UNIVERSIDADE FEDERAL DO PARANÁ

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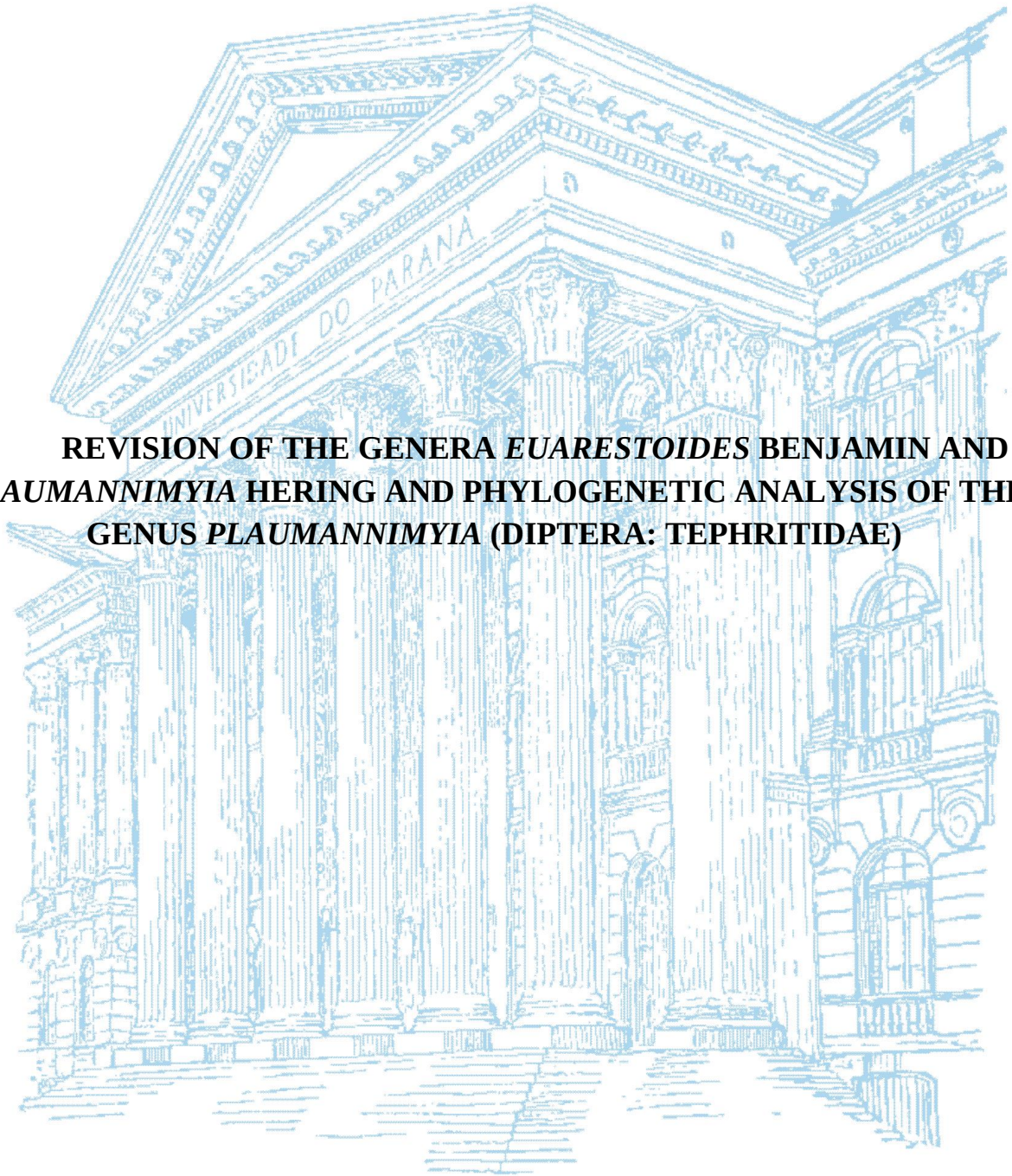

REVISION OF THE GENERA *EUARESTOIDES* BENJAMIN AND *PLAUMANNIMYIA* HERING AND PHYLOGENETIC ANALYSIS OF THE GENUS *PLAUMANNIMYIA* (DIPTERA: TEPHRITIDAE)

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MARCOANDRE SAVARIS

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Tese apresentada à Coordenação do Programa de Pós-Graduação em Ciências Biológicas, Área de Concentração em Entomologia, do Setor de Ciências Biológicas da Universidade Federal do Paraná, como requisito parcial para obtenção do título de Doutor em Ciências Biológicas.

Orientadora: Profa. Dra. Luciane Marinoni

Co-orientador: Dr. Allen Lee Norrbom

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MARCOANDRE SAVARIS

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Curitiba, 21 de novembro de 2016.

DEDICO

Aos meus pais,
Dorvalino Antônio Savaris e
Irene Costella Savaris
que estiveram apoiando minha caminhada com amor, carinho e dedicação; que mesmo distantes fisicamente compartilharam os meus sonhos, incentivando a prosseguir fossem quais fossem os obstáculos, sempre torcendo pelo meu sucesso. A eles dedico essa tese com admiração e gratidão.

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À minha esposa **Silvana Lampert**

que esteve ao meu lado com muito amor e carinho, extremamente necessários para a minha vida.

A meus irmãos, **Adejair Antônio Savaris**, **Marineuza Savaris**, **Adalicio Savaris** e minhas sobrinhas **Ellen Ellis Girardi** e **Cris Even Girardi**

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Por fim, a toda minha família.

Em minhas expedições entomológicas pude observar distintas e deslumbrantes paisagens e nelas a quantidade de espécies da flora e fauna. Observando a diversidade biológica nesses ambientes, surge para muitos dos organismos a simples pergunta. O que é? Então, percebi que conhecemos pouco sobre a diversidade biológica e o quão complexo é a natureza e suas interações. Após uma noite surge um novo dia e assim sucessivamente milhões de anos se passam e a evolução dos organismos ocorre. Hipóteses e teorias são criadas, buscando entender e explicar este sistema complexo, no entanto, o mistério de onde vem e para onde vai continua...

Marcoandre Savaris

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Table of contents

Abstract 1
Resumo 2
Introduction 3
Objectives 5
Materials and methods 5
Sampling of material 5
Morphological analysis 6
Map and illustrations 7
Terminology 8
Material examined 8
Characters and terminals 9
Phylogenetic analysis 10
Results and discussion 11
Revision of the genera *Euarestoides* Benjamin and *Plaumannimyia* Hering (Diptera: Tephritidae) 11
Genus *Euarestoides* Benjamin, 1934 11
Taxonomy 11
Diagnosis 11
Description 12
Distribution 13
Biology 13
Key to species of *Euarestoides* 14
Euarestoides abstersus (Loew) 15
Euarestoides acutangulus (Thomson) 20
Euarestoides dreisbachi Foote 34
Euarestoides **n. sp. 1** 37
Euarestoides **n. sp. 2** 39
Euarestoides **n. sp. 3** 42
Genus *Plaumannimyia* Hering, 1938 44
Taxonomy 44
Diagnosis 44
Description 44
Distribution 46
Biology 46
Key to species of *Plaumannimyia* 47
Plaumannimyia ameghinoi (Brèthes) 58
Plaumannimyia coelestina (Hering) 61
Plaumannimyia costaemaculata Hering 65
Plaumannimyia delicatella (Blanchard) 68
Plaumannimyia difficilis (Malloch) 75
Plaumannimyia dolores (Hering) 78
Plaumannimyia eugenia (Wulp) 81
Plaumannimyia flava (Adams) 85
Plaumannimyia imitatrix (Hering) 92
Plaumannimyia miseta (Hering). 97
Plaumannimyia pallens Hering 101
Plaumannimyia plagiata (Blanchard) 105
Plaumannimyia scutellata (Séguy) 109
Plaumannimyia setulosa (Malloch) 114

Plaumannimyia subaster (Malloch)....117
Plaumannimyia suspecta (Malloch)....121
Plaumannimyia thomsoni (Hendel)....125
Plaumannimyia valdesiana (Gandolfo & Norrbom)....129
Plaumannimyia **n. sp. 1**....132
Plaumannimyia **n. sp. 2**....134
Plaumannimyia **n. sp. 3**....138
Plaumannimyia **n. sp. 4**....140
Plaumannimyia **n. sp. 5**....142
Plaumannimyia **n. sp. 6**....144
Plaumannimyia **n. sp. 7**....147
Plaumannimyia **n. sp. 8**....150
Plaumannimyia **n. sp. 9**....153
Plaumannimyia **n. sp. 10**....156
Plaumannimyia **n. sp. 11**....158
Plaumannimyia **n. sp. 12**....161
Plaumannimyia **n. sp. 13**....163
Plaumannimyia **n. sp. 14**....165
Plaumannimyia **n. sp. 15**....168
Plaumannimyia **n. sp. 16**....171
Plaumannimyia **n. sp. 17**....174
Plaumannimyia **n. sp. 18**....176
Plaumannimyia **n. sp. 19**....179
Plaumannimyia **n. sp. 20**....181
Plaumannimyia **n. sp. 21**....184
Plaumannimyia **n. sp. 22**....186
Plaumannimyia **n. sp. 23**....189
Plaumannimyia **n. sp. 24**....191
Plaumannimyia **n. sp. 25**....193
Other taxonomic changes....196
Dyseuaresta hestiae (Hendel), **n. comb.**....196
Dyseuaresta titschacki (Hering), **n. comb.**....197
Phylogeny of the species of Plaumannimyia Hering (Diptera: Tephritidae) based on morphology....198
List of characters used in phylogenetic analysis of relationships among the species of *Plaumannimyia* Hering....205
Matrix of characters and taxa used in phylogenetic analysis of relationships among the species of *Plaumannimyia* Hering....208
Conclusion....213
Acknowledgments....215
References....216
Figures....225

Abstract

Species of the genera *Euarestoides* Benjamin and *Plaumannimyia* Hering (Diptera: Tephritidae) are revised. *Euarestoides* comprises six species, including three new species: *E. abstersus* (Loew) (USA); *E. acutangulus* (Thomson) (Canada, Chile, Colombia, Cuba, Dominican Republic, Ecuador, Mexico, Peru, Puerto Rico, Trinidad & Tobago, USA, and Venezuela); *E. dreisbachi* Foote (Guatemala, Mexico, Peru); *Euarestoides* **n. sp. 1** (Peru); *Euarestoides* **n. sp. 2** (Brazil); and *Euarestoides* **n. sp. 3** (Colombia). *Plaumannimyia* comprises 43 species, including 25 new species: *P. ameghinoi* (Brèthes) (Argentina, Bolivia); *P. coelestina* (Hering) (Brazil); *P. costaemaculata* Hering (Brazil); *P. delicatella* (Blanchard) (Chile); *P. difficilis* (Malloch) (Argentina); *P. dolores* (Hering) (Brazil); *P. eugenia* (Wulp) (Guatemala, Mexico); *P. flava* (Adams) (Brazil, Costa Rica, Mexico, United States); *P. imitatrix* (Hering) (Argentina, Bolivia, Brazil, Peru, United States); *P. miseta* (Hering) (Brazil); *P. pallens* Hering (Brazil); *P. plagiata* (Blanchard) (Chile); *P. scutellata* (Séguy) (Argentina, Bolivia, Chile, Ecuador, Peru); *P. setulosa* (Malloch) (Argentina, Chile); *P. subaster* (Malloch) (Argentina, Chile); *P. suspecta* (Malloch) (Argentina, Chile); *P. thomsoni* (Hendel) (Argentina, Brazil, Peru, Venezuela); *P. valdesiana* (Gandolfo & Norrbom) (Argentina); *Plaumannimyia* **n. sp. 1** (Chile); *Plaumannimyia* **n. sp. 2** (Colombia, Ecuador, Peru); *Plaumannimyia* **n. sp. 3** (Bolivia, Ecuador, Peru); *Plaumannimyia* **n. sp. 4** (Brazil); *Plaumannimyia* **n. sp. 5** (Peru); *Plaumannimyia* **n. sp. 6** (Bolivia, Peru); *Plaumannimyia* **n. sp. 7** (Argentina, Chile); *Plaumannimyia* **n. sp. 8** (Brazil); *Plaumannimyia* **n. sp. 9** (Bolivia, Colombia, Ecuador, Peru); *Plaumannimyia* **n. sp. 10** (Brazil); *Plaumannimyia* **n. sp. 11** (Argentina, Bolivia); *Plaumannimyia* **n. sp. 12** (Argentina); *Plaumannimyia* **n. sp. 13** (Chile); *Plaumannimyia* **n. sp. 14** (Brazil); *Plaumannimyia* **n. sp. 15** (Bolivia); *Plaumannimyia* **n. sp. 16** (Brazil); *Plaumannimyia* **n. sp. 17** (Argentina); *Plaumannimyia* **n. sp. 18** (Peru); *Plaumannimyia* **n. sp. 19** (Chile, Peru); *Plaumannimyia* **n. sp. 20** (Peru); *Plaumannimyia* **n. sp. 21** (Argentina, Bolivia); *Plaumannimyia* **n. sp. 22** (Brazil); *Plaumannimyia*, **n. sp. 23** (Argentina); *Plaumannimyia* **n. sp. 24** (Chile); and *Plaumannimyia* **n. sp. 25** (Chile). Keys to the known species of each genus are provided, as well as descriptions, illustrations, distributions, notes on the biology and host plant data for each especies. Lectotypes are designated for *P. ameghinoi*, *P. delicatella*, *P. dolores*, *P. imitatrix*, *P. pallens* and *P. plagiata*. New combinations are proposed for *Plaumannimyia hestiae* (Hendel) and *Plaumannimyia titschacki* (Hering), here transferred to the genus *Dyseuaresta*. The phylogenetic relationships of all known species of *Plaumannimyia* are analyzed. *Plaumannimyia* is a monophyletic genus and five species groups are recognized.

Key words: fruit flies, Tephritinae, Tephritini, taxonomy, host plants, Asteraceae, New World.

