

First Record of the Planthopper Family Kinnaridae (Homoptera, Fulgoroidea) in Chile¹

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Abstract—A new genus and a new species, *Apocathema lukashevitchae* (family Kinnaridae) from Central Chile (the La Campana National Park, Valparaiso Region) belonging to the tribe Prosotropini which was known earlier only from Central America (Panama and the Antilles) is described. The species was collected from the bamboo *Chusquea* sp.

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The family Kinnaridae occurs in both the Old and the New World, being, however, rather irregularly distributed and obviously relict on the whole. In the New World, this family has not been known until now further southwards than Brazil (Mato Grosso); in addition, in South America it was represented only by the tribe Oeclidiini, namely, by the endemic genus *Southia* Kirkaldy and by the genus *Oeclidius* V. D. (Metcalf, 1945; Fennah, 1980) mostly occurring in the southwestern part of the Nearctic. However, the new genus described below belongs to the tribe Prosotropini plentifully represented on the Antilles (Fennah, 1942, 1945a, 1945b, 1948, 1980; Ramos, 1957) and also known from two records in Central America (the genus *Eparmene* Fowl.): one in Panama (Fowler, 1904) and one in Mexico: Veracruz Province, Est. Biol. (= Biological Station) Las Tuxtlas, I.M. Kerzhner leg. (coll. Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia).

The material was collected by E.D. Lukashevich during her work in Chile with a group of entomologists from the Paleontological Institute of the Russian Academy of Sciences. I am grateful to E.D. Lukashevich and to D.E. Shcherbakov, the head of the group, for the material supplied for examination and description.

The holotype is deposited in the National Museum of Natural History, Santiago, Chile (MNHNC).

Tribe Prosotropini

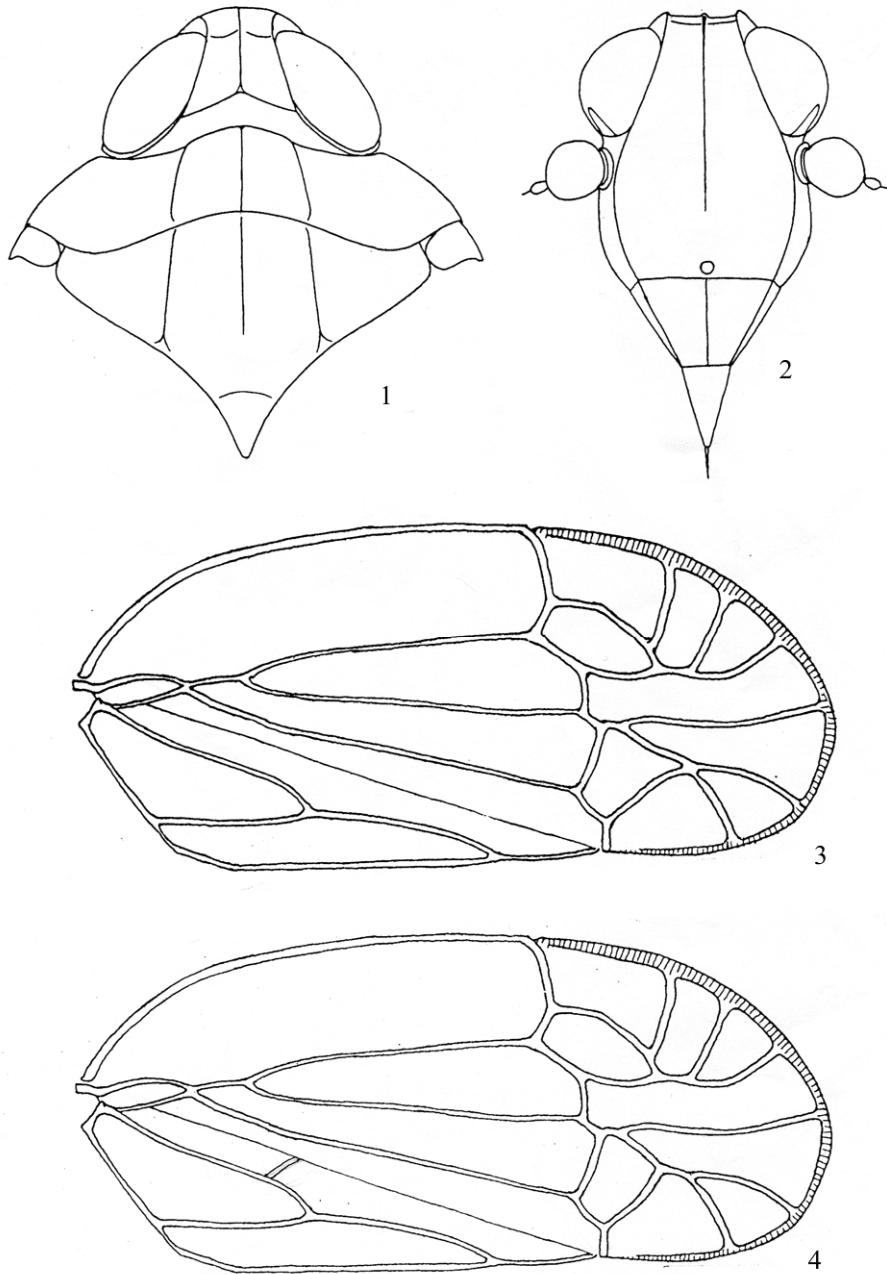
Genus *Apocathema* Emeljanov, gen. n.

