

A revision of *Idiosystatus* Berg (Homoptera : Fulgoroidea, Delphacidae)

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SYNOPSIS

The genus *Idiosystatus* Berg (Fulgoroidea : Delphacidae) is revised on the basis of series from most of the provinces of Chile and of southern Argentina; five species, three of which are new, are recognised and described.

THE genus *Idiosystatus* was erected by Berg to accommodate two specimens from Argentina that he very tentatively assigned to *acutiusculus* Spinola. "Es muy probable que la especie que tengo á la vista, es la *Delphax acutiuscula* Spin., en contradicción están solo el vertice, que en la especie de Spinola es, segun la descripción, si bien la entendamos, dos veces mas largo que ancho en su base, y el clipeo (caperuza de este autor), no lleva una carena media. Si la especie chilena es otra, pertenecerá tambien por los caracteres indicados y otros, á un género diferente, de manera que el nombre específico adoptado por mí, no ha de dar lugar á confusiones."

Delphax acutiuscula Spinola has remained unknown to taxonomic students for more than a century. It is evident from Berg's description that his interpretation of it was incorrect; it is equally evident that the interpretation given by Muir (1929), which postulated variability in the proportions of the vertex, and his figure, and also the present writer's figures (Fennah, 1965; 250 figs. 95-100) do not refer to *acutiuscula* Spinola but to Berg's species. The difficulty in defining species within the genus has arisen from the paucity of specimens available for study and the wide geographical separation of the areas from which they came. Recently, however, through the kindness of Dr. S. Frommer, Curator of the Insect Collection of the University of California, Riverside, it has been possible for the writer to examine series of *Idiosystatus* from localities representing almost the whole length of Chile and the western provinces of Argentina, and to compare them with material taken in southern Chile by the Royal Society Expedition (1958-59), and with the specimens from Argentina studied by Muir. As a result, it has been possible to identify *acutiusculus* both of Spinola and of Berg and to recognise the existence of five species, three of which are new to science. All the species are described below.

The type specimens of new species described below are, as stated for each, in the collection of the British Museum (Natural History) (B.M. (N.H.)), or of the Entomology Museum of the University of California, Riverside (U.C.R.).

Bibliographic citations not cited in the references at the end of this report are given in accordance with the usage in *A Bibliography of the Homoptera (Auchenorrhyncha)* by Z. P. Metcalf (N.C. State College of Agriculture and Engineering, University of North Carolina, 1942).

Idiosystatus Berg

Berg, 1883b: 231. Haplotype, *Idiosystatus acutiusculus* Berg (not Spinola).

Vertex at least as long as broad, and up to twice as long as broad, anterior margin convex, posterior margin truncate or shallowly angulately excavate, a pair of narrow triangular areoletts lateroapically; frons longer than broad (1.8-2.0 : 1) with 2 longitudinal carinae approximately as far from each other as from lateral margin; eyes excavate below, lateral ocelli present, antennae with basal segment as long as long, second segment twice as long as first. Pronotum tricarinate, median carina simple or double; mesonotum with 4 or 5 carinae, the median carina sometimes obsolete; post-tibiae with 2 or 3 spines laterally, 5 apically, calcar subulate, basal metatarsal segment with 8-9 teeth apically, second segment with 7 teeth. Tegmina narrow, either parallel-sided and deeply rounded apically or almost coelopterous, widest near base and tapering to an acutely rounded apex, *Sc* + *R* + *M* forming a common stalk in basal sixth, *Sc* + *R* forking near middle of tegmen, *M* simple to transverse line, *Cu* 1

forking at, or distad of, level of junction of common claval vein with commissural margin; veins pale with fuscous setiferous granules. Pygofer rather long, rather compressed laterally; genital styles simple, rather elongate, incurved distally towards middle line, aedeagus rather long, tubular, with a long flagellum reflected cephalad above it. Anal segment of male short, little longer than deep at sides, anal style narrow, much surpassing apical margin of segment. Total length from apex of head to tip of folded tegmina, 4.3–5.5 mm.

This genus is allied to *Pentagramma* Van Duzee, but in *Pentagramma* the antennae are relatively longer and the distance between the longitudinal carinae of the frons is distinctly greater than between each carina and the corresponding lateral margin.