Resumo

As espécies dos generos *Euarestoides* Benjamin e *Plaumannimyia* Hering (Diptera: Tephritidae) são revisadas. *Euarestoides* possui seis espécies, incluindo três novas: *E. abstersus* (Loew) (Estados Unidos); *E. acutangulus* (Thomson) (Canadá, Chile, Colômbia, Cuba, Republica Dominicana, Equador, Estados Unidos, México, Peru, Porto Rico Trinidade & Tobago e Venezuela); *E. dreisbachi* Foote (Guatemala, México, Peru); *Euarestoides* **n. sp. 1** (Peru); *Euarestoides* **n. sp. 2** (Brasil) e *Euarestoides* **n. sp. 3** (Colômbia). *Plaumannimyia* possui 43 espécies, incluindo 25 novas: *P. ameghinoi* (Brèthes) (Argentina, Bolívia); *P. coelestina* (Hering) (Brasil); *P. costaemaculata* Hering (Brasil); *P. delicatella* (Blanchard) (Chile); *P. difficilis* (Malloch) (Argentina); *P. dolores* (Hering) (Brazil); *P. eugenia* (Wulp) (Guatemala, México); *P. flava* (Adams) (Brasil, Canadá, Costa Rica, Estados Unidos, México); *P. imitatrix* (Hering) (Argentina, Bolívia, Brasil, Estados Unidos, Peru); *P. miseta* (Hering) (Brasil); *P. pallens* Hering (Brasil); *P. plagiata* (Blanchard) (Chile); *P. scutellata* (Séguy) (Argentina, Bolivia, Chile, Ecuador, Peru); *P. setulosa* (Malloch) (Argentina, Chile); *P. subaster* (Malloch) (Argentina, Chile); *P. suspecta* (Malloch) (Argentina, Chile); *P. thomsoni* (Hendel) (Argentina, Brasil, Peru, Venezuela); *P. valdesiana* (Gandolfo & Norrbom) (Argentina); *Plaumannimyia* **n. sp. 1** (Chile); *Plaumannimyia* **n. sp. 2** (Colômbia, Equador, Peru); *Plaumannimyia* **n. sp. 3** (Bolívia, Equador, Peru); *Plaumannimyia* **n. sp. 4** (Brasil); *Plaumannimyia* **n. sp. 5** (Peru); *Plaumannimyia* **n. sp. 6** (Bolívia, Peru); *Plaumannimyia* **n. sp. 7** (Argentina, Chile); *Plaumannimyia* **n. sp. 8** (Brasil); *Plaumannimyia* **n. sp. 9** (Bolívia, Colômbia, Equador, Peru); *Plaumannimyia* **n. sp. 10** (Brasil); *Plaumannimyia* **n. sp. 11** (Argentina, Bolívia); *Plaumannimyia* **n. sp. 12** (Argentina); *Plaumannimyia* **n. sp. 13** (Chile); *Plaumannimyia* **n. sp. 14** (Brasil); *Plaumannimyia* **n. sp. 15** (Bolivia); *Plaumannimyia* **n. sp. 16** (Brasil); *Plaumannimyia* **n. sp. 17** (Argentina); *Plaumannimyia* **n. sp. 18** (Peru); *Plaumannimyia* **n. sp. 19** (Chile, Peru); *Plaumannimyia* **n. sp. 20** (Peru); *Plaumannimyia* **n. sp. 21** (Argentina, Bolívia); *Plaumannimyia* **n. sp. 22** (Brasil); *Plaumannimyia* **n. sp. 23** (Argentina); *Plaumannimyia* **n. sp. 24** (Chile) e *Plaumannimyia* **n. sp. 25** (Chile). Foi realizada uma chave de identificação para todas as espécies de cada gênero, bem como as descrições, ilustrações, dados de distribuição, notas sobre a biologia e plantas hospedeiras para cada espécie. Lectótipos foram designados para *P. ameghinoi*, *P. delicatella*, *P. dolores*, *P. imitatrix*, *P. pallens* e *P. plagiata*. Novas combinações são realizadas para *Plaumannimyia hestiae* (Hendel) e *Plaumannimyia titschacki* (Hering), aqui transferidas para o gênero *Dyseuaresta*. As relações filogenéticas de todas as espécies de *Plaumannimyia* foram analisadas. *Plaumannimyia* é um gênero monofilético e cinco clados são reconhecidos.

Palavras-chave: moscas-das-frutas, Tephritinae, Tephritini, taxonomia, planta hospedeira, Asteraceae, novo mundo.

Introduction

Within Diptera, Tephritidae are commonly known as fruit flies and within the order, are the family of greatest agricultural relevance (Norrbom *et al.*, 1999; Savaris *et al.*, 2016). The immatures of most species are phytophagous (except representatives of Tachiniscinae, which parasitize larvae of Lepidoptera) and use fruits, flowers, seeds, stems or roots of diverse families and species of plants as substrates for larval development (Foote, 1967; Foote *et al.*, 1993; Norrbom *et al.*, 1999; Prado *et al.*, 2002; Norrbom & Prado, 2006; Norrbom, 2010). The family comprises more than 4,800 species in approximately 500 genera and overall has a worldwide distribution (Norrbom *et al.*, 1999; Norrbom, 2010; and unpubl. data). In the Neotropical Region the number of taxa described is about 916 species in 71 genera (Norrbom, 2010; and unpubl. data).

Euarestoides Benjamin, 1934 and *Plaumannimyia* Hering, 1938 are endemic, New World genera of fruit flies (Foote, 1980; Norrbom *et al.*, 1999; Norrbom, 2010). These two genera are recognized as the *Euarestoides* genus group in the tribe Tephritini and together they include 23 described species (Norrbom *et al.*, 1999). *Euarestoides* currently includes three species from the Nearctic and Neotropical Regions (Canada, USA, Mexico and Guatemala). *Plaumannimyia* comprises 20 species with distributions mainly in South America with a few species extending north in to southwestern USA (Norrbom, 2010). Except for their descriptions and Foote's (1958) review of *Euarestoides* the data on both genera in the tephritid literature are mostly limited to inclusions in catalogs and identification manuals (Hering, 1941; Aczél, 1950; Foote, 1967; Foote, 1980; Norrbom *et al.*, 1999; Norrbom, 2010; Norrbom *et al.*, 2010; 2013). Knowledge of the natural history of the included species is limited mainly to data on larval host plants (known for 14 species). Larvae feed in the capitula (flowerheads) of plants within the family Asteraceae (Foote *et al.*, 1993; Prado *et al.*, 2002; Norrbom, 2010; Norrbom *et al.*, 2010; 2013; Savaris *et al.*, 2015).

Euarestoides was described by Benjamin (1934) as a new subgenus of *Neotephritis* Hendel (Foote, 1958). Benjamin (1934) placed two previously described species in his new subgenus: *Trypeta abstersa* Loew (type species) and *Trypeta acutangula* Thomson. Later, Hering (1941) elevated *Euarestoides* to the generic level and provided a key and a brief description for these species. Foote (1958) presented a generic diagnosis, an identification key to the species, a brief description of existing information on each species, and described *Euarestoides dreisbachi* Foote and *Euarestoides arnaudi*, the latter later placed as a synonym of *Plaumannimyia flava* by Norrbom *et al.*, (1999). The treatment of *Euarestoides* in the literature after 1958 is limited to catalogs, identification manuals, and reports of host and

distribution data; no other species were included or described. The known host plants belong to several tribes of Asteraceae (Astereae, Eupatorieae, Heliantheae, Gochnatieae).

The genus *Plaumannimyia* was proposed by Hering (1938), who described *P. pallens* Hering 1938, from a series of males and females from Nova Teutônia, Santa Catarina, Brazil (Hering, 1938; Foote, 1980). Until recently, only two species, *P. pallens* and *P. costaemaculata* Hering, 1940a, were recognized in *Plaumannimyia*. Norrbom *et al.*, (2010) greatly expanded the number of species included in the genus when they transferred the 18 species that had been in the genus *Trypanaresta* Hering, 1940b to *Plaumannimyia.* They treated *Trypanaresta* as a junior synonym of *Plaumannimyia*.

Plaumannimyia and *Trypanaresta* initially were separated based on the wing patterns of included species. The two species in *Plaumannimyia* have reticulate patterns, whereas species previously placed in *Trypanaresta* generally have stellate or bicolored patterns. The species of both genera lack pre-apical dorsal setae on the hind femur (synapomorphy) (Norrbom *et al.*, 2010). The species currently included in *Plaumannimyia* are: *P. pallens*, *P. costaemaculata*, *P. ameghinoi* (Brèthes, 1908), *P. coelestina* (Hering, 1938), *P. delicatella* (Blanchard, 1852), *P. difficilis* (Malloch, 1933), *P. dolores* (Hering, 1938), *P. eugenia* (Wulp, 1900), *P. flava* (Adams, 1904), *P. hestiae* (Hendel, 1914), *P. imitatrix* (Hering, 1938), *P. miseta* (Hering, 1938), *P. plagiata* (Blanchard, 1852), *P. scutellata* (Seguy, 1933), *P. setulosa* (Malloch, 1933), *P. subaster* (Malloch, 1933), *P. suspecta* (Malloch, 1933), *P. thomsoni* (Hendel, 1914), *P. titschacki* (Hering, 1941), and *P. valdesiana* (Gandolfo & Norrbom, 1997) (Norrbom *et al.*, 2010). An additional 25 new species are described in this paper.

Regarding host plant relationships, the species of *Plaumannimyia* are associated primarily with plants of the tribe Astereae, especially species of the genus *Baccharis* L. (Foote *et al.*, 1993; Prado *et al.*, 2002; Norrbom *et al.*, 2010, 2013; Savaris *et al.*, 2015).

The phylogenetic relationships among the species of *Plaumannimyia* and other genera of the tribe Tephritini are poorly understood. Information about the natural history and distributions of genera in the tephritid literature is limited.

This study includes a revision of the genera *Euarestoides* and *Plaumannimyia* and a phylogenetic analysis of all species of *Plaumannimyia* based on morphological characters, to provide inferences about the origin and diversification of species within this genus. For each species of *Euarestoides* and *Plaumannimyia*, we provide morphological descriptions, diagnoses and illustrations as well as distributional data and, as available, host plant information. Keys for the identification of the species of both genera also are provided, as

well as a morphologically based phylogenetic analysis to test the monophyly of *Plaumannimyia* and hypotheses of the relationships among the species.

Objectives

This thesis aims to update the taxonomic knowledge of the genera *Euarestoides* and *Plaumannimyia* and to contribute to the knowledge of their origins and diversification, as well as to general knowledge of the family Tephritidae.

The specific objectives are:

- ✓ Provide species redescriptions, allowing more accurate specific identification;
- ✓ Identify, describe, illustrate all species;
- ✓ Produce dichotomous keys for all species of *Euarestoides* and *Plaumannimyia*;
- ✓ Test the monophyly of *Plaumannimyia* through the application of phylogenetic analysis;
- ✓ Propose a phylogenetic relationship between *Plaumannimyia* species.

Materials and methods

Sampling of material

Collections were made in eight Brazilian states, and the field work was supported by two projects. The Sisbiota "*Diptera dos estados do Mato Grosso, Mato Grosso do Sul e Rondônia: diversidade, sistemática e limite distribucionais*", aiming to understand the diversity and distribution of Diptera of the states of Mato Grosso, Mato Grosso do Sul and Rondônia, aiming at the biomes Cerrado, Pantanal and Amazon. With this project it was possible to participate in three collecting expeditions. One in the state of Rondônia, in the Amazon forest and open areas (abandoned crops and pastures), in the municipalities of Cacaulândia, Monte Negro and Campo Novo de Rondônia (May of 2012). Another in the state of Mato Grosso in cerrado areas in the municipality of Chapada dos Guimarães (Parque Nacional da Chapada dos Guimarães) and Pantanal in the municipality of Poconé (Fazenda Rio Clarinho) (January of 2013). The last expedition was in the state of Mato Grosso do Sul, in the municipalities of Aquidauana, in areas of forest and cerrado (Universidade Estadual do Mato Grosso do Sul - UEMS), Porto Murtinho, in areas of chaco, wetland and cerrado of private properties and Bonito in Areas of forest and pasture of particular properties (December of 2012).

The objective of the other project, entitled "*Ampliação do conhecimento em taxonomia, sistemática e aspectos biológicos de Tephritoidea (Diptera) na Região Neotropical, em especial das famílias Tephritidae e Richardiidae*", was to expand our knowledge of the diversity of Tephritidae and Richardiidae in southern and southeastern Brazil. With funding from this grant, field work was conducted in the Atlantic Forest in the dense and mixed ombrophilous forest formations at various elevations in the following two states: Paraná (municipalities of Campina Grande do Sul, Castro, Palmas, Ponta Grossa and Tijucas do Sul); Santa Catarina (Água Doce, Chapecó, Irani, and Praia Grande); and Rio Grande do Sul (São José do Ausentes (Parque Nacional do Aparados da Serra) (March/April of 2015). We also conducted field work in two states of southeastern Brazil: São Paulo (municipality of Campos do Jordão (areas of altitude fields of Serra da Mandiqueira) and Minas Gerais (cerrado with different physiognomies (rock field, clean field, dirty field, veredas, cerradão, gallery and ciliary forests, among others), municipalities of Belo Horizonte (Universidade Federal de Minas Gerais - UFMG), Santana do Riacho (Parque Nacional da Serra do Cipó), Datas and Diamantina (areas of rock field in private properties) (September of 2016).

Collections were generally made with an aerial net by sweeping vegetation, especially potential host plants. Flower samples were also collected for rearing of flies, especially capitula of the family Asteraceae, the genus *Baccharis* in particular. These plant samples were collected from various environments to achieve the greatest possible diversity of species. The capitula were stored in tissue bags and held for a period of two months for adult emergences. Samples were checked every two days for adult insects, which were then collected and prepared for the taxonomic study. When the capitula were first collected, three vouchers from each plant were preserved for the purpose of determining the plant species.

Morphological analysis

The morphological study was conducted with stereoscopic microscopy, primarily with dry, pinned specimens. All primary types were studied. The right wing of at least one male and female was removed for slide mounting in Euparal. Abdomens were removed with microforceps and macerated in a sodium hydroxide solution at 10% between 5 and 10 minutes to clear the structures. Subsequently, the cleared structure was transferred to a plate with water for further cleaning (fats and tissues), removal of spermathecae and preparation of the genitalia. Cleared terminalia were then transferred to glycerin for observation, description

and illustration. The dissected abdomen was placed in a plastic microvial filled with glycerin and attached to the pin supporting the remainder of the insect from which it was removed.

Species descriptions are composite and are not based solely on holotypes. The measurements were made in accord with Norrbom & Condon (2010) and Norrbom *et al.*, (2012), and are generally based on three specimens, if available (largest, smallest, and one other). Wing length was measured from the base of the Costa to the wing apex (the longest distance from the base of the costa to the costal margin between the apices of veins R_{4+5} and M_1); wing width at the broadest part, in the vicinity of the apex of vein R_1 to the margin of cell m_4. Gena-to-eye ratio = genal height (immediately below maximum eye height)/eye height (mediovertical length). Oviscape length was measured medially on the ventral side from the extreme base to the apex, including the medial lobe (Fig. 506, indicated by white arrow). Eversible membrane was measured from the base at the connection of the oviscape to the level of the base of aculeus (Fig. 506, indicated by black arrow). Aculeus length was measured from the base at the connection of the eversible membrane to the level of the apex (Fig. 506, indicated by yellow arrow). The length of the aculeus tip was measured ventrally from the apex of the eighth sternites to the extreme apex of the aculeus (Fig. 538). Aculei were photographed in dorsal view (Figs. 15, 19, 23, 27, 31, 195–233).