Type species *Apocathema lukashevitchae* sp. n. (Figs. 1–11).

Description. Coryphe indistinctly separated from metope, trapeziform, with anterior margin about half as wide as posterior one; lateral and median carinae sharp, surface between carinae longitudinally gently gutter-shaped. Surface of head which continuing anteriorly beyond coryphe, lying in one plane (slightly inclined forward) with coryphe, and visible in dorsal view also gutter-shaped and can be considered acrometope; it continuing constriction of coryphe, then passing into widened eumetope, and gradually (without clear border) becoming flat. Passage of vertex surface of head to its facial surface smooth, arcuate in lateral view. Part of metope visible in dorsal view only slightly shorter than coryphe. Eumetope slightly convex as whole, more than twice widened from acrometope in upper part, and then narrowed toward clypeus in lower quarter; passage from widening to narrowing rounded. Eumetope bearing median longitudinal carina high and sharp along most of its length and obsolete or absent in lower part near clypeus. Large median ocellus approximate to clypeal margin of metope. Suture between metope and clypeus about twice as long as upper margin of eumetope, gently obtuse-angularly concave. Postclypeus truncate-cuneiform, with distinct median carina. Rostrum small, 4-segmented, as that in Cixiidae and Dictyopharidae.

Pronotum transverse, with anterior margin gently arcuately projecting in area of disc and gently emarginate.