Key to Species

- | | | |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| 1 | Pronotum with median carina double; frons with a broad yellowish fascia across middle | <i>fuscocirroratus</i> (Blanchard) |
| – | Pronotum with median carina simple; frons with at most only a narrow fascia, not yellow | 2 |
| 2 | Vertex more than 1.5 times as long in middle as broad at base | 3 |
| – | Vertex at most scarcely longer in middle than broad at base | 4 |
| 3 | Eye with 2 concavities on lower margin, the anterior smaller than the posterior; vertex not twice as long in middle as broad at base; mesonotum with 5 carinae | <i>acutiusculus</i> (Spinola) |
| – | Eye with a single concavity on lower margin; vertex twice as long in middle as broad at base; mesonotum with 4 carinae | <i>longifrons</i> * |
| 4 | Frons slightly wider at base than at apex; genital styles of male meeting only at base | <i>australis</i> * |
| – | Frons as wide at base as at apex; genital styles of male apposed in basal two-fifths | <i>gubernator</i> * |

* Described below as new.

Idiosystatus gubernator sp. n. (figs. 1–4)

Idiosystatus acutiusculus; Berg, 1883b: 231.

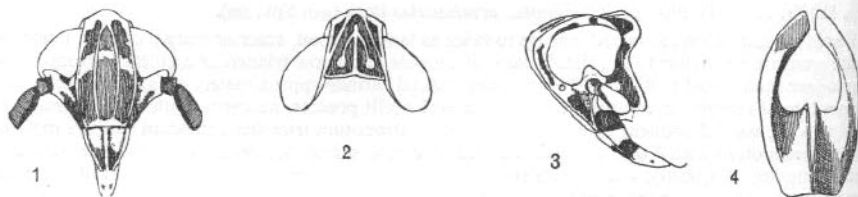
Idiosystatus acutiusculus; Muir, 1929 (*pars*): figs. 1–4.

Idiosystatus acutiusculus; Fennah, 1965: figs. 95–100.

Vertex almost horizontal, very slightly longer in middle line than broad at basal margin (1.1 : 1), median carina distinct, a little swollen near apex; frons longer than broad (1.8 : 1), as wide at base as at apex, lateral margins shallowly convex, eyes each with a single excavation below. Pronotum with median carina simple, posterolateral angles moderately acutely rounded; mesonotum with 5 carinae; post-tibiae trispinose or quadrispinose. Tegmina longer than broad (3.4 : 1), widest at middle, *Cu1* forked slightly distad of level of union of common claval vein with posterior margin, costa with 6 to 10 well-marked setiferous granules on inner margin, anterior vein (*Sc* + *R* + *M*, *Sc* + *R*, *Sc*) as far as stigma with about 19 setiferous granules, and all other longitudinal veins with similar granules, *Cu2* (claval suture) with 1–3 granules near apex.

Piceous; carinae and margins of head, thorax, and legs, a narrow arcuate fascia across frons near middle, a pair of elongate intercarinal marks on vertex, clypeus basally, genae immediately below antennae, and abdominal sternites sublaterally, ochraceous or tawny yellow. Tegmina greyish-hyaline, veins concolorous or slightly paler than ground, granules fuscous. Wings greyish or very dilute fuscous with fuscous veins.

Anal segment of male short, not as long as deep at sides, laterally compressed, ventral lateral margins shallowly convex.



FIGS. 1–4.—*Idiosystatus gubernator* sp. n.: (1) frons and clypeus; (2) vertex; (3) head in profile; (4) genital styles, posteroventral view.

Genital styles as figured, each in posteroventral view with outer margin shallowly convex, flattened and slightly expanded distally; styles apposed medially in basal two-fifths.

Male: length, 3.1 mm.; tegmen, 3.5 mm. *Female*: length, 4.1 mm.; tegmen, 4.0 mm.

Holotype ♂, ARGENTINA: Rio Negro Prov., Clemente Onelli, 24.x.1926 (F. & M. Edwards) B.M. 1927-63 in B.M. (N.H.).

Paratypes.—ARGENTINA: 5 ♂, 3 ♀, Neuquen Prov., Cuesta Santa Julia, 1080 m., meadow, 17. xii. 1966 (M. Irwin & E. I. Schlinger); 1 ♂, Rio Negro Prov., L. Gutierrez; 4 ♂, 11 ♀, Chubut Prov., 18 km S. El Maitan, 750 m., 18. xi. 1966 (E. I. Schlinger & M. Irwin), Arroyo Verde, 12 km. S. Rio Senguer, 710 m., 20. xi. 1966 (E. I. Schlinger & M. E. Irwin); 1 ♂, 5 ♀, Santa Cruz Prov., 3 km S. Rio Chico at Hwy. 3, 90 m., 11. xi. 1966 (E. I. Schlinger & M. E. Irwin), Los Antiguos, 280 m., camp near river, 20. xi. 66 (M. E. Irwin & E. I. Schlinger), "las barrancas altas del Rio Santa Cruz", 9. x. 1874 (Berg).