Map and illustrations

The distribution maps were made using Quantum GIS 2.8. Longitude and latitude were obtained for the locality where each specimen was collected and entered into a Microsoft Excel© spreadsheet. If unavailable directly from specimen labels, longitude and latitude were estimated using gazetteers and maps. Localities of specimens were plotted on a world land projection, presented within ESRI ArcView layouts and exported as encapsulated postscript (EPS) files.

Illustrations are digital photographs taken with a Visionary Digital System, enhanced using PhotoshopCS6 to adjust the color and make minor corrections (e.g., remove debris, add missing setae). The habitus illustrations are composites of images of each major body part (head, thorax, abdomen, and wings) from a dorsal view. Scanning Electron Microscope (SEM) images were taken with a Hitachi®™ TM3000 desktop unit (Tungsten source). Illustrations of male legs were made using a camera lucida coupled in a stereomicroscope and drawn using a pencil on sulphite paper. The plates were organized in alphabetical order, except the habitus and wings of the genus *Plaumannimyia* that were organized by wing pattern similarity.

Terminology

We use the morphological terminology of White *et al.*, (1999) and McAlpine (1981), except for the wing venation, which follows that of the forthcoming Manual of Afrotropical Diptera based on Wootton & Ennos (1989) and Saigusa (2006). The most significant veins and cells are labeled on Figure 2. Names for wing markings follow White *et al.*, (1999) and are shown on Figure 3.

Material examined

The specimens analyzed come from collecting in the south and southeast of Brazil and also from collections in Brazilian and international museums. Acronyms for institutions where specimens are deposited follow Norrbom *et al.*, (1999): AMNH - American Museum of Natural History, New York; ANSP - Academy of Natural Sciences of Philadelphia; BMNH - The Natural History Museum (formerly British Museum (Natural History)), London; CAS – California Academy of Science, San Francisco; CMP – Carnegie Museum of Natural History, Pittsburgh; DZUP - Coleção Entomológica Padre Jesus Santiago Moure, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba; HNHM – Hungarian Natural History Museum, Budapest; ICAT – Instituto Colombiano Agropecuario Tibaitatá, Colombia; IML – Fundación e Instituto Miguel Lillo, Universidad Nacional de Tucuman, Tucuman; LACM – Natural History Museum of Los Angeles County, Los Angeles (including former Utah State University Diptera); MACN – Museo Argentino de Ciencias Naturales Bernardino Rivadavia, Buenos Aires; MCZ – Museum of Comparative Zoology, Harvard University, Cambridge; MEFP - Museu Entomológico Fritz Plaumann, Seara, Nova Teutônia, Santa Catarina; MHNG - Museum d'Histoire Naturelle Geneva; MNHNP – Museum National d'Histoire Naturelle, National, Paris, France; MUZAR - Museu Zoobotânico Augusto Ruschi, Instituto de Ciências Biológicas, Universidade de Passo Fundo; MZUSP - Museu de Zoologia da Universidade de São Paulo; NMW – Naturhistorisches Museum, Vienna; NRS - Naturhistoriska Riksmuseet, Sektionen fur entomologi, Stockholm, Sweden; SDNHM – San Diego Natural History Museum; SMT- Statliches Museum für Tierkunde, Dresden; TAMU – Texas A&M University, College Station; TAUI – Tel Aviv University; UCB – University of California, Berkeley; UCD – University of California, Davis; UCR – University of California, Riverside; UMCE - Universidad Metropolitana de Ciencias de la Educacion, Santiago; USNM - National Museum of Natural History, Smithsonian Institution, Washington; UVG – Universidad del Valle, Guatemala; ZUEC - Museu de Zoologia da Universidade Estadual de Campinas "Adão José Cardoso", Campinas.

Label data for primary types are cited within quotation marks (" "). Brackets ([ ]) are used to indicate additional information not on the original labels, and slash bars (/ /) are used to indicate label separation. How the specimen is preserved, the condition of the specimen and where it is deposited are also reported.

Label data for all examined specimens were recorded in the New World fruit fly specimen database maintained by Allen L. Norrbom. A USNM barcode label was added to many specimens without barcode labels. The barcode labels do not indicate ownership and are used solely to provide unique identifier numbers. In the "Type data" and "Specimens examined" sections the barcode number is listed after the depository acronym for each specimen or series of specimens.

Most type specimens of E. Blanchard that are discussed in this paper are in the Macquart Collection at the MNHNP, although Allen L. Norrbom also found some in a box labelled "nomina nuda" in the general collection. All of them are mounted on rectangular pieces of plastic with green bases, and they all have circular labels that are green on one side, with "15, 43" handwritten on the other. Unless otherwise noted, they also have a rectangular label with "Museum Paris, Chili, Gay 15-43" in machine printing. Some specimens also have a label with writing that matches that on the sample Blanchard label in Horn and Kahle (1936, XXII, 35). These generally have a generic name on one side and a species name on the other.

Host plant data were transcribed directly from labels, as available, and are also based on our rearings from flowerheads collected in the field. Vouchers of these host plants were determined mainly by Harold Robinson (USNM), Eraldo Barboza, Juarez Cordeiro and José Tadeu Weidlich Motta (MBM) and are deposited in the herbaria of the National Museum of Natural History, Smithsonian Institution, the Universidad Nacional de San Antonio Abad de Cusco and the Museu Botânico Municipal de Curitiba (MBM).

Characters and terminals

The development of the character matrix for phylogenetic analysis was morphologically based. Characters were arranged in a binary or multi-state form with observations and discussions about primary homologies, delineation, independence and hierarchy of states (Hawkins *et al*., 1997; Sereno, 2007). The character matrix was elaborated in the Nexus Data Editor software (Page, 2001) and the unobserved data was treated as "?" and the inapplicable data was treated as "–". The characters were treated as unordered.

All species of *Plaumannimyia* were included as terminals in the analysis with the objective of evaluating the monophyly of the genus and relationships among the species. Outgroups were selected based on the classification of Norrbom *et al.*, (1999). The following outgroups were included: *Euarestoides abstersus, E. acutangulus, E. dreisbachi*, *Euarestoides* n. sp. 1; *Euarestoides* n. sp. 2, *Euarestoides* n. sp. 3, *Dyseuaresta adelphica* (Hendel, 1914), and *Trupanea bonariensis* (Brèthes, 1908).

Phylogenetic analysis

A heuristic search for the shortest-length cladograms was performed using a parsimony algorithym (Fitch, 1971), which treats characters as non-additive, so that the change from one state to another does not invoke intermediate states. The matrix character was analyzed using TNT (Goloboff *et al.,* 2008). A heuristic search for the most parsimonious trees was performed using 1000 replications with 100 trees being saved with each replication. The characters were analyzed without weighing, and the resulting consensus tree from this analysis was presented and discussed.

Cladograms were produced with Winclada (Nixon, 2002). Synapomorphic changes on the cladograms are represented by black circles; homoplastic changes are indicated by white circles. The stability of clades was estimated by Bremer support (Bremer, 1994), which measures the number of extra steps needed to collapse a given clade. Bremer's support was calculated on TNT using the Traditional Search, Tissue Reconnection and Tree Reconnection (TBR) method, with 1000 replicates and saving the sub-optimal trees with up to 10 extra steps. Bremer support values are displayed below each clade of the consensus tree without weighing, within one square (Fig. 551).

Results and discussion

Revision of the genera *Euarestoides* Benjamin and *Plaumannimyia* Hering (Diptera: Tephritidae)

Genus *Euarestoides* Benjamin 1934

Taxonomy

Trupanea (*Euarestoides*) Benjamin, 1934: 57. Type species – *Trypeta abstersa* Loew, by original designation.
Euarestoides: Hering, 1941: 160 [diagnosis; key to 2 species]; Aczél, 1950: 292 [catalog]; Quisenberry, 1951: 59 [notes]; Foote, 1958: 288 [revision of 3 species], 290 [diagnosis; key to 3 species], 1959: 16 [taxonomy], 1960a: 72 [taxonomy], 1960b: 146 [taxonomy], 1962: 175 [key to species], Foote & Blanc, 1963: 22 [review, California], Foote, 1965b: 669 [catalog], 1967: 24 [catalog], Wasbauer, 1972: 113 [host plants], Foote, 1980: 15 [key], 28 [diagnosis], 49 [discussion]; Foote, Blanc & Norrbom, 1993: 154 [taxonomy], 155 [recognition], 156 [key to 2 species]; Norrbom *et al.*, 1999: 145 [catalog]; Headrick & Goeden 1999: 693 [behavior].

Diagnosis. *Euarestoides* species differ from all other Tephritidae by the following combination of character: Face and frons in profile meeting at distinct angle between 90°–120°; 3 pairs of acuminate, frontal setae; posterior notopleural seta lanceolate; anepisternal seta acuminate; katepisternal and anepimeral setae lanceolate; 2 pairs of scutellar setae, posterior pair acuminate, more than 0.5 times as long as anterior pair; wing pattern with subapical dark brown stellate mark with 3 rays reaching costa in cell r_1 (the middle ray and sometimes the apical ray broad), and with narrow rays extended to middle of margin of cell r_{2+3}, apices of veins R_{4+5} and M_1, and middle of margin of cell m_1; basal half of wing predominantly hyaline with yellow to pale brown or gray reticulate markings (Figs. 2–13); hind femur with anterodorsal and posterodorsal pre-apical setae (Fig. 521); male surstyli short, straight or directed slightly anteroventrally (Figs. 34–39, 536).

Description. Body: Nonmetallic, usually predominantly yellow or gray (Fig. 1).

Head: Slightly higher than long. In profile, usually with face and frons meeting at distinct angle of about 110-120° (Fig. 517, indicated by yellow arrow). Generally yellow, frons yellow to orange, ocellar tubercle brown, and occiput brown medially and with brown mark sublaterally near midheight of eye, sometimes connected to dark medial area. Parafacial and gena yellowish. Frons wide at vertex and slightly narrowed to anterior margin; anteriomedially with a few whitish setulae smaller than numerous fronto-orbital setulae. Head setae equally long in both sexes. Three pairs of frontal setae pale brown to brown, all acuminate (Fig. 517, indicated by white arrow). Anterior orbital seta acuminate, posterior seta smaller, whitish, lanceolate. Ocellar, medial vertical and genal setae acuminate. Lateral vertical, postocellar and postocular setae whitish, lanceolate. Face in lateral view slightly concave, in anterior view with facial carina weak, ventral facial margin strongly concave. Eye ovoid. Antenna testaceous yellow not reaching ventral margin of face; arista yellow at base and dark towards apex, entirely pubescent (Fig. 534). Maxillary palpus yellow and spatulate (Fig. 519, indicated by black arrow). Labella yellow not elongated (Fig. 519, indicated by white arrow).

Thorax: Predominantly yellow, occasionally entirely yellow or gray, densely covered by microtrichia (Fig. 547, indicated by black arrow). Ground color of scutum usually black, of scutellum yellow to pale brown (Fig. 1). Postalar wall with distinct brown spot. Scutellum with 2 pairs of setae, posterior pair acuminate (pale brown or brown), and more than 0.5 times as long as anterior pair (Fig. 1). Two notopleural setae, posterior smaller, lanceolate, white; katepisternal and anepimeral lanceolate; other thoracic setae acuminate.

Wing: Pattern with subapical dark brown stellate mark with 3 rays reaching costa in cell r_1 (subapical and sometimes apical rays broad), with narrow rays extended to apices of veins R_{4+5} and M_1; basal half of wing predominantly hyaline with yellow to pale brown or gray reticulate markings (Figs. 2–13). Vein Sc subapically turned anteriorly at 80–90° angle (Fig. 520, indicated by black arrow). Vein R_1 setulose dorsally and with gap of setulae at level of Sc bend (Fig. 520, indicated by yellow arrow). Vein R_{4+5} with few setae at base (Fig. 520, indicated by white arrow). Cell cu*a* with short posterodistal lobe.

Legs: Yellow to orange. Hind femur with one anterodorsal and one posterodorsal pre-apical setae (Fig. 521).

Abdomen: Often yellowish, occasionally entirely yellow or gray. Abdominal terga with microtrichia and setulae concolorous with those on mesonotum.

Female terminalia: Oviscape yellow to brown, tapered, subconical to funnel-shaped, usually length twice width of base. Eversible membrane with 4 taenia on basal third, 2 dorsal and 2 ventral; medial and apical third covered by small or tiny denticles (Figs. 14, 18, 22, 26, 30). Aculeus short, flat. Tip triangular, lateral margin usually nonserrate (Figs. 24, 28, 32), occasionally serrate proximal to opening of cloaca (Figs. 16, 20). Two spermathecae, subspherical or elongated, usually with sclerotized neck and often surface with papillae (Figs. 17, 21, 25, 29, 33).

Male terminalia: Lateral surstylus fused indistinguishably to epandrium, short, straight or directed slightly anteroventrally. Medial surstylus with pair of subequal prensisetae (Figs. 34–39). Glans usually with distinct apical lobe (Figs. 46, 47, 48, 51), usually non-spiculose, occasionally with 2 large spines at base (Fig. 49). Proctiger with ventral setae, not bilobed apically.

Distribution. Nearctic and Neotropical. *E. acutangulus* is widespread in western and central United States and Canada, Mexico, the Greater Antilles, Trinidad, and Andean countries south to Chile. The other species have more restricted distributions: *E. abstersus* occurs in eastern North America and the Bahamas; *E. dreisbachi* occurs in Mexico, Guatemala, and Peru; *Euarestoides* n. sp. 1 is known only from Peru; *Euarestoides* n. sp. 2 is known only from southeastern and southern Brazil (Bahia to Rio Grande do Sul); and *Euarestoides* n. sp. 3 from Colombia.

Biology. Host plants are known for four of the six species. Those that have been reared all breed in flowerheads of Asteraceae but are specialized on different tribes. *E. abstersus* appears to be monophagous on a species of *Carphephorus* (Eupatorieae), *Euarestoides* n. sp. 2 may be restricted to *Moquiniastrum* and *Richterago* (Gochnatieae), and *E. dreisbachi* so far has been reared from one species *Baccharis* (Astereae). *Euarestoides* n. sp. 1 has not been reared, but adults were collected on *Baccharis*. *E. acutangulus*, conversely, has more than 20 reported host plants, although most belong to the tribe Heliantheae.