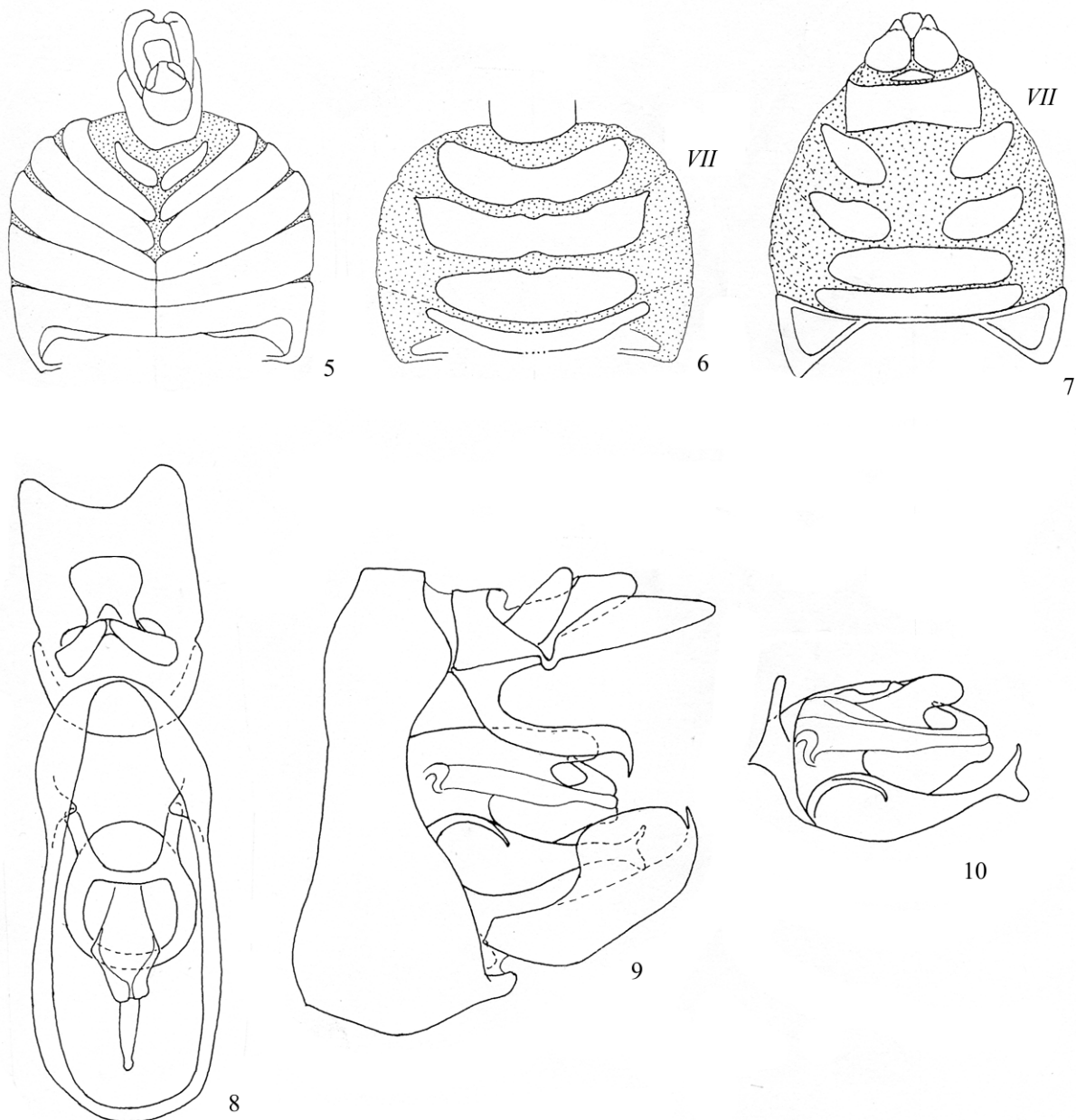
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Figs. 1–4. *Apocathema lukashevitchae* gen. et sp. n.: (1) anterior part of body of female, dorsal view; (2) face (head in anteroventral view); (3, 4) right fore wing, variants of venation.

nate behind eyes. Median carina of disc sharp; lateral carinae rather distinct in females, missing in males. Posterior margin of pronotum very weakly concave (nearly straight) in median part, slanting anteriorly as usually at sides. Lateral margin of dorsal side of pronotum sharp, keel-shaped. Paranotal lobes with narrowly rounded posteroventral angles. Scutellum rather large, nearly twice as long along midline as pronotum, with 3 distinct carinae. Lateral carinae subparallel, weakly diverging posteriorly, reaching margin

of scutellum; median carina broken off at level of posterior ends of lateral carinae. Fore wing coriaceous, with thick veins, rather wide and short; membrane occupying about 1/3 of total length of wing when measured from apex of clavus and about 2/5, when measured from nodus. Costal margin convex, arcuate, more strongly curved in basal 1/3; membrane more sharply curved in posterior half, with apex falling on termination of vein *MA*. Costal area wide, about twice as wide as radial area; radial area about as wide as



