

**American katydids of the subtribe Viadanina stat. nov.  
(Orthoptera: Tettigoniidae: Phaneropterinae)**

**Американские кузнечики подтрибы Viadanina stat. nov.  
(Orthoptera: Tettigoniidae: Phaneropterinae)**

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Two genera of the American Phaneropterinae are discussed: *Viadana* Walker, 1869; *Tomeophera* Brunner-Wattenwyl, 1878. The former tribe Viadanini is considered as a subtribe (Viadanina Cadena-Castañeda, 2012, **stat. nov.**) including *Viadana*, *Tomeophera* and two other possible genera only; for the genus *Anaulacomera* Stål, 1873, a separate subtribe (Anaulacomerina Brunner-Warttenwyl, 1878, **stat. nov.**) is proposed. The genus *Ctenophlebia* Stål, 1874, **gen. resurr.** as well as *V. transversa* Walker, 1869, **sp. resurr.** and *T. piracicabensis* (Piza, 1971), **sp. resurr.** are restored from synonymy to *Viadana*, *C. myrtifolia* (Linnaeus, 1758) and *T. modesta* Brunner-Wattenwyl, 1891, respectively; two former genera are included in the genus *Viadana* as its subgenera *Paraviadana* Piza, 1980, **stat. nov.** and *Proviadana* Hebard, 1933, **stat. nov.**; and *V. griffini* (Giglio-Tos, 1897), **comb. nov.** is transferred to the latter genus from the genus *Tomeophera*. The following new taxa (43) from Brazil, Peru, Colombia, Ecuador, Bolivia, Paraguay, French Guiana and Guatemala are described: *Arcuadana* **subgen. nov.** (in the genus *Viadana*); *V. (V.) hamata* **sp. nov.**; *V. (V.) semihamata* **sp. nov.**; *V. (V.) ultrahamata* **sp. nov.**; *V. (V.) obliqua* **sp. nov.**; *V. (V.) satipo* **sp. nov.**; *V. (V.) bulbosa* **sp. nov.**; *V. (V.) biloba* **sp. nov.**; *V. (V.) aguatico* **sp. nov.**; *V. (V.) amboro* **sp. nov.**; *V. (V.) piracicabae strelnikovi* **subsp. nov.**; *V. (V.) brasiliensis mercadoi* **subsp. nov.**; *V. (V.) diegomendesi* **sp. nov.**; *V. (A.) cusco* **sp. nov.**; *V. (A.) dentata* **sp. nov.**; *V. (A.) abbreviata* **sp. nov.**; *V. (A.) nulla* **sp. nov.**; *V. (A.) appendiculata* **sp. nov.**; *V. (A.) ordinaria* **sp. nov.**; *V. (A.) o. signata* **subsp. nov.**; *V. (A.) decora* **sp. nov.**; *V. (A.) arcuata* **sp. nov.**; *V. (A.) tristis* **sp. nov.**; *V. (A.) barrancoi* **sp. nov.**; *V. (A.) brunneri* **sp. nov.**; *V. (A.) hebardei* **sp. nov.**; *V. (Paraviadana) intermedia* **sp. nov.**; *V. (P.) i. atalaya* **subsp. nov.**; *V. (P.) cercata* **sp. nov.**; *V. (P.) c. cuyabeno* **subsp. nov.**; *V. (P.) napo* **sp. nov.**; *V. (P.?) aenigma* **sp. nov.**; *V. (Proviadana) ornata* **sp. nov.**; *V. (Pr.) lobulata* **sp. nov.**; *V. (Pr.) proxima* **sp. nov.**; *V. (Pr.) illobulata* **sp. nov.**; *V. (Pr.) taediosa* **sp. nov.**; *V. (Pr.) guatemalensis* **sp. nov.**; *T. semilata* **sp. nov.**; *T. s. boliviana* **subsp. nov.**; *T. ucayali* **sp. nov.**; *T. australis* **sp. nov.**; *T. modesta angusta* **subsp. nov.** Lectotype for *V. (A.) difformis* (Brunner-Wattenwyl, 1878) is designated; male of *V. (A.) fruhstorferi* (Brunner-Wattenwyl, 1891) is described for the first time.

Обсуждены два рода американских листовых кузнечиков: *Viadana* Walker, 1869; *Tomeophera* Brunner-Wattenwyl, 1878. Бывшая триба Viadanini рассматривается как подтриба (Viadanina Cadena-Castañeda, 2012, **stat. nov.**), включающая только *Viadana*, *Tomeophera* и два других возможных рода; для рода *Anaulacomera* Stål, 1873 предложена отдельная подтриба (Anaulacomerina Brunner-Warttenwyl, 1878, **stat. nov.**). Род *Ctenophlebia* Stål, 1874, **gen. resurr.** и виды *V. transversa* Walker, 1869, **sp. resurr.**

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и *T. piracicabensis* (Piza, 1971), **sp. resurr.** восстановлены из синонимии с *Viadana*, *C. myrtifolia* (Linnaeus, 1758) и *T. modesta* Brunner-Wattenwyl, 1891 соответственно; два бывших рода включены в род *Viadana* как его подроды *Paraviadana* Piza, 1980, **stat. nov.** и *Proviadana* Hebard, 1933, **stat. nov.**; и *V. griffini* (Giglio-Tos, 1897), **comb. nov.** перенесен в последний род из рода *Tomeophera*. Из Бразилии, Перу, Колумбии, Эквадора, Боливии, Парагвая, Французской Гвианы и Гватемалы описаны следующие новые таксоны (43): *Arcuadana subgen. nov.* (в роде *Viadana*); *V. (V.) hamata sp. nov.*; *V. (V.) semihamata sp. nov.*; *V. (V.) ultrahamata sp. nov.*; *V. (V.) obliqua sp. nov.*; *V. (V.) satipo sp. nov.*; *V. (V.) bulbosa sp. nov.*; *V. (V.) biloba sp. nov.*; *V. (V.) aguarico sp. nov.*; *V. (V.) amboro sp. nov.*; *V. (V.) piracicabae strelnikovi subsp. nov.*; *V. (V.) brasiliensis mercadoi subsp. nov.*; *V. (V.) diegomendesi sp. nov.*; *V. (A.) cusco sp. nov.*; *V. (A.) dentata sp. nov.*; *V. (A.) abbreviata sp. nov.*; *V. (A.) nulla sp. nov.*; *V. (A.) appendiculata sp. nov.*; *V. (A.) ordinaria sp. nov.*; *V. (A.) o. signata subsp. nov.*; *V. (A.) decora sp. nov.*; *V. (A.) arcuata sp. nov.*; *V. (A.) tristis sp. nov.*; *V. (A.) barrancoi sp. nov.*; *V. (A.) brunneri sp. nov.*; *V. (A.) hebardei sp. nov.*; *V. (Paraviadana) intermedia sp. nov.*; *V. (P.) i. atalaya subsp. nov.*; *V. (P.) cercata sp. nov.*; *V. (P.) c. cuyabeno subsp. nov.*; *V. (P.) napo sp. nov.*; *V. (P.?) aenigma sp. nov.*; *V. (Proviadana) ornata sp. nov.*; *V. (Pr.) lobulata sp. nov.*; *V. (Pr.) proxima sp. nov.*; *V. (Pr.) illobulata sp. nov.*; *V. (Pr.) taediosa sp. nov.*; *V. (Pr.) guatemalensis sp. nov.*; *T. semilata sp. nov.*; *T. s. boliviana subsp. nov.*; *T. ucayali sp. nov.*; *T. australis sp. nov.*; *T. modesta angusta subsp. nov.* Обозначен лектотип для *V. (A.) difformis* (Brunner-Wattenwyl, 1878); впервые описан самец *V. (A.) fruhstorferi* (Brunner-Wattenwyl, 1891).

**Key words:** katydids, taxonomy, America, Orthoptera, Tettigoniidae, Phaneropterinae, *Viadana*, *Tomeophera*, new taxa

**Ключевые слова:** кузнечики, таксономия, Америка, Orthoptera, Tettigoniidae, Phaneropterinae, *Viadana*, *Tomeophera*, новые таксоны

## INTRODUCTION

This paper is a further step in the cycle of publications by these coauthors on the American katydids (Gorochov, 1998, 2006, 2012a, b, 2013, 2014a, b, c, 2015; Cadena-Castañeda, 2011, 2012, 2013a, b, 2014a, b, c, 2015a, b, c; Cadena-Castañeda & Gorochov 2012, 2013; Cadena-Castañeda & Garcia, 2014). These communications contain descriptions of numerous new genera, subgenera, species and subspecies from some subfamilies of the family Tettigoniidae. Especially a lot of news has been found in the subfamily Phaneropterinae. Here, two genera of Phaneropterinae belonging to the subtribe Viadanina **stat. nov.** (*Viadana* Walker, 1869 and *Tomeophera* Brunner-Wattenwyl, 1878) are discussed, and for the genus *Anaulacomera* Stål, 1873 previously considered as closely relative to these genera, a separate subtribe (*Anaulacomerina* **stat. nov.**) is proposed.

Specimens studied were mainly collected in tropical forests on leaves of trees and bushes during night work with a flash-lamp, or at light. This material (including types) is deposited at the following institutions: Zoological Institute of the Russian Academy of Sciences, Saint Petersburg (ZIN); Museo de Historia Natural de la Universidad Distrital Francisco José de Caldas, Colección de Entomología y Aracnología, Bogotá, Colombia (MUD); Museo de Historia Natural del Instituto de Ciencias Naturales de la Universidad Nacional de Colombia, Bogotá (ICN); Naturhistorisches Museum Wien, Vienna, Austria (NMW); Facultad de Agronomía de la Universidad Nacional de Colombia, Bogotá (UNAB). The specimens are dry and pinned. The photographs of wings and some other morphological structures were made with Leica M216 and Carl Zeiss 1200 LED stereomicroscopes, and with a Sony α300 camera.

## TAXONOMY

Tribe **PHANEROPTERINI** Burmeister, 1838

The former tribe Viadanini Cadena-Castañeda, 2012 was established for nine genera including *Viadana* Walker, 1869 (type genus) and *Anaulacomera* Stål, 1873 (Cadena-Castañeda 2012). However, in the present we do not see any important characters allow us to distinguish this “tribe” from Phaneropterini. All the characters common for *Viadana* and *Anaulacomera* are also characteristic of *Phaneroptera* (type genus of Phaneropterini); thus, these three genera must be included in one tribe. Moreover for the taxon including *Viadana* and *Anaulacomera* but not *Phaneroptera*, the oldest family group name is Anaulacomerae Brunner-Wattenwyl, 1878; and if we take Cadena-Castañeda’s classification and bring it in accordance to the Code of Zoological Nomenclature (International Commission on Zoological Nomenclature 1999: articles 35 and 36), we should consider “Viadanini” as a junior synonym of Anaulacomerae. There is also another old family group name, Ctenophlebiae Brunner-Wattenwyl, 1878; this name is based on the genus *Ctenophlebia* Stål, 1873 erroneously considered as a synonym of *Viadana* during long time but probably belonging to a different tribe of Phaneropterinae (see note on the genus *Viadana* below).

So, if we shall include *Viadana* and *Anaulacomera* in Phaneropterini, we can see that these genera are not very similar, and that there are some other genera which are more related to each of them: for example, the genus *Tomeoptera* Brunner-Wattenwyl, 1878 and a few other similar genera are closely related to *Viadana*; and some former groups of *Anaulacomera* may be considered as closely related but separate genera. For all these genera, it is reasonable to propose two subtribes: Viadanina Cadena-Castañeda, 2012, **stat. nov.** and Anaulacomerina Brunner-Wattenwyl, 1878, **stat. nov.**

Subtribe **Viadanina** Cadena-Castañeda, 2012

The subtribe Viadanina consists of four genera: *Viadana*; *Tomeoptera*; *Bolivariola* Uvarov, 1939; *Agennis* Brunner-Wattenwyl, 1891. However, *Bolivariola* and *Agennis* are unstudied by us, and we cannot exclude that they may be treated as subgenera of *Viadana* and *Tomeoptera*, respectively. The former genera *Proviadana* Hebard, 1933 and *Paraviadana* Piza, 1980 are here considered as subgenera of *Viadana*.

This subtribe are characterized by the following common characters: pronotum is with the hind lobe moderately short, humeral notches not very narrow, and lateral edges of disc distinctly carinate (Figs 1, 186, 243, 244, 287, 290, 293, 296, 299, 301, 304, 305, 307, 308, 310, 311, 313, 314, 316, 317); tegmina in the both sexes are with a modified *RS* consisting of a few branches independently running from *R+RA* stem (Figs 3–15, 79–90, 152, 155, 157, 159, 160, 163, 188, 189, 191, 193, 195, 197, 243, 287, 290, 294, 300, 319–323, 348, 351, 360), but in Phaneropterina and Anaulacomerina, this *RS* is more primitive, i. e. with branches running from a common stem of *RS*; male genital plate is rather short, weakly narrowing to the apex, without distinct styles (these styles are possibly fused with this plate and forming a pair of rather small and usually angular posterolateral lobules), and with a diverse (but not very deep) posteromedian notch (Figs 33, 35, 38, 41, 44, 47, 122, 124, 126, 129, 132, 134, 136, 140, 143, 146, 166, 170, 174, 199, 205, 211, 216, 221, 226, 247, 271–286, 288, 291, 298, 303, 325, 329, 335, 354, 357); ovipositor is from moderately short to rather long, not very high or comparatively narrow in the profile, distinctly or weakly curved upwards, with the distal part gradually narrowing and having an acute apex, and with very small marginal denticles or almost without them (Figs 50–63, 227, 229, 231, 233, 235, 237, 239, 241, 361).

Genus *Viadana* Walker, 1869

Type species *V. transversa* Walker, 1869, **sp. resurr.** (Brazil: Para), by subsequent designation.

*Note.* This genus was described without designation of its type species and originally included three species: *V. transversa*; *V. binotata* Walker, 1869; *V. digramma* Walker, 1869 (Walker 1869). Later, Kirby (1906) transferred the two latter species in the genus *Phylloptera* Serville, 1831, synonymized *V. transversa* with *Gryllus (Tettigonia) myrtifolius* Linnaeus, 1758, and designated the latter species as type of *Viadana*. However, the same species of Linnaeus was previously designated as type of the genus *Ctenophlebia* Stål, 1874 (Stål 1874). In the latter publication, Stål recorded this species as "*Phylloptera myrtifolia* De Geer", but De Geer (1773) wrote that it is the species described by Linnaeus; transference of this species to the genus *Phylloptera* Serville, 1831 was made by Audinet-Serville (1831), and this opinion is not without reason.

In reality, *V. transversa* and *C. myrtifolia* are two very different species belonging to different genera: in the site on Linnean Collections (Linnean Society Home, 2015) and in the Orthoptera Species Files (Eades et al., 2015), there are the photographs of their holotypes. These photographs clearly show that *C. myrtifolia* has a wide rostrum between the antennal cavities, more or less normal (primitive) structure of the tegminal *RS*, and obtuse ovipositor similar to that of *Microcentrum* Scudder, 1862 (Fig. 49) in the shape; but *V. transversa* strongly differs from it in a very narrow dorsoapical part of the head rostrum, the tegminal *RS* consisting of a few branches independently running from the stock of *R+RA*, and an acute ovipositor (this ovipositor is almost as in Fig. 55). Thus, *Ctenophlebia* and *V. transversa* are here restored from synonymy to *Viadana* and *C. myrtifolia*, respectively (but it is possible that *Ctenophlebia* is a junior synonym of *Microcentrum*, which is habitually similar to representatives of *Phylloptera*); and only *V. transversa*, one

of the three species originally included in *Viadana*, must be considered as type species of this genus.

The genus *Viadana* includes 59 species characterized by the following characters: head rostrum is narrow (scape 3–4 times as wide as distance between antennal cavities); anterior part of its upper tubercle is narrow and rather short (not projected forwards in relation to its lower tubercle), almost vertically lamellar, usually lacking dorsal sulcus and roundly angular in the profile; rest part of this tubercle is moderately widened, often slightly and roundly raised, and with a more or less distinct median groove on the dorsal surface (Figs 2, 151, 154, 156, 162, 186, 347, 350); pronotum has rather short lateral lobes (from slightly shorter to barely longer than their height; Figs 1, 243, 287, 290, 296, 301); tegmina are diverse in the shape, with the branches of *Sc* and *RS* more or less transverse or oblique but not clearly or almost longitudinal, and with *MA* arcuate (not almost straight and not clearly longitudinal) and moderately long or short (Figs 3–15, 79–90, 152, 155, 157, 159, 160, 163, 188, 189, 191, 193, 195, 348, 351) (in *Viadana*, the latter vein is finished in middle or proximal thirds of tegmen; in *Bolivariola*, in proximal third only; and in *Tomeophera*, in distal third).

These species form four groups clearly different from each other in the shape of tegmina and structure of their *Sc* branches. Male cerci in these species are rather diverse, but they have similar variants in different groups which may be the result of a parallel evolution usual in close related groups. These four groups are here treated as subgenera; their differences are given in a key to subgenera of the genus *Viadana*.

1. Tegmina from moderately to strongly widened, with almost straight or weakly arcuate costal edge in region of bases of *RS* branches, and with main branches of *Sc* almost parallel to branches of *RS* (Figs 3–14) ..... subgenus *Viadana* s. str. [Included species: type species of genus; *Ctenophlebia brasiliensis* Brunner-Wat-

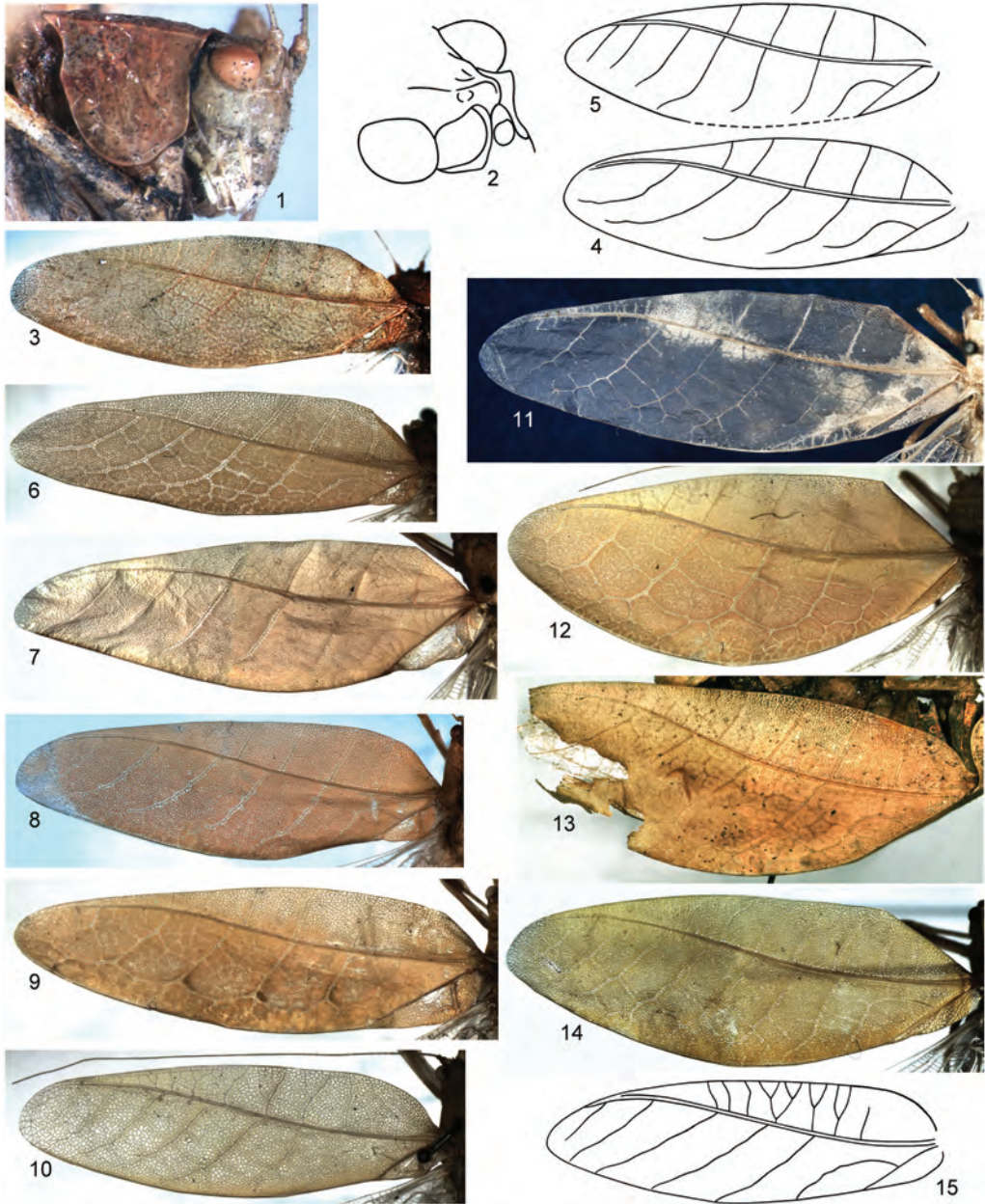


- tenwyl, 1878 (Brazil); *C. lobata* Brunner-Wattenwyl, 1878 (Peru); *C. curvicercata* Brunner-Wattenwyl, 1891 (Peru); *C. festae* Giglio-Tos, 1898 (Ecuador); *V. piracicabae* Piza, 1969 (Southern Brazil); *V. delicatula* Piza, 1976 (Northern Brazil); *V. (V.) hamata* **sp. nov.**; *V. (V.) semihamata* **sp. nov.**; *V. (V.) ultrahamata* **sp. nov.**; *V. (V.) obliqua* **sp. nov.**; *V. (V.) satipo* **sp. nov.**; *V. (V.) bulbosa* **sp. nov.**; *V. (V.) biloba* **sp. nov.**; *V. (V.) aguarico* **sp. nov.**; *V. (V.) amboro* **sp. nov.**; *V. (V.) digomendesi* **sp. nov.**]
- Tegmina diverse (from strongly widened to rather narrow); tegminal costal edge strongly arcuate in region of base of distal *RS* branch, and/or main branches of tegminal *Sc* not parallel to branches of *RS* (Figs 15, 79–90, 152, 155, 157, 159, 160, 163, 188, 189, 191, 193, 195, 197) . . . . . 2
2. Tegmina from strongly to moderately widened, with costal edge strongly arcuate in region of base of distal *RS* branch, and with rather diverse position of main branches of *Sc* (Figs 79–90) . . . . . subgenus ***Arcuadana*** Gorochov et Cadena-Castañeda, **subgen. nov.** [Etymology: from “arcuata” (arcuate in Latin) and *Viadana*. Included species: type species – *V. (A.) decora* **sp. nov.**; *Phylloptera zetterstedti* Stål, 1861 (Peru); *Ctenophlebia difformis* Brunner-Wattenwyl, 1878 (Ecuador); *C. multiramosa* Brunner-Wattenwyl, 1878 (Northern Brazil); *C. peruviana* Brunner-Wattenwyl, 1878 (Peru); *C. fruhstorferi* Brunner-Wattenwyl, 1891 (Southern Brazil); *C. longicercata* Brunner-Wattenwyl, 1891 (Peru); *C. rhombipholia* Brunner-Wattenwyl, 1891 (Peru); *Tomeo-phaera griffini* Giglio-Tos, 1897 (Bolivia); *C. azteca* Saussure et Pictet, 1898 (Central America); *C. foreli* Saussure et Pictet, 1898 (Colombia); *V. boyacae* Hebard, 1927 (Colombia); *V. boraceae* Piza, 1969 (São Paulo in Brazil); *V. quadriramosa* Piza, 1969 (Southern Brazil); *V. stephanyae* Cadena-Castañeda, 2012; *V. rowelli* Barranco, 2013; *V. (A.) cusco* **sp. nov.**; *V. (A.) dentata* **sp. nov.**; *V. (A.) abbreviata* **sp. nov.**; *V. (A.) nulla* **sp. nov.**; *V. (A.) appendiculata* **sp. nov.**; *V. (A.) ordinaria* **sp. nov.**; *V. (A.) arcuata* **sp. nov.**; *V. (A.) tristis* **sp. nov.**; *V. (A.) barrancoi* **sp. nov.**; *V. (A.) brunneri* **sp. nov.**; *V. (A.) hebardei* **sp. nov.**]
- Tegmina moderately widened or rather narrow, with costal edge almost straight or weakly arcuate in region of bases of *RS* branches, and with main branches of *Sc* not parallel to branches of *RS* (Figs 15, 152, 155, 157, 159, 160, 163, 188, 189, 191, 193, 195, 197) . . . . . 3
3. Tegmina moderately widened, with anal edge distinctly arcuate (Figs 15, 152, 155, 157, 159, 160, 163) . . . . . subgenus ***Paraviadana*** Piza, 1980, **stat. nov.** [Included species: type species – *Paraviadana septentrionalis* Piza, 1980 (Northern Brazil), by original designation; *Ctenophlebia inversa* Brunner-Wattenwyl, 1878 (Peru); *V. (P.) intermedia* **sp. nov.**; *V. (P.) cercata* **sp. nov.**; *V. (P.) napo* **sp. nov.**; possibly *C. styliformis* Brunner-Wattenwyl, 1891 (Peru), *C. altera* Brunner-Wattenwyl, 1891 (Peru) and *V. (P.?) aenigma* **sp. nov.**]
- Tegmina rather narrow, with anal edge almost straight in most part of its length (Figs 188, 189, 191, 193, 195, 197) . . . . . subgenus ***Proviadana*** Hebard, 1933, **stat. nov.** [Included species: type species – *Proviadana lita* Hebard, 1933 (Colombia), by original designation; *P. paralita* Marquez, 1965 (Mexico); *V. (P.) ornata* **sp. nov.**; *V. (P.) lobulata* **sp. nov.**; *V. (P.) proxima* **sp. nov.**; *V. (P.) illobulata* **sp. nov.**; *V. (P.) taediosa* **sp. nov.**; *V. (P.) guatemalensis* **sp. nov.**]
- We cannot exclude also that two species placed now in the genus *Grammadera* Brunner-Wattenwyl, 1878 (*G. janeirensis* Bruner, 1915 from Brasil and *G. forcipata* Rehn, 1907 from Paraguay) may belong to *Proviadana*, because they have the tegminal shape as in this subgenus and *RS* structure possibly as in *Viadana* s. l., but the other representatives of *Grammadera* (including its type species) have a more primitive structure of the tegminal *RS*.

***Viadana (Viadana) hamata* Gorochov, **sp. nov.****  
(Figs 1–4, 16, 17, 31–33)

*Material. Holotype* – male; **Brazil**, “*Ctenophlebia* sp.? Bras.” (ZIN).

*Description.* Male (holotype). Body medium-sized for this subgenus. Colouration (in dry specimen) greyish green with light brown eyes and pronotum, yellowish most part of antennae (except scapes)



**Figs 1–15.** *Viadana*: 1–4 – *V. (Viadana) hamata* sp. nov.; 5 – *V. (V.) transversa* Walk.; 6 – *V. (V.) semihamata* sp. nov.; 7 – *V. (V.) obliqua* sp. nov.; 8 – *V. (V.) satipo* sp. nov.; 9 – *V. (V.) bulbosa* sp. nov.; 10 – *V. (V.) biloba* sp. nov.; 11 – *V. (V.) aguarico* sp. nov.; 12 – *V. (V.) amboro* sp. nov.; 13 – *V. (V.) piracicabae strelnikovi* subsp. nov.; 14 – *V. (V.) brasiliensis mercadoi* subsp. nov.; 15 – *V. (Paraviadana) intermedia* sp. nov. Head and pronotum from from side (1); head rostrum from side and slightly from above (2); left tegmen in male (3, 4, 6, 8–10, 15) and in female (11–14); right tegmen (reversed) in female (5) and in male (7). [4, 5, 15, schematic picture with some main veins only; 5, after photograph in Eades et al. (2015).]

and abdominal sternites, brownish tinge of most part of tegmina, yellowish tinge on thickened distal part of costal lobe in hind wings, transparent membranes in stridulatory apparatus of right tegmen and in cells of rest part of hind wings, and greyish yellow pterothoracic pleurites and abdominal tergites (except last tergite). Upper rostral tubercle rectangular in profile (but with somewhat rounded apex), with anterior part almost lamellar and situated in vertical plane, with rest part gradually widening and having almost keel-like dorsolateral edges, and with small median concavity on dorsal surface between lateral ocelli; lower rostral tubercle located before upper one and contacting with it, distinctly less projected upwards than upper tubercle, clearly narrowing upwards, with roundly angular apex and rather large median ocellus near this apex; lateral ocelli smaller and less distinct than median one (Figs 1, 2); scape approximately twice as wide as space between antennal cavities. Pronotum rather high, with elongate flat disc having somewhat concave anterior edge and strongly convex posterior edge, with distinct but very low keels along lateral edges of this disc (Fig. 1), with rather short hind lobe separated from lateral lobes by distinct (but not deep) rounded humeral notches; lateral lobes 1.1 times as high as long. Shape of tegmina as in Fig. 3; largest tegminal veins as in Fig. 4; dorsal field in left tegmen rather small (not long and not wide), with thick and rather short (transverse) stridulatory vein, with distinctly narrower and arcuate chord running from medial part of stridulatory vein to anal tegminal edge, and with rest part occupied by rather dense net from thin cross-veins; dorsal field in right tegmen similar to that in left one but with stridulatory vein much thinner, plectrum and mirror developed, mirror almost twice as long as wide and completely membranous (its marginal veins partly obliterate), and cell between mirror and *CuA1* also membranous; hind wings distinctly longer than tegmina, with distal part as in Fig. 16. Last abdominal

tergite moderately short, with wide and rather shallow posteromedian notch, and with small spine-like median process situated in deepest part of this notch (Figs 31, 32); epiproct not very large, more or less triangular; cercus not long, with proximal half almost cylindrical but slightly thinner near cercal middle, and with dorsoventrally flattened distal half which strongly turned medially and having slightly convex lateral edge and acute apex (this cercal half almost lancet-like; Figs 31, 33); genital plate almost as long as wide, distally narrowing, and with almost angular but rather wide and very shallow posteromedian notch (posterolateral lobules of this plate also angular; Fig. 33); genitalia completely membranous (Fig. 17).