Key to Species of *Euarestoides*

1. Wing with reticulate area from pterostigma to crossvein r-m without or with very faint and incomplete darkened border along anterodistal margin (Figs. 9, 12, 13). 2
- Wing with reticulate area from pterostigma to crossvein r-m with complete, distinctly darkened border along anterodistal margin (Figs. 2–8, 10, 11) 3

2. Scutal ground color brown; wing lacking distinct dark spot in cell r_{4+5} within the subapical stellate mark (Figs. 12, 13). Medial prensiseta with dorsal face straight (Fig. 39). Acrophallus with large dorsal apical lobe (Fig. 51). Glans without spines at base. Colombia. ..... *Euarestoides* **n. sp. 3**
- Scutal ground color yellow; wing with 2 distinct dark spots in cell r_{4+5} within the subapical stellate mark (Fig. 9). Medial prensiseta with dorsal face convex (Fig. 37). Acrophallus without apical lobe. Glans with 2 large spines at base (Fig. 49). Peru. .....*Euarestoides* **n. sp. 1**

3. Wing with apical ray in cell r_1 much narrower than subapical ray, usually no wider than subapical hyaline spot (Figs. 4–8). 4
- Wing with apical ray in cell r_1 broad, subequal to or as broad as subapical ray, broader than subapical hyaline spot (Figs. 2, 3, 10, 11). 5

4. Wing with narrow ray in basal half of marginal part of cell r_1 meeting costa proximal to level of anterior end of crossvein r-m; reticulate area between pterostigma and crossvein r-m yellow to pale brown (Figs. 7, 8). Aculeus tip with lateral margin not serrate (Fig. 24). Apical lobe of acrophallus expanded apically, width at apex twice that of base (Fig. 48). Guatemala, Mexico, Peru. ..... *E. dreisbachi* Foote
- Wing with narrow ray in basal half of marginal part of cell r_1 meeting costa distal to level of anterior end of crossvein r-m; reticulate area between pterostigma and crossvein r-m brown or gray (Figs. 4–6). Aculeus tip with lateral margin serrate (Fig. 20). Apical lobe of acrophallus cylindrical, as wide at base as at apex (Fig. 47). Canada to Chile. ..... *E. acutangulus* (Thomson)

5. Wing with distinct dark spot in cell r_{4+5} within the subapical stellate mark; dark ray from anterior end of crossvein r-m to pterostigma ending subapically in pterostigma, with small hyaline spot between it and apex of R_1; reticulation in basal half of wing reduced to isolated gray or pale brown spots (Figs. 10–11). Medial prensiseta with dorsal face convex (Fig. 38). Aculeus tip with lateral margin not serrate (Fig. 32). Brazil. .....*Euarestoides* **n. sp. 2**

- Wing without distinct dark spot in cell r_{4+5} within the subapical stellate mark; dark ray from anterior end of crossvein r-m to pterostigma ending on vein R_1 or in apex of pterostigma, no hyaline spot between it and apex of R_1; reticulation in basal half of wing usually complete, although often faint (Figs. 2–3). Medial prensiseta with dorsal face straight (Fig. 34). Aculeus tip with lateral margin serrate (Fig. 16). Eastern United States, Bahamas. .....*E. abstersus* (Loew)

***Euarestoides abstersus* (Loew, 1862)**

Figs. 2–3, 14–17, 34, 40, 46, 52, 58

Trypeta abstersa Loew, 1862: 221 [description]; Loew, 1864: 91; Loew, 1873: 322 [review].
Trypeta (*Urellia*) *abstersa*: Osten Sacken, 1878: 194 [catalog].
Urellia abstersa: Loew, 1873: 324, 330 [n. comb.]; Johnson, 1895: 337 [Florida]; Coquillett, 1899: 265 [synonymy]; Adams, 1904: 450 [key]; Johnson, 1909: 113 [distribution]; Johnson, 1910: 803 [New Jersey]; Johnson, 1913: 84 [Florida].
Euaresta abstersa: Coquillett, 1899: 265 [taxonomy].
Trypanea abstersa: Johnson, 1925b: 264 [New England]; Leonard, 1928: 853 [New York]; Johnson, 1930: 151 [Nantucket, Massachusetts]; Curran, 1932: 6 [key]; Brimley, 1938: 384 [North Carolina]; Ouellet, 1941: 130 [Quebec]; Phillips, 1946: 83, 125 [description of larva, biology, host plant]; Hennig, 1952: 212 [catalog of immature stages].
Tephritis abstersa: Cresson, 1931: 3 [review].
Trupanea (*Euarestoides*) *abstersa*: Benjamin, 1934: 58 [review, Florida, host plant].
Euarestoides abstersa: Hering, 1941: 165 [n. comb.]; Aczél, 1950: 292 [catalog]; Quisenberry, 1951: 59 [taxonomy]; Foote, 1958: 290 [review].
Euarestoides abstersus: Foote, 1965b: 669 [catalog]; Foote, 1967: 24 [catalog]; Wasbauer, 1972: 113 [host plant]; Hilgendorf & Goeden, 1982: 152 [host plant]; Foote, Blanc & Norrbom, 1993: 156, 157,158 [distribution, host plant]; Norrbom *et al.*, 1999: 146 [catalog]; Sutton & Steck, 2006: 240 [Florida].

Diagnosis. This species differs from other species of *Euarestoides* except *Euarestoides* n. sp. 2 in having the apical ray in cell r_1 broad, similar in width to subapical ray. It further differs from *Euarestoides* n. sp. 1 and *Euarestoides* n. sp. 3 in having a completely darkened border on anterodistal margin of reticulate area between the pterostigma and crossvein r-m. It differs from *E. acutangulus* in having the area from the pterostigma to crossvein r-m with distinct yellow to pale brown markings (Figs. 2, 3), and from *E. dreisbachi* in having the lateral margin of the aculeus tip serrate, and in the apical lobe of the acrophallus parallel sided (not with apex twice width of base as in *E. dreisbachi*). It differs from *Euarestoides* n. sp. 2 in lacking a distinct dark spot in cell r_{4+5} within the subapical stellate mark, the medial prensiseta with its dorsal face straight (not convex as in *Euarestoides* n. sp. 2), and the acrophallus with a projecting apical lobe.

Description. Body length 2.4–3.9 mm, yellow to brown in ground color, yellow or gray microtrichose. Setae generally pale brown to brown.

Head: Slightly higher (0.72–0.88 mm) than long (0.51–0.63 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown to dark brown, and occiput brown medially and with brown mark sublaterally extending near vertical setae. Parafacial and gena yellow. Frons length (0.41–0.48 mm) less than or equal to width at vertex (0.43–0.51 mm), slightly narrowed anteriorly (width at anterior margin 0.36–0.39 mm). Gena with few small yellowish setulae on middle and ventral margin, genal seta acuminate, pale brown; gena height to eye long diameter ratio (0.22–0.25). Eye ovoid, long diameter (0.62–0.75 mm), width (0.49–0.56 mm). Antenna testaceous yellow, first flagellomere longer than wide. Maxillary palpus pale brown at apex with 2-3 distinct acuminate setulae.

Thorax: Length 1.1–1.4 mm, ground color of scutum brown, of scutellum yellow. Mesonotum covered by bright gray microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size in apical area, near base of scutellum. Second anepisternal seta lanceolate, white to yellow (concolorous with setulae).

Wing: Length 3.42–4.51 mm, width 1.05–1.68 mm. Wings (Figs. 2, 3) with area between pterostigma and crossvein r-m reticulate, with complete darker border along anterodistal margin ending on vein R_1 or in apex of pterostigma; rest of pterostigma yellow or subhyaline. Cell r_1 with 3 rays in marginal part, most proximal ray narrow, distal two rays broad, most distal as broad as or subequal to subapical ray; rays bordering 3 marginal hyaline spots: largest immediately distad of pterostigma, oblique and extending into cell r_{2+3}, almost to vein R_{4+5}; second spot triangular, sometimes touching vein R_{2+3}; and small rounded or triangular subapical spot not touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (cell with

complete medial dark ray). Cell r_{4+5} with apical rays complete; subbasal hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m large, more than ⅔ width of cell. Cells bm and cu*a* mostly hyaline. Cells br, dm, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Basal marginal hyaline spot in cell m_1 usually not reaching vein M_1 (sometimes first and second rays not completely connected). Halter yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color yellow to brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterolateral margin, centrally bare, posterior margin with sparse setulae; tergites 3–6 with setulae uniformly dense; tergite 6 on posterior margin with row of setae large (> 3 times as long as setulae). Oviscape yellow, length 0.66–0.68 mm, width 0.55–0.58 mm at base and 0.23–0.24 mm at apex; basal half with setulae lanceolate, white and apical half with setulae acuminate, brown. Eversible membrane (Fig. 14) length 0.80–0.82 mm. Aculeus (Fig. 15) pale brown, length 0.70–0.76 mm, tip triangular, length 0.17–0.19 mm, with lateral margin serrate proximal to opening of cloaca (Fig. 16). Spermathecae subspherical, length 0.13–0.15 mm, surface with papillae (Fig. 25).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 34) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally (Fig. 34). Medial surstylus with pair of conical, straight, subequal prensisetae (Fig. 34); near base of lateral prensiseta a group of 2-3 setulae. Phallapodeme Y-shaped, 0.32–0.34 mm long (Fig. 52). Glans 0.21–0.23 mm long, with apical lobe (Fig. 46); vesica short.

Distribution. *Nearctic.* This species occurs in the Bahamas and on the Atlantic coastal plain of the United States from Massachusetts to Florida (Delaware, Florida, Maryland, Massachusetts, New Jersey, New York, North Carolina, South Carolina, Virginia), as well as Texas. Foote *et al.*, (1993) also recorded it from Michigan, and Ouellet (1941) from Canada (Quebec). Records of this species from the western United States, Mexico, South America and Cuba refer to *E. acutangulus*.

Biology. This species has been reared from flowerheads of *Carphephorus paniculatus* (J.F. Gmel.) Herbert (=*Trilisa paniculata* (J.F. Gmel.) Cass.) (Eupatorieae) (Benjamin 1934, Phillips 1946). Foote (1958) also listed *Solidago* sp. and *Suaeda* sp. (as “seablite”) as “hosts”, but these are doubtful host plants, the records presumably based on adults swept from or

collected on these plants. Hilgendorf & Goeden (1982) also listed *Xanthium strumarium* L. as a host plant, citing Cresson (1931), but the data provided by that author do not indicate that specimens were reared. Adults have also been swept from or collected on *Ambrosia artemisiifolia* L. and *Eupatorium serotinum* Michx. Adults have been collected during April, May, November and December in the southern part of the range (Bahamas, Florida, Texas), and from June to October in the northern part of the range.

Type data. Loew (1862) described *Trypeta abstersa* from an unstated number of female specimens from "Amer. Boreal." [North America] in the "Coll. Winth." [Winthem Collection]. The range of body and wing lengths in the description suggests that there were multiple specimens, but Loew (1873: 324) later stated that he described this species from "a North American female in the Winthem Collection" and he did not have "the original specimen . . . at hand for comparison". According to Foote (1958: 290), the holotype is labeled "Am. Sept." / "Coll. Winthem" / "84" / "abstersa, det. Loew", and is deposited in the NMW, where the Winthem Collection is located.

Specimens examined. BAHAMAS: Abaco Cays, Allans City, 9 May 1953, E. B. Hayden, 1m (USNM USNMENT00119122). **UNITED STATES: Connecticut:** Short Beach, 5 Sep 1885, C. V. 1393, 1m (USNM USNMENT00105354). **Delaware:** Rehoboth Beach, 4 Aug 1941, A. L. Melander, 1f (USNM USNMENT00262502). **Florida**: Conway, reared from *Trilisa paniculata*, 25 Nov 1929, D. J. Nicholson, 5m 8f (USNM); same, 27 Nov 1929, D. J. Nicholson, 1m (USNM); same, 28 Nov 1929, D. J. Nicholson, 1f (USNM); same, 5 Dec 1929, D. J. Nicholson, 3m (USNM); Cheney Hiway, E. St. Johns River, *Solidago* sp., 13 Dec 1929, H. H. Hume, 1m 2f (USNM); same, 14 Dec 1929, H. H. Hume, 1m (USNM); Miami, Dade Co., Kendall, USDA Subtropical Agricultural Research Center, 25°38'35.9"N 80°17'38.9"W, sweeping *Ambrosia artemisiifolia*, 19 May 2004, A. L. Norrbom, 1f (USNM USNMENT00263024); Orlando, Bithlo, 1 mi S Lake Pickett, *Trilisa paniculata*, 17 Dec 1929, C. Kine 1m (USNM); Orlando, reared from *Trilisa paniculata*, 12 Nov 1929, D. J. Nicholson, 4m 2f (USNM); same, 13 Nov 1929, 2m 4f (USNM); same, 15 Nov 1929, 3m 2f (USNM); same, 16 Nov 1929, 1m (USNM); same, 18 Nov 1929, 8m 1f (USNM); same, 20 Nov 1929, 12m 3f (USNM); same, 21 Nov 1929, 6m 5f (USNM); same, 22 Nov 1929, 1m 1f (USNM); same, 23 Nov 1929, 7m 5f (USNM); same, 25 Nov 1929, D. J. Nicholson, 12m 10f (USNM); same, 5 Dec 1929, 10m 11f (USNM); same, 6 Dec 1929, 1m (USNM); same, 7 Dec 1929, 1m 2f (USNM); Orlando,12 Nov 1929, F. H. Benjamin 1f (USNM); Orlando, reared from *Trilisa paniculata*, 22 Nov 1929, F. H. Benjamin, 2m (USNM); same, 23 Nov 1929, 2m 2f (USNM); same, 24 Nov 1929, 3m 2f (USNM); same, 29 Nov 1929, 2m

(USNM); same, 30 Nov 1929, 7m 3f (USNM); same, 2 Dec 1929, 5m 6f (USNM); same, 4 Dec 1929, 2f (USNM); same, 6 Dec 1929, 2m 1f (USNM); same, 9 Dec 1929, 3m 1f (USNM); same, 8-15 Dec 1929, 5m (USNM); Long Key, 23 Jul 1948, L. D. Beamer, 1m (UKaL USNMENT00215414). **Georgia:** "southern Georgia", Morrison, 1m (USNM USNMENT00105360). **Massachusetts**: Penikese Id., 7 Aug 1923, A. H. Sturtevant, 1m 1f (USNM USNMENT00105351, USNMENT00262605). **Maryland**: Calvert Co., Chesapeake Beach, flowers of *Eupatorium seratinum* [sic], 2 Sep 1916, H. L. Viereck, 1m (USNM USNMENT00119121); same, 18 Sep 1921, R. C. Shannon, 1f (USNM USNMENT00119105); same, on flowers seablite, 12 Sep 1925, J. M. Aldrich, 4m 2f (USNM USNMENT00119102-03, USNMENT00119117-20); same, 1 Aug 1930, J. M. Aldrich, 1f (USNM); Prince Georges Co., Beltsville, 6 Aug 1914, L. O. Jackson, 2m (USNM USNMENT00119112-13); St. Mary's Co., Piney Point, 26 Jul 1946, C. W. Sabrosky, 1m (USNM); Piney Point, 3.7 km E. of, 12 Jul 1931, H. S. Barber, 1m (USNM). **New Jersey**: Atlantic Co., Atlantic City, 2 Sep 1935, Blanton & Borders, 9m 4f (USNM USNMENT00105355-59, USNMENT00119101, USNMENT00119106, USNMENT00119114, USNMENT00262501, USNMENT00262604); Burlington Co., Riverton, 13 Jun 1909, 1m (USNM USNMENT00105353); same, 18 Jul 1909, 1f (USNM USNMENT00119108). **New York:** Long Island, Queens Co., Douglaston, 2 Sep 1954, A. H. Sturtevant, 1m 2f (USNM USNMENT00119109-11); Long Island, Suffolk Co., Babylon, 12 Aug 1933, Blanton & Borders, 1m (USNM); same, 21 Sep 1935, Blanton & Borders, 1f (USNM USNMENT00105352). **North Carolina:** Carteret Co., Bogue Island, 17 Oct 1974, G. C. Steyskal, 1m (USNM USNMENT00104331); Raleigh, 4 Aug 1940, S. C. Schell, 1f (USNM USNMENT00104332). **South Carolina:** Beaufort Co., Fripp Island, 26 Sep 1973, G. C. Steyskal, 1f (USNM USNMENT00104330). **Texas**: Hidalgo Co., Donna, sweeping, 11 Apr 1931, J. W. Monk 1m (USNM). **Virginia:** Norfolk [36°52'N 76°15'W], 4 Sep 1943, R. H. Beamer, 1m (UKaL USNMENT00215415).