Figs. 5–10. *Apocathema lukashevitchae* gen. et sp. n., abdomen and male genitalia: (5, 6) abdomen of male, dorsal and ventral view; (7) abdomen of female, ventral view; (8) anogenital complex, front view (styli are not shown; the anal tube is turned upwards); (9) anogenital complex, left lateral view; (10) penis, lateral view; VII, abdominal segment VII.

median area; antero-cubital area slightly narrower than preceding radial and median areas. Costal area bounded distally across nodus by nearly straight cross-vein continuing costa; this cross-vein separated from marginal vein of membrane by broken ledge. Basal cell terminating with punctiform anastomosis of *ScRM* and *CuA*. Stem of *ScRM* about 2/3 as long as basal cell. Stigmal cell crossed by 1 unsharp vein, connected to vein *RP* by short stem; *RP* with 2 apices; cell behind stigmal cell with acute-angular arrow-

shaped apex. Only vein *rm* (nodal) present; postnodal veins absent. Nodal vein appearing as *mcua* (*CuA1* by origin) originating from stem of *M* slightly distal to vein *rm*; insular cell, respectively, bounded anteriorly along short area by stem of *M* (namely, by short anastomosis *M+CuA1*). Posteriorly insular cell connected to margin of wing at apex of clavus by short cross-vein. Two veins originating from one point or short stem apically furcating into these two veins growing from distal end of insular cell (Figs. 3, 4);

presence or absence of stem is individual character, and different variants can be found on right and left wing of one individual. Vein *CuP* reduced; well-developed claval suture bounded at both margins by equally firm membrane.

The insular cell contacting with the median stem is a characteristic feature of the genus (Figs. 3, 4).

Legs medium-long, typical of representatives of tribe Prosotropini. Apex of hind tibia with 7 teeth; outer and inner groups hardly differentiated; lateral teeth absent; apices of 1st and 2nd segments of hind tarsus with 5 and 6 teeth, respectively; all, except for marginal, teeth on 2nd segment with rather fine subapical setae.

In female abdomen, tergite VI incised posteriorly in middle; tergites VII and VIII separated along midline; tergites VI–VIII with wax areas; sternites V and VI widely desclerotized in median part; sternites III, IV, and VII entire (Fig. 7)

Comparative notes. The family Kinnaridae is subdivided into two subfamilies, the monotypical Kinnarinae and Prosotropinae (Emeljanov, 1984, 2006) with four tribes Oeclidiini, Adolendini, Kinnocciini, and Prosotropini (Emeljanov, 1984, 2006). Based on the combination of characters, the genus *Apocathema* gen. n. should be attributed to the tribe Prosotropini. The major part of the range of this tribe covers the Antilles and Central America (in the Northern hemisphere); the new genus after a large gap is distributed in the subtropics of the Southern hemisphere (Fig. 11). The new genus is characterized by a contradictory combination of advanced and primitive characters. The most advanced feature is fore wing venation characterized by a non-branching median vein and, which is most significant, an anastomosis of the insular cell and the stem of *M* (namely, vein *CuA1* and the stem of *M* in the part anteriorly bounding the insular cell). At the same time, the genus possesses a well-developed median ocellus (Fig. 2) missing in all the other representatives of the tribe Prosotropini, except for the genus *Micrixia* Fowl. whose position cannot be considered sufficiently argued and which has not been examined at the modern level. *Micrixia* can be considered rather the result of the evolution of the basal branch of the tribe. Judging by the image in the original description (Fowler, 1904), the genus possesses non-hardened hyaline fore wings (tegmina), a well-developed median ocellus, cross-vein *cup-pcu*, and the metope without median carina. The latter