Female unknown.

Length (mm). Body 16; body with wings 28; pronotum 4; tegmen 21; hind femur 12.

*Comparison.* The new species is similar to *V. transversa* and *V. brasiliensis* in the general appearance but distinguished from them by less numerous and more oblique (less transverse) branches of the tegminal *RS* (for comparison see Figs 4 and 5). From *V. delicatula* and *V. curvicercata*, the new species differs in the male cercus shorter and more strongly curved, as well as its distal half wider (lancet-like); from *V. festae*, *V. altera* and *V. styliiformis*, in the male cercus not chela-like and lacking two or three acute denticles at the apex; and from *V. piracicabae* and *V. lobata*, in clearly narrower tegmina.

*Etymology.* This species name is the Latin word “hamata” (hooked), due to the male cerci strongly hook-like.

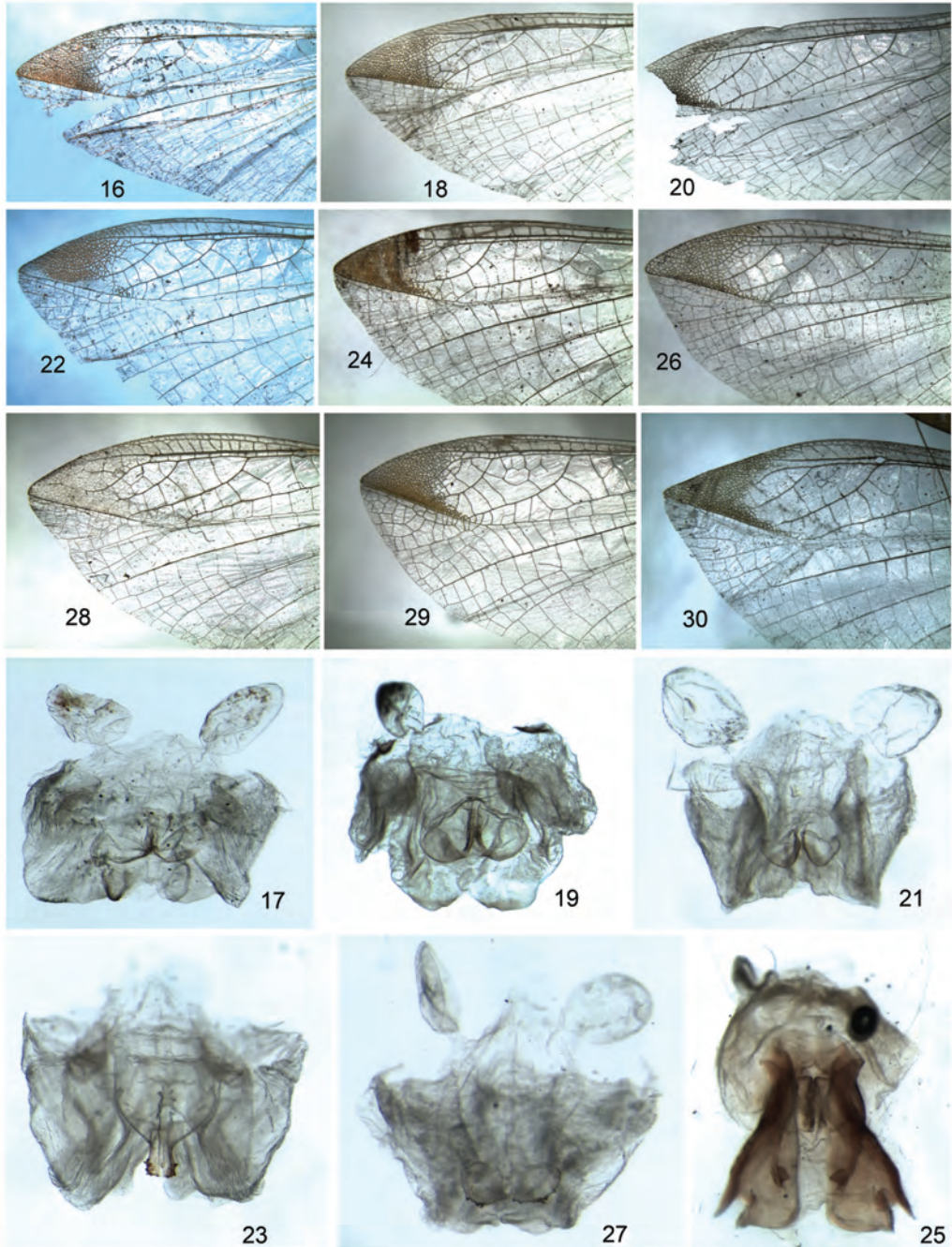
### *Viadana (Viadana) semihamata*

Gorochov, *sp. nov.*

(Figs 6, 18, 19, 34–36, 53, 66)

*Material.* *Holotype* – male; **Peru**, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva,





**Figs 16–30.** *Viadana* (*Viadana*): 16, 17 – *V. hamata* sp. nov.; 18, 19 – *V. semihamata* sp. nov.; 20, 21 – *V. obliqua* sp. nov.; 22, 23 – *V. satipo* sp. nov.; 24, 25 – *V. bulbosa* sp. nov.; 26, 27 – *V. biloba* sp. nov. 28 – *V. aguarico* sp. nov.; 29 – *V. amboro* sp. nov.; 30 – *V. brasiliensis mercadoi* subsp. nov. Distal part of hind wing (16, 18, 20, 22, 24, 26, 28–30); male genitalia from above (17, 19, 21, 23, 25, 27).



V. Izersky (ZIN). *Paratypes*: 1 female, same data as for holotype (ZIN); 1 male, same country, Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., ~1200 m, partly primary / partly secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN).

*Description*. Male (holotype). Body size almost as in *V. hamata*. Colouration in dry specimen yellowish (yellowish green in living specimen) with transparent areas as in above-mentioned species and with slightly darker (brownish yellow) pronotal disc and anal half of tegmina. Structure of body also similar to that of *V. hamata* but with following differences: wings (Figs 6, 18) with tegmina having barely narrower distal half, slightly narrower apical part and somewhat shorter dorsal field; last abdominal tergite with distinctly deeper posteromedian notch and without spine-like process in deepest part of this notch; cercus less strongly curved, with longer proximal part between cercal base and place of curvature, with weak inflation of this part near cercal base (this inflation most convex medially), and with narrower distal part (Figs 34–36); genital plate with slightly wider apical part and more rounded posteromedian notch (Fig. 35); genitalia with a pair of weak and very narrow semisclerotized ribbons in middle part (Fig. 19).

Variations. Paratype (male) with light reddish brown pronotal disc and with weak (but more distinct than in holotype) longitudinal groove on laterodorsal surface of distal cercal part.

Female. General appearance as in holotype, but dorsal field of left tegmen with dense net from thin crossveins and one slightly thicker vein running obliquely in middle part of this field, dorsal field of right tegmen distinguished from that of left tegmen by row of rather large cells with transparent membranes along anal edge, and last abdominal tergite as well as epiproct and cerci unspecialized; genital plate with spine-like posterolateral projections directed backwards (Fig. 66); ovipositor short,

strongly curved upwards, with gonangulum divided into two parts by oblique groove, and with small denticles along ventral edge of distal half (Fig. 53).

Length (mm). Body: male 13.5–14.5, female 15; body with wings: male 29–30, female 32; pronotum: male 3.5–3.7, female 4.2; tegmina: male 22–23, female 26; hind femur: male 11.5–12, female 13.5; ovipositor 4.8.

*Comparison*. The new species is most similar to *V. hamata* but distinguished from it by the characters listed above, in the description. From *V. curvicercata*, the new species differs in the male cerci not curved upwards; from *V. delicatula*, in the male cerci more angularly curved (not arcuate); and from all the other true and possible species of this subgenus, in the same features as *V. hamata*. The female genital plate in *V. semihamata* is very similar to that of the female from French Guiana erroneously determined by Brunner-Watenwyl as “*Ctenophlebia myrtifolia* L.” (Eades et al., 2015), but these plates are somewhat different because their posterolateral spines directed backwards in *V. semihamata* and almost upwards in the latter female.

*Etymology*. This species name originates from the Latin prefix “semi-” (half, partly) and the species name *V. hamata*.

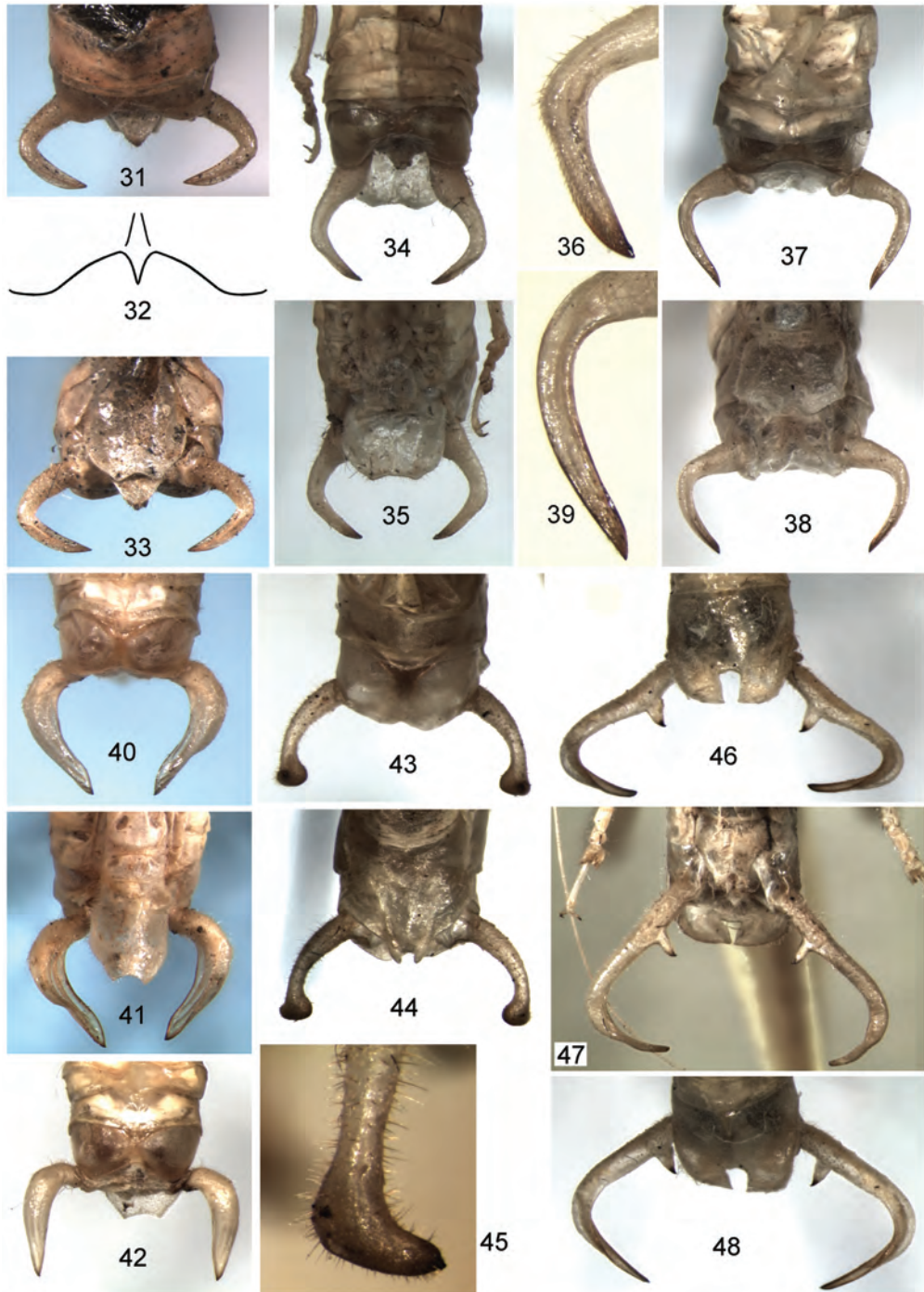
### *Viadana (Viadana) obliqua*

Gorochov, *sp. nov.*

(Figs 7, 20, 21, 37–39)

*Material*. *Holotype* – male; **Peru**, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN).

*Description*. Male (holotype). General appearance and genitalia similar to those of *V. semihamata* but with following differences: colouration in dry specimen uniformly yellowish (however, transparent areas as in this species and *V. hamata*); wings (apical part of hind wings missing; Fig. 20) with



**Figs 31–48.** *Viadana* (*Viadana*), male: 31–33 – *V. hamata* sp. nov.; 34–36 – *V. semihamata* sp. nov.; 37–39 – *V. obliqua* sp. nov.; 40–42 – *V. satipo* sp. nov.; 43–45 – *V. bulbosa* sp. nov.; 46–48 – *V. biloba* sp. nov. Abdominal apex from above (31, 34, 37, 40, 42, 43, 46), from below (33, 35, 38, 41, 44, 47), and from above and slightly in front (48); posteromedian part of last tergite from above and slightly from behind (32); distal half of cercus from above (36, 39) and from side (45).

tegmina (Fig. 7) having distal half more obliquely cut in anal part, slightly narrower apical part, distinctly longer dorsal field (this field is also somewhat longer than in *V. hamata*), more transverse distal half of *MA* and proximal halves of *RS* branches, as well as more numerous latter branches (5 distinct branches instead 4 ones); last abdominal tergite with barely less deep posteromedian notch (however, this notch clearly deeper than in *V. hamata*); cercus (Figs 37, 39) with proximal part (from base to place of cercal curvature) as in *V. hamata* in length and intermediate between *V. hamata* and *V. semihamata* in shape, with distal part (from place of cercal curvature to apex) longer than in these species and having distinct but not deep longitudinal groove on dorsal surface, and with acute apex directed slightly laterally (in *V. hamata* and *V. semihamata*, it directed slightly medially); genital plate with clearly narrower and somewhat deeper posteromedian notch as well as with slightly more projected posterolateral corners (Fig. 38); genitalia also intermediate between those of *V. hamata* and *V. semihamata*, with barely visible semisclerotized ribbons which somewhat smaller than in *V. semihamata* (Fig. 21).

Female unknown.

Length (mm). Body 16; body with wings 32 (?); pronotum 3.7; tegmen 25; hind femur 12.5.

*Comparison.* The new species is distinguished from *V. hamata* and *V. semihamata* by the tegminal distal half more obliquely cut in the anal part, more transverse and more numerous *RS* branches in the tegmina, and the other characters listed above. From *V. transversa*, the new species differs in less numerous *RS* branches of the tegmina (5 instead 6) and distinctly wider (longer) areas between these branches in the distal tegminal part; from *V. lobata* and *V. brasiliensis*, in narrower tegmina; from *V. piracicabae*, in more transverse *RS* branches of the tegmina; from *V. curvicercata*, *V. delicatula*, *V. festa*, *V. altera* and *V. styliiformis*, in the male cercus not curved upwards, almost an-

gularly (not arcuately) curved in the horizontal plane, lacking 2 or 3 denticles at the apex, and not chela-like (non-bifurcate).

*Etymology.* This species name is the Latin word "obliqua" (oblique), due to the distal tegminal half obliquely cut.

### *Viadana (Viadana) ultrahamata*

Gorochov, *sp. nov.*

(Figs 346, 350–352, 356–358)

*Material.* Holotype – male; Colombia, "Rio Coquetá [= Caquetá], Columbia, A.S. Woronov, VII.26" (ZIN).

*Description.* Male (holotype). General appearance similar to that of *V. hamata* and *V. semihamata* but with following characteristic features: colouration yellowish with light green tegmina, greenish tinge on rest of body, dark brown eyes, and transparent areas in wings as in above-mentioned representatives; upper rostral tubercle with posterior half somewhat higher than lamellar anterior half and with a pair of small inflations (instead keel-like edges) above lateral ocelli (Fig. 350); lateral ocellus distinct and barely smaller than median ocellus; space between lateral ocellus and antennal cavity with low oblique keel running from anterior half of upper rostral tubercle to eye (Fig. 350); shape of tegmina more or less intermediate between those of *V. hamata* and *V. semihamata* (tegminal venation practically indistinguishable from that of these species; Fig. 351); hind wings with barely narrower distal part of costal lobe and with slightly more arcuate costal edge of this part (Fig. 352); last abdominal tergite with rather deep and angular posteromedian notch (most part of this notch filled with wide and almost round epiproct having small rounded apical lobule; Fig. 356); cercus longer than in these species and in *V. obliqua*, rather thin (without distinct proximal inflation) and very strongly but almost arcuately curved (its spine-like distal part directed anteromedially and somewhat dorsally; Figs 356, 358); genital plate more similar to that of *V. hamata* (i. e. with some-



what deeper posteromedian notch than in *V. semihamata* and *V. obliqua*) but slightly more elongate in distal part (Fig. 357); genitalia most similar to those of *V. semihamata* (for comparison see Figs 19 and 346).

Female unknown.

Length (mm). Body 14.7; body with wings 32; pronotum 4; tegmen 24.5; hind femur 13.5.

**Comparison.** The new species differs from *V. semihamata* and *V. hamata* in longer and more strongly curved male cerci, from *V. obliqua* in the apical part of these cerci directed medially (not somewhat laterally), and from *V. curvicerca* in the distal tegminal part narrower and with more longitudinal *RS* branches as well as somewhat more strongly curved male cerci. From all the other known species of *Viadana* s. str., *V. ultrahamata* is distinguished by characteristic shape and venation of the tegmina in combination with the above-named characters of male cerci and male genital plate.

**Etymology.** This name originates from the Latin words “ultra” (more) and “hamata” (hooked).

### *Viadana (Viadana) satipo*

Gorochov, **sp. nov.**

(Figs 8, 22, 23, 40–42)

**Material.** *Holotype* – male; **Peru**, Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., ~1200 m, partly primary / partly secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN). *Paratypes*: 2 males; same data as for holotype (ZIN).

**Description.** Male (holotype). General appearance and genitalia more or less similar to those of *V. obliqua* but with following characteristic features: tegmina with brownish yellow tinge on anal half of lateral field; wings (Figs 8, 22) with tegminal shape (including shape of *RS* branches and of *MA*) almost as in *V. semihamata* and with dorsal tegminal field clearly shorter than in *V. obliqua* (this field intermediate between those of *V. hamata* and *V. semihamata* in

length); last abdominal tergite with narrower and angularly rounded posteromedian notch; cercus with clearly shorter and slightly thicker proximal part, with distinctly widened and strongly (but more arcuately than angularly) curved middle part, and with moderately long and almost straight distal part which somewhat less widened and having acute apex (ventral surface of cercus with three deep longitudinal grooves; Figs 40, 41); genital plate intermediate between those of *V. hamata* and *V. semihamata* (Fig. 41); genitalia with a pair of small semimembranous lobules having very small lateral denticles in distal half of these lobules (Fig. 23).

**Variations.** Cercus sometimes with slightly wider distal part which more gradually narrowing to apex (Figs 42); semimembranous lobules in genitalia slightly varied in width.

Female unknown.

Length (mm). Body 15–17; body with wings 28–30; pronotum 3.6–3.8; tegmen 22–23; hind femur 12–13.

**Comparison.** The new species differs from *V. transversa* in less transverse branches of the tegminal *RS*; from *V. lobata*, *V. brasiliensis* and *V. piracicabae*, in narrower tegmina; and from all the other species of this subgenus, in thickened, non-bifurcate and nondenticulate male cerci having three deep longitudinal grooves on the ventral surface.

**Etymology.** This species is named after the Satipo Province of Peru.

### *Viadana (Viadana) bulbosa*

Gorochov, **sp. nov.**

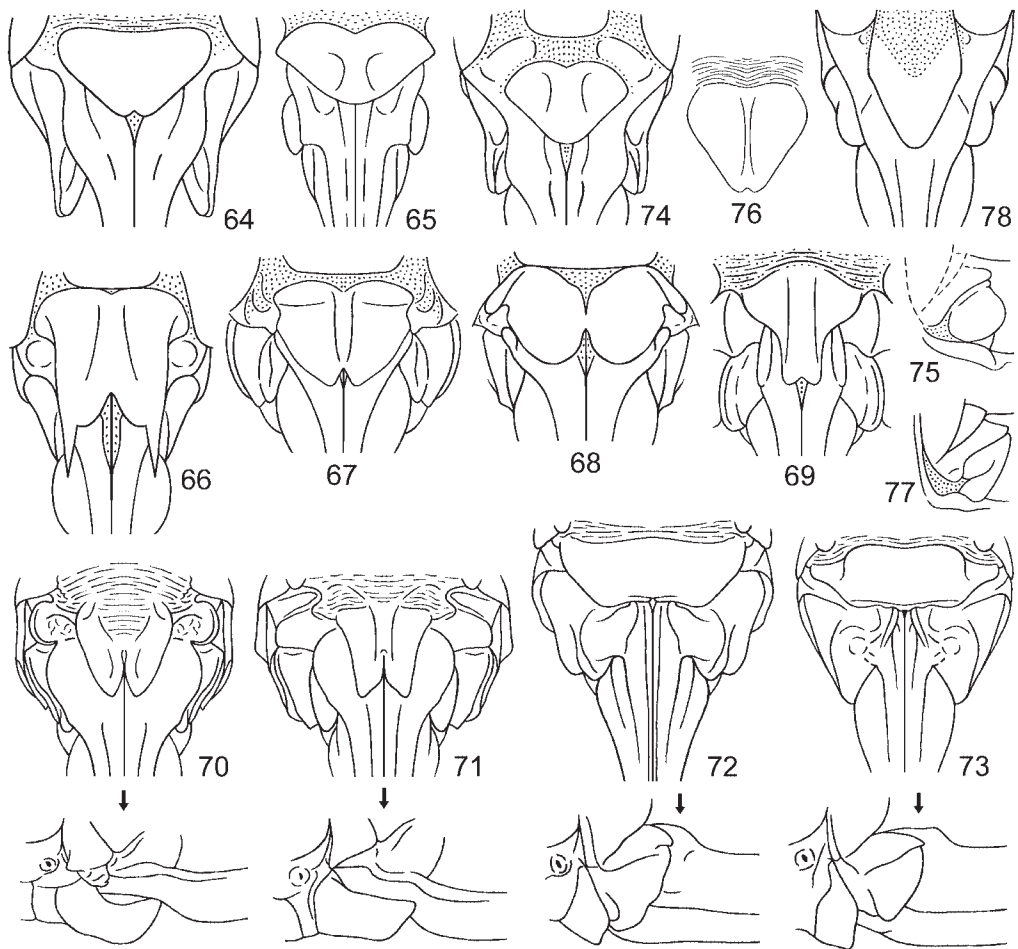
(Figs 9, 24, 25, 43–45)

**Material.** *Holotype* – male; **Peru**, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN).

**Description.** Male (holotype). Size, colouration and structure of body similar to those of *V. obliqua*, but head behind eyes



**Figs 49–63.** Ovipositor from side: 49 – *Microcentrum* sp.; 50 – *Viadana (Arcuadana) ordinaria signata* subsp. nov.; 51 – *V. (A.) decora* sp. nov.; 52 – *V. (A.) tristis* sp. nov.; 53 – *V. (Viadana) semiharmata* sp. nov.; 54 – *V. (V.) aguarico* sp. nov.; 55 – *V. (V.) amoro* sp. nov.; 56 – *V. (V.) piracicabae strelnikovi* subsp. nov.; 57 – *V. (V.) brasiliensis mercadoi* subsp. nov.; 58 – *V. (Paraviadana) intermedia* sp. nov.; 59 – *V. (P.) i. atalaya* subsp. nov.; 60 – *V. (P.) cercata* sp. nov.; 61 – *V. (P.) c. cuyabeno* subsp. nov.; 62 – *V. (P.?) aenigma* sp. nov.; 63 – *V. (A.) nulla* sp. nov.



**Figs 64–78.** *Viadana*, female: 64 – *V. (Arcuadana) decora* sp. nov.; 65 – *V. (A.) tristis* sp. nov.; 66 – *V. (Viadana) semihamata* sp. nov.; 67 – *V. (V.) aguarico* sp. nov.; 68 – *V. (V.) amboro* sp. nov.; 69 – *V. (V.) brasiliensis mercadoi* subsp. nov.; 70 – *V. (Paraviadana) intermedia* sp. nov.; 71 – *V. (P.) i. atalaya* subsp. nov.; 72 – *V. (P.) cercata* sp. nov.; 73 – *V. (P.) c. cuyabeno* subsp. nov.; 74 – *V. (A.) ordinaria signata* subsp. nov.; 75 – *V. (A.) tristis*; 76, 77 – *V. (A.) nulla* sp. nov.; 78 – *V. (P.?) aenigma* sp. nov. Genital plate and region of ovipositor base from below (64–69, 74, 78); same structures from below and from side, but without upper parts of this region in lateral view (70–73); ovipositor gonangulum from side (75, 77); genital plate from below (76).

with a pair of distinct narrow lighter stripes, upper tubercle of rostrum in profile with anterior (narrow) part separated from rest part by shallow but distinct dorsal concavity, general shape of tegmina (except length of dorsal field) more similar to that of *V. hamata* and *V. semihamata* but with apical part narrower than in *V. hamata* and less oblique than in *V. semihamata*, branches of tegminal *RS* connected with each other by row of

long and thickened crossveins not far from anal edge of tegmina (Fig. 9), hind wing with larger area between proximal halves of longest *RS* branches than in all previous species described here (Fig. 24), last tergite with a pair of not large posterior angular lobes situated between cercal bases and having rounded apices and not deep roundly angular notch between them, cercus arcuate and with medially inflated subapical part as



well as with apical process curved upwards (from lateral part of subapical inflation) and having small denticle at apex (Figs 43–45), and genital plate with distal part narrower than in all previous species described here as well as with almost spine-like posterolateral corners and narrow and rather deep notch between them (Fig. 44). Genitalia with a pair of large semisclerotized plates having a few characteristic processes and with a pair of smaller semisclerotized ribbons between these plates (Fig. 25).

Female unknown.

Length (mm). Body 16.5; body with wings 32; pronotum 4.3; tegmen 25; hind femur 12.

*Comparison.* The new species differs from *V. transversa* in more oblique and less numerous branches of the tegminal *RS*; from *V. lobata*, *V. brasiliensis* and *V. piracicabae*, in narrower tegmina; and from all the other species of this subgenus, in a characteristic structure of the male cercal distal part.

*Etymology.* The species name is the Latin word “bulbosa” (bulb-like) indicating the inflated subapical cercal part.

### *Viadana (Viadana) biloba*

Gorochov, *sp. nov.*

(Figs 10, 26, 27, 46–48)

*Material.* *Holotype* – male; **Ecuador**, Morona Santiago Prov., bank of Rio Morona near border with Peru, environs of Puerto Morona Vill., ~300 m, primary forest, at light, 5–15 January 2010, A. Gorochov (ZIN). *Paratypes*: 5 males, same data as for holotype (ZIN); 1 male; **Peru**, Aguaytia, Pampa Yurac, La Choza, 21–24 February 2006, N. Kluge (ZIN).