***Euarestoides acutangulus* (Thomson, 1869)**

Figs. 4–6, 18–21, 35, 41, 47, 53, 58

Trypeta acutangula Thomson, 1869: 583 [description; California]; Coquillett, 1899: 265 [synonymy].

Tephritis acutangula: Loew, 1873: 335 [n. comb.]; Woodworth, 1913: 137 [California]; Cresson, 1931: 4 [review]; Knowlton & Harmston, 1937: 145 [Utah].

Trypeta (*Tephritis*) *acutangula*: Osten Sacken, 1878: 194 [catalog].

Trupanea acutangula: Schwitzgebel & Wilbur, 1943: 5 [biology].

Trupanea (*Euarestoides*) *acutangula*: Benjamin, 1934: 58 [classification, status].

Euarestoides acutangula: Hering, 1941: 165 [Peru]; Aczél, 1950: 293 [catalog]; Quisenberry, 1951: 59 [taxonomy]; Foote, 1958: 291 [review]; Foote & Blanc, 1963: 23 [review, California]; Lipp & Schulz, 1970: 27 [ecology].

Euarestoides acutangulus: Foote, 1965b: 669 [catalog]; Foote, 1967: 24 [catalog]; Harris & Piper, 1970: 134 [host plant]; Wasbauer, 1972: 114 [host plant]; Goeden & Ricker, 1974: 831 [host plants]; Goeden & Ricker, 1975: 304 [host plant]; Goeden & Ricker, 1976: 49, 926, 927, 929, 1174 [host plant]; Piper, 1976: 381 [biology]; Hilgendorf & Goeden, 1982: 152 [host plant]; Goeden, 1986: 326 [host plant]; Goeden & Ricker, 1986: 42 [host plant]; Palmer, 1987: 192 [host plants]; Foote, Blanc & Norrbom, 1993: 158, 159, 160 [taxonomy, distribution, host plants]; Headrick & Goeden, 1995: 199 [behavior]; Norrbom *et al.*, 1999: 146 [catalog]; Headrick & Goeden, 1999: 694 [behavior].

Trypeta abstersa: Cockerell, 1898: 155 [New Mexico]; Cockerell, 1902: 347 [New Mexico] [misidentifications].

Urellia abstersa: Doane, 1899: 192 [distribution]; Wulp, 1900: 426 [Mexico]; Snow, 1903: 219 [Kansas]; Snow, 1904: 345 [Arizona]; Tucker, 1907: 105 [Colorado]; Aldrich, 1913: 218 [Great Basin] [misidentifications].

Euaresta abstersa: Johnson, 1903b: 106 [New Mexico]; Cresson, 1907: 106 [New Mexico, Texas]; Cole, 1912: 158 [California]; Woodworth, 1913: 137 [California] [misidentifications].

Trypanea abstersa: Hendel, 1914: 81 [Chile, Peru records] [misidentification].

Tephritis abstersa: Janes & Thomas, 1932: 103 [Utah] [misidentification].

Euarestoides abstersa: Hering, 1941: 164 [Chile, Peru records] [misidentification].

Trupanea abstersa: Stuardo, 1946: 135 [Chile] [misidentification].

Diagnosis. This species differs from *Euarestoides* n. sp. 1 and *Euarestoides* n. sp. 3 in having a completely darkened border on anterodistal margin of reticulate area between the pterostigma and crossvein r-m. It differs from *E. abstersus* and *Euarestoides* n. sp. 2 in having the apical ray in cell r_1 much narrower than the subapical ray, and from *E. abstersus* and *E. dreisbachi* in having the reticulate area between the pterostigma and crossvein r-m without distinct yellow to pale brown markings (Figs. 4–6). It further differs from *E. dreisbachi* in having the aculeus tip with lateral margin serrate, and the apical lobe of the acrophallus parallel-sided. It further differs from *Euarestoides* n. sp. 2 in lacking a distinct dark spot in cell r_{4+5} within the stellate mark, the medial prensiseta with dorsal face straight, and the acrophallus with a projecting apical lobe.

Description. Body length 2.60–4.45 mm, dark brown in ground color, gray microtrichose. Setae generally pale brown to brown.

Head: Slightly higher (0.74–0.92 mm) than long (0.46–0.54 mm). Generally yellowich, frons yellow to orange, ocellar tubercle brown to dark brown, and occiput brown medially and with broad brown mark sublaterally extended nearly to vertical setae. Parafacial and gena yellow. Frons, length (0.36–0.40 mm) less than width at vertex (0.42–0.58 mm), slightly narrowed to anterior margin 0.46–0.48 mm). Gena with few and small setulae yellowish on middle and ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.20–0.21). Eye ovoid, long diameter (0.61–0.80 mm), width (0.46–0.52 mm). Antenna testaceous usually yellow (rarely dark), first flagellomere longer than wide. Maxillary palpus pale brown at apex with 3 distinct acuminate setulae.

Thorax: Length 1.02–1.65 mm, ground color of scutum dark brown, of scutellum dark brown with margin apical light. Mesonotum covered by bright gray microtrichia; setulae lanceolate, white to yellow, slightly increasing in size in apical area, near base of scutellum. Second anepisternal seta lanceolate, white to yellow (concolorous with setulae).

Wing: Length 3.27–3.83 mm, width 1.19–1.32 mm. Wings (Figs. 4–6) with area between pterostigma and crossvein r-m reticulate, with completely darkened border along anterodistal margin. Pterostigma yellowish. Cell r_1 with 3 marginal hyaline spots: largest immediately distad of pterostigma, oblique and reaching cell r_{2+3}, but never reaching cell r_{4+5}; second triangular, usually touching vein R_{2+3} (sometimes not touching vein R_{2+3}); and small rounded or triangular subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (with medial dark ray complete or sometimes incomplete). Cell r_{4+5} with apical rays complete; hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m large, more than ⅔ half the width of cell. Cells bm and cu*a* mostly hyaline. Cells br, dm, and m_4 and anal lobe reticulate with

large hyaline spots. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Basal marginal hyaline spot usually reaching vein M_1 (sometimes first and second rays faintly connected). Halter yellow.

Legs: Entirely yellow.

Abdomen: Ground color usually dark brown (sometimes with base of syntergite 1+2 yellowish); microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small sparse setulae; tergites 3–6 with setulae uniformly dense; tergite 6 on posterior margin with a row of setae large (> 3 times long as setulae). Oviscape yellow to brown, length 0.77–0.90 mm, width 0.66–0.70 mm at base and 0.24–0.26 mm at apex; basal half with setulae lanceolate, white and apical half with setulae acuminate, brown. Eversible membrane (Fig. 18) length 0.81–0.84 mm. Aculeus (Fig. 19) pale brown, length 0.70–0.75 mm, tip triangular, length 0.17–0.19 mm, with lateral margin serrate before opening of cloaca (Fig. 20). Spermathecae one pair, subspherical, length 0.19–0.22 mm, surface with papillae (Fig. 21).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 35) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally (Figs. 35, 41). Medial surstylus with pair of conical, straight prensisetae; lateral prensiseta ca. ⅔ as long as medial prensiseta (Fig. 35); near base of lateral prensisetae a group of 2-3 setulae. Phallapodeme Y-shaped, 0.37–0.39 mm long (Fig. 53). Glans 0.23–0.25 mm long, with apical lobe (Fig. 47); vesica ca. ⅓ length of internal sclerites.

Distribution. *Nearctic* and *Neotropical.* Central Canada (Alberta, Manitoba, Saskatchewan), Chile (Antofagasta, Coquimbo, Santiago, Tarapacá), Colombia (Boyacá, Cundinamarca, Valle del Cauca), Cuba (Artemisa), Dominican Republic (Pedernales, San Cristóbal), Ecuador (Azuay, El Oro, Loja), Mexico (Baja California Norte, Baja California Sur, Chiapas, Chihuahua, Durango, Michoacán, Nayarit, Oaxaca, San Luis Potosí, Sinaloa, Sonora, Tamaulipas, Tlaxcala, Veracruz, Zacatecas), Peru (Arequipa, Cusco, Huánuco, Ica, La Libertad, Lima, Tacna), Puerto Rico (Isabela), Trinidad & Tobago (Trinidad), central and western USA (Arizona, Arkansas, California, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, New York, North Dakota, Oregon, South Dakota, Texas, Utah, Washington, Wisconsin, Wyoming), and western Venezuela (Lara, Mérida, Trujillo). Elevational records

range from 457–3900 m. The gap in distribution in Central America suggests that this species may have been introduced to South America.

Biology. This species has been reared from flowerheads of at least 21 species of Asteraceae. The reported host plants are mainly in the tribe Heliantheae, including: *Ambrosia acanthicarpa* Hook. (Goeden & Ricker 1974), *A. ambrosioides* (Delpino) W. W. Payne (Piper 1976), *A. chamissonis* (Less.) Greene (=*Franseria villosa* Rydb.) (Foote 1958, Wasbauer 1972, Piper 1976, Goeden 1986), *A. chenopodiifolia* (Benth.) W. W. Payne (Foote 1958, Foote & Blanc 1963, Goeden & Ricker 1976), *A. confertiflora* DC. (Goeden & Ricker 1975), *A. deltoidea* (Torr.) W. W. Payne (Piper 1976), *A. dumosa* (A. Gray) W. W. Payne (Goeden & Ricker 1976, Headrick & Goeden 1995), *A. eriocentra* (A. Gray) W. W. Payne (Goeden & Ricker 1976), *A. ilicifolia* (A. Gray) W. W. Payne (Goeden & Ricker 1976), *A. psilostachya* DC. (Goeden & Ricker 1976, Piper 1976), *A. salsola* (Torr. & A. Gray) Strother & B. G. Baldwin (Foote 1958, Goeden & Ricker 1986, Headrick & Goeden 1995; as *Hymenoclea salsola*), *Dicoria canescens* A. Gray (Goeden & Teerink 1993), *Heliomeris* sp., *Iva axillaris* Pursh (Goeden & Teerink 1993), and *I. hayesiana* A. Gray (Wasbauer 1972), *Heliomeris* sp. (new data, 1 male reared), *Parthenium hysterophorus* L. (new data), *Xanthium strumarium* L. (Foote 1958, as *X. canadense*, unclear if record based on reared specimens) and *Xanthium* sp. (Foote 1958, Foote & Blanc 1963). However, several non-Heliantheae hosts also have been reported, including: *Anaphalis margaritacia* (L.) Benth. & Hook. f. (Gnaphalieae) (Wasbauer 1972); *Arnica chamissonis* Less. ssp. *foliosa* (Nutt.) Maguire (Madieae) (Foote & Blanc 1963); *Gaillardia aristata* Pursh (Foote 1958), and *Helenium autumnale* L. (Helenieae) (Wasbauer 1972). *Ericameria paniculata* (Gray) Rydb. (Astereae) (Foote 1958, Wasbauer 1972; as *Chrysanthemum* [presumably error for *Chrysothamnus*] *paniculatus*), *Gutierrezia sarothrae* (Pursh) Britton & Rusby (Astereae) (Foote 1958), and *Senecio flaccidus* var. *douglasii* (DC.) B. L. Turner & T. M. Barkley (Senecioneae) (Foote 1958, record probably based on California specimens listed by Foote & Blanc 1963: 23 "ex" this plant and probably not reared) also have been reported as hosts, but the status of these records is questionable as they may have been based on adults collected on the plants. *Asparagus officinalis* L. (as asparagus), *Medicago sativa* L. (as alfalfa), *Prunus virginiana* L. (as chokecherry), *Sesuvium sessile* Pers., *Sisymbrium* sp., *Sphaeralcea angustifolia* (Cav.) G. Don and *Zizania* sp. (as rice) have been erroneously reported as hosts (Foote 1958). Adults have been collected in May-July in Canada, in February-September and November in Mexico, in February, April, May, August, October and November in Chile, in January, May and July in Colombia, in March in Ecuador, in July and September in Venezuela, in

February, June, August, October and November in Peru, in July and August in the Dominican Republic, in January in Puerto Rico, in August in Trinidad.

Type data. Thomson (1869) described this species from an unstated number of male specimens from "California". The lectotype male, designated by inference of holotype by Foote (1958: 291), and according to Foote is labeled "California" [white] / "Kinb." [white] / "Typus" [white] / "Trypeta acutangula Thoms." [white] / "74, 56" [red]. It is deposited in the NRS.