This species is readily distinguishable by the vertex being short and, in profile, almost horizontal, not declivous, and, in the tegmina, in the fork of *Cu* 1 lying level with a point about mid-way between the point at which the common claval vein joins the commissural margin and that at which the claval suture meets the margin, and in the claval suture itself being adorned with one to three granules near its apex. In the male genitalia, the most obvious feature is the proportion of their length for which the genital styles are apposed, and the shape of the distal portion.

Idiosystatus acutiusculus (Spinola) (figs. 5-8)

Delphax acutiuscula Spinola, 1852a: 258.

Idiosystatus acutiusculus Fennah, 1965: 250 (excluding figs.), 251.

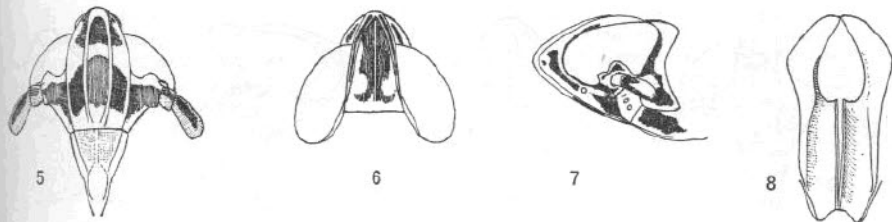
Vertex longer in middle line than broad at basal margin (1.6 : 1), median carina distinct; frons longer than broad (1.8 : 1), narrower at base than at apex (1 : 2), lateral margins convex, eyes each with 2 excavations below, the anterior smaller than the posterior; pronotum with median carina simple, posterolateral angles very narrowly rounded, almost acutely angulate; mesonotum with 5 distinct carinae; post-tibiae laterally trispinose. Tegmina elongate, longer than broad (4 : 1), *Cul* forked at level of junction of common claval vein with posterior margin; costa with about 12 very obscure setiferous granules on inner margin, anterior vein (*Sc* + *R* + *M*, *Sc* + *R*, *Sc*) as far as stigma with about 24 small well-marked even setiferous granules, and all other longitudinal veins with similar granules.

Piceous; carinae and margins of head and thorax, an arcuate band across frons at middle, and a band along apical margin, light yellowish-brown to ivory white; clypeus, except laterally and narrowly on each side of median carina and basal segment of rostrum, 2 stripes along second antennal segment, stripes along femora and tibiae, and post-tarsal segments distally, abdominal sternites near lateral and at posterior margins, and ventral surface of pygofer, tawny yellow. Tegmina greyish-hyaline, granules dark fuscous or castaneous, three suffusions on posterior margin of clavus fuscous, the distal 2 almost piceous.

Anal segment of male with ventral margin slightly notched a little before apex. Genital styles as figured, meeting in middle for more than half their length, each rather flattened and expanded in distal third.

Male: length, 4.1 mm.; tegmen, 4.0 mm. *Female*: length, 4.5 mm.; tegmen, 4.7 mm.

CHILE: 1 ♂, 1 ♀, Santiago Prov., Quebrada de la Plata, Rinconada, Maipu, 775 m., 33° 31' S., 70° 47' W., 22. viii. 1966 (M. E. Irwin); 1 ♂, 15 km. N. of Casablanca,



FIGS. 5-8.—*Idiosystatus acutiusculus* (Spinola): (5) frons and clypeus; (6) vertex; (7) head in profile; (8) genital styles, posteroventral view.