*Description.* Male (holotype). General appearance more or less as in all previous species described here but with following characteristic features: colouration yellowish with greenish tinge, reddish marks on base of pedicel and near ventral edge of lateral ocellus, red narrow longitudinal stripe behind each eye, and transparent areas in wings as in these previous species; upper rostral tubercle without dorsal concavity in profile; lateral ocelli distinct and larger

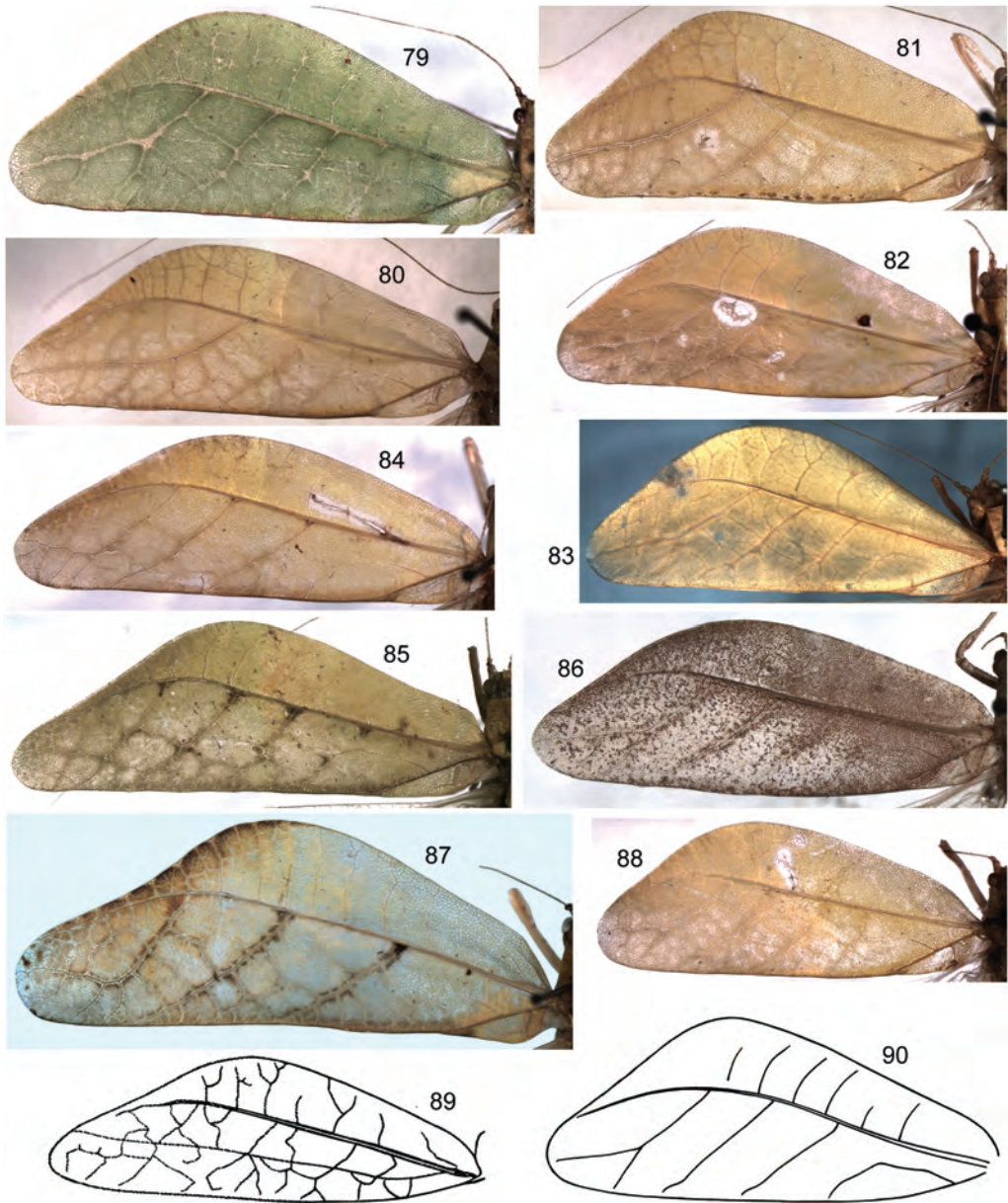
(more or less as median ocellus in size); tegmina almost as in *V. hamata* in general shape and as in *V. semihamata* in size of dorsal field, with less distinctly oblique main branches of *Sc*, and with 6 oblique branches of *RS* (Fig. 10); hind wing with area between longest *RS* branches approximately as in *V. hamata*, *V. semihamata*, *V. obliqua* and *V. satipo* (Fig. 26); last tergite with a pair of rather large posterior lobes having rounded posterolateral edge, straight medial edge, acute corner between these edges, and almost rectangular but deep and rather narrow notch between these lobes (Fig. 46); cercus long, rather thin, strongly and arcuately curved upwards and medially, with strong but short medial tooth near cercal base, and with straight and long (spine-like) distal part which somewhat twisted and having deep longitudinal groove running from medial surface to dorsal one (Figs 46–48); genital plate with distal part almost as in *V. bulbosa* but with less narrow and barely shorter posterolateral corners as well as slightly less deep and somewhat wider posteromedian notch (Fig. 47). Genitalia distinguished from those of *V. satipo* by larger and more membranous paired lobules similar to those of *V. hamata*, *V. semihamata* and *V. obliqua* but having small denticles on their posterior edge only (Fig. 27).

*Variations.* Red and reddish marks sometimes weak or almost absent; branches of tegminal *RS* slightly varied in number (from 5 to 7); length of tegminal *MA* also somewhat varied.

Female unknown.

Length (mm). Body 17–19; body with wings 29–32; pronotum 3.6–3.9; tegmen 21–23; hind femur 12–14.

*Comparison.* The new species differs from *V. transversa*, *V. lobata*, *V. brasiliensis* and *V. piracicabae* in the same characters as *V. bulbosa*; from *V. curvicercata* having similar male cerci, in the presence of a strong proximodorsal tooth on each cercus; and from all the other species of this subgenus, in the presence of large lobes on the last male tergite as well as in the male cercal shape (with



**Figs 79–90.** *Viadana* (*Arcuadana*), left tegmen in male: 79 – *V. cusco* sp. nov.; 80 – *V. dentata* sp. nov.; 81 – *V. nulla* sp. nov.; 82, 83 – *V. appendiculata* sp. nov.; 84 – *V. ordinaria* sp. nov.; 85 – *V. o. signata* subsp. nov.; 86 – *V. tristis* sp. nov.; 87 – *V. decora* sp. nov.; 88 – *V. abbreviata* sp. nov.; 89 – *V. arcuata* sp. nov.; 90 – *V. difformis* (Br.-W.). [89, after Cadena-Castañeda (2012); 90, after photograph in Eades et al. (2015).]

a proximal tooth, twisted and spine-like distal part, and deep longitudinal groove on this part).

**Etymology.** This species name is the Latin word “biloba” (with two lobes) indicating the presence of a pair of large lobes on the male last tergite.

### ***Viadana (Viadana) aguarico***

Gorochov, **sp. nov.**

(Figs 11, 28, 54, 67)

**Material.** *Holotype* – female; **Ecuador**, eastern part, ~70 km SE of Lago Agrio Town, environs of San Pablo de Kantesiya Vill. on Rio Aguatico, lowlying primary forest, on leaf of tree at night, 10–17 November 2005, A. Gorochov, A. Ovtshinnikov (ZIN).

**Description.** Female (holotype). General appearance similar to that of all previous species described here but with following characteristic features: colouration yellowish with transparent areas in wings (these areas as in above-mentioned congeners); rostrum of head and structure of *RS* branches in wings (Figs 11, 28) almost as in *V. biloba*, but lateral ocelli smaller than median ocellus and less distinct; general shape of tegmina more similar to that of *V. bulbosa* but with rather numerous and not thickened long crossveins as well as with dorsal field probably smaller, similar to that of female of *V. semihamata* in structure (Fig. 11); abdominal apex also similar to that of this female, but genital plate shorter, almost triangular, with narrow and moderately deep posteromedian notch, and without apical spines (Fig. 67); ovipositor short, moderately curved upwards, and having distinct longitudinal ridge in place where gonangulum contacting with ventral edge of ninth tergite (Figs 54, 67).

Male unknown.

Length (mm). Body 16.5; body with wings 33; pronotum 4.2; tegmen 26; hind femur 13.5; ovipositor 5.

**Comparison.** The new species differs from *V. transversa* in less transverse branches of the tegminal *RS*, a smaller female genital plate, and longer ovipositor; from

*V. lobata*, *V. brasiliensis* and *V. piracicabae*, in narrower tegmina and some other characters (smaller female genital plate, from *V. lobata*; more curved ovipositor, from *V. brasiliensis* and *V. piracicabae*); from *V. delicatula*, *V. hamata* and *V. semihamata*, in more numerous branches of the tegminal *RS* and (from *V. semihamata* only) in a different shape of the female genital plate; from *V. obliqua*, in a less oblique anal edge of the tegmina; from *V. satipo* and *V. ultrahamata*, in the presence of rather numerous and distinct long crossveins in the tegmina, as well as in a narrower costal tegminal area in relation to the rest tegminal part; from *V. bulbosa*, in less thickened long crossveins near the anal tegminal edge and a smaller area between two longest *RS* branches of the hind wings; from *V. festa* and *V. biloba*, in more distinctly oblique main branches of the tegminal *Sc* and (from *V. biloba* only) in smaller lateral ocelli; and from *V. curvicerata*, in clearly wider areas between main branches of the tegminal *Sc*. Differences of *V. aguarico* from *V. altera* and *V. styliiformis* are not very clear, because the first species is known from a single female collected in the central part of Ecuador, but the latter congeners are briefly described from Peruvian males only.

**Etymology.** This species is named after the Aguatico River.

### ***Viadana (Viadana) amboro***

Gorochov, **sp. nov.**

(Figs 12, 29, 55, 68)

**Material.** *Holotype* – female; **Bolivia**, Santa Cruz Prov., ~70 km SW of Santa Cruz City, Amboro National Park, “Refugio Los Volcanes”, ~1000 m, primary forest, on leaf of bush at night, 16–17 February 2014, A. Gorochov (ZIN).

**Description.** Female (holotype). General appearance more or less similar to that of *V. aguarico* but with following differences: colouration in dry specimen yellowish green with yellowish tegmina as well as distal part of costal lobe and venation in hind wings, and with yellowish to light brown ovipositor; upper rostral tubercle somewhat shorter



than in all previous species described here, almost without dorsal concavity, and with rather small ocelli (these ocelli somewhat smaller than in latter congeners and almost equal to each other in size); tegmina wide (clearly wider than in latter congeners) and with four distinct branches of *RS* (its most distal fifth branch weakly developed; Fig. 12); hind wings with slightly shorter distal part of costal lobe (Fig. 29); genital plate somewhat shorter, with a pair of distinctly wider and rounded posterior lobes as well as with deeper posteromedian notch and partly separated (lobule-like) lateroproximal parts (Fig. 68); ovipositor clearly wider (higher) and less curved (Fig. 55).

Male unknown.

Length (mm). Body 17.5; body with wings 30; pronotum 4.1; tegmen 24; hind femur 13; ovipositor 5.5.

*Comparison.* The new species differs from *V. lobata*, *V. brasiliensis* and *V. piracicabae*, also having wide tegmina, in less numerous branches of the tegminal *RS* and a smaller female genital plate (from *V. lobata*) as well as in a distinctly shorter ovipositor (from *V. brasiliensis* and *V. piracicabae*). From all the other true and possible species of this subgenus, *V. amboro* is distinguished by clearly wider tegmina.

*Etymology.* The species is named after the Amboro National Park.

***Viadana (Viadana) piracicabae strelnikovi* Gorochov, subsp. nov.**  
(Figs 13, 56)

*Material. Holotype* – female; **Paraguay**, “P-to Bertoni Alto Paraná 27.XI.1914”, I. Strelnikov, N. Tanasijtshuk (ZIN).

*Description.* Female (holotype). General appearance similar to that of *V. amboro*, but colouration in dry specimen yellowish with light brown anal half of tegmina and lower part of abdomen (including ovipositor), tegmina with less distinct long crossveins between *RS* branches (distal parts of wings and genital plate damaged; Fig. 13), ovipositor rather long and weakly curved upwards, its proximal and distal halves approximate-

ly equal to each other in width (height) and not high, apical part of ovipositor gradually narrowing to acute apex, ventral edge of lower valve and dorsal edge of upper valve with very small (almost indistinct) denticles, and each ovipositor gonangulum with rather deep and round concavity occupying its most part (Fig. 56).

Male unknown.

Measurements (mm). Length: body 20, pronotum 4.5, tegmen 25 (?), hind femur 12.5, ovipositor 8; width: tegmen 9.8.

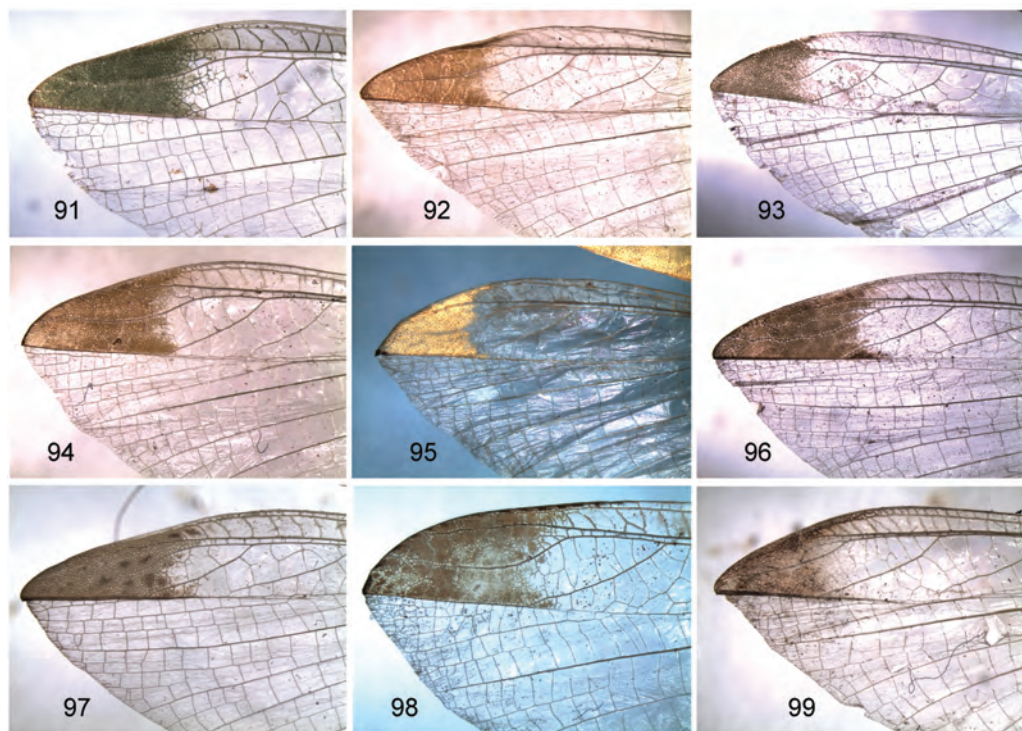
*Comparison.* The new subspecies is similar to *V. amboro*, *V. lobata*, *V. brasiliensis* and *V. p. piracicabae* in wide tegmina; but it differs from *V. amboro* and *V. lobata* in a distinctly longer ovipositor; from *V. brasiliensis*, in the distal half of the ovipositor not wider than its proximal half and in an almost round (not partly slit-like) deep concavity on the ovipositor gonangulum; and from *V. p. piracicabae*, in a wider area between the anal edge and *Sc* in the tegminal middle part (this area approximately 1.5 times as wide as widest part of the costal tegminal area in female of *V. p. strelnikovi* and only slightly wider than the latter part in female of *V. p. piracicabae*) and in the ovipositor with a slightly S-shaped dorsal edge in the profile (in the nominotypical subspecies from Brazil, this edge is more straight). From all the other true and possible species of this subgenus, *V. p. strelnikovi* is distinguished by wider tegmina.

*Etymology.* The subspecies is named after one of its collectors, I.D. Strelnikov.

***Viadana (Viadana) brasiliensis mercadoi* Gorochov, subsp. nov.**  
(Figs 14, 30, 57, 69)

*Material. Holotype* – female; **Bolivia**, northern part of Santa Cruz Prov. not far from Rio Paragua (Amazon Basin), Noel Kempff Mercado National Park, Los Fierros Camp, ~300 m, primary forest, on leaf of bush at night, 23–28 January 2014, A. Gorochov (ZIN). *Paratypes*: 5 females; same data as for holotype (ZIN).

*Description.* Female (holotype). Size, colouration and structure of body similar to



**Figs 91–99.** *Viadana* (*Arcuadana*), distal part of hind wing: 91 – *V. cusco* sp. nov.; 92 – *V. dentata* sp. nov.; 93 – *V. abbreviata* sp. nov.; 94 – *V. nulla* sp. nov.; 95 – *V. appendiculata* sp. nov.; 96 – *V. ordinaria* sp. nov.; 97 – *V. o. signata* subsp. nov.; 98 – *V. decora* sp. nov.; 99 – *V. tristis* sp. nov.

those of *V. amboro* but with following characteristic features: colouration yellowish green with a pair of red oblique lines running along dorsal edge of antennal cavities from middle part of upper rostral tubercle to eyes, with a pair of short reddish longitudinal lines behind eyes (near them), and with membranes of hind wings transparent (as in all other congeners); upper rostral tubercle slightly longer (almost as in *V. hamata*); tegmina (Fig. 14) somewhat narrower than in *V. amboro* and *V. p. strelnikovi* but wider than in all other previous species described here, with main branches of *Sc* rather numerous and less distinctly oblique (structure of these branches more or less similar to those of *V. biloba*), and *RS* branches more numerous (7); hind wings with slightly narrower apical part of costal lobe (Fig. 30); genital plate with rather wide keel-like median part (from base to

apical part), with distinctly bilobate apical part, with narrow distal half, with clearly widened proximal half, and with roundly concave lateral edges of distal half (Fig. 69); ovipositor longer (but shorter than in *V. p. strelnikovi*), with distal half slightly wider (higher) than proximal one, and with each gonangulum having rounded keel-like lobule in lower part (these lobules directed downwards, and bases of lower valves situated between them) and distinct rounded ridge along border with ninth abdominal tergite (additional similar lobule developed near each anteroventral corner of latter tergite and more or less separated from this tergite by narrow but distinct suture; Figs 57, 69).

Male unknown.

Length (mm). Body 17–20; body with wings 31–34; pronotum 4–4.4; tegmen 24–26; hind femur 13–14.5; ovipositor 7–7.5.

*Comparison.* The new subspecies differs from the nominotypical subspecies from Brazil (*V. b. brasiliensis*) in somewhat narrower tegmina (2.8 times as long as wide in female of Bolivian subspecies; 2.4 times, in female of Brazilian subspecies). From *V. transversa*, *V. lobata*, *V. semihamata*, *V. aguarico* and *V. amboro*, the new subspecies is distinguished by a clearly longer ovipositor; from *V. piracicabae*, by the ovipositor somewhat shorter; and from all the other species of this subgenus, by wider tegmina in combination with somewhat irregularly oblique main branches of the tegminal *Sc* and numerous (6–8) distinct branches of the tegminal *RS*.

*Etymology.* This species is named in memory of N.K. Mercado, an outstanding researcher and defender of the Bolivian wildlife.

***Viadana (Viadana) diegomendesi***

Cadena-Castañeda, **sp. nov.**

(Figs 243–247, 249, 250, 284)

*Material. Holotype* – male; **Colombia**, Amazonas Department, “NNP Amacayacu”, 170 m, 12 December 2012, J. Noriega (MUD).

*Description.* Male (holotype). General appearance (Fig. 243) almost as in *V. semihamata* but with following characteristic features: colouration in dry specimen yellowish (light green in living specimen) with eyes reddish purple and main veins of tegmina outlined by slight whitish areas; tegmina elongate, lanceolate in shape, with four arcuate branches of *RS*, and with three distinct branches of *Sc* directed lateroproximally (i. e. almost parallel to proximal parts of *RS* branches; Fig. 243); stridulatory vein in left tegmen straight and completely thickened (its length as great as half of pronotal width near trailing edge; Fig. 244); last abdominal tergite with U-shaped and moderately deep posteromedian notch; epiproct triangular, distinctly longer than wide, with narrowly rounded apex (Fig. 245); cercus slightly longer than genital plate, moderately arcuate, cylindrical but with distal third lancet-like (i. e. distinctly widened,

somewhat flattened and having acute apex; Figs 245–247, 249, 250), and with heavily sclerotized (black) ventrolateral edge of this third; genital plate wider than long, with short and obtuse-angled apical lobules, and with posteromedian notch shallow and widely rounded (Figs 247, 284).

Female unknown.

Length (mm). Body 11.5; body with wings 31; pronotum 3.4; tegmen 26; hind femur 12.

*Comparison.* The new species is most similar to *V. semihamata*, *V. obliqua* and *V. hamata* but distinguished from them by the male cerci more widened in the distal third (from the two first species) or less strongly curved (from the latter species). From all the other representatives of *Viadana* s. str., the new species differs in the tegmina narrower, tegminal *RS* branches more arcuate, or male cerci very different in the shape.

*Etymology.* This species is dedicated to the orthopterist Diego Matheus de Mello Mendes.

***Viadana (Arcuadana) cusco***

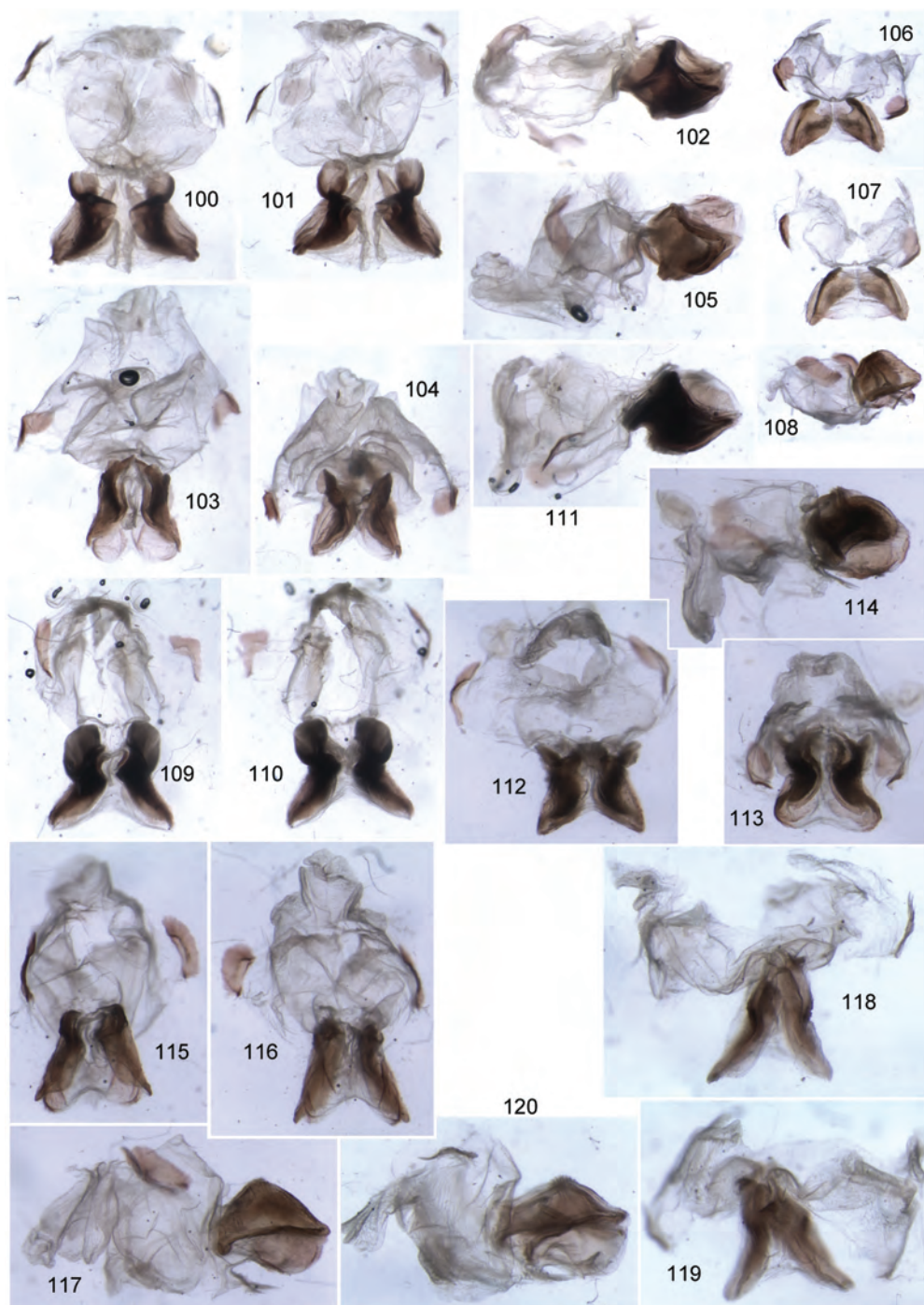
Gorochov, **sp. nov.**

(Figs 79, 91, 100–102, 121, 122)

*Material. Holotype* – male; **Peru**, Cusco Department, 10 km N of Marcapata, 13°25′S, 70°54.3′W, 1265 m, 7–8 December 2010, V. Sinyayev, S. Sinyayeva, Yu. Bezverkhov (ZIN).

*Description.* Male (holotype). Body medium-sized for this subgenus. Colouration light green with yellowish tinge in most part of body (except wings), brown eyes, narrow light brown stripe along anal edge of tegmina (except its proximal part), and transparent stridulatory areas in right tegmen and majority of cells in hind wings. Upper rostral tubercle with a pair of rounded (in profile) low keels in posterior half (above lateral ocelli) which slightly higher than lamellar anterior part of this tubercle (this lamellar part almost angular in profile); shape of tegmina as in Fig. 79; stridulatory vein in left tegmen moderately short and thick but slightly arcuate and somewhat obliquely





**Figs 100–120.** *Viadana* (*Arcuadana*), male: 100–102 – *V. cusco* sp. nov.; 103–105 – *V. dentata* sp. nov.; 106–108 – *V. abbreviata* sp. nov.; 109–111 – *V. nulla* sp. nov.; 112–114 – *V. appendiculata* sp. nov.; 115–117 – *V. ordinaria* sp. nov.; 118–120 – *V. o. signata* subsp. nov. Genitalia from above (100, 103, 106, 109, 112, 115, 118), from below (101, 104, 107, 110, 113, 116, 119) and from side (102, 105, 108, 111, 114, 117, 120).

situated; anterior (lateral) chord of this tegmen distinct and starting from medial half of stridulatory vein almost in median part of dorsal field; region of stridulatory areas in right tegmen long and rather narrow (almost equal to basal area in length and approximately three times as long as wide); distal part of hind wing as in Fig. 91; last abdominal tergite clearly transverse, with median concavity and almost truncate apical part (but this part with a pair of very short rounded lobes having very shallow notch between them); epiproct elongate, rather narrow and more or less triangular; cerci stick-like but slightly arcuate, with barely thickened proximal half and somewhat flattened distal part, and with rather short medial tooth located at base of this distal part (but not in subapical part; Figs 121, 122); genital plate wide and rather short (its width and length almost equal), with clearly narrowed distal part having a pair of angular lateral lobules and almost rounded and not deep notch between them (Fig. 122); genitalia with a pair of rather large but not long sclerites (Figs 100–102).

Female unknown.

Length (mm). Body 19; body with wings 39; pronotum 3.9; tegmen 29; hind femur 15.

*Comparison.* The new species is similar in the shape of tegmina to *V. difformis*, *V. boyacae*, *V. foreli*, *V. rhombifolia*, *V. rowelli* and *V. zetterstedti*, but it differs from them in shorter and less oblique *RS* branches of the tegmen (from *V. boyacae* and *V. difformis*; see Figs 79 and 90), in the apical part of male cerci not clavately dilated (from *V. rhombifolia*), in the presence of medial (not dorsolateral) tooth on the male cercus as well as in a clearly shorter distal part of this cercus behind the above-mentioned tooth (from *V. rowelli*), in the male cercus lacking both small denticle at the apex (from *V. foreli*) and another apical sclerotization (from *V. zetterstedti* having a small subapical widening with two short projections: narrow apical and wider medial ones). From *V. fruhstorferi*, *V. multiramosa*, *V. quadriramosa*, *V. peruviana* and *V. az-*

*teca*, the new species is distinguished by a longer distal tegminal part (this part is situated behind the most convex part of costal tegminal edge); additionally from three the first species, by a narrower anterior half of the tegminal area between its anal edge and *R+RA*, and from *V. azteca*, by a not dilated apical part of the male cercus lacking group of denticles; from *V. boraceae*, *V. griffini* and *V. stephanyae*, by a distinctly more arcuate costal tegminal edge; and from *V. longicercata*, by a shorter male cercus having a non-acute apex and lacking any sulcus on its dorsal surface.

*Etymology.* This species is named after the Cusco Department of Peru.

### *Viadana (Arcuadana) dentata*

Gorochov, *sp. nov.*

(Figs 80, 92, 103–105, 123, 124)

*Material.* *Holotype* – male; **Ecuador**, Morona Santiago Prov., bank of Rio Morona near border with Peru, environs of Puerto Morona Vill., ~300 m, primary forest, at light, 5–15 January 2010, A. Gorochov (ZIN).