Specimens examined. CANADA: Alberta: Medicine Hat, 1 Jun 1952, A. R. Brooks, 1m1f (CNC); Onefour, 4 Jun 1955, J. R. Vockeroth, 1f (CNC). **Manitoba**: Bald Head Hills, 13 mi N of Glenboro, *Betula occidentalis* (ex), sand dunes, 21 Jun 1958, J. F. McAlpine, 1f (CNC); Boissevain, 17 Jul 1953, Brooks & Kelton, 1f (CNC); Forrest, 14.4 km N, Prairie slough (wooded), 29 Jul 1958, J. G. Chillcott, 1f (CNC); Shilo, 4.8 km S, *Leafy spurge* (ex), 30 Jun 1958, R. L. Hurley, 1f (CNC); Shilo, 8 km SW, Floodplain community nr. Tamarack Bog, 22 Jul 1958, J. G. Chillcott, 1f (CNC). **Saskatchewan**: Elbow, 26 Jun 1960, A. R. Brooks, 2m (CNC); Great Sand Hills, 27 May 1955, J. R. Vockeroth, 1m (CNC); Val Marie, 11 Jun 1955, J. R. Vockeroth, 1f (CNC); Val Marie, 13 Jun 1955, A. R. Brooks, 1m (CNC). **CHILE: Antofagasta**: Chinino, Camino Talabre, 6 Oct 1955, L. E. Peña, 1f (CNC); Pocos, Des. Atacama, 2800 m, Apr 1954, L. Peña, 8m 12f (CNC) 1m 1f (USNM USNMENT00262608-09). **Coquimbo**: La Serena Beach, associated to flowers of *Ambrosia* (Franseria like), 20 May 1992, C. Garcia, 1m (USNM USNMENT00105361); La Serena, Atualsol, on Potato, 20 Feb 1932, M. Kisliuk & C. E. Cooley, 1m (USNM USNMENT00105362). **Santiago**: Jamaica, 2000 m, 2 Aug 1975, C. Forter, 1f (USNM). **Tarapacá**: Azapa, 9 Nov 1955, L. E. Peña, 1m (CNC); Azapa, 8-10 Nov 1955, L. E. Peña, 1f (CNC); Codpa, 2000 m, 2 Aug 1975, C. Porter, 1f (IML). **COLOMBIA: Boyacá**: V. de Leiva, 30 Jul 1991, on flowers *Ambrosia cumanensis*, C. Garcia, 1m (USNM USNMENT00105365). **Cundinamarca:** Funza, papa, 3 Jun 1958, E. Idrobo, 3m (ICAT) 1m (USNM USNMENT00105363); Funza, papa, 22 Jan 1957, M. Revalo 1m (ICAT). **Valle del Cauca**: La Combre, 18 May 1914, H. S. Parish, 1m (USNM USNMENT00105366). **CUBA: Artemisa**: San Antonio de los Baños, J. Bequaert, 3f (MCZ). **DOMINICAN REPUBLIC: Pedernales**: "Las Abejas" 7.3 km NE Las Mercedes, 18°19'N, 71°38'W 1100-1150 m, 20 Aug 1983, F. M. Harrington, J. D. Weintraub, 1m (USNM); La Abeja, 38 km NNW Cabo Rojo, 18°09'N, 71°38'W, 1250 m, 15 July 1987, J. E. Rawlins, R. L. Davidson, 1f (CMP); Cabo Rojo, 23.5 km N, 18°6'N 71°38'W, 540 m, deciduous forest; intercept trap, 13-19 Jul 1990, L. Masner, J. Rawlins & C. Young, 1f (CMP); Cabo Rojo, 26 km N, 18°6'N 71°38'W, 760 m, 17 Jul 1987, J. Rawlins & R.

Davidson, 2m (CMP CMNH-353,601, CMNH-353,731). **San Cristóbal:** San Cristóbal, Jul 1969, J. Maldonado C., 2m (USNM USNMENT00105367-68). **ECUADOR: Azuay**: Tarqui-S. Isabel road, 2200-2800 m, 10-13 Mar 1965, L. E. Peña, 4m 1f (CNC). **El Oro**: Tres Cerritos, 17-18 Feb 1965, L. E. Peña, 1m (CNC). **Loja**: Loja, 2500 m, 23-25 Mar 1965, L. E. Peña, 7m 3f (CNC). **MEXICO: Baja California Norte**: Colonet, 3.5 km SW, 9 May 1985, Carter, Bloomfield & Faulkner, 1f (SDNHM); El Condor, 2.4 mi S, 13 May 1981, Faulkner & Brown, 1f (SDNHM); El Crucero, 29°15'N 114°8'W, sweeping *Atriplex* sp., 4 Apr 1976, J. Doyen, 2m 4f (UCB); El Rosario, 30.3 mi E, 29°45'N 114°45'W, 24 Mar 1981, Faulkner & Andrews, 1m (SDNHM); Los Frailes, 18 Mar 1953, P. H. Arnaud, Jr., 1f (CAS); Las Encinas, 2 mi W, 1585 m, 18 Mar 1972, J. Powell, 1m (UCB); Mission San Bonja, 457 m, 31 Mar 1973, J. Doyen & J. Powell, 1f (UCB); Puertocitos, 13 mi S, 4 Apr 1973, J. Doyen, J. Powell & S. L. Szerlip, 2m (UCB); Rancho Santa Ines, 9 km NW, 29°46'N 114°46'W, 550 m, 6 Apr 1985, Clark & Blom, 2f (LACM); San Felipe, 41.8 km S, 30°45'N 114°45'W, 15 Apr 1965, D. Q. Cavagnaro, C. E. & E. S. Ross, 1m (CAS); same, 31°N 114°52'W, 20 Feb 1954, P. H. Arnaud, Jr., 2m 1f (USNM); same, 31°N 114°52'W, 24 Mar 1963, G. I. Stage, 1m 1f (UCB); San Juanico, 5.8 mi S, 30 Mar 1985, Bloomfield & Faulkner, 1m (SDNHM); Santa Ines, 1.6 km E, 6 Apr 1985, Bloomfield & Faulkner, 1m (SDNHM); Sierra Juarez, Cantillas Canyon, "Narrows" mouth, 21 Mar 1967, J. Powell, 1m (UCB). **Baja California Sur**: Isla San Marcos, 31 Mar 1953, P. H. Arnaud, Jr., 1m (CAS); Santa Maria Bay, 14 Mar 1953, P. H. Arnaud, Jr., 1f (CAS); 2.3 mi W Mexico 1 on Bahia Tortugas road, 19 Mar 1981, Faulkner & Andrews, 1m (SDNHM); 81.4 mi W Mexico 1 on Bahia Tortugas road, 18 Mar 1981, Faulkner & Andrews, 4m 11f (SDNHM); Arroyo San Miguel, 44.5 km NE of, 26°21'N 112°37'W, 1 Apr 1985, Bloomfield & Faulkner, 1m (SDNHM); Agua Verde Bay, 26 Mar 1953, P. H. Arnaud, Jr., 1f (CAS); La Paz, 24°10'N 110°18'W, 20 Feb 1974, G. E. Bohart, 1f (LACM); same, 21 Feb 1974, G. E. Bohart, 1f (LACM). **Chiapas**: Ocozocoautla, 7 mi SW, 2500 m, 1 Aug 1974, O'Brien & Marshall, 1m (CAS); San Cristobal de Las Casas, 16°45'N 92°38'W, P. J. Spangler, 4m 1f (USNM); same, 2 Aug 1956, J. W. MacSwain & D. D. Linsdale, 1f (UCB); same, 2134-2287 m, 20 Aug 1963, H. V. Weems, Jr., 1f (FSCA USNMENT00214924); same, 2161 m, 16 May 1969, B. V. Peterson, 1f (CNC); same, 2195 m, 1 Jun 1969, 1m (CNC); same, 3.2 km E, 29 Jul 1957, J. Chemsak & B. J. Rannells, 16m 20f (UCB); same, 7 mi SE, 2134 m, 26 May 1969, H. J. Teskey, 1m (CNC); same, 8 mi SE, 10 Jul 1956, J. W. MacSwain, 3m 2f (UCB); Teopisca, Hwy. 24.7 mi SW, 23 May 1969, B. V. Peterson, 1f (CNC). **Chihuahua**: Camargo, 21 Sep 1970, G. E. & R. M. Bohart, 1m (LACM); Juarez, 30 Jan 1965, B. A. Young, 1f (USNM); Juarez, 13 mi S, 18 Aug 1952, E. E.

Gilbert & C. D. MacNeil, 3m (UCB); Juarez, 96.5 km S, 30°30'N 106°30'W, 20 Aug 1970, D. W. Davis, 2m (LACM). **Durango**: Alamillo, 12 mi N, °N, 21 Feb 1953, R. C. Bechtel & E. I. Schlinger, 2f (UCB); Durango, 24°2'N 104°40'W, 1829-1982 m, 13 May 1965, H. V. Weems, Jr., 1m (FSCA USNMENT00214923). **Michoacán**: San Jose Purua, Jun 1965, N. L. H. Krauss, 3m 1f (USNM). **Nayarit**: San Blas, La Bajada, 20-21 Mar 1983, W. J. Hanson, 1f (LACM). **Oaxaca**: Mitla, 4.8 km W, 9 Apr 1953, R. C. Bechtel, 1m (UCB). **San Luis Potosí**: C. del Maiz, 40-50 mi NW, 20 Nov 1948, E. S. Ross or H. B. Leech, 4m 1f (CAS); San Luis Potosi, 25 mi NE, 9 Sep 1972, G. F. & S. Hevel, 1f (USNM). **Sinaloa**: Los Mochis, 6 May 1953, R. C. Bechtel & E. I. Schlinger, 1f (UCB). **Sonora**: Bahia San Carlos, 27°58'N 111°4'W, 18 Feb 1963, P. H. Arnaud, Jr., 1f (USNM); Choya Bay, 27 Mar 1949, G. M. Bradt, 1f (AMNH); Gulf of California, Isla San Esteban, 28°42'N 112°36'W, 2 Apr 1953, P. H. Arnaud, 3f (CAS); Obregon, 19 Dec 1952, J. S. Caldwell, 1m (USNM); Punta Penasco, 10 Apr 1963, F. G. Andrews, 1m (UCR); San Jose Guaymas, 27°59'N 110°54'W, 10 Apr, L. O. Howard, 2m (USNM); Sonoyta, 20 mi W, M.S. Mulla, 3m 2f (UCR); Sonora, 21 Apr 1947, A. L. Melander, 1m (USNM); Sonoyta, near, 31°51'N 112°50'W, D. Veirs, 1f (LACM). **Tamaulipas**: El Limon, 20 mi N, 10 Nov 1946, E. S. Ross, 1m (CAS). **Tlaxcala**: Apizaco, 19 Jul 1965, Flint & Ortiz, 1f (USNM). **Veracruz**: Tampico, 25 Feb 1972, F. Parker & D. Miller, 1m 2f (USNM). **Zacatecas**: Fresnillo, 5 mi S, 7 Aug 1954, E. G. Linsley, J. W. MacSwain & R. F. Smith, 1m 1f (UCB); Fresnillo, 9 mi S, 10 Aug 1954, E. G. Linsley, J. W. MacSwain & R. F. Smith, 1m (UCB); Salinas, 19 mi E, 10 Sep 1973, W. J. Hanson & B. A. Haws, 1f (LACM). **PERU: Arequipa**: Arequipa, 26 Aug, Cockerell, 2f (USNM). **Cusco**: Cusco, 3500 m, 12 Jun 1905, [C. A. W. Schnuse expedition], 1m (SMT); Cusco, Aug 1973, B. V. Ridout, 2m 1f (BMNH); Cusco, 7-8 Jun 1984, B. Malkin, 1m 1f (MZSP); Sacsayhuaman, 3900 m, 5 Aug 1971, C.& M. Vardy, 1f (BMNH); Urcos, 9 Feb 1978, P. M. Marsh, 1m 1f (USNM USNMENT00105373-74). **Huánuco:** 11 km N of Huánuco, Espensa, 5 Feb 1984, W. N. Mathis, 1m (USNM USNMENT00262602); Tingo María, 18 Aug, Cockerell, 1m 1f (USNM). **La Libertad:** Trujillo, 29 Jun 1960, D. A. Young, sweeping weeds, 1m (USNM USNMENT00262500). **Lima**: Chontay, Sep 1970, R. Garcia, 1f (MZSP); Chosica, Nov 1961, N. L. H. Krauss, 1f (USNM USNMENT00105372). **Tacna:** Tacna, 22 Oct 1902, [C. A. W. Schnuse expedition], 1f (SMT). **PUERTO RICO: Isabela**: Punta Rosario, 14 Jan 1963, P. J. Spangler, 1m (USNM USNMENT00105364). **TRINIDAD & TOBAGO: Trinidad**: Curepe, on flowers of *Parthenium hysterophorus* L., Aug 1976, F. D. Bennett, 1m (FSCA USNMENT00214922); Curepe, reared from flowerheads of *Parthenium*, Jun 1970, R. Cruttwell, 3f (USNM USNMENT00105369-71). **UNITED STATES: Arizona**:

Cochise Co., Carr Canyon, Huachuca mountains, 19 Aug 1969, J. G. & B. L. Rozen, 1m (AMNH); Cave Creek, Chiricahua mountains, nr Portal, *Juglans* sp. (fr foleage), 3 Oct 1966, P. H. Arnaud, Jr., 3m 5f (CAS); Paradise, Unident. composite (swept), 26 Aug 1987, F. L. Blanc, 1m 1f (FLB); Ramsey Canyon, 24.1 km S Sierra Vista, 26 May 1967, Sternitzky, 1m (CNC); same, Malaise trap, 4–10 Apr 1967, R. F. Sternitzky, 6m 3f (CNC); Tombstone, 27 km W, Swept in dry grass, 24 Sep 1981, L. L. Cedarholm, 1m 1f (ZIL); Coconino Co., Flagstaff, 22.5 km N, 35°25'N 111°39'W, 17 Jul 1967, S. M. Anderson, 1f (NAU); Flagstaff, 26 km NW, 35°21'N 111°47'W, Swept, grass & herbs under pines, 21 Sep 1981, L. L. Cederholm, 1m (ZIL); Flagstaff, 35°11'53"N 111°39'2"W, 8 Jul 1941, R. H. Beamer, 1m (UKaL USNMENT00215366); Oak Creek Canyon, 14.4 km N of Sedona, 35°N 111°45'W, 23 Mar 1967, A. J. Banta, 1f (NAU); San Francisco mountains, 31 May 1965, R. S. Beal, 1m (NAU); Maricopa Co., Avondale, 8 km SW, 1 Apr 1967, G. I. Stange, 1f (USNM); Buckeye, 12.8 km S, 10 Apr 1965, M. Irwin, 1m (UCR); Gila Bend, 24.1 km E, 32°57'N 112°28'W, 16 Feb 1953, E. I. Schlinger, 6m 16f (CIS); Glendale, 1 Apr 1911, E. G. Smythe, 2m (CIS); Pima Co., Tucson, 32°13'18"N 110°55'33"W, 12 Apr 1941, B. P. Bliven, 1m (CAS); Tucson, 17 Jun 1917, J. M. Aldrich, 1m 1f (USNM), same, 6 Sep 1933, Bryant, 1m 3f (USNM), same, 15 Apr 1933, Bryant, 1m (USNM); Tuscon, 10 Oct 1943 J. Hendrickson, 1m (USNM); Sentinel Peak, W of Tucson, 2 Mar 1966, R. F. Sternitzky, 1f (CNC); Pinal Co., Florence, 25 Mar 1951, B. P. Blevin, 1m (CAS); Superior, 13 Apr 1935, A. L. Melander 1f (USNM); Santa Cruz Co., Santa Rita mountains, Mt. Wrightson, 31°41'46"N 110°50'52"W, 28 Aug 1962, H. E. Milliron, 1f (CNC); Washington mountains, near Nogales, 7 Sep 1927, J. A. Kusche, 1f (CIS); Yavapai Co., Congress, 34°9'45"N 112°51'W, 23-26 Apr 1967, D. M. Wood, 2m 3f (CNC); Cottonwood, 9.6 km NE of, 34°47'N 111°55'W, 2 May 1967, C. D. Johnson, 1m (NAU); Drake, 4.8 km S, Black light trap, 10 Jul 1971, J. Beloy, 1f (NAU); Oak Creek Valley road, 4 May 1978, R. C. Miller, 1m (UCD); Rimrock, 22 Apr 1967, D. M. Wood, 1m (CNC); Yuma Co., Telegraph Pass, Gila mountains, 25 Feb 1965, R. S. Funk, 2f (NAU); Yuma, 37 km N, 33°5'N 114°38'W, 2 Apr 1967, D. M. Wood, 1m 5f (CNC); Yuma, 32°43'31"N 114°37'25"W, 19 Feb 1965, R. S. Funk, 1m (NAU); same, 32°43'31"N 114°37'25"W, 9 Jan 1966, R. S. Funk, 3m (NAU). **California**: Alameda Co., Oakland, 37°47'N 122°12'W, *Baccharis pilularis consanguinea* (DC.) C. B. Wolf (swept), 11 Nov 1983, P. H. Arnaud, Jr., 1m (CAS); Alameda Co., Sunol (4.8 km N), 28 Aug 1983, T. W. Davies, 1f (CAS); Contra Costa Co., Sherman Is., *Helianthus annuus*, 14 Aug 1979, E. G. & J. M. Linsley, 2m (EGL); Death Valley, Furnace Creek Ranch, 22 Mar 1970, E. J. Rogers, 1f (EJR); Del Norte Co., Requa, 41°32'49"N 124°3'55"W, 4 Aug 1920, C. D. Duncan, 1f (SJS);