character is especially typical of the tribe Oeclidiini (but not of Prosotropini). Cross-vein *cup-pcu* also occurs in some Adolendini, in particular, in species of the genera *Adolenda* Dist. and *Bashgultala* Dlab. On the other hand, *Apocathema* demonstrates similarity to the representatives of the tribe Kinnocciini also characterized by tightened fore wings with a impoverished venation and with an anastomosis of the insular cell (i.e., vein *CuA1*) with the median stem; however, these taxa differ in the position of cross-vein *rm*: in *Apocathema*, vein *rm* lies proximal to the anastomosis, and in Kinnocciini, it is more distal, lying immediately on the anastomosis. In addition, in Kinnocciini, the median vein is bifurcate, whereas in *Apocathema* it is simple. Besides, in the females of *Apocathema*, the sternal sclerotization of abdominal segments VI and VII is widely separated along the midline (Fig. 5). Such separation seems to be a synapomorphy of the representatives of the tribe Prosotropini; however, this character can hardly be distinguished in a dry collection material. I have found this character in *Atopocixius major* Fenn.; in all the representatives of the tribes Adolendini, Oeclini, and Kinnocciini examined by me, all the sternites are entire [for the tribe Kinnocciini, see a figure in Remane's (1985) publication]. Finally, the structure of the anal tube in the males of Kinnocciini is rather unusual: its ventral wall is sharply shortened, and the dorsal one, on the contrary, is elongate and peak-like hanging over the terminal appendages; whereas in Prosotropini, the structure of the anal tube is typical, with the ventral wall lobiform projecting posteriorly. It is worth of mentioning that, according to the structure of the anal tube and partly to the fore wing venation, as seen from figures in the publications of Synave (1958) and Yang and Chang (2000), the genus *Nesomicrixia* Em., endemic to the Mascarene Islands, should also be transferred from the tribe Adolendini to the tribe Kinnocciini.

Apocathema lukashevitchae Emeljanov, sp. n.
(Figs. 1–10)

Description. Head, pronotum, and scutellum finely shagreened, black; thorax ventrally also black. Coxae black; femora changed from black at bases to pale brown at apices; tibiae and tarsi pale brown.

Fore wing with pale spot occupying basal part of corium nearly up to fork *ScR-M* and occasionally also basal part of clavus up to same level. Other large pale spot occupying anterodistal part of distal half of costal area and diagonally dividing it; this spot merged with