*Description.* Male (holotype). Body medium-sized for this subgenus. Colouration and structure of body similar to those of *V. cusco* but with following differences: tegmen and distal part of hind wing costal lobe with yellowish tinge; proximal and distal parts of upper rostral tubercle approximately equal in height but with very small dorsal concavity (barely visible in profile) between them; tegmina with longer and more longitudinal (less oblique in distal half) distal branch of *RS* (Fig. 80); hind wing with greenish distal part of costal lobe slightly shorter (Fig. 92); last abdominal tergite with convex (rounded) postero-medial part directed partly downwards; medial tooth of cercus located subapically (i. e. its position clearly more distal than in *V. cusco*; Fig. 123); genital plate with somewhat wider distal part having slightly shallower posteromedian notch (Fig. 124); genitalia with paired sclerites having somewhat higher distal part (Figs 103–105).

Female unknown.



**Figs 121–150.** *Viadana* (*Arcuadana*), male: 121, 122 – *V. cusco* sp. nov.; 123, 124 – *V. dentata* sp. nov.; 125–127 – *V. abbreviata* sp. nov.; 128–130 – *V. nulla* sp. nov.; 131–134 – *V. appendiculata* sp. nov.; 135–138 – *V. ordinaria* sp. nov.; 139–141 – *V. o. signata* subsp. nov.; 142–144 – *V. decora* sp. nov.; 145–148 – *V. tristis* sp. nov.; 149 – *V. barrancoi* sp. nov., 150 – *V. arcuata* sp. nov. Abdominal apex from above (121, 123, 125, 128, 131, 135, 139, 142, 145), from below (122, 124, 126, 129, 132, 134, 136, 140, 143, 146), and from behind / above (137); male left cercus from side (127), and its distal part from above (144); male right cercus from side (150), and its distal part from above (130, 133, 138, 141); male genital plate from below (149). [150, after Cadena-Castañeda (2012).]



Length (mm). Body 18; body with wings 36; pronotum 3.8; tegmen 7.5; hind femur 15.5.

*Comparison.* The new species is most similar to *V. cusco* but distinguished from the latter species by the characters given above, in the description. From all the other species of *Arcuadana*, the new species differs in the same characters as *V. cusco*.

*Etymology.* This species name is the Latin word “dentata” (dentate) indicating the presence of teeth on the male cerci.

### *Viadana (Arcuadana) abbreviata*

Gorochov, *sp. nov.*

(Figs 88, 93, 106–108, 125–127)

*Material. Holotype* – male; **Bolivia**, southern part of Santa Cruz Prov. (near Brazil), environs of Puerto Suares Town on Rio Paraguay (Parana Basin), ~200 m, secondary forest, on leaf of tree at night, 4–5 February 2014, A. Gorochov (ZIN).

*Description.* Male (holotype). Colouration and structure of body similar to those of *V. cusco*, but following differences from this species present: body size somewhat smaller; head with reddish longitudinal line located behind each eye, with narrow yellowish stripe along lateral edge of this line, and with longitudinal reddish mark on outer side of scape; tegmina with yellowish tinge but without distinct light brown stripe along anal edge; distal tegminal part (situated behind most convex part of costal tegminal edge) shorter but not strongly shortened (Fig. 88); hind wing also with slightly shortened distal part of costal lobe (Fig. 93); last abdominal tergite with posteromedian lobe somewhat similar to that of *V. dentata* but longer and having a pair of somewhat smoothed longitudinal keels in its median part and small angular posteromedian notch (Fig. 125); cercus somewhat longer and thinner than in *V. cusco* and *V. dentata* but strongly curved, with rather high dorsal tooth located before middle of cercus, and with almost lancet-like apical part (Figs 125, 127); genital plate barely shorter, with slightly shorter posterolateral

lobules and shallower notch between them (Fig. 126); genitalia with large sclerites somewhat shorter (Figs 106–108).

Female unknown.

Length (mm). Body 17; body with wings 29; pronotum 3.4; tegmen 22; hind femur 12.5.

*Comparison.* The new species differs from *V. cusco* and *V. dentata* in a shorter distal tegminal part as well as dorsoproximal (but not distomedial) position of the male cercal tooth. From *V. rowelli*, the new species is distinguished by the male cercus with a dorsal (not lateral) tooth and with the distal part directed backwards /downwards (not upwards); from *V. fruhstorferi*, *V. multiramosa* and *V. quadriramosa*, by a narrower proximal half of the tegminal area between anal edge and *R+RA*; from *V. peruviana*, by a less shortened distal tegminal part; from *V. longicercata*, by a smaller body and the male cercus lacking any dorsal sulcus; from *V. azteca*, by very different male cerci; and from all the other species of *Arcuadana*, by the same characters as *V. cusco*.

*Etymology.* This species name is the Latin word “abbreviata” (shortened) indicating the characteristic structure of its tegmina.

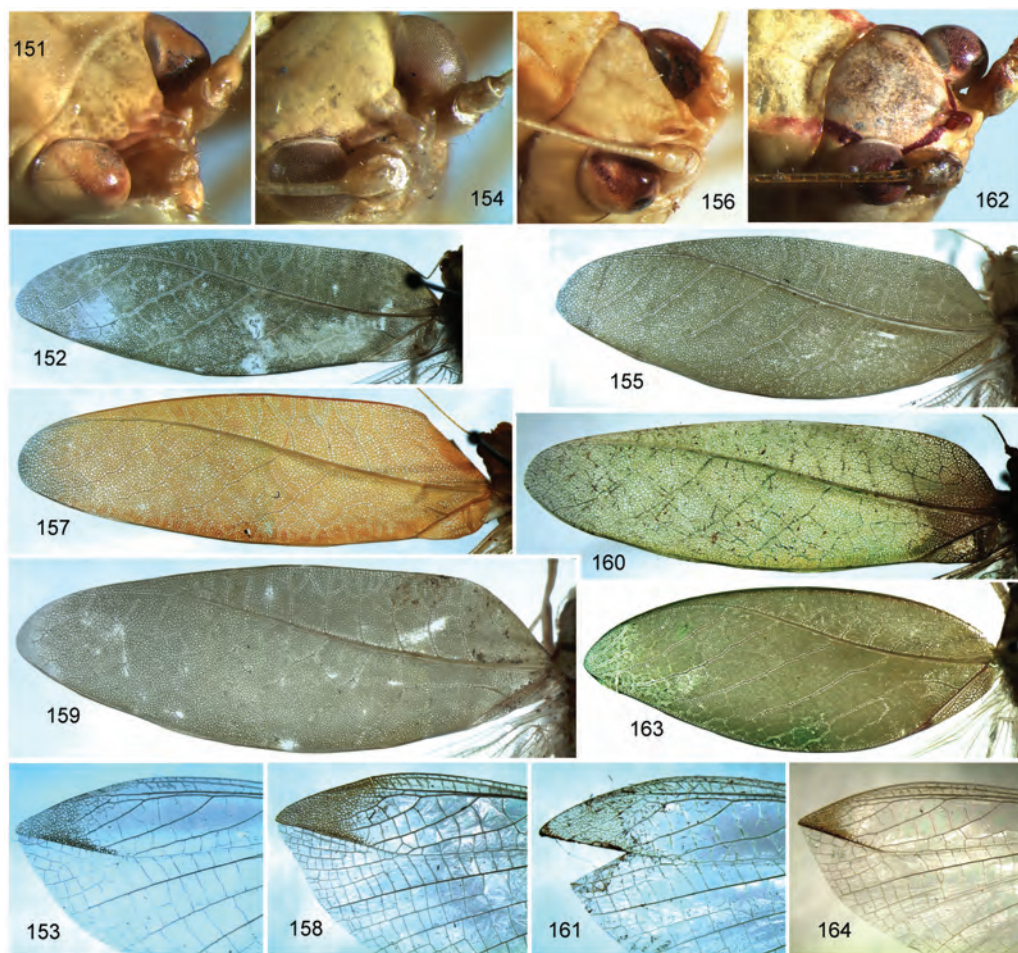
### *Viadana (Arcuadana) nulla*

Gorochov, *sp. nov.*

(Figs 63, 76, 77, 81, 94, 109–111, 128–130)

*Material. Holotype* – male; **Ecuador**, Morona Santiago Prov., bank of Rio Morona near border with Peru, environs of Puerto Morona Vill., ~300 m, primary forest, at light, 5–15 January 2010, A. Gorochov (ZIN). *Paratype* – female, same data as for holotype (ZIN).

*Description.* Male (holotype). Size, colouration and structure of body similar to those of *V. cusco* but with following differences: tegmina and distal part of costal lobe of hind wings with yellowish tinge; lateral tegminal field with longitudinal row of small brownish spots near anal edge but without light brown stripe along this edge; venation of rest part of hind wings yellowish; upper rostral tubercle with anterior part almost acute-angled and slightly more



**Figs 151–164.** *Viadana* (*Paraviadana*): 151–153 – *V. intermedia* sp. nov.; 154, 155 – *V. i. atalaya* subsp. nov.; 156–158 – *V. cercata* sp. nov.; 159 – *V. c. cuyabeno* subsp. nov.; 160, 161 – *V. napo* sp. nov.; 162–164 – *V. aenigma* sp. nov. Head dorsum with rostrum partly from above and partly from side (151, 154, 156, 162); left tegmen of male (152, 157, 160) and of female (155, 159, 163); distal part of hind wing (153, 158, 161, 164).

projected forwards; distal part of tegmina, situated behind most convex part of costal edge, slightly shorter (but longer than in *V. abbreviata*); position of base of distal *RS* branch in tegmina intermediate between those of *V. cusco* and *V. dentata*; costal tegminal area somewhat more strongly convex than in *V. cusco*, *V. dentata* and *V. abbreviata* (Fig. 81); last abdominal tergite with truncate posterior edge (lacking posterior lobes or convexity); epiproct triangular, not large (not long), without any apical spe-

cialization; cerci strongly arcuate (almost hooked), with slightly thickened distal part having small apical denticle situated somewhat medially (Figs 128, 130); genital plate with more angular posterolateral lobules and slightly deeper and somewhat more angular notch at apex (Fig. 129); sclerites of genitalia with rather deep, rounded and moderately narrow notch visible in profile near their base (Figs 109–111).

Female. General appearance as in male, but tegminal stridulatory apparatus un-

developed, last abdominal tergite and epiproct somewhat smaller, cerci simple (almost conical, rather thin, moderately long but distinctly shorter than in male); genital plate roundly triangular but with very small posteromedian notch (Fig. 76); ovipositor rather long for this genus, not high, weakly curved upwards, with numerous very small denticles on dorsal and ventral edges, with very narrowly rounded apex (Fig. 63), and with gonangulum having rather deep and narrow concavity in ventroproximal part and small rounded tubercle near it (Fig. 77).

Length (mm). Body: male 17, female 16.5; body with wings: male 36, female 37.5; pronotum: male 3.7, female 3.8; tegmen: male 25.5, female 27; hind femur: male 13.5, female 14.5; ovipositor 8.5.

*Comparison.* The new species is distinguished from all the other species of *Arcuadana* by the following combination of characters: costal edge of tegmina near the base of their distal *RS* branches is more convex (from *V. boraceae*, *V. foreli*, *V. griffini*, *V. stephanyae*, *V. cusco*, *V. dentata* and *V. abbreviata*); distal part of tegmina behind their widest part is longer than in *V. azteca*, *V. foreli*, *V. fruhstorferi*, *V. multiramosa*, *V. peruviana*, *V. quadriramosa*, *V. rhombifera*, *V. zetterstedti* and *V. abbreviata*, and shorter than in *V. boraceae* and *V. boyacae*; distal branches of tegminal *RS* is less parallel than in *V. difformis*, and interradial tegminal area is longer than in this species; proximal half of the area situated between *R+RA* and anal edge in tegmina is narrower than in *V. fruhstorferi*, *V. multiramosa* and *V. quadriramosa*; male cercus is without distinct apical inflation (from *V. azteca*), without dorsal sulcus (from *V. longicercata*) and without additional tooth or lobule (from *V. rowelli*, *V. zetterstedti*, *V. cusco*, *V. dentata* and *V. abbreviata*); male genital plate is shorter than in *V. foreli* and with a less deep posteromedian notch than in *V. stephanyae*.

*Etymology.* This species name is the Latin word “nulla” (insignificant, poor).

### *Viadana (Arcuadana) appendiculata*

Gorochov, *sp. nov.*

(Figs 82, 83, 95, 112–114, 131–134)

*Material.* *Holotype* – male; **Peru**, Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., ~1200 m, partly primary / partly secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisytukin, E. Tkatsheva, V. Izersky (ZIN). *Paratype* – male; same data as for holotype (ZIN).

*Description.* Male (holotype). Colouration and structure of body similar to those of *V. cusco*, but: body size intermediate between those of *V. abbreviata* and *V. nulla*; colouration of wings as in *V. nulla* (however, brownish spots on tegmina absent); posterior half of upper rostral tubercle distinctly higher than anterior one (difference in their height greater than in all species previously described here); shape of tegmina distinguished from that of *V. nulla* only by somewhat less convex costal edge and slightly shorter distal tegminal part behind widest part of tegmina (Fig. 82); distal part of hind wing costal lobe almost as in *V. abbreviata* (Fig. 95); last abdominal tergite and genital plate very similar to those of *V. nulla*; cercus also similar to that of latter species but with barely more oblique distolateral edge near apex (in dorsal view; for comparison see Figs 130 and 133); epiproct with very long, rather thin and soft appendage directed backwards (Figs 131, 132); genitalia with large sclerites rather short (almost as in *V. abbreviata* in length; Figs 112–114).

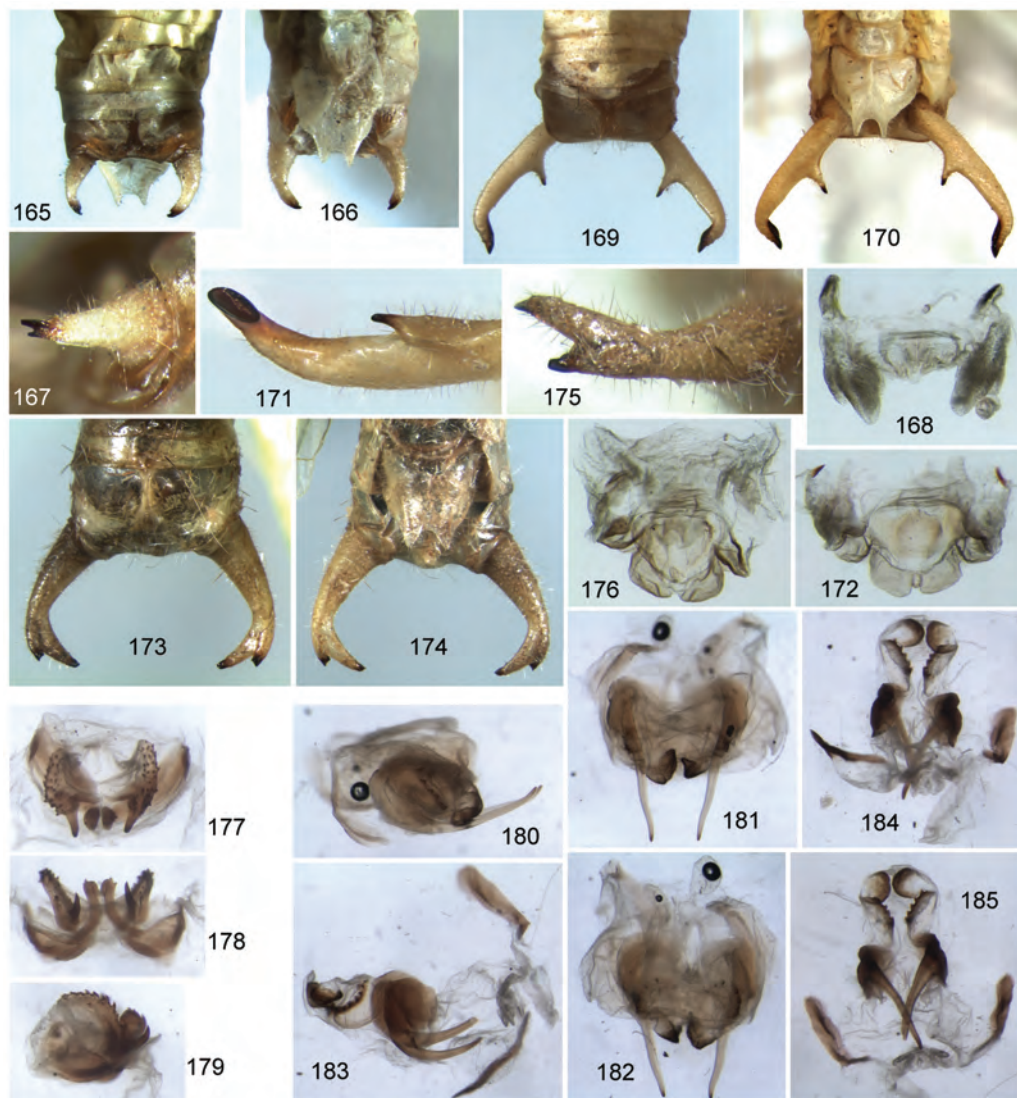
*Variation.* Paratype with posteromedian part of last abdominal tergite weakly convex, proximal part of tegmina before their widest part slightly longer (Fig. 83), and epiproct having somewhat different shape of its long appendage (possible deformation in dry specimens; Fig. 134).

Female unknown.

Length (mm). Body 15.5–16.5; body with wings 31–33; pronotum 3–3.2; tegmen 23–24; hind femur 12.5–13.

*Comparison.* The new species is well distinguished from all the congeners with suf-





**Figs 165–185.** *Viadana*, male: 165–168 – *V. (Paraviadana) intermedia* sp. nov.; 169–172 – *V. (P.) cercata* sp. nov.; 173–176 – *V. (P.) napo* sp. nov.; 177–179 – *V. (Arcuadana) tristis* sp. nov.; 180–185 – *V. (A.) decora* sp. nov. Abdominal apex from above (165, 169, 173) and from below (166, 170, 174); right cercus, lateral view (167) and lateroventral view (175); left cercus without base, medial and slightly ventral view (171); male genitalia from above (168, 172, 176, 177, 181), from behind (178), from side (179, 180) and from below (182); male genitalia in erected (?) position (with movable and denticulate lobules strengthened and situated proximad to rest genital structures) from side (183), from above (184) and from below (185).

ficiently studied males by a characteristic long appendage of the male epiproct. This species also has the costal tegminal edge more convex than in *V. boraceae*, and differs from the other species of the subgenus *Ar-*

*cuadana* in the same characters of tegmina, male cerci and male genital plate as *V. mulla*.

**Etymology.** This species name is the Latin word “appendiculata” (with appendage).

***Viadana (Arcuadana) ordinaria***Gorochov, **sp. nov.**

(Figs 84, 96, 115–117, 135–138)

*Material. Holotype* – male; **Ecuador**, Morona Santiago Prov., bank of Rio Morona near border with Peru, environs of Puerto Morona Vill., ~300 m, primary forest, at light, 5–15 January 2010, A. Gorochov (ZIN). *Paratype* – male, same data as for holotype (ZIN).

*Description. Male* (holotype). General appearance similar to that of *V. dentata* but with following characteristic features: colouration yellowish with rose longitudinal line behind each eye, with semitransparent membranes in stridulatory apparatus of right tegmen, with membranes of hind wings as in all previous species described here, and with brownish dot at base of *M-CuA* area in tegmina; upper rostral tubercle with shallow but distinct concavity in profile and with a pair of small inflations above lateral ocelli (these ocelli rather small and almost indistinct, but median ocellus distinct and medium-sized for this subgenus); tegmina with not very strongly convex costal edge and with base of distal *RS* branch situated slightly distad to most convex part of costal edge (Fig. 84); hind wings as in Fig. 96; last abdominal tergite with a pair of very short rounded posteromedial lobes and shallow rounded notch between them; epiproct elongate, rather narrow, and with narrowly rounded distal part lacking any soft and long appendage (Figs 135, 137); cerci rather long, thin, somewhat curved medially (moderately arcuate), with slightly widened and rounded apical part having small and heavily sclerotized longitudinal keel on medial surface (Figs 135, 137, 138); genital plate not long, almost triangular but with a pair of short and rounded apical lobules as well as with small and widely angular posteromedian notch (Fig. 136); genitalia with a pair of large sclerotized structures more or less similar to those of *V. cusco*, *V. dentata*, *V. abbreviata*, *V. nulla* and *V. appendiculata* (Figs 115–117).

Variations. Paratype with brownish dots near bases of *RS* branches in tegmina, with

barely longer apical lobules of genital plate, and with barely deeper notch between these lobules.

Female unknown.

Length (in mm). Body 18–19; body with wings 36–38; pronotum 3.5–3.7; tegmen 26–27.5; hind femur 14–14.5.

*Comparison.* The new species is similar to *V. dentata* in the tegminal shape and to *V. foreli* in the male cercal structure, but it is distinguished from *V. dentata* by the absence of medial subapical tooth on the male cercus, and from *V. foreli*, by the absence of apical denticle in the male cercus and a less deep posteromedian notch of the male genital plate. From *V. boraceae* and *V. griffini*, *V. ordinaria* differs in a more convex costal tegminal edge; and from all the other species of *Arcuadana*, in a weakly convex costal edge of the tegmina, rather narrow tegminal lateral field, not shortened distal tegminal part, not bifurcated apex of the male cercus, or not deep posteromedian notch of the male genital plate.

*Etymology.* This species name is the Latin word “ordinaria” (normal, ordinary).

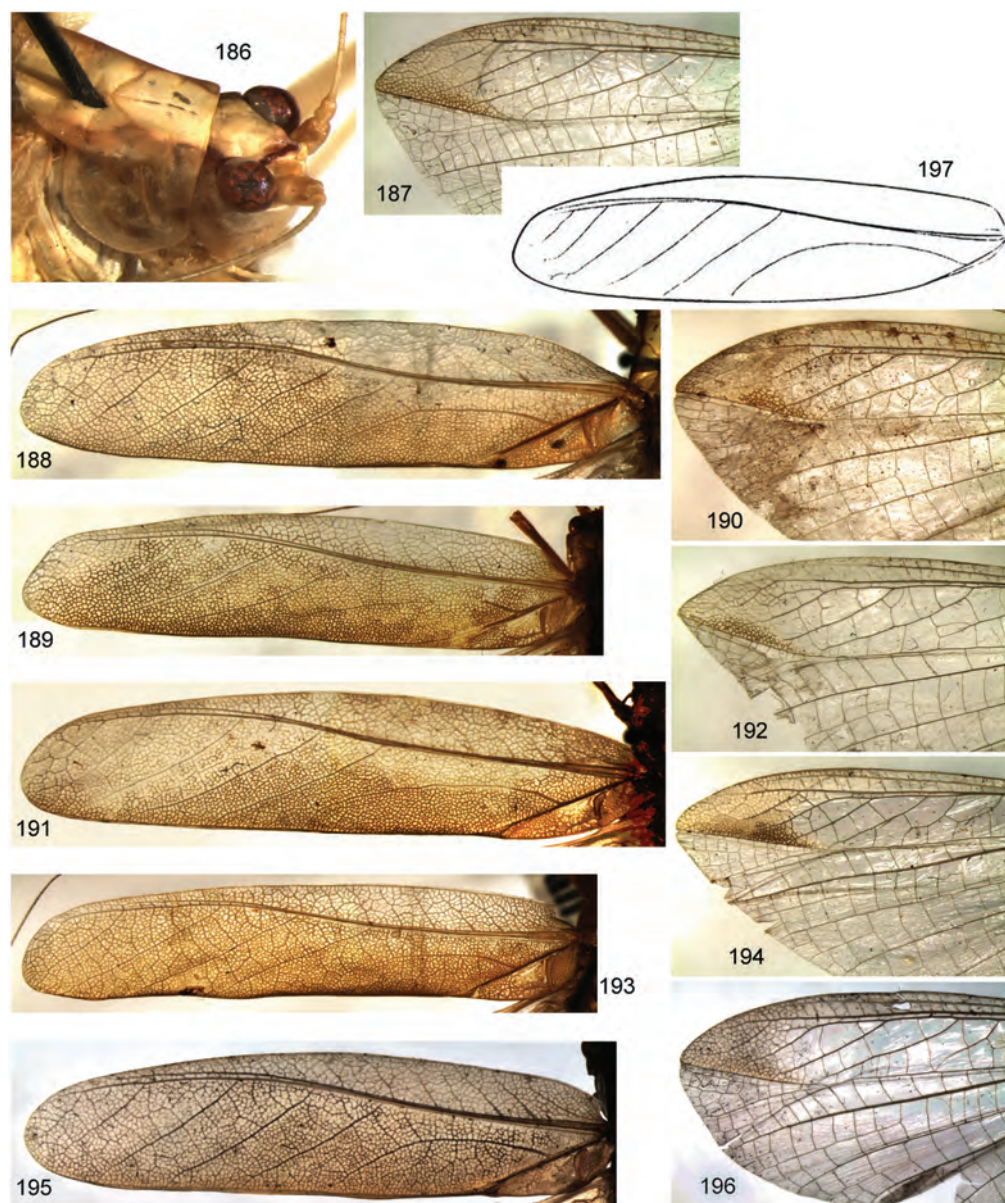
***Viadana (Arcuadana) ordinaria signata***Gorochov, **subsp. nov.**

(Figs 50, 74, 85, 97, 118–120, 139–141)

*Material. Holotype* – male; **Peru**, Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., ~1200 m, partly primary / partly secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN). *Paratypes*: 1 male, same data as for holotype (ZIN); 1 female, same department, “18 km on 55° from Satipo, 11°30.4'S, 74°51.7'W, 21.12.2010, H=588 m”, V. Sinyaev, S. Sinyaeva, V. Izersky (ZIN).

*Description.* Male (holotype). Body size and external structure very similar to those of nominotypical subspecies, but tegmina with greenish tinge as well as with small brownish spots at bases of *RS* branches (these spots somewhat larger and more distinct than in paratype of *V. o. ordinaria*) and with weak small brownish marks along rest parts of these branches (Fig. 85), hind





**Figs 186–197.** *Viadana* (*Proviadana*), male: 186–188 – *V. ornata* **sp. nov.**; 189, 190 – *V. lobulata* **sp. nov.**; 191, 192 – *V. proxima* **sp. nov.**; 193, 194 – *V. illobulata* **sp. nov.**; 195, 196 – *V. taediosa* **sp. nov.**; 197 – *V. lita* (Heb.). Pronotum with head from side and somewhat above (186); distal part of hind wing (187, 190, 192, 194, 196); left tegmen (188, 189, 191, 193, 195, 197). [197, after Hebard (1933).]

wings with similar weak brownish marks on distal part of costal lobe (Fig. 97), distal half of tegmina with slightly more convex costal edge near tegminal middle and with barely narrower apical part (distal part of costal edge insignificantly concave; Fig.

85), cerci somewhat longer and slightly less curved (weakly arcuate) as well as with medial keel on their apical part having less angularly projected posteromedial corner (for comparison see Figs 135, 138 and 139, 141), and genital plate somewhat longer



and with slightly longer apical lobules and slightly deeper notch between them (Fig. 140). Genitalia practically indistinguishable from those of nominotypical subspecies (Figs 118–120).

Variations. Second male with medial keel on apical cercal part intermediate between that in holotype of this subspecies and that in *V. o. ordinaria*.

Female. General appearance as in male, but dorsal tegminal field similar to that of *V. semihamata* and other females previously described here, abdominal tergites and cerci unspecialized, and epiproct with narrower apical part barely curved upwards; genital plate similar to that of *V. nulla* but somewhat wider and with rounded apex (Fig. 74); ovipositor long for this genus, weakly curved upwards, with barely widened (in profile) middle part, with gradually narrowing distal part, with very narrowly rounded apex, with very small (almost indistinct) tubercles on dorsal and ventral edges (Fig. 50), and with lateral concavity on each gonangulum similar to that in *V. nulla* but slightly wider and distinctly longer (extending from ventroproximal part of gonangulum before rounded tubercle to its middle part after this tubercle).

Length (mm). Body: male 17.5–18.5, female 19; body with wings: male 38–40, female 39; pronotum: male 3.6–3.8, female 3.7; tegmina: male 26–27, female 27; hind femur: male 14.5–15, female 15; ovipositor 10.

*Comparison.* Differences between the new subspecies from Peru and the nominotypical subspecies from Ecuador are listed above. From all the other congeners, *V. o. signata* differs in the same characters as *V. o. ordinaria*.

*Etymology.* This subspecies name is the Latin word “signata” (signate, marked).