Del Norte Co., Steven's Camp, 5 Aug 1970, L. Apigian, 2m 2f (CAS); Fresno Co., Coalinga (5 mi S), Jacalitos Cyn., 17 Mar 1975, P. A. Rude, 1m (CIS); Fresno Co., Marshall Sta., 21 Apr 1983, D. J. Burdick, 1f (CAS); Fresno Co., Mendota (18 mi SW), Ciervo Hills, *Ephydra californica*, 18 Mar 1975, P. A. Rude, 1m (CIS); Helendale, 18 May 1955, W. R. Mason, 1m (CNC); Humboldt Co., Gold Bluff Beach, nr. Orick, *Achillea borealis*, 24 Jul 1976, 1f (UCD); Imperial Co., Davies Canyon entrance, 32°42'33"N 115°58'26"W, 23 Feb 1979, J. W. Brown & D. K. Faulkner, 3m 3f (SDNHM); Imperial Co., Davies Valley, 32°40'N 116°W, 16 Apr 1976, D. K. Faulkner, 1m (SDNHM); Imperial Co., Fish Creek Mountains, 20 Apr 1955, W. R. Richards, 1m (CNC); Imperial Co., Glamis, 24.1 km NE of, 33°10'N 114°54'W, *Encelia farinosa* (ex), 17 Apr 1969, R. R. Pinger, 1f (USNM); Imperial Co., Glamis, 3.2 km N, 33°2'N 115°4'W, *Oenothera deltoides* (on), 27 Jan 1977, P. A. Rude, 1m 2f (CIS); same, *Dithyrea californica*, San Bernardino Co. Joshua Tree Nat. Mon., Indian Cove Camp, 25-26 Mar 1981, S. E. Miller, P. M. Mercer, 2f (USNM); Smith River, on flowers of *Franseria villosa* Ryd'b., 8 Jul 1930, J. M. Alderich, 1m 6f (USNM); same, 23 Jul 1932, J. M. Alderich 1f (USNM); Imperial Co., Glamis, 32°59'51"N 115°4'16"W, 19 May 1977, D. K. Faulkner, 1m (SDNHM); same, 21 Sep 1975, B. Villegas, 1m 1f (UCD); Imperial Co., Kane Springs, Westmorland, 14 Feb 1955, W. R. Mason, 1f (CNC); Imperial Co., Ogilby road, 4.8 km S Jct.Hwy 78, 20-22 Mar 1978, Wasbauer, Slandky & Adams, 1f (CDFA); Imperial Co., Ogilby, *Encelia* sp. (on), 6 Apr 1977, L. Bezark, 1f (SJS); Inyo Co., Death Valley Jct. (30 mi W), 25 Mar 1975, R. W. Brooks, 8m 2f (UCD); Inyo Co., Deep Springs (2 mi E), 14 May 1979, L. D. French & N. J. Smith, 1f (UCD); Inyo Co., Deep Springs, 16 May 1966, Fisher & Orth, 1f (UCR); Inyo Co., Panamint City (5 mi W), Sunrise Cyn., *Encelia farinosa* (colld. from), 6 Apr 1961, R. P. Allen, 1m 1f (FLB); Inyo Co., Salsberry Pass, SW of Shoshone, *Encelia farinosa* (swept), 9 Apr 1990, P. H. Arnaud, Jr., 9m 1f (CAS); Inyo Co., Westgard Pass (2 mi W), *Prunus andersonii*, 16 May 1969, P. Welles, 1m (CIS); Kern Co., Berts Canyon, base, 8 km NW Walker Pass, 35.7228°N 118.0742°W, marsh runoff from Coyote Spring, 1250 m, 25 Apr 2002, S. D. Gaimari, 1f (USNM USNMENT00104224); Kern Co., Blackwell Corner (4.7 mi W), 24 Mar 1981, A. Hardy & R. Aalbu, 1f (CAS); Kern Co., Frazier Park, *Chrysothamnus nauseosus* (on), 25 Apr 1956, R. F. Wilkey, 1f (USNM); Kern Co., Mojave (10 mi W), 24 Mar 1947, P. H. Arnaud, Jr., 4m 1f (PHA); Mojave, Des Piut Butte, 6 May 1949, A. L. Melander, 1f (USNM); Mojave Desert, Love Joy Spring, 10 May 1944. A. L. Melander, 1m (USNM); Kern Co., Shafter, 21 May 1938, F. D. Horn, 1f (CAS); Kern Co., Taft, 21 May 1938, F. D. Horn, 1f (CAS); Kern Co., Tehachapi, 29 Mar 1942, C. D. Duncan, 2m (SJS); Kern Co., Tupman (1 mi NW), *Amsinckia*

sp. (on), 19 Mar 1975, J. A. Powell, 1f (CIS); Lassen Co., Hallelujah Junction, 29 Jun 1976, Montgomery & Bortfeld, 1m 1f (UCD); Lassen Co., Herlong (2 mi SW), 11 Sep 1983, J. B. Whitfield, 1f (CIS); Lassen Co., Susanville, alfalfa (swept), 18 May 1927, C. C. Wilson, 1m (USNM); Litchfield, 22 Jun 1937, B. P. Bliven, 1f (CAS). Los Angeles Co., Los Angeles, Griffith Observatory, yellow cruciferae (swept), 23 Mar 1972, P. H. Arnaud, Jr., 3m 4f (CAS); Marin Co., Point Reyes National Seashore, North Beach, 38°8'35"N 122°57'W, *Ambrosia chamissonis*, 3 Jun 1978, J. A. Powell, 1f (CIS); Mendocino Co., Inglenook Fen, N of Cleone, 39°30'57"N 123°46'30"W, dunes, 24 Jul 1975, J. A. Powell, 2f (CIS); Modoc Co., Buck Creek Ranger Station, *Cirsium cymosum*, 5-7 Jun 1970, J. T. Doyen, 1f (CIS); Modoc Co., Fort Bidwell (5 mi SE), Suprise Val. dunes, 9 Jun 1970, P. A. Rude, 1f (CIS); Modoc Co., Willow Ranch (3 mi E), *Isatis tinctoria*, 10 Jun 1970, J. A. Powell, 1f (CIS); Mono Co., Sonora Pass, 2.4 km E, 14 Jul 1988, F. L. Blanc, 1f (FLB). Monterey Co., Salinas River, dunes S of mouth, 36°44'58"N 121°48'9"W, *Ambrosia chamissonis*, 15 Jul 1976, J. A. Powell, 1m (CIS); Napa Co., Angwin, 27 Jul 1976, A. G. Lui, 2f (CAS); Napa Co., Lake Hennesy, 27 Jul 1976, L. Eighme, 3f (CAS); Needles (25 mi NW), 8 Apr 1971, F. L. Blanc, 2m 3f (FLB); Nevada Co., Boca, 23 Jun 1978, M. A. Roese, 1f (UCD); Nevada Co., Hobart Mills, 27 Jun 1980, L. A. West, 1f (UCD); Nevada Co., Sagehen Creek, 20 Jun 1976, G. M. Streett, 1f (UCD); Nevada Co., Truckee, 25 Jun 1943, P. H. Arnaud, Jr., 2f (PHA); Newberry, 14 Mar 1955, W. R. Mason, 1m (CNC); Placer Co., Blue Cyn. road 5 mi W Imigrant Gap, 29 Jul 1974, E. L. Smith, 1m (CAS); Rancho Mirage, 6 Apr 1955, W. R. Mason, 9m 5f (CNC); Riverside Co., Agua Caliente Ind. Res., Palm Cyn., 24 Feb 1970, P. H. Arnaud, Jr., 1f (CAS); Riverside Co., Andreas Canyon, 33°45'44"N 116°32'10"W, 19 Apr 1979, J. C. Hall, 1f (UCR); Riverside Co., Blythe, 33°36'37"N 114°35'44"W, 1 May 1955, W. R. Richards, 1m (CNC); Riverside Co., Boyd Deep Desert Research Center, Coyote Wash, *Phacelia distans*, 5 Apr 1978, R. W. Brooks, 9m 6f (UCD); Riverside Co., Chuckwalla Spring, 14.4 km NW, 33°28'35"N 115°12'40"W, *Encelia* sp. (swept), 24 Mar 1975, E. J. Rogers, 5m 3f (EJR); Riverside Co., Deep Cyn. Research Sta., 8 Apr 1978, A. J. & M. E. Gilbert, 3m 4f (AJG); Riverside Co., Joshua Tree National Monument, Cottonwood Canyon, 33°41'50"N 115°48'2"W, 7 Apr 1967, D. M. Wood, 2m 1f (CNC); same, 7 Apr 1957, A. L. Melander, 1m (USNM); Riverside Co., La Quinta, 7 Mar 1955, J. E. H. Martin, 16m 14f (CNC); Riverside Co., Palm Desert, 33°43'20"N 116°22'25"W, 8 Mar 1952, N. A. Lewis, 14m (SJS); Riverside Co., Palm Springs, 33°49'49"N 116°32'40"W, *Larrea tridentata*, 8 Apr 1974, P. D. Hurd, 1m (CIS); same, 28 Mar 1974, E. J. Rogers, 2m (EJR); same, 11 Apr 1955, W. R. Mason, 18m 15f (CNC); same, 7 Jan 1954, P. H. Arnaud, Jr., 1f

(CAS); Riverside Co., Thermal, 9 Apr 1955, W. R. Mason, 3f (CNC); Riverside Co., Thousand Palms, 6 Mar 1955, J. E. H. Martin, 9m 7f (CNC); Thousand Palms, 7 Mar 1951, J. C. Hall 1m (USNM USNMENT00213156); Riverside Co., Tin Mine Canyon, Salvia mellifera, 6 Apr 1968, R. Hobza, 1m (UCR); Riverside Co., White Water, 33°55'30"N 116°38'15"W, 13 Mar 1955, W. R. Mason, 1f (CNC); same, 17 Mar 1955, W. R. Mason, 1m 2f (CNC); Riverside Co., Whitewater Canyon, 34°21'21"N 118°21'10"W, *Encelia* sp. (on), 4 Apr 1977, L. Bezark, 2m (SJS); same, 11 Nov 1944, A. L. Melander, 1m (USNM); Riverside Co., White water, Snow Creek, 22 Mar 1955, W. R. Mason, 3f (CNC); San Bernardino Co., Baker (15 mi W), *Chiopsis linearis*, 6 May 1977, R. W. Brooks, 1f (UCD). San Bernardino Co., Barstow & Baker, rest stop between, 24 Mar 1992, P. H. Arnaud, Jr., 2m (CAS); San Bernardino Co., Bonanza Springs, Clipper mountains, 2 Apr 1975, S. Szerlip & J. Hafernik, 1f (CIS); San Bernardino Co., Danby (3 mi NW), 2 Apr 1975, S. S zerlip & J. Hafernik, 1m (CIS); San Bernardino Co., Granite Pass, 34°3'56"N 115°11'45"W, *Prunus fasiculata* (on), 27 Apr 1968, R. Hobza, 2m 2f (UCR); San Bernardino Co., Hidden Valley, San Bernardino, mountains, 5 May 1958, A. L. Melander, 1f (USNM); San Bernardino Co., Indian Cove Campground, Josh. Tr. N. Mon., 25-26 Mar 1981, S. E. Miller & P. M. Mercer, 2m (USNM); San Bernardino Co., Kingston Peak, E. side, 38.6 km NNW of Hwy. 15 & Cima road, 35°43'37"N 115°50'1"W, 20 Apr 1984, D. Sandri, 1m (UCB); San Bernardino Co., Kramer Hills, *Machaeranthera tortifolia*, 8 May 1978, R. W. Brooks, 1f (UCD); San Bernardino Co., Mentone, 4 May 1955, H. S. McGill, 1m (UCR); San Bernardino Co., New York mountains, Keystone Canyon, 35°16'18"N 115°16'29"W, 11-12 Jun 1979, D. K. Faulkner, 1m (SDNHM); San Bernardino Co., Pearblossom (12 mi E), 26 May 1980, N. J. Smith, 1m (UCD); San Bernardino Co., Rainbow Basin, 14 Apr 1972, S. Frommer, 1f (UCR); San Bernardino Co., Trona (near), 22 Mar 1970, E. J. Rogers, 3m 2f (EJR); San Bernardino Co., Victorville, 24 May 1955, W. R. Mason, 1m 1f (CNC); San Diego Co., Borrego Desert, Palm Canyon, 33°16'15"N 116°24'45"W, *Encelia* sp., 1 Apr 1946, A. L. Melander, 1m (USNM); San Diego Co., Borrego Springs, 33°15'21"N 116°22'27"W, 1 Apr 1978, D. K. Faulkner, 3m 2f (SDNHM); San Diego Co., Borrego Springs, Tubb Canyon, 33°12'49"N 116°24'39"W, 1 Apr 1978, D. K. Faulkner, 1m 2f (SDNHM); San Diego Co., Carriso Gorge, 24 Mar 1978, D. K. Faulkner, 1f (SDNHM); San Diego Co., Escondido, 19 Dec 1954, B. Bailey, 2f (SDNHM); San Diego Co., Julian, 2 May 1959, D. Bagert, 2f (UCR); San Diego Co., Sweeny Pass (3 mi S), 1 Apr 1978, D. K. Faulkner, 8m 7f (SDNHM); San Mateo Co., Half Moon Bay, 37°27'49"N 122°25'39"W, *Franseria chamissonis bipinnatisecta* (swept), 28 Jun 1960, F. L. Blanc, 6m 6f (FLB); Santa Barbara Co., Santa Cruz Is., Christi Beach, 34°1'36"N