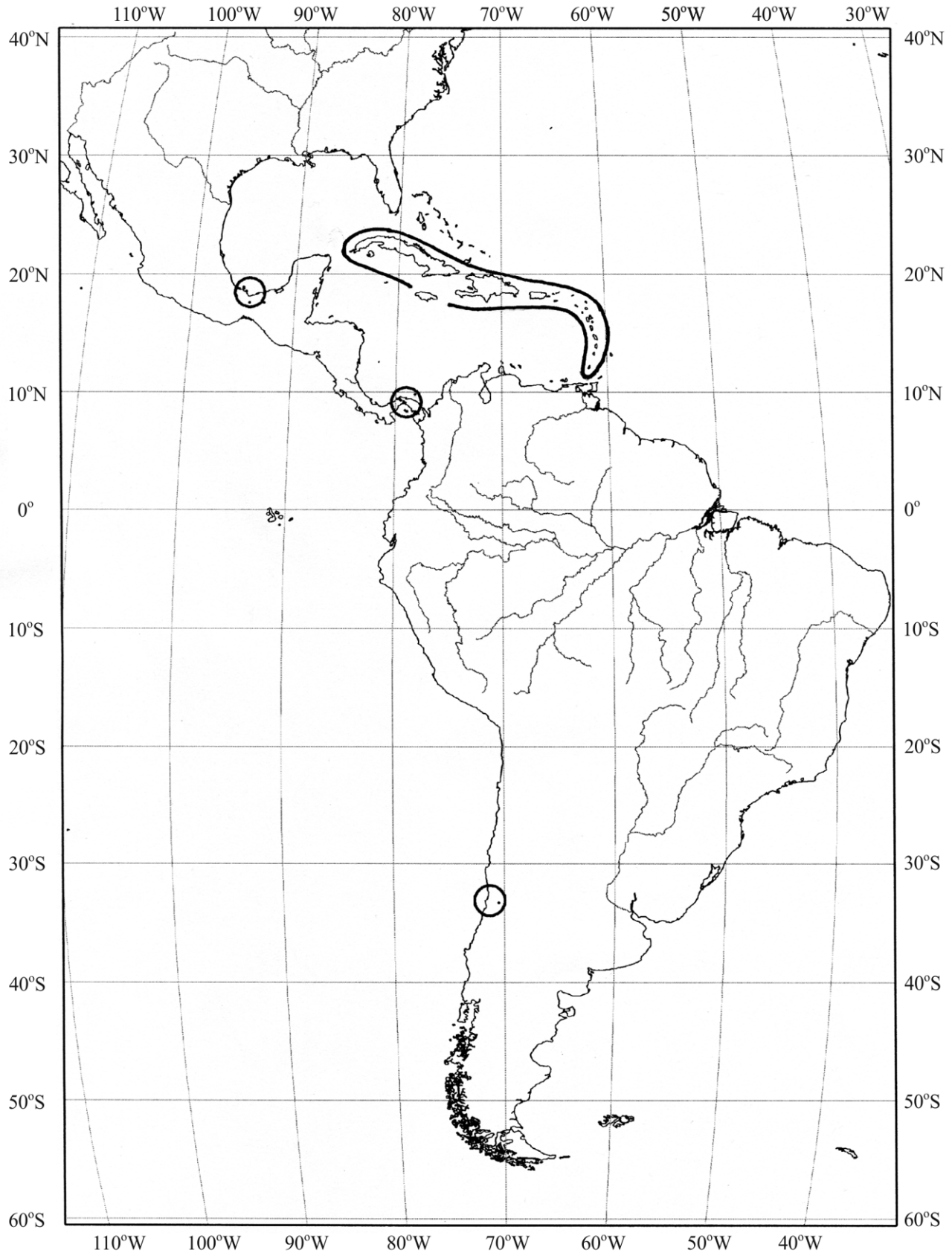


Fig. 11. The range of the tribe Prosotropini. Circles designate single records.

pale band (as its continuation), crossing nodal area from stigmal cell to apex of clavus. In more intensively pigmented individuals, band in median part narrowed and darkened to gray, veins remaining dark brown in this area but becoming white at posterior and anterior margins and not differing there from cells in coloration. Margin of membrane (peripheral vein) white from middle of posterior margin of 1st post-stigmal cell to apex of vein *MA*. Middle parts of some apical cells (terminal poststigmal and 1st radial) vaguely lightened. On clavus, anal area from fork nearly to apex also occasionally lightened. Abdominal sclerites black, with membranous areas pale brown.

Male genitalia (Figs. 8–10). Pygofer oval, compressed. Anal tube rather large, bearing pair of strong ventrobasal processes directed posteriorly and with apices beak-like deflexed ventrally. Sides of anal tube slightly converging opposite base of segment XI; posterior margin bilobed, with concave median part. Stylus with narrowly rounded apex and with wide rounded subapical lobe. Base of phallosome jointed with crateriform projections of lateral walls of pygofer in its dorsal third by means of paired apodemes (Fig. 8), similarly to that in *Prosotropis* Uhler from the same tribe (Yang and Chang, 2000) and to that in the genera *Perloma* Em. and *Adolenda* Dist. of the tribe Adolendini. The manner of hanging of the phallosome in the tribe Oeclidiini has not been studied; in the tribe Kinnocciini, judging by figures in Remane (1985) and Yang and Chang (2000), the phallosome is only jointed with the endoconnective but not with the wall of the pygofer and not with the anal tube. Apical part of penis asymmetrical, consisting of row of lobes and processes among which one sclerotized process with two apices and another one weakly sclerotized and with falcately curved apex (Figs. 9, 10).

Body length 2.4–2.5 mm in males, 2.4–2.6 mm in females.

Material. Holotype: ♂, **Chile**, Parque Nacional La Campana, nr Portezuelo Ocoa, 1100 m, 32°59'S, 71°06'W, bamboo (*Chusquea* sp.), 18.XII.2014 (E.D. Lukasevitsh leg.) (MNHNC). Paratypes: 2 ♂, 4 ♀, as holotype (Zoological Institute, Russian Academy of Sciences, St. Petersburg).

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