33° 19' S., 71° 25' W., marsh, 14.x.1966 (*E. I. Schlinger & M. E. Irwin*); 6 ♂, 5 ♀, Batauco, 21.xii.1955 (*F. G. Kuschel*); 2 ♀, Malleco Prov., 15-6 km. E. Angol, Nahuebuta Mts., 600 m., 8.xi.1966 (*M. E. Irwin & E. I. Schlinger*); 8 ♂, 13 ♀, Coquimbo Prov., 14 km. S.W. Illapel, 280 m., 31° 38' S., 71° 10' W., 19.x.1966 (*M. E. Irwin & E. I. Schlinger*); Hacienda Illapel, Rio Illapel, 600-900 m., 19.x.1966 (*E. I. Schlinger & M. E. Irwin*); 4 ♂, 5 ♀, Punta Teatinas, 16.ix.1952 (*F. G. Kuschel*); 1 ♀, Valdivia Prov., 13 km. S. José de la Mariquina, 39° 33' S., 72° 56' W., 13.ii.1966 (*R. H. Gonzales*); 3 ♂, 2 ♀, Atacama Prov., Bahía Copiapo, 45 m., 5.x.1966, coastal dunes (*M. E. Irwin*); 8 ♂, 4 ♀, Chiloe, Isla Chiloe, Chepu, 24.x.1958 (*F. G. Kuschel*), 3,19.x.1958 (*M. W. Holdgate*).

ARGENTINA: 1 ♀, Rio Negro Prov., Laguna Frias, 760 m., 16.xi.66 (*M. E. Irwin & E. I. Schlinger*).

The type locality is Santiago Province, Chile.

This species is most readily recognisable by its relatively long vertex and the very unusual feature of two excavations of the lower margin of the eye, the anterior excavation being less pronounced than the posterior. Spinola described *acutusculus* as having a vertex twice as long as broad, the mesonotum quinquecarinate, and the frons frequently with a fascia across the middle and another apically.

Idiosystatus fuscoirroratus (Blanchard) **comb. n.** (figs. 9-12)

Idiosystatus acutusculus; Muir, 1929 (*pars*): 76.

Delphax fuscoirrorata Blanchard, 1852: 260; Berg 1881: 266.

Delphax vittata Blanchard, 1852: 260. **Syn. n.**

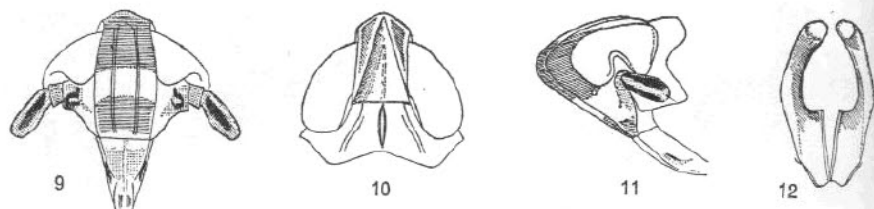
Vertex longer in middle line than broad at basal margin (about 1.4 : 1), median carina weak but distinct in basal half, frons longer than broad (2 : 1), as wide at base as at apex, lateral margins shallowly convex, eyes each with a single excavation below. Pronotum with 2 median carinae, united at base and apex, posterolateral angles slightly acutely rounded; mesonotum with 5 carinae but median carina distinctly weaker than remainder; post-tibae laterally with 3 spines. Tegmina longer than broad (3.6 : 1), widest in basal quarter, *Cu1* forked only a little basad of claval apex, costa with about 8 distinct setiferous granules on inner margin, anterior vein as far as stigma with about 17 setiferous pustules, and all other longitudinal veins with similar pustules.

Dull brownish-yellow; vertex, frons, except medially and apically, clypeus distally, sides of head above ocelli, pronotum, lateral fields of mesonotum and tegulae, light yellowish-brown; a fascia across frons at middle, extending across genae and lower inner angle of lateral fields of pronotum, clypeus basally, and lower half of mesepimera, creamy-yellow; most of basal antennal segment, 2 longitudinal stripes on second segment, most of mesopleura, intercarinal areas of median disc of mesonotum, narrow stripes along femora, a ring around protibia and mesotibia distally, abdomen and pygofer dorsally, and abdominal sternites except towards sides, fuscous or piceous. Genital styles castaneous. Anal style stramineous. Tegmina subhyaline, suffused yellowish-brown, veins paler, almost white, granules reddish-brown, sometimes diluted so, sometimes a band from base of costa to apex of *M*, lying in cell *Sc + R*, a sublinear spot on *Cu1* a little basad of middle and 2 suffusions on posterior margin of clavus, fuscous. Wings sordid white with veins distally fuscous.

Anal segment of male with lower lateral margins concave, produced ventrad near apex in a convex lobe, apical margin deeply incised.

Genital styles as figured, each in posteroventral view with outer margin subangulately convex, and flattened and slightly dilated near apex.

Male: length, 4.0 mm.; tegmen, 3.5 mm. *Female*: length, 4.5 mm.; tegmen, 4.0 mm.