### *Viadana (Arcuadana) decora*

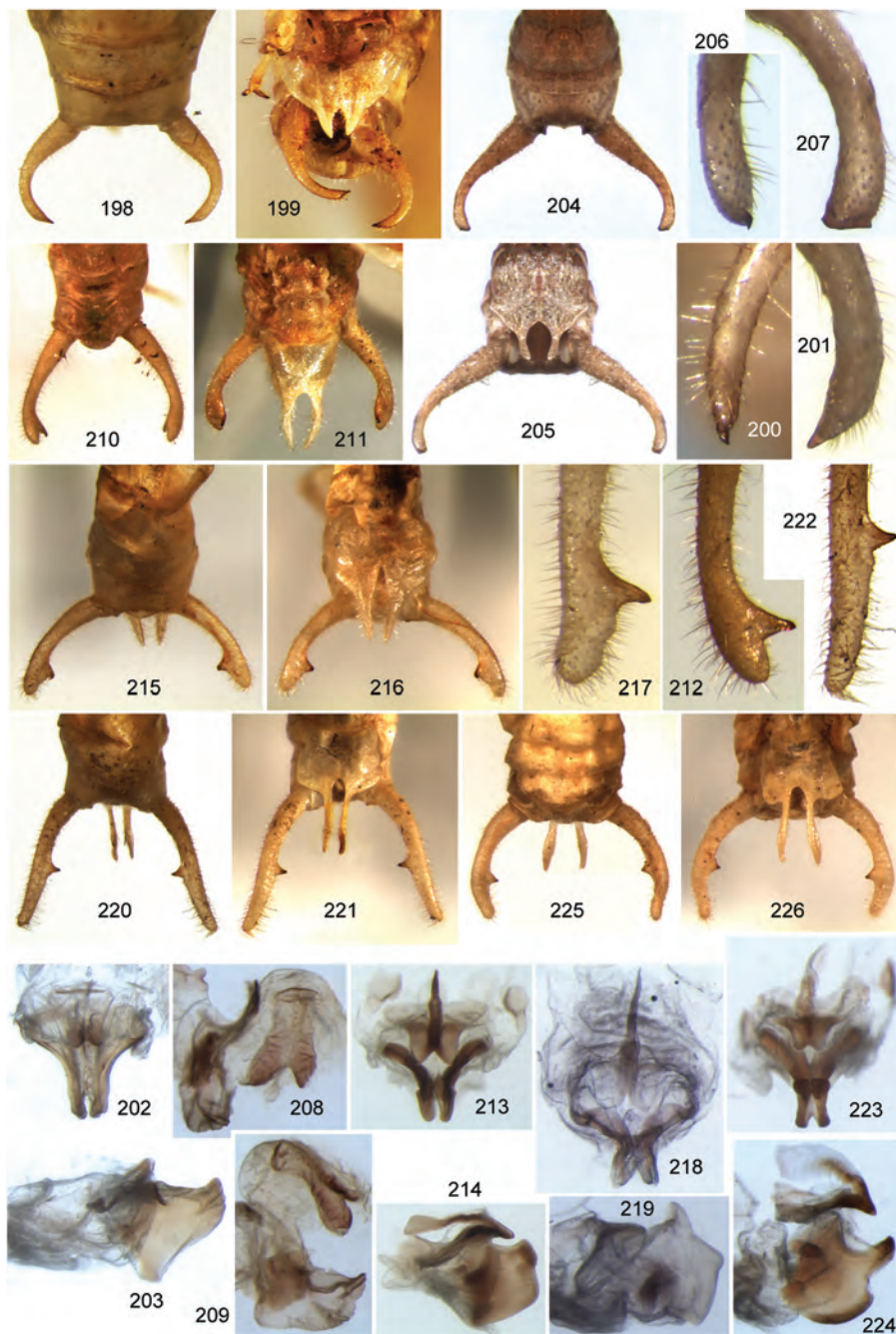
Gorochov, *sp. nov.*

(Figs 51, 64, 87, 98, 142–144, 180–185)

*Material.* *Holotype* – male; **Bolivia**, Santa Cruz Prov., ~70 km SW of Santa Cruz City, Amboro National Park, “Refugio Los Volcanes”,

~1000 m, primary forest, on leaf of bush at night, 16–17 February 2014, A. Gorochov (ZIN). *Paratypes*: 2 males, 1 female, same data as for holotype (ZIN); 1 male, same country, “6, Schmilyder [?]” (ZIN); 1 female, **Peru**, Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., ~1200 m, partly primary / partly secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN).

*Description.* Male (holotype). General appearance similar to that of *V. ordinaria* but with following characteristic features: colouration yellowish with green tinge, with small brown marks on antennal pedicel, with brownish longitudinal lines on vertex behind eyes, with two rose dots on ventral edge of each pronotal lateral lobe, with tegmina having greyish brown spots along distal third of costal edge and other brownish marks almost as in *V. o. signata* (Fig. 87), with hind wings having small brownish marks along distal third of costal edge and lacking other brownish marks (Fig. 98), with a few small brown spots on thoracic pleurites, and with dark brown both dot on base of each hind tibia as well as most part of all third and fourth tarsal segments; shape of tegmina also similar to that of *V. o. signata* but with costal edge slightly more convex near middle, with apical part more similar to that of *V. o. ordinaria*, and with distal third of costal edge distinctly more concave (Fig. 87); distal part of costal lobe in hind wings somewhat wider (Fig. 98); epiproct almost conical and barely curved upwards (approximately as in female of *V. o. signata*); cerci almost straight and with more or less lancet-like apical part having distinct apical denticle (Figs 142, 144); genital plate similar to that of *V. o. ordinaria* in length, and with distal part almost as in *V. o. signata* but having somewhat wider and less angular posteromedian notch (Fig. 143). Genitalia with three pairs of sclerotized structures: weakly sclerotized lateral (posterolateral) ribbons; distinctly sclerotized plates having rather long and directed backwards spine on each of them; semisclerotized lobules having row of sclerotized me-



**Figs 198–226.** *Viadana* (*Proviadana*), male: 198–203 – *V. ornata* sp. nov.; 204–209 – *V. taediosa* sp. nov.; 210–214 – *V. lobulata* sp. nov.; 215–219 – *V. proxima* sp. nov.; 220–226 – *V. illobulata* sp. nov. Abdominal apex from above (198, 210, 215, 220, 225) and from below (199, 211, 216, 221, 226); this apex with restored right half (only left half of abdominal distal part preserved) from above (204) and from below (205); distal part of left cercus from side and somewhat behind (200), from above and somewhat medially (201, 212, 217, 222), from above and somewhat laterally (206), from side and somewhat below (207); genitalia from above (202, 213, 218, 223) and from side (203, 214, 219, 224); left and median parts of genitalia (right part missing) approximately from above (208) and from side (209).

dial denticles [these lobules very movable, situated proximad to previous plates (Figs 183–185)].

Variations. Sometimes darkish lines on vertex behind eyes absent, pronotal disc having small brownish spot at each anterolateral corner, darkened spots on tegmina along costal edge small and weak, and rose dots more numerous (situated also on middle part of pronotal lobes and on fore femora); in one paratype, genitalia with semisclerotized lobules (having row of medial denticles) turned back and situated between distinctly sclerotized plates (Figs 180–182).

Female. Colouration and structure of most body parts as in male, but dorsal tegminal field, abdominal tergites, cerci and epiproct very similar to those of female of *V. o. signata*; genital plate also similar to that of this female but with apical notch almost as in *V. nulla* (Fig. 64); ovipositor distinguished from that of *V. o. signata* by barely widened (in profile) middle and distal thirds (narrowing apical part of this distal third clearly shorter and having acute apex; Fig. 51), and by gonangulum with much larger lateral concavity (this concavity occupying almost entire lower half of gonangulum) and without distinct tubercle near it.

Length (mm). Body: male 18–23, female 17–24; body with wings: male 37–43, female 41–43; pronotum: male 3.9–4.3, female 3.8–3.9; tegmina: male 26–31, female 28–30; hind femur: male 16–17.5, female 17–17.5; ovipositor 9–9.3.

*Comparison.* The new species differs from all the other representatives of *Arcuadana* in a more variegated colouration, characteristic shape of the male cerci (almost straight, without teeth, and with lancet-like apical part), and the male genitalia having three pairs of sclerotized structures including a pair of rather long spines. Such genital spines are visible in the photographs of a male (Fig. 255) from the Vienna Museum (Naturhistorisches Museum, Wien) determined as *V. difformis* in the Orthop-

tera Species File (Eades et al. 2015); possibly, this specimen belongs to *V. decora* (see below).

*Etymology.* This species name is the Latin word “decora” (comely, beautiful).

***Viadana (Arcuadana) difformis***  
(Brunner-Wattenwyl, 1878)  
(Fig. 90)

= *Ctenophlebia difformis* Brunner-Wattenwyl, 1878

*Material.* *Lectotype* (here designated) – female; Ecuador, “Martinez! Coca”, “Coca (Ecuador) ?/JUN-17/JUL?1865 F. Martinez”, “Col. del Pacifico”, “Expedicion al Pacifico (1862–1865)”, “*Ctenophlebia difformis* Br.-W.”, “Sintipo”, “MNCN Cat. Tipos No. 7466” (Museo Nacional de Ciencias Naturales, Madrid).

*Note.* The species was described from the females collected in “Peru” and “Coca in Ecuador” (Brunner-Wattenwyl 1878: *Ctenophlebia*). These females clearly belong to different species taxa because they have somewhat different structure of the tegmina and shape of the ovipositor (see Eades et al. 2015: photographs of *V. difformis* syntypes). The latter female deposited in the Madrid Museum is here designated as lectotype of this species because it has more exact geographic data (Rio Coca).

This female (lectotype) is similar in the general appearance to *V. zetterstedti*, *V. foreli*, *V. boyacae*, *V. nulla* and *V. appendiculata*. But it is distinguished from them by less numerous branches of the tegminal *RS* (from *V. zetterstedti* and *V. foreli*), by a slightly wider (or slightly less elongate) shape of the tegminal lateral field (from *V. boyacae*), by the base of the distal tegminal *RS* branch situated slightly distad to the most convex part of the costal tegminal edge (from *V. nulla* having this base in clearly more proximal position), or by a more angularly convex costal tegminal edge near the base of the distal *RS* branch as well as a slightly concave distal part of this edge (from *V. appendiculata* having the latter part almost straight).





**Figs 227–242.** *Viadana* (*Proviadana*) and *Tomeophera*, female: 227, 228 – *V. ornata* sp. nov.; 229, 230 – *V. lobulata* sp. nov.; 231, 232 – *V. illobulata* sp. nov.; 233, 234 – *T. semilata* sp. nov.; 235, 236 – *T. s. boliviana* subsp. nov.; 237, 238 – *T. ucayali* sp. nov.; 239, 240 – *T. modesta angusta* subsp. nov.; 241, 242 – *T. ?brevirostris* (Bruner). Ovipositor from side (227, 229, 231, 233, 235, 237, 239, 241); genital plate and base of ovipositor from below (228, 230, 232, 234, 236, 238, 240, 242).

***Viadana (Arcuadana) arcuata***

Cadena-Castañeda et Gorochov, **sp. nov.**  
(Figs 89, 150, 280)

= *Viadana difformis*: Cadena-Castañeda, 2012

**Material.** Holotype – male; **Colombia**, “Amazonas, Rio Tocana, abril de 1946, Richter leg., ICN-MHN ORT-00767” (ICN).

**Description** [after Cadena-Castañeda (2012) with small changes]. Male (holotype). General appearance more or less similar to that of *V. dentata* but with following characteristic features: body colouration light green with dark purple eyes; upper rostral tubercle rounded in profile, insignificantly projected (without exceeding base of antennal scape); lateral and median ocelli circular (median ocellus smaller and less distinct); tegmina slightly narrower and with barely less convex costal edge; distal branch of tegminal *RS* distinctly shorter (not almost longitudinal) and with base situated clearly distad to most convex part of costal edge (Fig. 89); last abdominal tergite slightly emarginated; epiproct narrowly triangular (longer than wide) and with rounded apex; cercus very long, thin, strongly curved in distal half (almost hook-like), with apical part truncate and having short angular projection directed backwards (Fig. 150); genital plate narrow, gradually narrowing to widely truncate apex (posterior edge of this apex barely notched but without distinct posterolateral lobules; Fig. 280).

Female unknown.

Length (in mm). Body with wings 32; pronotum 3.3; tegmen 27; fore femur 6; middle femur 8; hind femur 16; fore tibia 7; middle tibia 9; hind tibia 16; genital plate 1.7.

**Comparison.** This specimen was firstly determined by Cadena-Castañeda (2012) as *V. difformis*, but it differs from the latter species in clearly narrower and less convex tegmina (for comparison see Figs 89 and 90). The new species is distinguished from *V. boraceae*, having rather narrow tegmina, by a more convex costal tegminal edge (in *V. boraceae*, this edge moderately arcuate

almost from its base to its apical part); and from the other representatives of *Arcuadana*, by strongly curved male cerci lacking apical bifurcations and denticles, an almost truncate apical part of the male genital plate, or narrower and less convex tegmina

**Etymology.** This name is the Latin word “arcuata” (arcuate, curved); such name notes the strongly curved (arcuate) male cerci of this species.

***Viadana (Arcuadana) tristis***

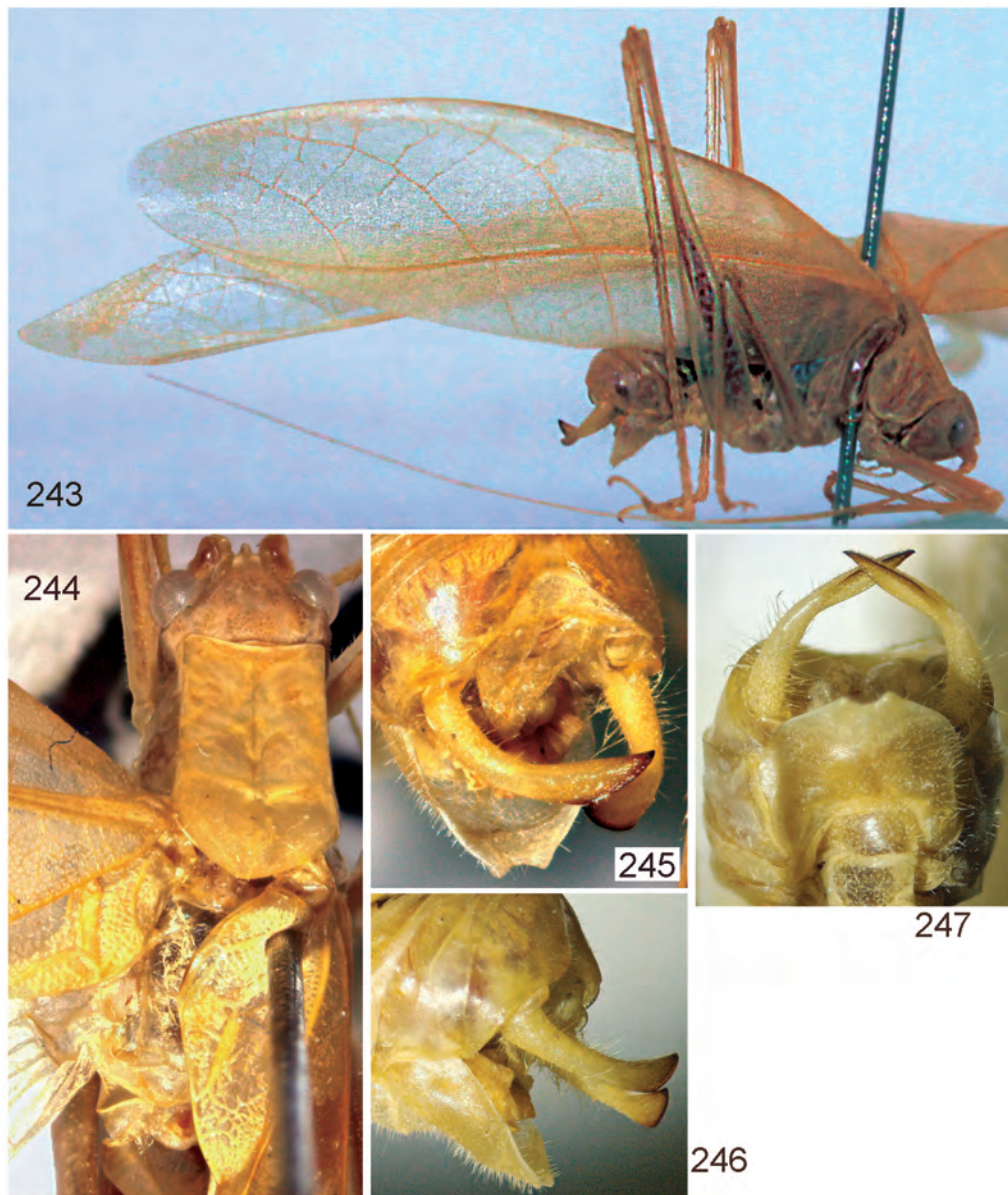
Gorochov, **sp. nov.**

(Figs 52, 65, 86, 99, 145–148, 177–179)

**Material.** Holotype – male; **Colombia**, “Peñas Blancas [= Peñas Blancas], Rio Magdalena, Colum., Woronov, 1/X.926” (ZIN). Paratype – 1 female, same data as for holotype but “2/V.926” (ZIN).

**Description.** Male (holotype). Size and structure of body similar to those of *V. ordinaria* but with following characteristic features: colouration light greyish brown with yellowish antennal flagellum, palpi, tibiae and cerci, as well as with semitransparent membranes of stridulatory apparatus in right tegmen and transparent membranes of hind wings (excepting distal part of costal lobe in latter wings); rostrum of head almost as in *V. dentata* but with median groove on dorsum running along most part of rostrum (excepting its apical part); median ocellus indistinct; tegmina moderately widened (similar in width to *V. dentata* and *V. ordinaria* but slightly wider than in *V. arcuata*), with widely arcuate costal edge (this edge less convex than in all previous species of *Arcuadana* described here), with rather short distal part after widest part of tegmen (this part in length almost as in *V. nulla* and *V. appendiculata*), and with three distinctly oblique branches of *RS* (Fig. 86); distal part of costal lobe in hind wings not very narrow, rather short, and with weakly convex (almost straight) costal edge (Fig. 99); last abdominal tergite with very short and wide posteromedian lobe almost truncate posteriorly; epiproct elongate and very narrow, with parallel lateral edges and round-





**Figs 243–247.** *Viadana (Viadana) diegomendesi* sp. nov., male: 243 – general view from side; 244 – head with pronotum and tegminal bases from above; 245–247 – abdominal apex from above and slightly posterolaterally (245), from side (246) and from below (247).

ed apex; cerci weakly arcuate, with barely thickened apical part curved upwards and slightly bilobate at apex (Figs 145–148); genital plate rather long, gradually narrowing to apical part consisting of a pair of elongate spine-like lobules and narrow and rather deep notch between them (Fig.

146); genitalia more or less similar to those of *V. decora* but with two pairs of less movable sclerotized structures (each structure of first pair with numerous denticles and short posterior spine, and that of second pair with large and more lateral plate and with almost curved posteromedial process



having a few small denticles on apical part; Figs 177–179).

Female. General appearance very similar to that of male, but tegmina slightly wider and with dorsal field as in all females previously described here, and last tergite as well as epiproct and cerci also as in these females; genital plate almost widely triangular and with rounded apex (Fig. 65); ovipositor similar to that of *V. ordinaria* but barely wider (higher), with slightly narrowed proximal part (Fig. 52), and with gonangulum more or less similar to that of *V. nulla* but having rather large lobe (instead small tubercle) above lateral concavity (this lobe almost round, directed downwards and covering posterior part of this concavity laterally; Fig. 75).

Length (mm). Body: male 20, female 25; body with wings: male 35, female 40; pronotum: male 3.9, female 4.9; tegmen: male 26, female 31; hind femur: male 14, female 17; ovipositor 10.5.

*Comparison.* The new species is distinguished from *V. zetterstedti*, *V. multiramosa*, *V. longicercata*, *V. rhombipholia*, *V. azteca*, *V. foreli*, *V. boyacae*, *V. boraceae*, *V. quadriramosa*, *V. rowelli*, *V. stephanyae* and all the species previously described here by the following combination of characters: male cerci are with the apical part strongly curved upwards and slightly bilobate at the apex; male genital plate with elongate (almost spine-like) apical lobules and with a narrow and rather deep notch between them. From *V. difformis*, *V. fruhstorferi* and *V. peruviانا*, the new species differs in a very different shape of the female tegmina (clearly less convex costal edge, narrower area between *Sc* and anal edge, or longer distal part).

*Etymology.* This species name is the Latin word “tristis” (sad).

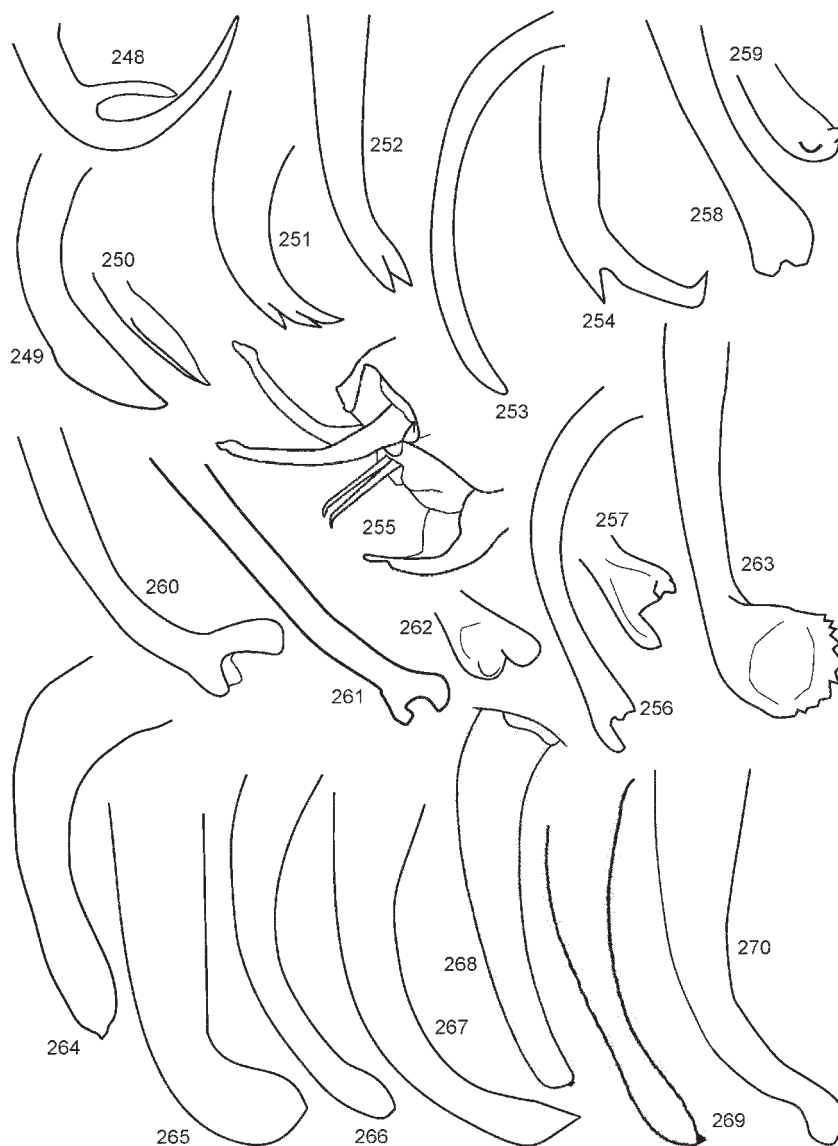
### *Viadana (Arcuadana) fruhstorferi*

(Brunner-Wattenwyl, 1891)  
(Figs 345, 347–349, 353–355)

= *Ctenophlebia fruhstorferi* Brunner-Wattenwyl, 1891

*Material.* Three males; **Brazil**, Santa Catharina State, “Colonia Hansa, St. Catharina”, “Rolle 1904” (ZIN).

*Description.* Male (nov.). General appearance very similar to that of holotype (female from same Brazilian state) and more or less similar to that of other representatives of *Arcuadana* described here previously, but some morphological features very characteristic: body size rather large; colouration uniformly light green but with yellowish (in dry specimens) pronotum and legs (in some of these males with light brown legs), with narrow transverse reddish stripe running from anterior part of lateral ocellus to eye, and with transparent areas in wings as in other males of *Arcuadana*; upper rostral tubercle smaller than in all species of this subgenus described here previously, with almost angular (in profile) narrow anterior part, and with rather high (almost keel-like) inflations above lateral ocelli (dorsal part of these inflations sometimes with reddish tinge); spaces between this rostral tubercle and antennal cavities with narrow and low transverse keels (these keels reddish, i. e. forming above-mentioned reddish stripes from lateral ocelli to eyes; Fig. 347); tegmina wide (almost oval), with somewhat shortened distal part, with rather strongly arcuate costal edge, with less strongly but also arcuate anal edge, with very short and very strongly curved *MA*, with three almost straight and obliquely situated *RS* branches, and with strongly curved distal *RS* branch (its apex ending almost at apex of tegmen; Fig. 348); hind wings with distal part of costal lobe as in Fig. 349; last abdominal tergite almost truncate posteriorly; epiproct not large, narrowly triangular, and with more or less convex dorsal surface; cerci not long, moderately thin, rather strongly and arcuately curved, with barely inflate distal part, and with small apical denticle located on medial surface of cercal apex (Figs 353, 355); genital plate almost quadrate but with slightly elongate and narrowed distal part having distinct rounded posteromedian notch and a pair of almost angular lobules



**Figs 248–270.** *Viadana*, male: 248 – *V. (Viadana) curvicercata* (Br.-W.); 249, 250 – *V. (V.) diegomendesi* **sp. nov.**; 251 – *V. (V.) festae* (Giglio-Tos); 252 – *V. (Paraviadana) inversa* (Br.-W.); 253 – *V. (V.) delicatula* Piza; 254 – *V. (P.) septentrionalis* (Piza); 255 – *V. (Arcuadana) ?decora* **sp. nov.**; 256, 257 – *V. (A.) zetterstedti* (Stål); 258, 259 – *V. (A.) barrancoi* **sp. nov.**; 260 – *V. (A.) hebardei* **sp. nov.**; 261, 262 – *V. (A.) brunneri* **sp. nov.**; 263 – *V. (A.) azteca* (Sauss. et Pict.); 264 – *V. (A.) stephanyae* Cadena-Castañeda; 265 – *V. (A.) multiramosa* (Br.-W.); 266 – *V. (A.) griffini* (Giglio-Tos); 267 – *V. (A.) foreli* (Sauss. et Pict.); 268 – *V. (A.) boyacae* Heb.; 269 – *V. (Proviadana) paralita* (Márquez); 270 – *V. (P.) guatemalensis* **sp. nov.** Left cercus laterally (248, 268–270), dorsally and partly posterolaterally (249), ventrally (252, 261), dorsally (254, 265, 266), dorsolaterally (256, 263, 267), and ventrolaterally (260); distal part of right cercus ventrally (250), ventromedially (257), dorsally (259), and medially (262); right cercus dorsally (251) and laterally (253, 258, 264); abdominal apex laterally (255). [table prepared by Cadena-Castañeda: 248, 251–257, 260, 263, 265–267, after photographs in Eades et al. (2015); 264, after Cadena-Castañeda (2012); 268, after Hebard (1927a); 269, after Márquez (1965).]

near this notch (Fig. 354); genitalia with moderately large semimembranous median plate having distinct notch (fold) in anterior part (Fig. 345).

Female. For its description and illustrations see Brunner-Wattenwyl (1891: 155, 156) and Eades et al. (2015).

Length (mm). Body: male 16.5–25, female 23; body with wings, male 39–40; pronotum: male 4.9–5.1, female 5; tegmina: male 29–30, female 32; hind femur: male 13.5–14, female 15; ovipositor 9.5.

*Comparison.* This species, probably known from a single female up to now (Eades et al., 2015), is similar to *V. multiramosa*, *V. quadriramosa* and possibly *V. zetterstedti* in the tegminal structure: its tegmina are wide, with a moderately short distal part and clearly arcuate anal edge. From *V. multiramosa*, *V. fruhstorferi* differs in a narrower, rounded (not almost rectangular) and less deep apical notch of the male genital plate; from *V. quadriramosa*, in a deeper and rounded (not almost angular) apical notch of this plate; and from *V. zetterstedti*, in a simple (not almost bifurcate) distal part of the male cerci. Structure of the male genitalia in *V. fruhstorferi* is also different from that in all the species previously described here (no a pair of sclerotized plates); thus, this species together with some other related species mentioned above (their male genitalia are unstudied) may be included in another species group of the subgenus *Arcuadana*.

### *Viadana (Arcuadana) barrancoi*

Cadena-Castañeda, **sp. nov.**

(Figs 258, 259, 278, 293–298)

*Material.* *Holotype* – male; **Colombia**, Cundinamarca Department, Girardot, 4°18'N, 74°48'W, 284 m, 28 March 2014, M. Quevedo (MUD).

*Description.* Male (holotype). Body colouration light green with purple eyes. Upper rostral tubercle rounded in profile, without exceeding base of antennal scape; lateral and median ocelli sub-circular and

weakly distinct (Fig. 295). Lateral lobes of pronotum as in Fig. 296. Tegmina almost as in *V. tristis* in shape (Fig. 294), with *Sc* lacking distinct branches (these branches lost among irregular crossveins in costal area), with three straight and parallel *RS* branches which equidistantly situated and reaching anal edge (but distal branch forked, and two its additional branches also reaching anal edge); stridulatory vein weakly curved and as long as one third of pronotal width in hind part of pronotum (Fig. 293). Last abdominal tergite almost truncate posteriorly; epiproct triangular, slightly wider than long, with rounded apex; cerci as long as genital plate, weakly curved upwards in distal half, with slightly dilated distal part, and barely bilobate at apex (i. e. divided into a pair of apical tubercles; Figs 258, 259, 297); genital plate triangular, longer than wide, gradually narrowing to apical part having narrow and rather short U-shaped notch (lobules around this notch rather short and rounded but with small spine-like denticle at apex (Figs 278, 298).

