; in the subfamily Menoscinae, this place (see Figs. 3, 5; 9, 3; 10, 5) is occupied by sparse large teeth forming a pattern in the shape of a swallowtail with a deep median emargina-

tion (item 3 in the list of the characters given by Soulier-Perkins, l. c.). Confinedness of the genus *Silvispina* to the tribe Lophopini is also substantiated by the arrangement of the first forks of *ScR*, *M*, and *CuA* in the fore wing and by the absence of strong cross-veins (except for obligatory *pcu-a*) on the remigium of the hind wing. The atypical position of the felt area can be interpreted as a primary stage of its formation (the area has not yet moved to the distal margin of the segment) or as a secondary recession, with the first variant being more plausible; it is noteworthy that the strong teeth situated distal to the felt area are smaller than those neighboring at the right and at the left. In many (in all?) Lophopinae, some teeth remain at the sides of the felt area and marginate it distally with or without a break; this crosspiece of teeth is especially distinct in *Lacusa fuscofasciata* Stål and *Serida castanea* sp. n. (Fig. 10, 4). A break was also found in *Lophops* (Fig. 10, 3) and *Pyrilla*.

3. Relationship between the Tribes *Elasmoscelini* and *Lophopini*

The position of the genus *Elasmoscelis* in the phylogenetic tree constructed by Soulier-Perkins (2001) and the attribution of this genus to the subfamily Lophopinae are highly questionable. The felt area in the