FIGS. 9-12.—*Idiosystatus fuscoirroratus* (Blanchard): (9) frons and clypeus; (10) vertex and pronotum; (11) head in profile; (12) genital styles, posteroventral view.

CHILE: 3 ♂, 1 ♀, Isla Chiloe, Chepu, 24.xi.1958 (*F. G. Kuschel*); 2 ♀, Coquimbo Prov., Los Vilos, 25.ix.1966 (*E. I. Schlinger*); 1 ♂, Puerto Oscuro, 31° 26' S., 71° 37' W., sandy beach, 23.ix.1966, (*E. I. Schlinger*); 1 ♀, Curico Prov., Cajon de Rio Claro, S.E. Los Quenes, 1100 m., 8.x.1966 (*E. I. Schlinger*); Valdivia (*Berg*).

ARGENTINA: 4 ♂, 3 ♀, Rio Negro Prov., Bariloche, 5-10.xi.1926 (*F. & M. Edwards*); L. Gutierrez, 3-14.xi.1928, L. Nahuel Huapi, eastern end, 28-31.x.1926 (*F. & M. Edwards*); 5 ♂, 3 ♀, Niequen Prov., Cuesta Santa Julia, meadow, 17.xii.1966 (*M. Irwin & E. I. Schlinger*); 4 ♂, 11 ♀, Chubut Prov., 18 km. S. El Maiten, 750 m., 18.xi.1966 (*E. I. Schlinger & M. Irwin*), Arroyo Verde, 12 km. S. Rio Senguer, 710 m., 20.xi.1966 (*E. I. Schlinger & M. E. Irwin*); 1 ♂, 3 ♀, Santa Cruz Prov., 3 km. S. Rio Chico at Hwy. 3, 90 m., 11.xii.1966 (*E. I. Schlinger & M. E. Irwin*).

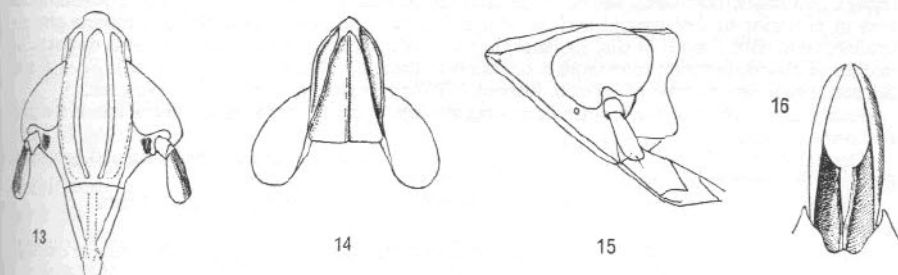
The type locality is the environs of Santiago, Chile.

This species is readily recognisable by the broad yellowish band across the frons and by the double median carina of the pronotum. The tegmina are almost coelopterous.

Although the description of the mesonotal carination does not agree with that found in this species, it would appear that *Delphax vittata* Blanchard, described from Coquimbo, is the colour-variety of this species that has a longitudinal fuscous band along the tegmen. Both species were described on the same page in Gay's *Historia de Chile*, and as first reviser the writer now selects *fuscoirroratus* as the name of Blanchard's species redescribed above and places *vittata* in synonymy.

Idiosystatus longifrons sp. n. (figs. 13-16)

Vertex longer in middle line than broad at basal margin (2 : 1), median carina distinct, frons longer than broad (2.2 : 1), as wide at base as at apex, lateral margins shallowly convex, eyes each with a single excavation below. Pronotum with median carina simple; posterolateral angles acutely rounded; mesonotum with four carinae; post-tibiae laterally bispinose. Tegmina elongate, longer than broad (3.8 : 1), *Cul* forked at level of junction of common claval vein with posterior margin, costa with no evident setiferous granules on inner margin, anterior vein as far as stigma with about 22 small even setiferous granules, and all other longitudinal veins with similar granules.



FIGS. 13-16.—*Idiosystatus longifrons* sp. n.: (13) frons and clypeus; (14) vertex; (15) head in profile; (16) genital styles, posteroventral view.

Dull brownish-yellow; head light reddish-brown; apical segment of rostrum, narrow stripes along femora and tibiae, a subscentic spot near sides of each abdominal sternite, pygofer dorsally and anal segment, piceous. Tegmina hyaline, veins stramineous with granules reddish-brown, posterior margin of clavus with a dark linear suffusion near junction of common claval vein with margin. Wings hyaline with veins fuscous.