Female unknown.

Length (mm). Body 20; body with wings 30; pronotum 3; tegmina 22; hind femur 12.

*Comparison.* The new species is most similar to *V. tristis* but clearly distinguished by a less curved distal part of the male cercus and distinctly shallower posteromedian notch of the male genital plate (for comparison see Figs 146 and 149). From the other congeners belonging to *Arcuadana*, the new species differs in the same characters as *V. tristis*.

*Etymology.* This species is named in honor of the Spanish orthopterist Pablo Barranco.

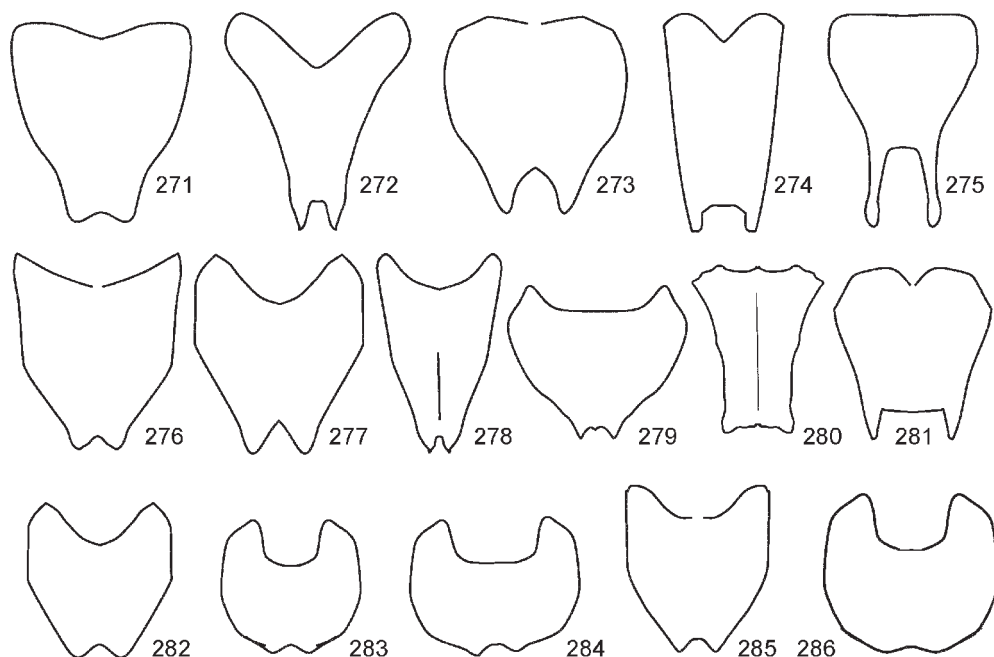
### *Viadana (Arcuadana) hebardii*

Cadena-Castañeda, **sp. nov.**

(Figs 260, 277, 290–292)

*Material.* *Holotype* – male; **Colombia**, Santander Department, 6°31'43.87"N, 73°6'27.65"W, M. Campos (MUD). *Paratypes*: 1 male, Santander Department, "Alto Río Opón", 900m, January 1950, L. Richter, "ICN-MHN





**Figs 271–286.** *Viadana*, male genital plate from below: 271 – *V. (A.) boyacae* Heb.; 272 – *V. (A.) foreli* (Sauss. et Pict.); 273 – *V. (A.) griffini* (Giglio-Tos); 274 – *V. (A.) multiramosa* (Br.-W.); 275 – *V. (A.) stephanyae* Cadena-Castañeda; 276 – *V. (A.) brunneri* **sp. nov.**; 277 – *V. (A.) hebaridi* **sp. nov.**; 278 – *V. (A.) barrancoi* **sp. nov.**; 279 – *V. (A.) zetterstedti* (Stål); 280 – *V. (A.) arcuata* **sp. nov.**; 281 – *V. (Paraviadana) septentrionalis* (Piza); 282 – *V. (P.) inversa* (Br.-W.); 283 – *V. (Viadana) festae* (Giglio-Tos); 284 – *V. (V.) diegomensesi* **sp. nov.**; 285 – *V. (V.) curvicercata* (Br.-W.); 286 – *V. (V.) delicatula* Piza. [274, 279, 283, after Eades et al. (2015); 275, 280, after Cadena-Castañeda (2012).]

ORT-00765" (ICN); 1 male, Cundinamarca Department, Villeta, 16 April 1967, A. Galvis (UNAB).

**Description.** Male (holotype). Body small and moderately robust. Colouration light green with dark red eyes. Upper rostral tubercle rounded in profile, reaching middle part of antennal scape; lateral ocelli circular and distinct. Tegmina wide, with short distal part, with strongly convex costal edge near base of distal *RS*, with somewhat arcuate anal edge, with *Sc* having six distinct and moderately curved branches reaching costal edge, with three parallel and straight branches of *RS* reaching anal edge and obliquely and equidistantly situated (distal branch undivided); stridulatory vein straight, equally thickened throughout its length, as long as third of pronotal width in posterior part of pronotum. Last

abdominal tergite with U-shaped postero-medial notch; epiproct triangular, as long as wide, with shallow median groove on dorsal surface, and with rounded apex; cerci 2.5 times as long as genital plate, with distal part arcuately curved upwards, and with apical part divided into two small lobules of more or less similar length (lateral lobule with heavily sclerotized nail-like apical structure; Figs 260, 290–292); genital plate longer than wide, with distal part narrowing to apex, and with apical part having rather deep angular posteromedian notch and rather long angular lobules around this notch (Figs 277, 291).

Female unknown.

Length (mm). Body 18–20; body with wings 38–40; pronotum 3–3.5; tegmina 28–30; hind femur 13–14.

**Comparison.** The new species is similar to *V. zetterstedti* but distinguished from it by the male cerci with two apical lobules more or less equal to each other in the length (in *V. zetterstedti*, lateral apical lobule much longer than medial one; for comparison see Figs 256, 257 and 260) and by the male genital plate with a deeper posteromedian notch (see Figs 277 and 279). From the other representatives of *Arcuadana*, the new species differs by wide tegmina (with a rather short distal part) in combination with a bifurcate apical part of the male cerci.

**Etymology.** This species is named in memory of the famous orthopterist Morgan Hebard for his important contribution to the knowledge of the Colombian Orthoptera.

**Remarks.** This species replaces *V. zetterstedti* in the central and northern regions of the Eastern Cordillera of Colombia between Cundinamarca and Santander Departments.

### *Viadana (Arcuadana) brunneri*

Cadena-Castañeda, **sp. nov.**

(Figs 261, 262, 276, 287–289)

**Material.** *Holotype* – male; **Colombia**, Antioquia Department, Medellín, “Coll. Br. v. W., Medellín, 6000’, Columb., Dämel”, “10.832” (NMW). *Paratypes*: 1 male, 1 female, same locality as for holotype, but 2 October 2000 (MUD); 1 female, **Panama**, “Coll. Br. v. W., Panama, Boucard”, “10.107” (NMW).

**Description.** Male (holotype). Body light green with reddish brown eyes. Upper rostral tubercle rounded in profile, weakly projected; lateral ocelli distinct, sub-circular; median ocellus small and inconspicuous. Tegmina as in *V. hebardii* but somewhat more elongate, less wide, with longer and slightly narrower distal part, with somewhat less convex costal edge near base of distal *RS* branch, and with this *RS* branch curved and reaching apex of tegmen (Fig. 290). Last abdominal tergite slightly emarginated; epiproct triangular, as long as wide, with rounded apex; cerci twice longer than genital plate, with apical part divided into two lobules (lateral lobule clearly longer

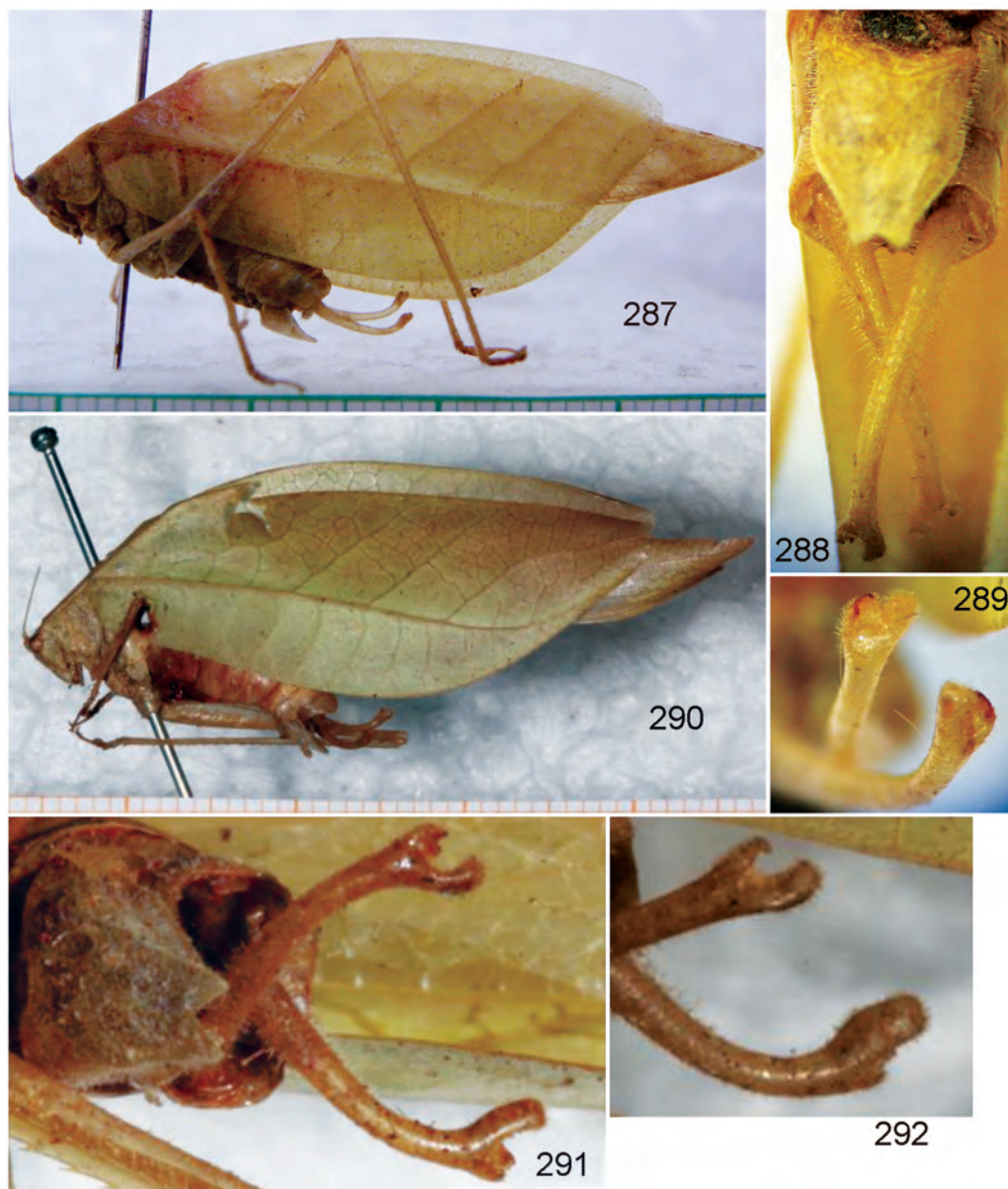
than medial one and with nail-like apical structure similar to that of *V. hebardii* (for comparison see Figs 260, 291, 292 and 261, 262, 288, 289); genital plate insignificantly longer than wide, narrowing to apex, with apical part having distinct (but not deep) roundly angular posteromedian notch and a pair of short roundly angular lobules around this notch (Figs 276, 288).

**Female.** Body similar in size and shape to that of male; wings with almost same pattern of tegminal venation in lateral field as in this male; dorsal tegminal field and most part of abdominal apex as in female of previous congeners (last tergite straight posteriorly and without modification, cerci conical and moderately robust); genital plate triangular, wider than long, and with a rather wide U-shaped posteromedian notch; ovipositor as long as two thirds of total length of hind femur, arcuately curved upwards.

**Length (mm).** Body: male 22–23, female 23.5–24.5; body with wings: male 40–45, female 32–47; pronotum: male 3–3.5, female 3.5–3.7; tegmen: male 30–32, female 27–32; hind femur: male 13.5–14, female 14–15.5; ovipositor 12.

**Comparison.** The new species is most similar to *V. hebardii* but distinguished from it by the male cerci with a clearly longer lateral apical lobule, by a less deep posteromedian notch of the male genital plate, and by the above-mentioned characters of male tegmina. From *V. zetterstedti*, the new species differs in a longer medial apical lobule of the male cerci (for comparison see Figs 256, 257 and 261, 262), and in a clearly longer male genital plate with wider posterolateral lobules (see Figs 276 and 279). From the other representatives of *Arcuadana*, the new species differs in the same characters as *V. hebardii*.

**Etymology.** This species is named in memory of the famous orthopterist Carl Brunner von Wattenwyl for his great contribution to the knowledge of the subfamily Phaneropterinae and others groups of Orthoptera.



**Figs 287–292.** *Viadana* (*Arcuadana*), male: 287–289 – *V. brunneri* sp. nov.; 290–292 – *V. hebardii* sp. nov. General view from side (287, 290); abdominal apex from below (288, 291); distal part of cerci more or less from side (289, 292). [290–292, after Eades et al. (2015).]

*Remarks.* The specimens reported as *V. zetterstedti* by Montealegre Zapata (1997) for “Valle del Cauca” in Colombia as well as by Hebard (1927b, 1933) and Nickle (1992) for Panama correspond to the new species described here.

***Viadana* (*Paraviadana*) *intermedia***

Gorochov, sp. nov.

(Figs 15, 58, 70, 151–153, 165–168)

*Material.* *Holotype* – male; **Peru**, Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., ~1200 m,



partly primary / partly secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN). *Paratype* – female; same data as for holotype (ZIN).

*Description.* Male (holotype). General appearance similar to that of subgenus *Viadana* but with following characters: body size rather small; colouration yellowish with greenish tinge, rose eyes, and semi-transparent and transparent membranes in wings as in *V. tristis*; rostrum of head with lamellar anterior half somewhat angularly projected upwards and with a pair of small inflations in posterior half above lateral ocelli (these inflations separated from anterior half of rostrum by weak dorsal concavity visible in profile; from each other, by distinct median groove; and from rest of head dorsum, by additional transverse groove); median and lateral ocelli developed, moderately large and almost equal to each other in size; area between lateral ocellus and antennal cavity with distinct oblique keel running from anterior half of rostrum to eye (Fig. 151); tegmina moderately narrow, with almost straight (slightly arcuate) costal edge, with branches of *Sc* more numerous and somewhat less regularly located (almost transverse, partly bifurcate, and not more or less parallel to *RS* branches), with five distinctly oblique branches of *RS*, with weakly but distinctly arcuate anal edge, and with stridulatory apparatus similar to that of *V. hamata* (Fig. 15, 152); costal lobe of hind wings as in Fig. 153; last abdominal tergite with posteromedian lobe similar to that of *V. tristis* but slightly more concave posteriorly; epiproct elongately triangular (not very narrow and with not parallel lateral edges); cerci rather small, somewhat arcuate and with apical part having two small lobules (shorter dorsal lobule and longer ventral one; Figs 165, 167); genital plate rather short, almost triangular but with a pair of moderately elongate and almost angular lobules as well as rather wide trapezoidal notch between them (Fig. 166); genitalia completely membranous (Fig. 168).

Female. Size, colouration and structure of body very similar to those of male, but dorsal tegminal field and abdominal apex (excepting epiproct and genital structures) as in all previous females described here, epiproct somewhat shorter than in these species and practically not curved upwards; genital plate small, clearly narrowing to apex, with a pair of rather long posterior lobules situated very near each other and directed partly backwards and partly upwards, with narrow and moderately deep notch between these lobules, and with short and not narrow ventromedian keel situated in region of bases of these lobules; ovipositor medium-sized for this genus, with ridges along edges of gonangulum in place of its contacts with base of lower valve and with ninth tergite (partly separated proximal part of latter ridge with heavily sclerotized and rather high ventral inflation having more or less wrinkled surface; Figs 58, 70).

Length (mm). Body: male 14.5, female 15; body with wings: male 28, female 30; pronotum: male 3.4, female 3.5; tegmen: male 23, female 24; hind femur: male 10.5, female 11; ovipositor 7.

*Comparison.* The new species has an intermediate structure of the tegminal *Sc* branches between the subgenus *Viadana* (especially *V. biloba*) and the other representatives of *Paraviadana*; this structure is more or less similar to that of *Arcuadana*, but the latter subgenus is distinguished by a very different shape of the tegmina. The ovipositor base of *V. intermedia* has similarity to that of *V. brasiliensis* and some other species of the subgenus *Viadana*; *V. intermedia* may be a representative of the latter subgenus with a primitive tegminal *Sc*, but it distinctly differs from all the other known species of *Viadana* s. str. in this character and tentatively included here in *Paraviadana*. The new species is also similar in the shape of male cerci to *V. inversa* and *V. styliformis* but distinguished from *V. inversa* by these cerci shorter and having a smaller dorsoapical lobule as well as by longer and more angular apical lobules of

the male genital plate, and from *V. styliformis*, by the male cerci less curved and male genital plate with the apical lobules not style-like. From the insufficiently studied *V. altera*, the new species differs in shorter and not spine-like lobules on the apical part of male cerci.

**Etymology.** This species name is the Latin word “intermedia” (intermediate).

***Viadana (Paraviadana) intermedia atalaya*** Gorochov, **subsp. nov.**  
(Figs 59, 71, 154, 155)

**Material.** *Holotype* – female; **Peru**, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN). *Paratype* – female; same data as for holotype (ZIN).

**Description.** Female (holotype). General appearance very similar to that of nominotypical subspecies, but proximal half of upper part of head rostrum (with a pair of inflations) slightly longer (for comparison see Figs 151 and 154), tegmina somewhat wider and with more convex anal edge (Fig. 155), genital plate less narrowing to apex and with more concave lateral edges as well as with clearly longer and slightly narrower ventromedian keel, posterior lobules of this plate distinguished from those of *V. i. intermedia* by apical parts directed slightly laterally (notch between these lobules somewhat wider in posterior part), posterior part of these lobules obliquely truncate in profile (not curved upwards; for comparison see Figs 70 and 71), and proximal part of ridge, located along place of contact of ovipositor gonangulum with ninth abdominal tergite, more projected laterally and more distinctly separated from rest of this ridge as well as with almost flat ventral surface (Figs 59, 71).

**Variations.** In paratype, apical part of tegmina somewhat less obliquely rounded (this part almost as in holotype of nominotypical subspecies), and proximal part of

ridge along place of contact of ovipositor gonangulum with nine abdominal tergite having low (much lower than in *V. i. intermedia*) but more or less distinct inflation.

Male unknown.

Length (mm). Body 15–15.5; body with wings 31–32; pronotum 3.2–3.4; tegmen 24.5–25.7; hind femur 11.5–12; ovipositor 6.9–7.2.

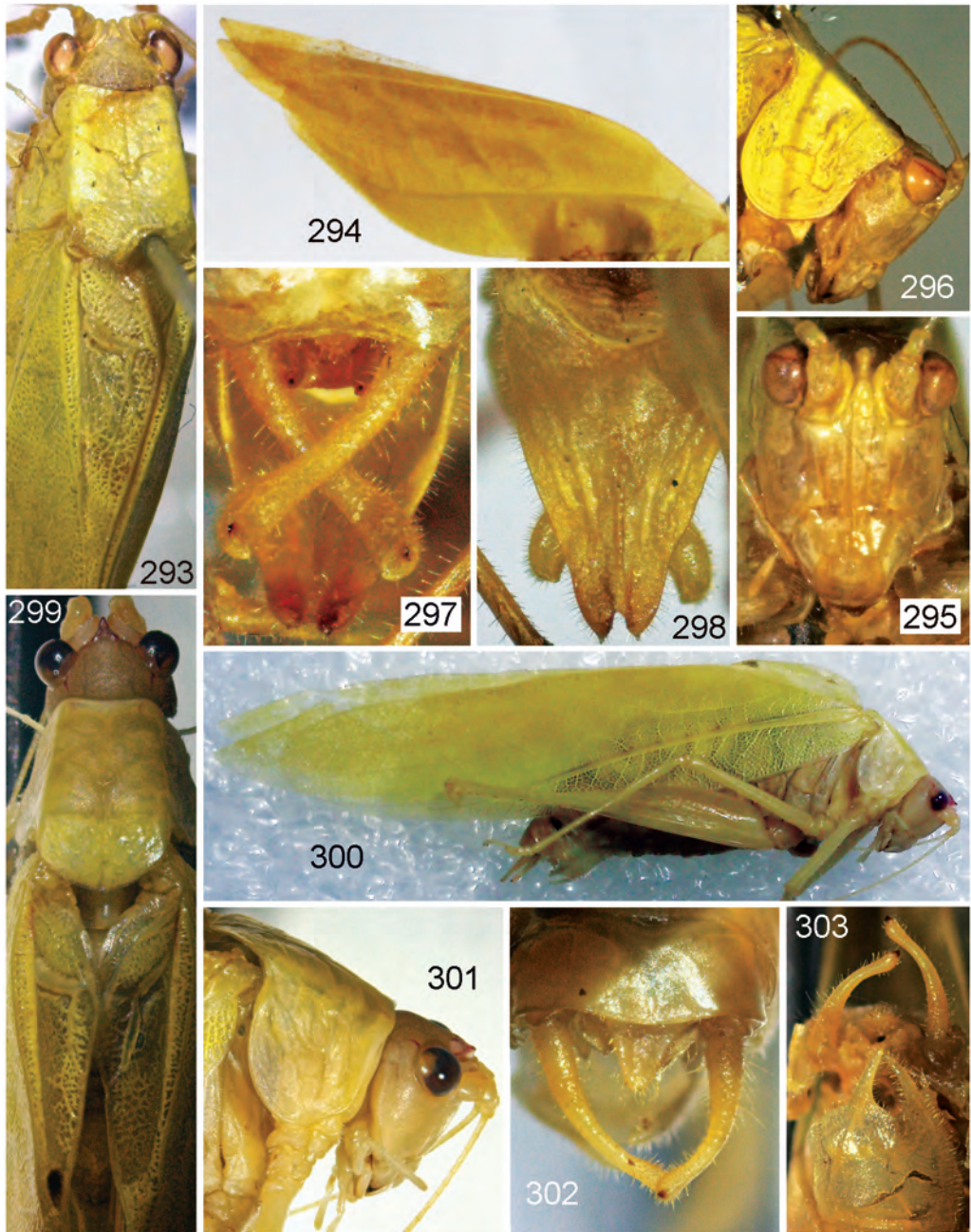
**Comparison.** The new subspecies differs from the nominotypical subspecies in the characters listed above. From all the other congeners, it is distinguished by the same characters as *V. i. intermedia*; and additionally from *V. brasiliensis*, by a smaller female genital plate having a clearly deeper posteromedian notch and less concave lateral edges.

**Etymology.** This subspecies is named after the Atalaya Province where its type locality is situated.

***Viadana (Paraviadana) cercata***  
Gorochov, **sp. nov.**  
(Figs 60, 72, 156–158, 169–172)

**Material.** *Holotype* – male; **Peru**, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN). *Paratypes*: 1 male, 1 female; same data as for holotype (ZIN).

**Description.** Male (holotype). Body size rather large for this subgenus. Colouration yellowish with greenish tinge, short reddish longitudinal line behind each eye, semi-transparent areas of stridulatory apparatus in right tegmen, transparent membranes of most part of hind wings (as in all congeners previously described here), and dark brown apical parts of cercal branches. Rostrum of head similar to that of *V. i. atalaya* but with narrow apical part of upper tubercle slightly shorter and barely wider in upper half (dorsal surface of this part with slight longitudinal groove in proximal third), lateral ocelli slightly larger than median one, and oblique keel between lateral ocellus and



**Figs 293–303.** *Viadana*, male: 293–298 – *V. (Arcuadana) barrancoi* **sp. nov.**; 299–303 – *V. (Proviadana) guatemalensis* **sp. nov.** Head with pronotum and tegminal bases from above (293, 299); wings in rest position from side (294); head in front (295); head with pronotum from side (296, 301); abdominal apex from above (297, 302) and from below (298, 303); general view from side (300).



antennal cavity less developed (Fig. 156); tegmina similar to those of *V. i. intermedia* in shape but with apical part more rounded, anal edge slightly less convex, *Sc* branches more oblique and directed posterolaterally (i.e. towards to costal edge and to apical part at same time), and *RS* with six oblique branches (Fig. 157); hind wings with distal part as in Fig. 158; last abdominal tergite with a pair of short rounded lobes and with moderately shallow and rather wide notch between them; cercus distinctly larger than in *V. intermedia*, rather long and straight but with medial tooth (inner branch) in middle part and with medially curved distal part of outer branch (latter part narrowly rounded at apex and with medial longitudinal concavity near this apex; this concavity outlined by thin and not high ring-like keel; Figs 169, 171); genital plate almost as long as wide, narrowing in distal part, with a pair of elongate angular projections at apex, and with distinct rounded notch between them (Fig. 170); genitalia with rounded but somewhat transverse semisclerotized plate having moderately large middle concavity (Fig. 172).

Variations. Second male with apical notch of genital plate almost angular in shape.

Female. General appearance as in males, but dorsal tegminal field and abdominal apex (including light colouration of apical parts of cerci) more or less similar to those of females of *V. intermedia*; however, epiproct somewhat longer and slightly curved upwards, genital plate distinctly transverse and with wide and almost truncate hind part (Fig. 72), ovipositor gonangulum in place of contact with base of lower valve having rather large (thick but short) lower process which directed downwards and provided with apical part curved forwards and almost touching posterior edge of genital plate (Figs 60, 72).

Length (mm). Body: male 19–21, female 19.5; body with wings: male 33–35, female 38; pronotum: male 3.7–4.2, female 4.4; tegmen: male 26–27, female 29.5; hind femur: male 13.5–14, female 14.5; ovipositor 10.3.

*Comparison.* The new species is clearly distinguished from all the other species of *Paraviadana* with known males by characteristic male cerci having a more or less middle position of the medial branch (tooth) in combination with a rather deep apical notch of the male genital plate and distinctly oblique branches of the tegminal *Sc*. From the insufficiently studied *V. altera*, the new species differs in the male cercal apex darkened and not spine-like.

*Etymology.* This species name originates from “cercus”, a morphological term from Greek word meaning tail.

***Viadana (Paraviadana) cercata cuyabeno* Gorochov, subsp. nov.**  
(Figs 61, 73, 159)

*Material.* *Holotype* – female; **Ecuador**, eastern part, 60–70 km E of Lago Agrio Town, environs of Lago Grande (lake) on Rio Cuyabeno, very lowlying primary forest, on leaf of small tree at night, 2–9 November 2005, A. Gorochov, V. Ovtshinnikov (ZIN).

*Description.* Female (holotype). General appearance very similar to that of female of nominotypical subspecies, but dorsum of head without distinct brownish lines behind eyes, apical (narrow) part of upper rostral tubercle somewhat more angularly projected upwards (almost as in Fig. 162), tegmina with anal edge slightly more convex (Fig. 159), sclerotized area of genital plate with lateral parts slightly shorter and with middle part somewhat more projected forwards and widely truncate anteriorly (Fig. 73), and ovipositor gonangulum (in place of contact with base of lower valve) having large lower process similar to that of *V. c. cercata* but with shorter and not curved apical part (Figs 61, 73).

Male unknown.

Length (mm). Body 19; body with wings 36.5; pronotum 4.5; tegmen 29; hind femur 15; ovipositor 10.

*Comparison.* The new subspecies is distinguished from *V. c. cercata* by the characters named above; and from all the other similar congeners with known females, by

a clearly transverse genital plate and the presence of characteristic lower processes on the ovipositor basal part. Differences from the *Paraviadana* species known from males only are less understandable, but *V. c. cuyabeno* probably differs from them in the same characters as the nominotypical subspecies.

*Etymology.* This subspecies is named after the Cuyabeno River.

### *Viadana (Paraviadana) napo*

Gorochov, *sp. nov.*

(Figs 160, 161, 173–176)

*Material. Holotype* – male; **Ecuador**, Napo Prov., “Rio Napo, Chambira”, 0°51'11''S, 77°15'07''W, 334 m, 10 November 2011, V. Sinyayev, O. Romanov (ZIN).