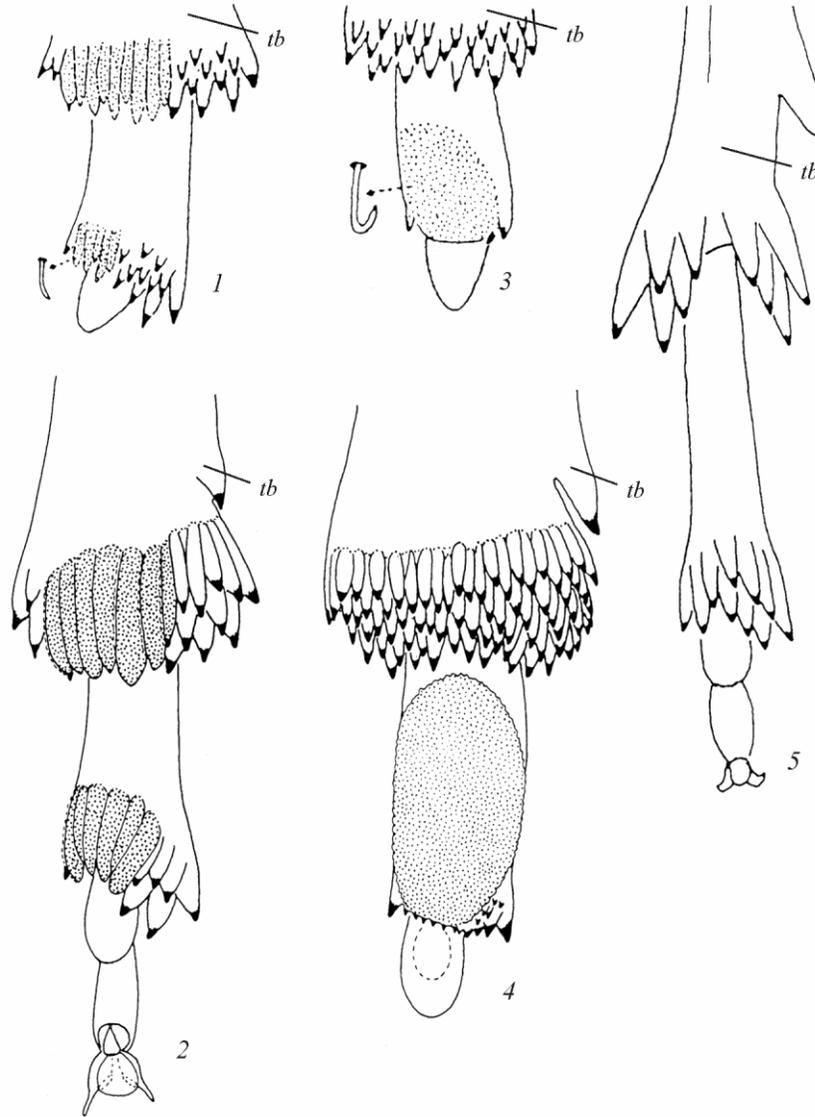


Fig. 10. Lophopidae, hind legs (left), ventral view (a seta of felt sole area shown separately in 1, 3): (1) *Elasmoscelis perforata* Walker, (2) *Elasmoscelis* sp. (Ethiopia, Ambo), (3) *Lophops carinata* Kirby; (4) *Serida castanea* sp. n.; (5) *Zeleja thoracalis* sp. n. [(1, 3) after Yang Chung-Tu and Wen-Bien Yeh, 1994]; *tb*, tibia.

tribe Lophopini (Fig. 10, 3, 4) is situated on the even plantar surface of the metabasitarsus (Yang Chung-Tu and Wen-Bien Yeh, 1994), whereas in *Elasmoscelis* (the monotypical tribe Elasmoscelini, Fig. 10, 1, 2), setae of the felt layer are situated on the transformed surface of the teeth not only on the basitarsus but also at the apex of the tibia where such formation is missing in Lophopini. Succession of the felt stripes (bolsters) of Elasmoscelini and the teeth of Menoscinae is proved by their complete topographical coincidence, including their arrangement in two rows and sharpness of their apices, and also by the presence of teeth of an intermediate structure: those having a sclerotized sharp apices but covered with felt setae (Fig. 10, 2).

The most likely explanation of this circumstance is their independent (convergent-parallel) origin. The passage of the state of Elasmoscelini to that of Lophopini cannot be modeled without inconsistencies. The plan of the arrangement of the teeth at the sides of the felt ridges at the tibial apex in *Elasmoscelis* is similar to that in Lophopini where they are not interrupted. It must be admitted, of course, that the common ancestor of the subfamily Lophopinae got a toothed support which remained in the tribe Lophopini and underwent transformations in Elasmoscelini. It is noteworthy that the uniform felt beds in Elasmoscelini are present on both the basitarsus and the tibia. From a non-extant (unknown in the recent