Anal segment of male with deep sides, apical margin rectangulately incised. Genital styles as figured, each in posteroventral view with outer margin shallowly and evenly convex and narrowing distally to an acuminate apex.

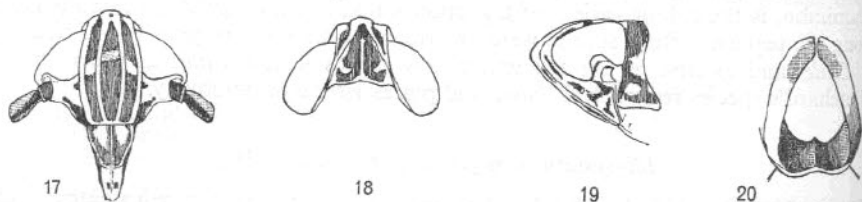
Male: length, 4.8 mm.; tegmen, 4.5 mm.

Holotype ♂, CHILE: Malleco Prov., 15.6 km. E. Angol, Nahuelbuta Mts., 600 m., 8.xi.1966 (*M. E. Irwin & E. I. Schlinger*), in coll. U.C.R.

This species differs from all others in its relatively longer and less declivous vertex. From *I. acutiuseculus*, which most nearly approaches it in elongation of the vertex, it differs in the proportions of the frons, the single excavation of the lower margin of the eye, the less acute posterolateral angles of the pronotum, the absence of a median carina on the mesonotum, the presence of only two spines laterally on the post-tibiae, the deeper distal part of the sides of the male anal segment and the slender, evenly convex genital styles.

Idiosystatus australis sp. n. (figs. 17-20)

Vertex rather declivous, as long in middle line as broad at basal margin, median carina distinct, frons longer than broad (1.8 : 1), a little wider at base than at apex (1.2 : 1), lateral margins shallowly convex, eyes with a single excavation below. Pronotum with median carina simple, posterolateral angles only slightly acutely rounded; mesonotum with 5 carinae; post-tibiae laterally trispinose. Tegmina longer than broad (3.6 : 1), widest in basal quarter. *Cu1* forked near level of apex of clavus, costa with 7 or 8 well-marked setiferous granules on inner margin, anterior vein as far as stigma with about 18 setiferous granules, and all other longitudinal veins with similar granules, *Cu2* (claval suture) usually with 1-3 granules distally.



FIGS. 17-20.—*Idiosystatus australis* sp. n.: (17) frons and clypeus; (18) vertex; (19) head in profile; (20) genital styles, posteroventral view.

Piceous; antennae dark reddish-brown; carinae and margins of head and thorax, an obscure narrow fascia across frons at middle, an area on each side of median carina of clypeus, stripes along all femora and tibiae, post-tarsal segments distally, abdominal ventrites near sides, and a subtriangular area in posterior half of ventral surface of pygofer, tawny or brownish-yellow. Tegmina greyish-hyaline, veins concolorous or slightly paler than ground, granules and 2 linear suffusions on posterior margin of clavus, fuscous; sometimes a suffusion at base, a rather diffuse band in cells *Sc + R* and *Sc*, and a suffusion at apex of tegmen, fuscous. Wings greyish, with veins dilute fuscous.

Anal segment of male short, scarcely as long as deep, laterally compressed, ventral lateral margins shallowly convex.

Genital styles as figured, each in posteroventral view with outer margin strongly angulately convex, flattened but scarcely expanded distally; styles apposed only at extreme base.

Male: length, 3.2 mm.; tegmen, 3.6 mm. Female: length, 4.2 mm.; tegmen, 4.9 mm.

Holotype ♂, ARGENTINA: Rio Negro Prov., Clemente Onelli, 24.x.1926 (F. & M. Edwards) B.M. 1927-63, B.M in (N.H.).

Paratypes.—ARGENTINA: 2 ♂, 1 ♀, Rio Negro Prov., same data as holotype, Lake Nahuel Huapi, eastern end, 28-31.x.1926 (F. & M. Edwards). CHILE: 2 ♂, 1 ♀, Aisen Prov., 4.8 km. W. of Chile Chico, 400 m., meadow association, 22.xi.1966 (M. Irwin & E. I. Schlinger).

This species is recognisable by its short declivous vertex and by the relative widths of the frons at the base and the apex. The most distinctive feature of the male genitalia is the short distance for which the genital styles are apposed in the middle line.

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