*Description.* Male (holotype). Body size approximately as in *V. intermedia*. Colouration greenish with greyish / brownish tinge on most part of body (excepting wings, but proximal part of tegmina also with this tinge; possibly, this tinge not characteristic of living insect) and with semitransparent and transparent membranes of wings similar to those of above-mentioned congener. Head rostrum approximately as in *V. i. atalaya*, but keel between lateral ocellus and antennal cavity almost as in *V. cercata*; tegmina and hind wings (Figs 160, 161) very similar to those of male of *V. i. intermedia*, but tegminal *RS* branches slightly more transverse; last abdominal tergite gradually turning into triangular epiproct directed downwards and having rather deep median groove in proximal half (Fig. 173); cercus intermediate in size between *V. intermedia* and *V. cercata*, with distal part medially curved and having two apical teeth (inner tooth longer, having small and slightly hooked lobule at apex; outer one distinctly shorter and with almost fingernail-like lobule at apex; Figs 173, 175); genital plate weakly elongate, narrowing to apex, with a pair of apical lobules intermediate in shape between *V. intermedia* and *V. cercata*, and with notch between these lobules rather

deep and rounded (Fig. 174); genitalia distinguished from those of *V. cercata* by somewhat longer semisclerotized plate with larger middle concavity only (Fig. 176).

Female unknown.

Length (mm). Body 18.5; body with wings 33; pronotum 4.1; tegmen 26.5; hind femur 14.5.

*Comparison.* The new species differs from *V. intermedia* and *V. cercata* in the male cerci much larger or lacking medial tooth in the middle part, respectively; from *V. styliformis* and *V. septentrionalis*, in the male genital plate having wider (not style-like) apical lobules; and from *V. inversa* and *V. altera*, in the male cerci with the inner apical tooth distinctly longer than outer one (in *V. inversa*, both these teeth are almost equal in length; in *V. altera*, the outer apical tooth is longer than inner one).

*Etymology.* This species is named after the Napo River.

### *Viadana (Paraviadana?) aenigma*

Gorochov, *sp. nov.*

(Figs 62, 78, 162–164)

*Material. Holotype* – female; **French Guiana**, “Guyane Fr., Mt de Kaw, 2 km SO Camp Caïmans”, 300 m, 4°34'N, 52°12'W, 9–10 July 1995, V. Gusarov (ZIN).

*Description.* Female (holotype). Body size rather small for this genus. Colouration greenish with yellowish tinge, dark red dorsal half of upper rostral tubercle and four narrow stripes on head dorsum (a pair of stripes running from latter half of rostral tubercle to eyes near upper edges of antennal cavities, and a pair of longitudinal stripes behind eyes), reddish eyes and medial areas on scapes, rose stripes on pronotal disc along its lateral edges and on tegminal dorsal fields along their lateral edges, reddish brown stripe along middle part of anal edge on each tegmen, greenish brown stripe along distal part of this edge, and transparent hind wings having small apical part yellowish and with narrow reddish brown stripe along short distal part of anal edge

of costal lobe (Figs 163, 164). Structure of body more or less similar to that of females of other congeners, but narrow apical half of upper rostral tubercle angularly projected upwards (almost as in *V. napo* but slightly more acute-angled in profile; Fig. 162); proximal half of this tubercle approximately as in *V. i. intermedia* but with less distinct lateral ocelli which somewhat smaller than median ocellus; pronotum typical of this genus; tegmina with costal edge slightly more convex than in all described species of subgenera *Viadana* and *Paraviadana* but clearly less convex and more arcuate (not arcuately angular) than in *Arcuadana*, with anal edge more convex than in described representatives of *Paraviadana* and *Arcuadana* as well as in most representatives of *Viadana* s. str., with *Sc* branches similar in structure to those of *V. intermedia* but somewhat more arcuate, with six almost straight branches of *RS*, with *RS* branches and *MA* more longitudinal than in all known species of this genus, with rather long and narrow dorsal field, and with almost angular apical part of lateral field (Fig. 163); hind wings with distal part as in Fig. 164; abdominal apex more or less similar to that of all females previously described here, but epiproct shorter (triangular) and not curved, genital plate somewhat triangularly elongate and with membranous anteromedian part as well as with narrowly rounded apex (Fig. 78), and ovipositor with basal part rather simple in shape and with rest parts as in Fig. 62.

Male unknown.

Length (mm). Body 14; body with wings 26; pronotum 3.5; tegmen 23; hind femur 12; ovipositor 8.2.

*Comparison.* The new species is clearly distinguished from all the congeners by the above-mentioned tegminal characters as well as by a characteristic colouration of the head and tegmina; from females of these species, it additionally differs in a simple structure of the ovipositor basal part and somewhat elongate and almost triangular female genital plate. These differences allow me to include it in *Paraviadana* only under

question; I cannot exclude that it may be a representative of a new subgenus of the genus *Viadana*.

*Etymology.* The species name is the Latin word “aenigma” (riddle, enigma).

### *Viadana (Proviadana) ornata*

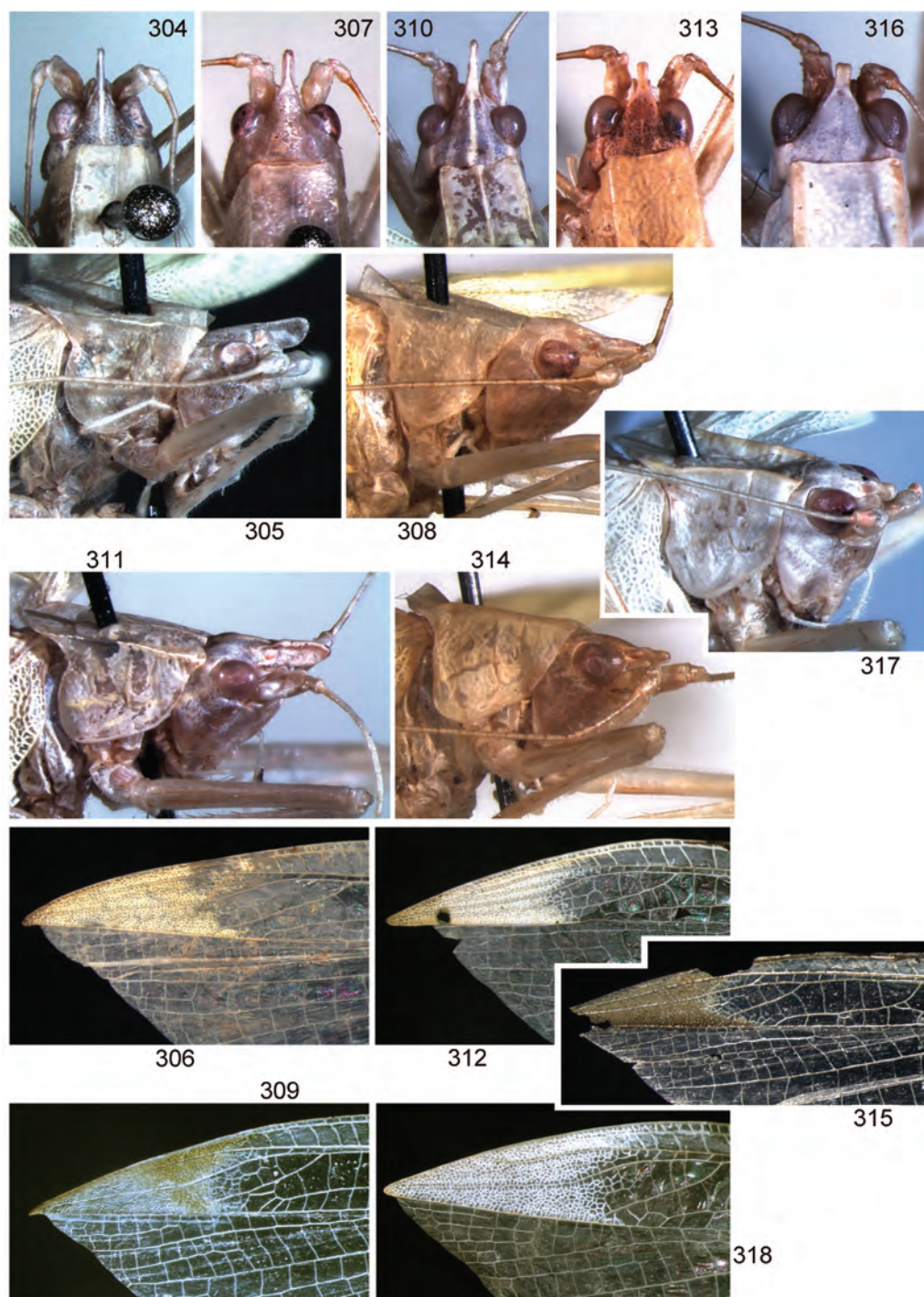
Gorochov, *sp. nov.*

(Figs 186–188, 198–203, 227, 228)

*Material.* *Holotype* – male; **Peru**, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN). Paratypes: 4 males, 1 female; same data as for holotype (ZIN).

*Description.* Male (holotype). Body medium-sized for this genus. Colouration yellowish with greenish tinge and following marks: dorsum of head and pronotal disc whitish, but apical (narrow) part of upper rostral tubercle dorsally with rose tinge; head also with two pairs of brownish rose stripes (one stripe oblique and running between lateral ocellus and antennal cavity from upper half of lateral side of apical part of upper rostral tubercle to eye, and second stripe longitudinal and running from hind part of eye to occiput) and with more or less brownish rose eyes; pronotum with light brown stripes along lateral edges of disc (Fig. 186); tegmina with small brown spot in distal part of mirror of left tegmen, brown dot in distal part of dorsal field of both tegmina, and light brown area between *M* and *CuA* in both tegmina (Fig. 188); hind wings with yellowish distal part of costal lobe and with rest part coloured as in all previous subgenera of *Viadana* (Fig. 187). Head rostrum similar to that of above-mentioned subgenera, but apical (narrow) part of its upper tubercle rather high, lacking any groove dorsally, and somewhat angularly projected upwards / forwards in profile; posterior part of this tubercle widened and with a pair of weak and elongate inflations but without distinct groove on dorsal surface; lateral ocelli on lateral sides of these





**Figs 304–318.** *Tomeophera*: 304–306 – *T. semilata* sp. nov.; 307–309 – *T. s. boliviana* subsp. nov.; 310–312 – *T. ucayali* sp. nov.; 313–315 – *T. modesta angusta* subsp. nov.; 316–318 – *T. ?brevirostris* (Bruner). Head with anterior half of pronotum from above (304, 307, 310, 313, 316); head with pronotum from side (305, 308, 311, 314, 317); distal part of hind wing (306, 309, 312, 315, 318).

inflations large and elongate, almost 1.5 times as large as median ocellus; oblique keel between lateral ocellus and antennal cavity undeveloped (Fig. 186). Pronotum typical of genus *Viadana*, i. e. with lateral lobes moderately short and having anterior, ventral and posterior edges rounded; tegmina rather long and narrow, with *Sc* branches directed more or less distolaterally (i. e. very not parallel to *RS* branches), with *MA* apex located near middle of tegminal length, with five distant branches of *RS* situated more obliquely than in all previous species of this genus described here, and with stridulatory apparatus similar to that of these species (Fig. 188); hind wings with distal part as in Fig. 187 (this yellowish part clearly exposed behind tegmina in rest position). Last abdominal tergite with almost straight posterior edge in dorsal view; epiproct roundly triangular, not large; cerci thin, almost cylindrical, slightly thickened in basal third, strongly but arcuately curved in distal half, and with small and almost hooked apical denticle (Figs 198, 200, 201); genital plate rather short but with distal part narrowing to a pair of moderately long apical lobules having moderately deep and rather narrow notch between them (as in Fig. 199); genitalia with three semisclerotized plates (dorsal plate small and slightly bilobate at apex, lateral plates distinctly larger and barely elongate; Figs 202, 203).

Variations. One of other males (Fig. 199) with light brown stripes along lateral edges of pronotal disc almost indistinct; number of *RS* branches varied from five to six.

Female. General appearance as in holotype, but dorsal tegminal field with one small brown mark in distal part only; abdominal apex similar to that of subgenera *Viadana*, *Arcuadana* and *Paraviadana*, but epiproct distinguished from that of males of this species by somewhat smaller size only, genital plate rather short and distinctly narrowing to almost narrowly rounded apex having very small posteromedian notch (Fig. 228), and ovipositor with gonangulum similar to that of *Arcuadana* in

structure and without additional lobules in basal part (general shape of ovipositor as in Fig. 227).

Length (mm). Body: male 16–18, female 17; body with wings: male 33–35, female 36; pronotum: male 3.6–3.8, female 4; tegmen: male 25–26.5, female 27; hind femur: male 14.5–15.5, female 15; ovipositor 9.5.

*Comparison.* The new species is more or less similar to *V. paralita* in the male genital plate, but it differs from the latter species in shorter apical lobules of this plate and a more slender (in profile) ovipositor. From *V. lita*, the new species is distinguished by a clearly longer distal part of the tegmina (tegminal *MA* is slightly longer than distance between base of *RS* and tegminal apex in *V. lita*, but it is much longer in *V. ornata*; for comparison see Figs 188 and 197). From the other possible representatives of *Proviadana* (*Grammadera janeirensis* and *G. forcipata*), *V. ornata* differs in shorter pronotal lateral lobes [however, the original picture of *G. forcipata* holotype (Rehn, 1907: fig. 12) is not identical to “its” photograph in Eades et al. (2015); in Rehn’s picture, tegminal *MA* is distinctly shorter and reaches the middle part of hind femur, but in the latter photograph, this vein ends slightly behind the apex of this femur (!)].

*Etymology.* This species name is the Latin word “ornata” (adorned).

### *Viadana (Proviadana) lobulata*

Gorochov, *sp. nov.*

(Figs 189, 190, 210–214, 229, 230)

*Material.* *Holotype* – male; **Peru**, Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., ~1200 m, partly primary / partly secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN). *Paratypes*: 3 males, 8 females, same data as for holotype (ZIN).

*Description.* Male (holotype). General appearance similar to that of *V. ornata* but with following differences: body slightly smaller; colouration more uniform, i. e. with rose stripes on head similar to those of this

species but without brown and light brown marks on tegmina and pronotum; upper tubercle of head rostrum with weak dorsal longitudinal groove running from middle part of anterior half of this tubercle to anterior part of its posterior half; median ocellus rather high (vertical), not smaller than lateral ocellus; tegmina with less arcuately curved *MA* and with four branches of *RS* (Fig. 189); distal part of costal lobe of hind wings barely less thickened (almost membranous; Fig. 190); last abdominal tergite with rather large but not long posteromedian lobe slightly narrowing to rounded apex (Fig. 210); this lobe practically fused with elongate and moderately narrow epiproct having almost parallel lateral edges and rounded apex; cercus clearly less curved than in *V. ornata*, with distinct ventral subapical tooth directed downwards and somewhat medially, and with slightly inflat, curved and rounded apical part (Figs 210–212); genital plate elongate, slightly narrowing to a pair of long and rather narrow (thin) apical lobules having moderately narrow and deep notch between them (Fig. 211). Genitalia with median plate more bilobate posteriorly and larger than in *V. ornata* (Fig. 213), with rather long and thin median apodeme running forwards from dorsal surface of this plate (Figs 213, 214), and with lateral plates distinctly shorter than in latter species (Fig. 214).

Variations. Sometimes eyes also rose, or head without any rose marks; anterior half of upper rostral tubercle in one male with rounded anterodorsal edge in profile.

Female. Size, colouration and structure of body very similar to those of males, but dorsal tegminal field and abdominal apex as in female of *V. ornata* excepting small differences in ovipositor structure (ovipositor slightly shorter and having short rounded lobule at place of fusion of lower valve with gonangulum on each lateral side; Figs 229, 230).

Length (mm). Body: male 13–15, female 14–18; body with wings: male 27–30, female 30–34; pronotum: male 3–3.2, female

3.3–3.5; tegmen: male 21–23, female 24–27; hind femur: male 12–13, female 13–14.5; ovipositor 7.3–7.8.

*Comparison.* Differences between *V. lobulata* and *V. ornata* are listed above. From *V. paralita*, the new species is distinguished by the presence of a non-apical tooth on the male cercus and by longer apical lobules of the male genital plate; and from *V. lita*, *G. forcipata* and *G. janeirensis*, by the same characters as *V. ornata*.

*Etymology.* This species name is the Latin word “lobulata” (lobulate).

### *Viadana (Proviadana) proxima*

Gorochov, *sp. nov.*

(Figs 191, 192, 215–219)

*Material.* *Holotype* – male; **Peru**, Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., ~1200 m, partly primary / partly secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisutkin, E. Tkatsheva, V. Izersky (ZIN).

*Description.* Male (holotype). Size, colouration and structure of body very similar to those of *V. lobulata* but with following characteristic features: head without distinct rose marks; wings distinguished from those of this species by slightly more numerous (5) branches of tegminal *RS* only (Figs 191, 192); last abdominal tergite with slightly shorter posteromedian lobe; cercus with longer and not curved apical part situated behind subapical tooth and with small medial convexity between this tooth and cercal apex (Figs 215–217); genital plate with somewhat wider basal part of each apical lobule (this lobule gradually narrowing to acute apex, i. e. very narrowly triangular) and with narrower notch between them (Fig. 216); genitalia with less sclerotized (almost membranous) structures, with median plate slightly shorter and having wider (higher) distal part of its apodeme, and with lateral plates having longer and less obtuse dorsal projection (= dorsoapical projection in *V. lobulata*) in profile (Figs 218, 219).

Female unknown.





**Figs 319–323.** *Tomeophera*, right tegmen: 319 – *T. semilata* **sp. nov.**, male; 320 – *T. s. boliviana* **subsp. nov.**, female; 321 – *T. ucayali* **sp. nov.**, male; 322 – *T. modesta angusta* **subsp. nov.**, female; 323 – *T. ?brevirostris* (Bruner), male.

Length (mm). Body 14; body with wings 32; pronotum 3; tegmen 24; hind femur 12.5.

**Comparison.** The new species is most similar to *V. lobulata* but distinguished from it by the above-mentioned characters. From the other true and possible representatives of *Proviadana*, *V. proxima* differs in the same characters as *V. lobulata* (except ovipositor length).

**Etymology.** This species name is the Latin word “proxima” (nearest).

### ***Viadana (Proviadana) illobulata***

Gorochov, **sp. nov.**

(Figs 193, 194, 220–226, 231, 232)

**Material.** *Holotype* – male; **Peru**, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN). *Paratypes*: 3 males, 7 females; same data as for holotype (ZIN).

**Description.** Male (holotype). General appearance very similar to that of *V. lobulata* and *V. proxima* but with following characteristic features: head without distinct rose marks; wings with tegminal *RS* as in *V. proxima* but with slightly wider dorsal tegminal field and barely narrower distal part of hind wing costal lobe (Figs 193, 194); last abdominal tergite also as in *V. proxima* but with distinct median groove on dorsum of posteromedian lobe; cercus almost straight, with medial tooth located in middle part of its length, and with rounded apex (Figs 220–222); genital plate short and almost roundly truncate posteriorly but with a pair of long and very narrow (thin) lobules in posteromedian part of this plate as well as with rounded and narrow notch between these lobules (Fig. 221). Genitalia with plates more similar to those of *V. lobulata*, but median plate distinctly smaller and less bilobate (almost as in *V. ornata*), and lateral plates with longer dorsoapical projection (this projection in profile more or less similar to dorsal one in *V. proxima*) and characteristic shape of more ventral part in

profile (for comparison see Figs 213, 214, 218, 219 and 223, 224).

**Variations.** Structure of cerci slightly varied: sometimes, they with somewhat shorter distance from medial tooth to cercal apex; but sometimes, they also slightly arcuate in subapical part (Figs 225, 226).

**Female.** General appearance as in male and practically indistinguishable from that of female of *V. lobulata*; however, genital plate with distal (narrowing) part somewhat shorter (Fig. 232), and ovipositor longer (approximately as in *V. ornata* in shape) and without distinct lobules in places of fusion of lower valve with each gonangulum (Fig. 231).

Length (mm). Body: male 15–16, female 15–17; body with wings: male 30–32, female 32–34; pronotum: male 3.3–3.5, female 3.5–3.7; tegmen: male 22–23.5, female 23–25; hind femur: male 13–14, female 13–14.5; ovipositor 8–8.5.

**Comparison.** The new species distinctly differs from *V. lobulata* and *V. proxima* in the characters of male cerci and of male genitalia named above. From all the other true and possible species of *Proviadana*, *V. illobulata* is distinguished by the same characters as *V. lobulata*.

**Etymology.** This name originates from the Latin negative prefix “il-” and *V. lobulata*.

### ***Viadana (Proviadana) taediosa***

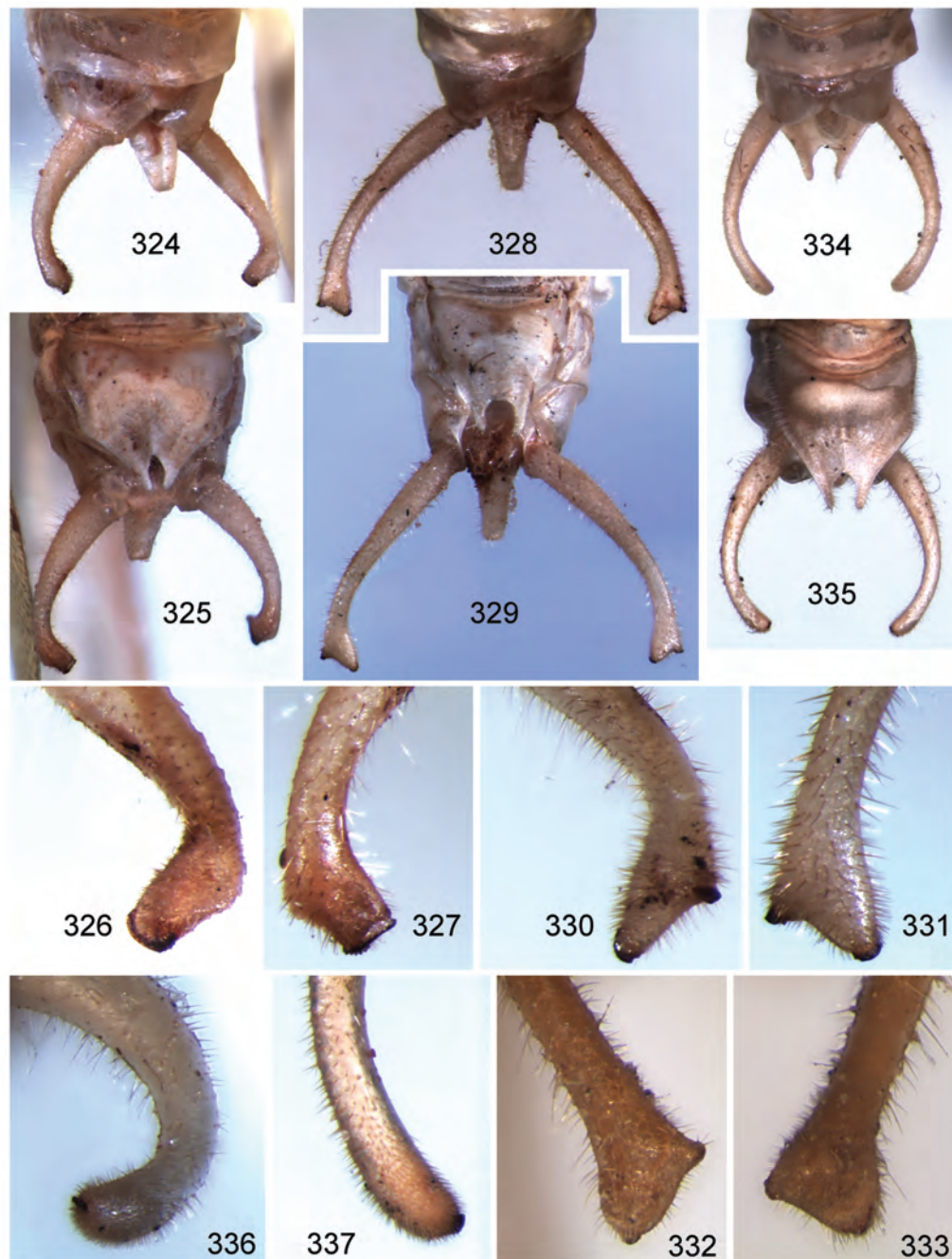
Gorochov, **sp. nov.**

(Figs 195, 196, 204–209)

**Material.** *Holotype* – male; **Colombia**, “Peñas Blancas, Rio Magdalena, Colum., Woronov, 3.V.926” (ZIN).

**Description.** Male (holotype). Body size approximately as in *V. ornata*. Colouration of dry specimen light brown with greyish tinge, but upper part of head and lateral lobes of pronotum somewhat lighter than rest of body, eyes brown, and hind wings with almost completely transparent membranes (only barely thickened distal part of costal lobe with greyish tinge). Structure of body also similar to that of *V. ornata*, but dorsal tegminal field slightly shorter (Fig.





**Figs 324–337.** *Tomeophera*, male: 324–327 – *T. semilata* sp. nov.; 328–331 – *T. ucayali* sp. nov.; 332, 333 – *T. australis* sp. nov.; 334–337 – *T. ?brevirostris* (Bruner). Abdominal apex from above (324, 328, 334) and from below (325, 329, 335); distal half of right cercus dorsomedially (326, 330, 332), ventrolaterally (327, 331, 333), posteroventrally (336) and dorsomedially (337).



195), hind wings with distal part of costal lobe almost intermediate between that of *V. illobulata* and that of other *Proviadana* species described here (Fig. 196), epiproct probably more or less triangular (right half of abdominal distal part missing), cercus somewhat longer and with shorter curved part as well as with barely inflate distal part having small but distinct apical ridge [this ridge narrow (denticle-like) in dorsolateral or ventromedial views and rather wide (long) in dorsomedial or ventrolateral views; Figs 204–207], genital plate with slightly longer apical lobules having clearly narrower proximal parts and probably somewhat wider notch between these lobules (Fig. 205), and genitalia with median plate (Fig. 208) larger than in all species of *Proviadana* described here and more bilobate in posterior part (right lateral plate missing; shape of left one as in Figs 208, 209).

Female unknown.

Length (mm). Body 18; body with wings 32; pronotum 3.8; tegmen 23; hind femur 14.5.

*Comparison.* The new species is distinguished from *V. ornata* by the features named above. From *V. paralita*, *V. taediosa* differs in narrower proximal parts of the apical lobules of male genital plate and a different shape of the male cercal apex; from *V. lita*, *G. forcipata* and *G. janeirensis*, in the same characters as *V. ornata*; and from *V. lobulata*, *V. proxima* and *V. illobulata*, in the absence of any distinct tooth on medial or ventral edge of the male cercus (in *V. taediosa*, this cercus has an apical ridge only).

*Etymology.* This species name is the Latin word “taediosa” (tedious, monotone).

### *Viadana (Proviadana) guatemalensis*

Cadena-Castañeda, *sp. nov.*

(Figs 270, 299–303)

*Material.* Holotype – male; Guatemala, Izabal Department, Firmeza, 15 May 2014, J. Monzón (MUD).

*Description.* Male (holotype). Body light green, but eyes dark purple, lateral edges of head rostrum outlined by reddish purple,

vertex behind each eye with thin longitudinal reddish stripe, anterior part of pronotal disk with a pair of short longitudinal red lines. Upper rostral tubercle triangular in dorsal view, with dorsal edge sinuate in profile (with small shallow concavity between narrow anterior third and wider proximal two thirds; Figs 299, 301); lateral ocelli circular and rather large (Fig. 301); median ocellus also circular but less distinct; antennal scape moderately robust and elongate, 3.5 times as long as antennal pedicel. Pronotum as in Figs 299, 301. Tegmina lanceolate; *MA* reaching anal edge near middle of tegmina; *RS* with four straight and parallel branches situated obliquely and equidistantly to each other (all of them reaching anal edge of tegmina; Fig. 300); stridulatory vein thick, arcuate, and as long as half of pronotal width in posterior part of pronotum (Fig. 299). Last abdominal tergite as in Fig. 302; epiproct narrowly triangular (longer than wide) and with rounded apex; cerci simple, rather thin, and slightly S-shaped in distal part (this part barely dilated and with small apical denticle; Figs 270, 302, 303); genital plate slightly wider than long, with distal portion having rather large U-shaped posteromedian notch and almost spine-like (thin, long and cylindrical) apical lobules around this notch.

Female unknown.

Length (mm). Body 20; body with wings 29; pronotum 3; tegmina 24; hind femur 14.

*Comparison.* The new species differs from *V. ornata* in S-shaped distal parts of the male cerci and longer apical lobules of the male genital plate; from *V. lobulata*, *V. proxima* and *V. illobulata*, in the absence of distinct tooth on the male cercal medial or ventromedial surface; from *V. taediosa*, in the male cerci with S-shaped distal parts and a small denticle (but not rather long ridge) at the apex; from *V. lita*, in a shorter tegminal *MA* (in *V. lita* and *V. guatemalensis*, this vein ends clearly behind the tegminal middle and near it, respectively); from *V. paralita*, in the male genital plate with a narrower most part of the apical lobules;

and from *G. forcipata* and *G. janeirensis* in the same characters as *V. ornata*.