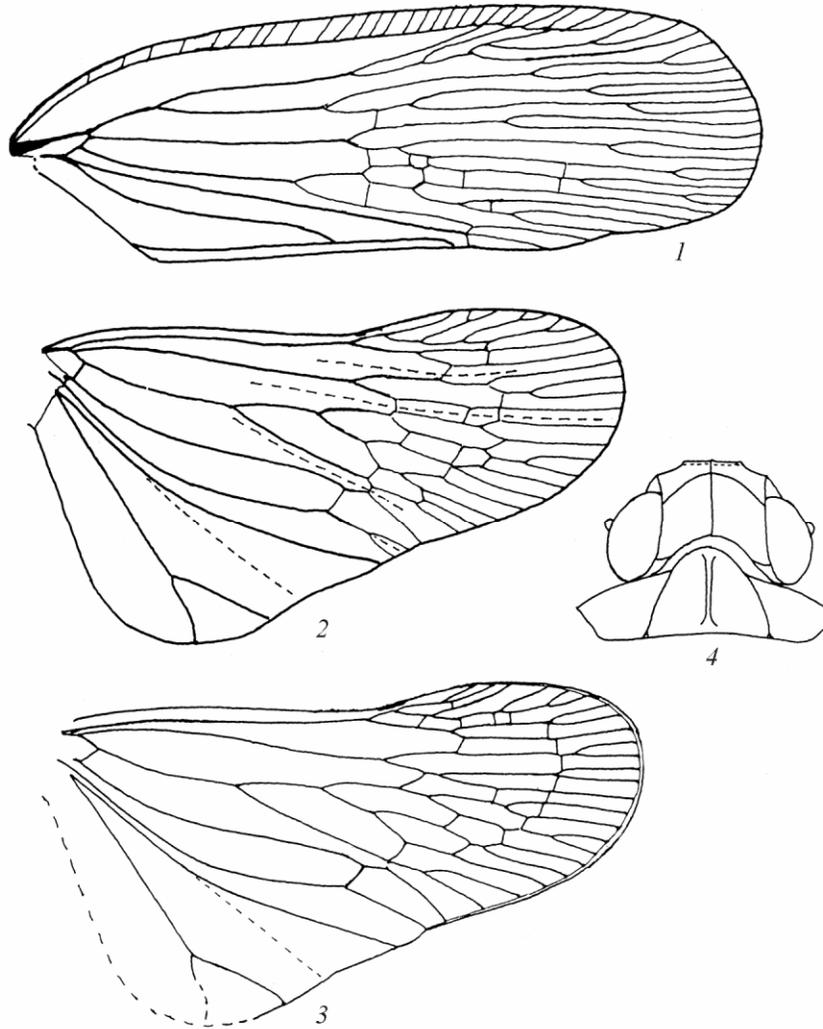


Fig. 11. *Epiptyxis plebeja* Gerstaecker, drawing from photograph of the type: (1) fore wing (2) hind left wing, (3) hind wing (right wing mirrored); (4) head and pronotum in dorsal view.

fauna) hypothetical ancestor of the subfamily, the other line represented by the tribe Lophopini inherited the felt sole surface on the basitarsus, which was situated basal to the apical teeth (as in *Silvispina*) but later moved distally and proximally and widened to occupy the entire length of the segment, whereas the felt beds do not move toward the base of the basitarsus, thus supporting their teeth-like character.

However, some characters of *Elasmoscelis* demonstrate its affinity (confinedness) to the subfamily Menoscinae, in particular, the order of branching of *ScR*, *M*, and *CuA* (see item 1) and strongly widened lateral areas of the metope (see Fig. 8, 3), which is uncharacteristic of Lophopini. It is also noticeable that the setae of the felt cover are nearly straight in *Elasmoscelis* and sharply hook-shaped in *Lophops* (Fig. 10, 1, 3). Though there are no data on other gen-

era of the tribe Lophopini, it can be assumed that the hook-shaped setae can be autpomorphy of the tribe Lophopini. The conclusion is that the felt sole surfaces in *Elasmoscelini* and *Lophopini* arose independently and convergently, and these tribes are either sister groups or absolutely unrelated taxa, which is more probable. The tribe *Elasmoscelini* should be transferred to the subfamily *Menoscinae*.

4. On the Genus *Epiptyxis* Gerstaecker

The figures made from the photographs of the type of *Epiptyxis plebeja* Gerstaecker, 1895, which were received from a museum in Greifswald through the courtesy of Dr. Peter Michalik, and also the drawing of the anterior part of the body and wings of this species, which was also made from these photographs (Fig. 11, 1–4), clearly show that the genus *Epiptyxis* Gerstaecker, 1895 belongs to the tribe *Menoscini*.

5. Status of the Genus *Jivatma* Distant, 1906

The type species of the genus is *Jivatma metallica* Distant, 1906 (Fig. 5, 1–3). All the species, except for type one, described in the genus *Jivatma* may belong to the genus *Menosca* Stål, 1870. It appears that Baker (1925), who synonymized *Jivatma* with *Menosca*, had not seen the type species of the genus *Jivatma* which definitely does not belong to the genus *Menosca*. As it was reported earlier (Emeljanov, 2013), Fennah (1978) did not accept Baker's synonymy by default and identified the material from Vietnam, collected by Polish entomologists, as *Jivatma metallica* (instead of *Menosca metallica*). Through the courtesy of Dr. Adam Stroński, I examined this material deposited in Institute of Zoology of the Polish Academy of Sciences in Warsaw. *Jivatma metallica*, and consequently the genus *Jivatma*, belongs to the subfamily Lophopinae and the tribe Lophopini; it may be closely related to the genus *Pitambara* Dist. but differs, according to Melichar's (1915) conception, in the presence of a median carina on the metope and on the coryphe. The pale specimens of the species in my material are similar to the figure in the publication of Distant (1906), and the dark ones resemble *Pitambara dawnana* Dist. in coloration; though this similarity is most likely external; a revision of the types is necessary. Therefore, the attribution of *Jivatma* to the tribe Menoscini, which I repeated in my publication on the classification of the family (Emeljanov, 2013), is erroneous. The genus *Jivatma* is not mentioned in the publications of Soulier-Perkins, perhaps because it is considered a synonym of *Menosca* according to Baker (1925).

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