**Etymology.** The species is named after Guatemala, a country where this species has been collected.

### Genus *Tomeophera*

Brunner-Wattenwyl, 1878

Type species *T. gladiatrix* Brunner-Wattenwyl, 1878 (Colombia), by subsequent designation.

**Note.** This genus was originally described without designation of its type species for two species: *T. gladiatrix* and *T. pugiunculata* Brunner-Wattenwyl, 1878 (Brunner-Wattenwyl, 1878). Type species was established by Kirby (1906). Later, this genus was redescribed under another name (*Phaneropterops* Piza, 1971) with *Ph. piracicabensis* Piza, 1971 as its type species; these generic and species names were synonymized by Chamorro-Rengifo & Braun (2010) with *Tomeophera* and *T. modesta* Brunner-Wattenwyl, 1891, respectively. I agree with such generic synonymy, but *T. modesta* and *Ph. piracicabensis* are clearly different species: photographs of their holotypes (Eades et al., 2015) show that the second species has distinctly wider tegmina with much more numerous *Sc* branches (in *T. modesta*, tegmina are with two distinct *Sc* branches only). At present, *Tomeophera* consists of 8 or 9 species: type species; *T. pugiunculata* Brunner-Wattenwyl, 1878 (Peru); *T. modesta* Brunner-Wattenwyl, 1891 (Brazil); *Tomeophora brevis* Bruner, 1915 (Bolivia); *T. piracicabensis* (Piza, 1971), **sp. resurr.**; *Tomeophora semilata* **sp. nov.**; *T. ucayali* **sp. nov.**; *T. australis* **sp. nov.**; possibly *Tomeophora ovatipennis* Bruner, 1915 (Bolivia).

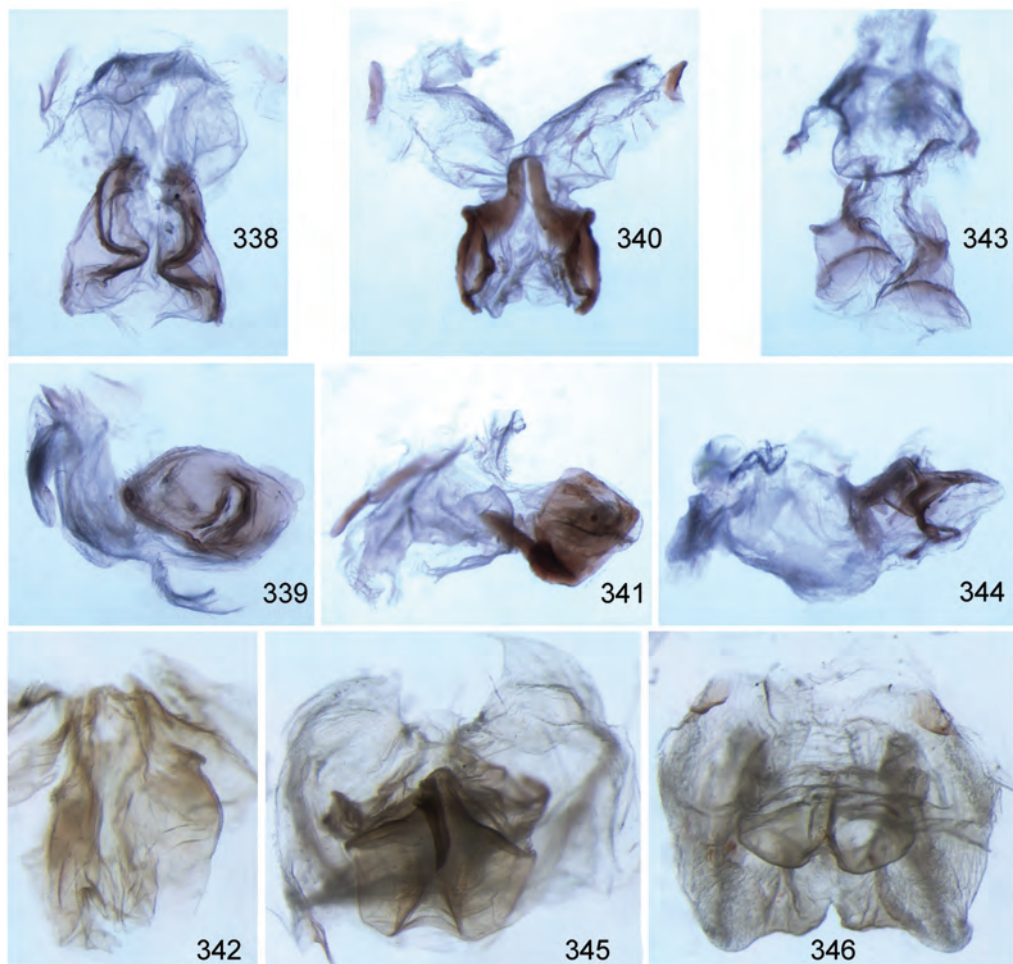
This genus is characterized by the following features: head rostrum is very narrow (scape 4.5–6 times as wide as distance between antennal cavities); anterior part of its upper tubercle is moderately or very narrow but long (distinctly projected forwards in relation to its lower tubercle), from al-

most finger-like to vertically lamellar, with or without dorsal sulcus, and with a rounded or angular apex in the profile; rest part of this tubercle is remarkably or gradually widened but almost not raised, and without distinct median groove on the dorsal surface (Figs 304, 305, 307, 308, 310, 311, 313, 314, 316, 317); pronotum has the lateral lobes more diverse in the length than in *Viadana* s. l. (from slightly shorter to clearly longer than their height; Figs 305, 308, 311, 314, 317); tegmina are usually long and narrow (Figs 319–322, 360), but sometimes they are slightly widened (Fig. 323) or (in one possible but insufficiently described species) somewhat shortened, with the branches of *Sc* and *RS* clearly or almost longitudinal (if *Sc* branches are somewhat oblique, they are directed lateroproximally and more or less parallel to *RS* branches; i. e. their position is approximately as in *Viadana* s. str.), and with *MA* clearly longitudinal (almost straight) and long (the latter vein is finished in distal third of tegmen; Figs 319–323, 360).

Thus, *Tomeophera* differs from *Viadana* s. l. mainly in distinctly longer upper rostral tubercle and tegminal *MA*, and in more longitudinal *RS* branches in the tegmina. *Tomeophera* is here undivided into subgenera, but I cannot exclude that the Madagascan genus *Agennis* Brunner-Wattenwyl, 1891 (having a similar tegminal structure) may be treated as its subgenus distinguished from the other *Tomeophera* representatives by a strongly curved ovipositor (in the latter representatives, ovipositor is clearly less curved, similar to that in majority of the *Viadana* congeners; Figs 233, 235, 237, 239, 241, 361).

***Tomeophera semilata* Gorochov, sp. nov.**  
(Figs 233, 234, 304–306, 319, 324–327, 338, 339)

**Material.** *Holotype* – male; **Peru**, Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., ~1200 m, partly primary / partly secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin,



**Figs 338–346.** *Tomeophera* and *Viadana*, male: 338, 339 – *T. semilata* sp. nov.; 340, 341 – *T. ucayali* sp. nov.; 342 – *T. australis* sp. nov.; 343, 344 – *T. ?brevirostris* (Bruner); 345 – *V. (Arcuadana) fruhstorferi* (Br.-W.); 346 – *V. (Viadana) ultrahamata* sp. nov. Genitalia from above (338, 340, 342, 343, 345, 346) and from side (339, 341, 344).

L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN). *Paratype* – female; same department and province, ~40 km NE of Satipo Town, environs of Calabaza Vill., ~2000 m, primary forest, at light, 16–17 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN).

**Description.** Male (holotype). Body medium-sized for this genus. Colouration uniformly yellowish green and rather light but with transparent membranes of hind wings (except weakly thickened distal part of costal lobe which also yellowish green). Space between antennal cavities very nar-

row (width of scape approximately five times as great as distance between these cavities); lower rostral tubercle also very narrow (strongly depressed laterally); upper rostral tubercle long (slightly projected before apices of scapes) but rather high, strongly depressed laterally in most part of its length, and with obtuse apex in profile; proximal part of this tubercle gradually widening to eyes and with moderately large and oval lateral ocelli on lateral sides (median ocellus distinctly smaller and almost



round); dorsum of upper rostral tubercle almost straight in profile and without distinct median groove (Figs 304, 305). Pronotum with somewhat elongate lateral lobes (their length slightly greater than height) having distinctly oblique ventral edge, and with distinct low and almost parallel keels along lateral edges of disc as well as with weak traces of median keel on disc (Figs 304, 305). Tegmina moderately narrow, with five distinct branches of *Sc* situated more or less obliquely, with three distinct branches of *RS* and additional longitudinal veinlets between them formed from crossvenation, and with distinctly thickened and not very short stridulatory vein (mirror elongate but slightly obliterate in left tegmen and almost completely obliterate in right one; Fig. 319); hind wings with narrow and very acute-angled distal part of costal lobe (Fig. 306). Last abdominal tergite with weak but wide and rounded posteromedian concavity; epiproct elongate and weakly narrowing to rounded apex (almost finger-like); cercus moderately long, weakly and gradually narrowing to its subapical part, with distal third curved medially and slightly inflate in apical part having short projection; this projection directed downwards / medially and with rounded apex having heavily sclerotized low keel in shape of small semi-circle (Figs 324, 326, 327); genital plate almost quadrate but with distal part narrowing to a pair of moderately long and narrow apical lobules (notch between these lobules moderately deep and narrow; Fig. 325); genitalia somewhat similar to those of *Arquadana*, having a pair of rather large and oval semisclerotized plates with characteristic folds (Figs 338, 339).

Female. General appearance as in male, but dorsal tegminal field distinctly narrower and with one distinct longitudinal vein (running almost along median line of this field) and two somewhat thickened crossveins (located in middle part of this field between above-mentioned longitudinal vein and anal edge of tegmen), cerci simple (as in females of *Viadana*), genital plate short

and with distal part narrowing to rounded apex having small and narrow posteromedian notch (Fig. 234), and ovipositor rather short (its shape as in Fig. 233) and with gonangulum having large but not very deep concavity on ventrolateral area and short transverse lobule behind this concavity (this lobule directed anterolaterally).

Length (mm). Body: male 19, female 15.5; body with wings: male 39, female 41; pronotum: male 3.8, female 3.9; tegmen: male 27.5, female 29; hind femur: male 15, female 15; ovipositor 6.

*Comparison.* The new species is similar to *T. gladiatrix* in the upper rostral tubercle length, but it is distinguished from the latter species by the presence of rather numerous and only oblique *Sc* branches in the tegmina [in the photograph of *T. gladiatrix* holotype (Eades et al., 2015), it is clearly visible that this holotype has two *Sc* branches practically longitudinal, i.e. almost parallel to the costal tegminal edge]. From *T. modesta*, the new species differs in the same character and a longer upper rostral tubercle; from *T. piracicabensis*, in distinctly narrower tegmina and a longer upper rostral tubercle; and from *T. ovatipennis*, in much longer tegmina (in *T. ovatipennis*, their length 17.5 mm).

*Etymology.* This species name originates from the Latin prefix “semi-” (half, partly) and the Latin word “lata” (wide).

### *Tomeophera semilata boliviana*

Gorochov, **subsp. nov.**

(Figs 235, 236, 307–309, 320)

*Material.* *Holotype* – female; **Bolivia**, Santa Cruz Prov., ~70 km SW of Santa Cruz City, Amboro National Park, “Refugio Los Volcanes”, ~1000 m, primary forest, on leaf of bush at night, 16–17 February 2014, A. Gorochov (ZIN). *Paratype* – female; same data as for holotype (ZIN).

*Description.* Female (holotype). General appearance very similar to that of female of nominotypical subspecies, but upper rostral tubercle less high in distal part (almost acute-angled in profile; Fig. 307, 308), tegmina with *Sc* branches less numerous (three distinct branches only) as well as without

distinct *Sc* branches in proximal half of costal area and additional longitudinal veinlets between branches of *RS* (Fig. 320), hind wings with apical area of distal part of costal lobe partly transparent (Fig. 309), and abdominal apex almost indistinguishable from that of female of *T. s. semilata* but with slightly narrower distal part of genital plate (Figs 235, 236).

Variations. Second female with three small brownish spots at bases of *RS* branches on each tegmen.

Male unknown.

Length (mm). Body 17–18; body with wings 39–40; pronotum 3.9–4; tegmen 27–28; hind femur 14.5–15.5; ovipositor 6–6.2.

*Comparison.* The new Bolivian subspecies is distinguished from the nominotypical Peruvian one by an acute-angled shape of the upper rostral tubercle in the profile and by the tegmina lacking distinct *Sc* branches in the costal area proximal half. From all the other congeners, *T. s. boliviana* differs in the same characters as *T. s. semilata*.

*Etymology.* This new subspecies is named after Bolivia.

***Tomeopera ucayali* Gorochov, sp. nov.**  
(Figs 237, 238, 310–312, 321, 328–331, 340, 341)

*Material.* *Holotype* – male; **Peru**, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN). *Paratype* – female; same data as for holotype (ZIN).

*Description.* Male (holotype). Size, colouration and structure of body very similar to those of male of *T. semilata*, but upper rostral tubercle somewhat longer (distinctly projected before apices of scapes) and with distal part more or less intermediate in shape between those of *T. s. semilata* and *T. s. boliviana*, pronotum with low and thin but distinct median keel on disc as well as with somewhat longer lateral lobes (Figs 310, 311), tegmina with four more longitudinal

*Sc* branches (one of them almost parallel to costal edge and running from base of costal area to its middle part) and without distinct longitudinal veinlets between *RS* branches (Fig. 321), hind wings with slightly narrower distal (thickened) part of costal lobe (Fig. 312), cercus somewhat longer and less curved, its distal part with angular apical lobule directed downwards and slightly medially as well as with small subapical tubercle located dorsolaterally at base of this lobule (Figs 328, 330, 331), genital plate with clearly wider notch between apical lobules (Fig. 329), and genitalia with semisclerotized plates somewhat shorter (for comparison see Figs 338, 339 and 340, 341).

*Female.* General appearance as in male, but tegminal dorsal field and abdominal apex practically indistinguishable from that of *T. s. semilata* (Figs 237, 238).

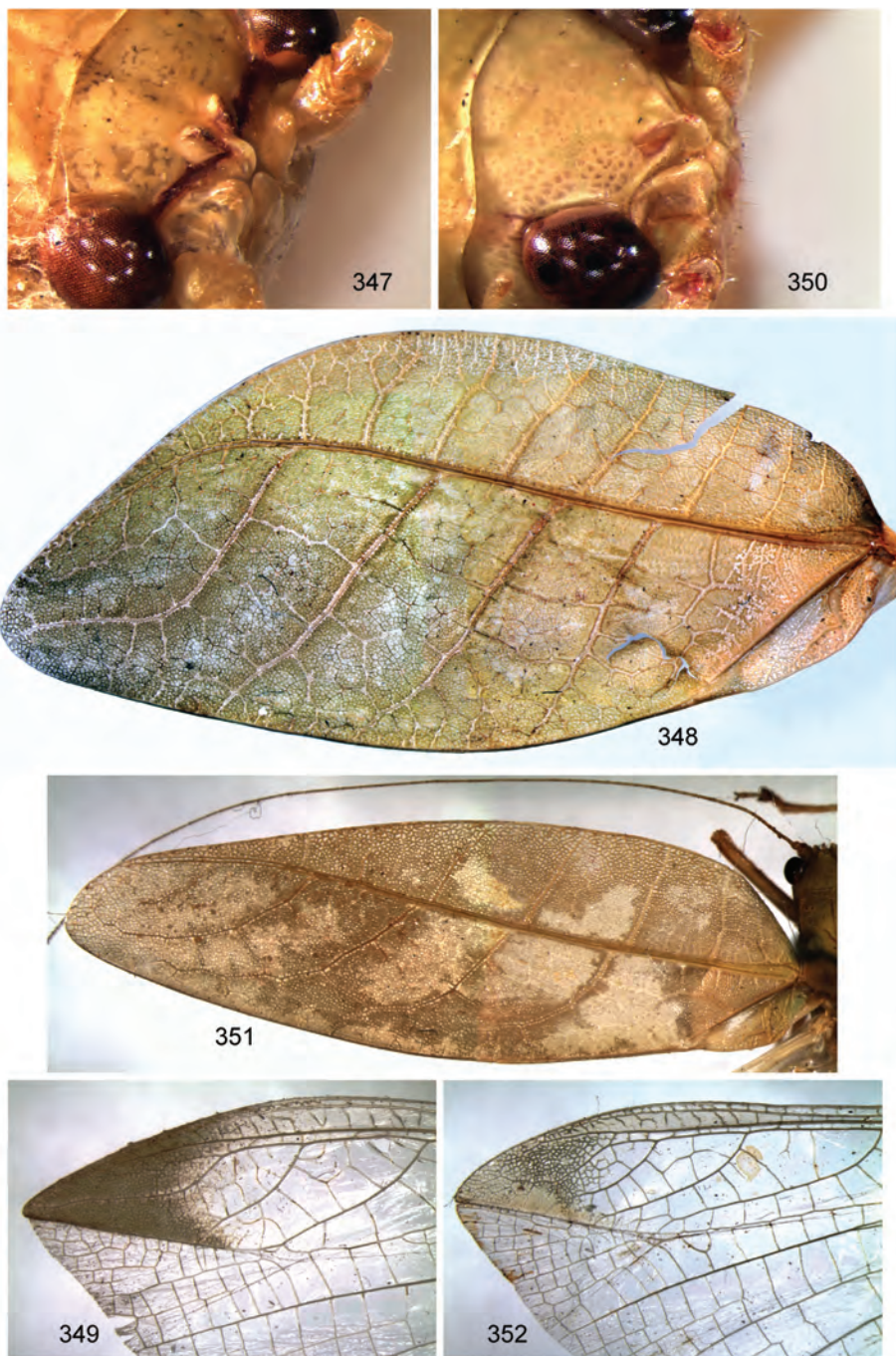
Length (mm). Body: male 19.5, female 17.5; body with wings: male 39, female 38; pronotum: male 4.1, female 3.9; tegmen: male 27, female 27; hind femur: male 15.5, female 16; ovipositor 6.5.

*Comparison.* The new species differs from *T. semilata* in the characters listed above. From *T. gladiatrix*, the new species is distinguished by a somewhat longer upper rostral tubercle (in *T. gladiatrix*, this tubercle approximately as in *T. semilata*, i.e. it is only slightly projected before the scape apices) and the presence of a distinct median keel on the pronotal disc; from *T. modesta*, in a distinctly longer upper rostral tubercle; and from *T. ovatipennis*, *T. pagiunculata*, *T. brevisrostris* and *T. piracicabensis* in much longer or somewhat narrower tegmina (and additionally from the three latter species, in a longer upper rostral tubercle).

*Etymology.* This new species is named after the Ucayali River.

***Tomeopera australis* Gorochov, sp. nov.**  
(Figs 332, 333, 342, 359–361)

*Material.* *Holotype* – male; **Brazil**, Santa Catharina State, “Colonia Hansa, St. Catharina”, “Rolle 1904” (ZIN). *Paratype* – female, same data as for holotype (ZIN).



**Figs 347–352.** *Viadana*, male: 347–349 – *V. (Arcuadana) fruhstorferi* (Br.-W.); 350–352 – *V. (Viadana) ultrahamata* sp. nov. Head rostrum from above and slightly from side (347), and from side and slightly above (350); left tegmen (348, 351); distal part of hind wing (349, 352).



**Description.** Male (holotype). Size, colouration and structure of body very similar to those of *T. ucayali*. However, some differences present: low and thin median keel of pronotum developed only on posterior half of pronotal disc; tegmina with costal area wider, having more convex proximal half of costal edge and more numerous and more oblique *Sc* branches (these branches more similar to those of *T. s. semilata* than to those of *T. ucayali*; for comparison see Figs 319, 321, 360); cercus distinguished from that of *T. ucayali* by shorter ventral (ventromedial) apical lobule only (see Figs 330, 331 and 332, 333); genital plate with almost rectangular (not roundly U-shaped) posteromedian notch and barely longer apical lobules (Fig. 359); genitalia with less sclerotized (semimembranous) plates which larger and more similar in shape to those of *T. s. semilata* but without distinct folds (see Figs 338, 340, 342).

Female. General appearance as in male but with following features: upper rostral tubercle (damaged in holotype) practically as in *T. ucayali*, dorsal tegminal field similar to that of other females of *Tomeophera*, and abdominal apex probably also similar to that of these females (genital plate damaged, ovipositor as in Fig. 361).

Length (mm). Body: male 17, female 18.5; body with wings: male 39, female 41; pronotum: male 3.9, female 4; tegmen: male 28, female 28.5; hind femur: male 16.8, female 16.5; ovipositor 6.7.

**Comparison.** The new species is most similar to *T. ucayali*, *T. semilata* and *T. gladiatrix*. It is distinguished from *T. ucayali* by a wider tegminal costal area with more numerous and more oblique branches of *Sc*; from *T. semilata*, by a somewhat longer upper rostral tubercle and the male cercus with a distinct additional denticle at the base of apical lobule; and from *T. gladiatrix*, by a longer upper rostral tubercle, and by the same characters of tegminal costal area as from *T. ucayali*. The new species differs also from all the other congeners in a much longer upper rostral tubercle in combina-

tion with longer, wider or narrower tegmina.

**Etymology.** This species name is the Latin word "australis" (southern).

***Tomeophera modesta angusta***

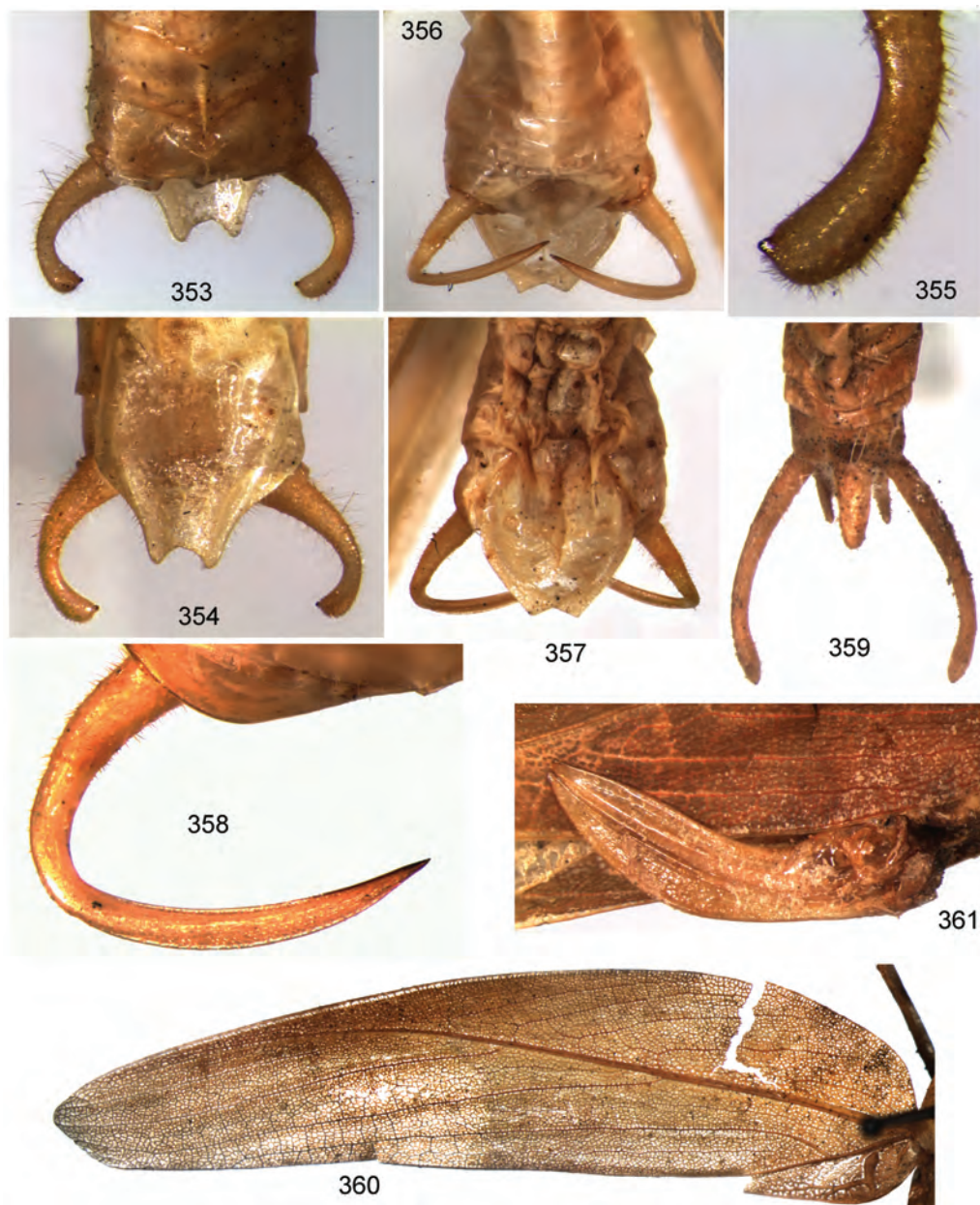
Gorochov, **subsp. nov.**

(Figs 239, 240, 313–315, 322)

**Material.** *Holotype* – female; **Peru**, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN).

**Description.** Female (holotype). Colouration and structure of body more or less similar to those of *T. semilata* and *T. ucayali* but with following characteristic features: colouration of tegmina without brownish spots (Fig. 322); distal part of costal lobe in hind wings without transparent area (Fig. 315); upper rostral tubercle lower and shorter (not reaching apices of scapes), almost finger-like but having slightly less compressed distal part (this part with distinct but weak dorsomedian groove), with rounded transverse groove on dorsum of widened part, and with lateral ocelli almost equal to median ocellus in size (Figs 313, 314); pronotum more similar to that of *T. semilata* in structure (Figs 313, 314); tegmina narrower, with two *RS* branches and almost without longitudinal veinlets between them, with three distinct *Sc* branches more or less similar to those of *T. ucayali* (two of these branches very longitudinal, almost parallel to costal tegminal edge, and running from base of costal area to its middle part; Fig. 322); hind wings very similar to those of *T. ucayali* (Fig. 315); abdominal apex with epiproct almost spine-like, with genital plate having clearly wider posteromedian notch (Fig. 240), and with ovipositor distinctly longer and having gonangulum less specialized (i.e. gonangulum with short ventral convexity and narrow oblique lateral groove only; Fig. 239).

Male unknown.



**Figs 353–361.** *Viadana* and *Tomeophera*: 353–355 – *V. (Arcuadana) fruhstorferi* (Br.-W.); 356–358 – *V. (Viadana) ultrahamata* sp. nov.; 359–361 – *T. australis* sp. nov. Male abdominal apex from above (353, 356, 359) and from below (354, 357); male left cercus dorsolaterally (358), and its distal half ventrally (355); male left tegmen (360); ovipositor from side (361).

Length (mm). Body 17.5; body with wings 39; pronotum 3.5; tegmen 28; hind femur 16; ovipositor 8.

*Comparison.* The new subspecies from Peru is distinguished from the nominotypi-

cal subspecies from South Brazil by slightly narrower tegmina with two *RS* branches and with practically straight most part of the costal edge (in *T. m. modesta*, the tegmina are with three *RS* branches and a

slightly arcuate costal edge). From all the other congeners, the new taxon differs in a more or less straight (not clearly arcuate) costal tegminal edge and / or distinctly longer tegmina, and possibly also in a longer or more slender ovipositor.

*Etymology.* This subspecies name is the Latin word “angusta” (narrow).

***Tomeophora ?brevirostris*** (Bruner, 1915)  
(Figs 241, 242, 316–318, 323, 334–337, 343, 344)

*Material.* Three males, 1 female; **Peru**, Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Nisoyutkin, E. Tkatsheva, V. Izersky (ZIN).

*Notes.* This species was described from Bolivia under the incorrect generic name *Tomeophora* (Bruner, 1915). The brief original description of this species and the photograph of its holotype (Eades et al., 2015) are in accordance to the above-listed specimens, but some very important morphological structures (male cerci, male genital plate, male genitalia) are undescribed and invisible in the photograph cited. These reasons allow us to determine these specimens as belonging to this species only under question. These specimens are also similar to *T. pugiunculata* and *T. piracicabensis* in the tegminal shape. They are distinguished from *T. pugiunculata* by a more gradually narrowing posterior half of the upper rostral tubercle and by a somewhat widened middle part of the ovipositor in the profile (in *T. pugiunculata*, the ovipositor from its base to its distal part is almost equal in the height); and from *T. piracicabensis*, by less longitudinal *Sc* branches in the tegmina and by slightly S-shaped male cerci in the profile (in *T. piracicabensis*, their apices are curved more or less upwards, but in the males studied, these apices are curved somewhat downwards). Also, it is necessary to note that the specimen pictured by Hebard (1931: fig. 8) as *T. brevirostris* is incorrectly

determined and possibly belongs to another genus; its tegmen is with clearly oblique (not longitudinal) *RS* branches and more similar to that of *Arcuadana* in the shape.

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