119°52'30"W, reared from flower heads of *Ambrosia chamissonis*, 8 Oct 1985, R. D. Goeden, 6m 8f (UCR); Shasta Co., Sacramento River, 10 Aug 1969, E. J. Rogers, 1m (EJR); Siskiyou Co., Coffee Creek (12 mi W), Big Flat Cpgd., 12 Aug 1977, S. Kuba, 4f (CAS); Siskiyou Co., Rattlesnake Meadow, 9 Aug 1970, L. Eighme, 1m (CAS); Siskiyou Co., Young's Valley, 6 Aug 1970, L. Eighme, 2m (CAS); Solamint, 28 Apr 1955, W. R. Mason, 1m (CNC); Solano Co., Ryer Is. Ferry, Fennel (on flrs), 7 Aug 1976, L. Bezark, 1f (SJS); Stanislaus Co., La Grange, 2 Aug 1987, R. P. Allen, 1m (CAS); Sutter Co., Nicolaus (along Feather Riv.), 11 Oct 1982, J. B. Whitfield, 2m 1f (CIS); Tehama Co., Red Bluff, Frick trap (amm.carb.), 11 Sep 1974, T. R. Haig, 1f (CDFA); Thousand Palms, Willis Palm Oasis, 3 Apr 1955, W. R. Mason, 10m 6f (CNC); Tulare Co., Summit Lake, 1961, A. L. Melander, 1m (USNM); Tulare Co., Tagus, *Helianthus annuus*, 28 Oct 1979, E. G. & J. M. Linsley, 1m (EGL); Yolo Co., Dixon (10 mi SE), Yolo Bi-Pass, 16 Apr 1978, W. W. Middlekauff, 1f (CIS); Palo Verde, Cal. Imperial Co. 7 Mar 1949, W.W. Wirth, 1f (USNM); Sacramento, swept from flowering *Actomipcia hetereplylla*, 29 Jul 1958; Palm Springs Riverside Co. 25-Feb 1954, P. H. Arnaud, 4m 3f (USNM); Phelan, ShpCrkCan 5 May 1949, A. L. Melander, 1m 1f (USNM); Truckee, 8 Aug 1915, H. G. Dyer, 1m (USNM); Cherry Valley, 11 Jan 1938, Christenson, 1m (USNM); San Ysidro, 24 Apr 1948, E. D. Algert, 20m 13f (USNM); San Ysidro, ex. *Franseria Chenopodiifolia* 28 Apr 1948, E. D. Algers, 2m 5f (USNM); San Ysidro, Rd - *Xanthium* flr, 29 Aug 1949, 7m 7f (USNM); Long Beach, 14 Aug 1949, A. L. Melander 2m (USNM); Palm Springs, 29 Apr 1949, A. L. Melander 5m 1f (USNM); same, 26 Feb 1935, A. L. Melander, 1f (USNM); same, 23 Feb 1954, P. H. Arnaud, 24m 18f (USNM); same, 22 Nov 1943, A. L. Melander, 1m (USNM); same, 15 Mar 1955, A. L. Melander, 1m 3f (USNM); same, 25 Feb 1954, A. L. Melander, 1m 1f (USNM); same, 29 Mar 1955, A. L. Melander, 3m 3f (USNM); same, 19 Nov 1957, A. L. Melander, 1m (USNM); same, 28 Feb 1956, A. L. Melander, 2m (USNM); same, 12 Nov 1944, A. L. Melander, 1m (USNM); same, 15 Mar 1955, A. L. Melander, 4m (USNM); same, 23 Apr 1944, A. L. Melander, 2m (USNM); same, 24 Apr 1944, A. L. Melander, 2m (USNM); White water, Riverside Co., 3 Mar 1956, 1m (USNM USNMENT00213157); San Francisco, Mt. Little Spring, 11 Jul 1913, 1m 1f, (USNM). **Colorado**: Alamosa Co., Hooper, 5 Aug 1957, C. D. Michener, 1m (UKaL USNMENT00215374); Alamosa Co., Mosca, 24.1 km E, on *Cleome serrulata*, 6 Aug 1957, C. D. Michener, 1m 6f (UKaL USNMENT00215367–73); Boulder Co., Boulder, Chataqua Park, 39°59'32.4"N 105°17'18.7"W, 20 Aug 2006, A. L. Norrbom, 1f (DNA sample ALN-2006-136); Boulder, Boulder, 8 km S, 16 Jun 1961, C. H. Mann, 2m 1f (CNC); Boulder, Boulder, Boulder Reservoir, in marsh, 30 May 1961, B. H.

Poole, 1m 1f (CNC); Boulder, Boulder, Valmont Butte, 7 Jun 1961, C. H. Mann, 1m 1f (CNC); Boulder, Nederland, Science Lodge, 39°57'41"N 105°30'37"W, 3 Jul 1961, A. A. Bucknell, 1m (CNC); El Paso, Manitou Springs, 5-10 Sep 1980, G. F. & J. F. Hevel, 1m (USNM); Great Sand Dunes Nat. Mon., 1 Aug 1968, E. C. Becker, 1m 1f (CNC); Jackson, Rabbit Ears Pass, 7 Jul 1961, J. G. Chillcott, 1f (CNC); Kit Carson, Denver, 180 km E, on Hwy. I-70, Swept among dry grass, 2 Oct 1981, L. L. Cedarholm, 2f (ZIL); Larimer Co., Fort Collins, 24 Jul 1902, L. A. Titus, 1f (USNM); Larimer Co., I-25 + Rt. 1 exit 278, 40°42'12"N 104°59'55"W, 1596 m, sweeping *Helianthus* sp., 9 Jul 2009, A. L. Norrbom, 1m (USNM USNMENT00745593); Nederland (5 mi E), 2 Jul 1961, J. G. Chillcott, 1f (CNC); Nederland, Caribou, 18 Jun 1961, C. H. Mann, 1f (CNC); Douglas Co. Roxborough St. Park, 39°28'N 105°07'W, reared ex. Flowers *Heliomeris* sp., 29 Aug 1992 A. L. Norrbom, 1m (USNM). **Idaho**: Curlew National Grasslands, 23 Jun 1971, Knowlton, Hanson & Bohart, (LACM); Oneida, Curlew Valley Reservoir, 27 May 1969, Knowlton, Hanson & Bohart, (LACM); Oneida, Curlew Valley Reservoir, 30 Jul 1969, Knowlton, Hanson & Bohart, (LACM); Oneida, Curlew Valley, Ireland Canyon, 2 Sep 1969, Knowlton, Hanson & Bohart, (LACM). **Kansas**: Kansas City (107 km W), swept among fresh grass, 3 Oct 1981, L. L. Cedarholm, 1f (ZIL); Labette Co., Oswego, at light, 31 May 1966, G. F. Hevel, 1f (USNM). **Michigan**: Ingham Co., East Lansing, 17 May 1936, C. W. Sabrosky, (USNM); Lenawee Co., Blissfield, Trap in alfalfa, 21 Nov 1978, W. A. Martin, 1f (Cornell U.); Wayne Co., Grosse Isle, 31 May 1949, R. R. Dreisbach, 1m (USNM). **Minnesota**: Clay Co., Dilworth (4 mi E), 4 Sep 1967, J. S. Wong, 1f (CIS). **Mississippi**: Lafayette Co., [unspecified locality], 1975, F. M. Hull, 1m 3f (CNC). **Nebraska**: Fremont, 1f (Cornell U.); Sutherland, 4 Jun 1961, C. H. Mann, 1m (CNC); Clark, Jean, 25 Apr 1978, N. J. Smith, 1m (UCD). **Nevada**: Clark, Lake Mead, 23 Apr 1978, N. J. Smith, 1f (UCD); Clark, Mountain Springs Summit (3 mi S), 9 May 1965, R. C. Bechtel, 1m 3f (NDA); Nye, Beatty (3 mi S), *Lycium pallidum* var. *oligospermum*, 29 Mar 1963, R. C. Bechtel, 8m 1f (NDA); Nye, Mercury, 36°39'38"N 115°59'37"W, 10 Jun 1965, BYU-AEC-NTS, 1f (USNM); Pershing, Seven Devils Springs, 19 May 1965, R. C. Bechtel, 1m (NDA); Washoe, Nixon, 29 Jun 1927, E. P. VanDuzee, 11f (CIS); Las Vegas, 335.2 m June 2001, Cockerell, 1m 1f (USNM). **New Mexico**: Bernalillo Co., Sandia Ski Area, *Heliothus annuus* (on), Aug-Sep 1981, G. Dodson, 6m 6f (Dodson); Bernalillo, Univ. of New Mexico Campus, *Senicio douglassii* (on), Sep 1981, G. Dodson, 1f (Dodson); Guadalupe, Santa Rosa, 23 Jun 1941, B. Hogden, 1f (UKaL USNMENT00215378); Hidalgo Co., Cotton City, 14.4 km N, 32°5'18"N 108°52'43"W, *Wislizenia refracta*, 11 Aug 1978, R. W. Brooks, 1f (UCD); Hidalgo Co., Lordsburg, 32°21'1"N 108°42'29"W, *Larrea tridentata*, 23 May

1973, P. D. Hurd, 1f (CIS); Lincoln Co., Lincoln Natl. Forest, White Mt. Wilderness, head of Mills Canyon Trail along Rio Bonito, 33°27'5"N 105°41'46"W, 2134 m, 10 Jun 1995, S. D. Gaimari, 1m 1f (INHS USNMENT00056109–10); San Miguel, Sapello, taken on oak, 25 Jul 1950, P. P. Cook, 1f (UKaL USNMENT00215377); Sandoval Co., Valles Caldera National Preserve, Redondito Peak, weather station, 35°53'1.5"N 106°33'10.3"W, 26 Jun 2007, A. L. Norrbom, L. H. Rodriguez, J. J. Gulbransen, 1m 1f (USNM USNMENT00212125, USNMENT00212127); Sierra, Truth or Consequences (3 mi N), *Bahia* sp. (on), 29 Sep 1962, P. H. Timberlake, 1m (UCR); Mercury, BYU-AEC-NTS, 24 Jun 1965, 3 m (USNM); Las Cruces, on *Sisymbrium*, 17 Apr 1995, N. M. Cockerell, 1f (USNM); Las Cruces, 13.3 km NM, Townsend, on *Solidago arizonica*, 1f (USNM); Las Cruces, 14 Jun 1917, J. M. Aldrich, 1f (USNM); same, 16 Jun 1917, J. M. Aldrich, 1f (USNM). **New York**: Honeoye Falls, 16 Jun 1914, M. D. Leonard, 1f (Cornell U.). **North Dakota**: Mercer Co., Grassland R84W, T144N, Sec 22, grassland, 6 Jul 1972, A. C. F. Hung, 1f (Kannowski). Richland Co., Walcot (11 mi W), 4 Sep 1970, J. A. Powell, 1m (CAS). **Oregon**: Curry Co., Gold Beach (10 km S), Whitehead St. Pk., 29 Jul 1988, R. Danielsson, 1m (ZIL). **Texas**: Big Bend Natl. Park, Panther Junction, 13 May 1959, J. F. McAlpine, 1f (CNC); Brewster Co., Alpine (54 km S), grass (swept), 22 Sep 1981, L. L. Cedarholm, 1m 1f (ZIL); Brewster Co., Laijta (5 km SW), 27 km W Study Butte, swept along Rio Grande Riv., 21 Sep 1981, L. L. Cederholm, 2m (ZIL); Brewster Co., Marathon, 32.1 km S, 12 Apr 1949, Michener & Beamer, 1f (UKaL USNMENT00215379); Culberson Co., Van Horn (8 km W), swept among grass & bushes, 23 Sep 1981, L. L. Cedarholm, 8m 6f (ZIL); Fredericksburg, Umbellifer (flrs), 18 Apr 1959, J. F. McAlpine, 1m (CNC); Howard, Big Springs (24 km E), 19 Sep 1981, L. L. Cedarholm, 1m (ZIL); Texas: Pacos (11 mi NW), 15 Sep 1965, P. H. Timberlake, 1f (UCR); Reeves Co., Toyahvale, 22 Mar 1967, D. M. Wood, 4m 6f (CNC). **Utah**: Elsinore, 7 Aug 1907, E. G. Titus, 1m (USNM); Emery Co., Castle Dale, on *Cleome serrulata*, 10 Aug 1957, C. D. Michener, 1m (UKaL USNMENT00215375); Emery Co., Green River, 6 Jun 1956, G. F. Knowlton, 1f (CIS); Hanksville (13 mi S), Fairview Ranch., 4 Aug 1968, J. E. H. Martin, 1f (CNC); San Juan, Kane Springs, on *Cleome lutea*, 9 Aug 1957, C. D. Michener, 1m (UKaL USNMENT00215376); Wayne, Henry mountains, 24 mi S of Hanksville, 29 Jul 1968, J. E. H. Martin, 1f (CNC). **Washington**: Pacific, Loomis Lake State Park, 19 Jun 1984, R. Danielsson, 43m 19f (ZIL); Klipsan Beach, 1 mi S. Pacific Co., 26-28 Aug 1976, W. J. Turner, 1m 1f (USNM). **Wisconsin**: Parfrey's Glen Portage, 10 Sep 1973, 1m (SJS). **VENEZUELA: Lara**: Sanare, 8 Jul 1979, R. W. Brooks, A. A. Grigarick, J. McLaughlin, R. O. Schuster, 1m (UCD). **Mérida**: Cano del Tigre, Sep 1943, P. Anduze, 1m (USNM

USNMENT00262375). **Trujillo**: La Mesa, 11 Sep 1973, B. Villegas, 3m 3f (UCD) 1m (USNM).

***Euarestoides dreisbachi* Foote, 1958**

Figs. 7, 8, 22–25, 36, 42, 48, 54, 58, 517, 521

Euarestoides dreisbachi Foote, 1958: 293 [description, Mexico]; Foote, 1967: 24 [catalog]; Norrbom *et al.*, 1999: 146 [catalog]; Norrbom *et al.*, 2010: 23 [distribution, host plant].

Diagnosis. This species differs from *Euarestoides* n. sp. 1 and *Euarestoides* n. sp. 3 in having a completely darkened border on anterodistal margin of reticulate area between the pterostigma and crossvein r-m. It differs from *E. abstersus* and *Euarestoides* n. sp. 2 in having the apical ray in cell r_1 much narrower than the subapical ray. It differs from *E. abstersus* and *E. acutangulus* in lacking serrations on the lateral margin of the aculeus, and in having the apical lobe of the acrophallus expanded apically. It further differs from *E. acutangulus* in having the reticulate markings between the pterostigma and crossvein r-m yellow to pale brown (Figs. 7, 8). It further differs from *Euarestoides* n. sp. 2 in lacking a distinct dark spot in cell r_{4+5} within the subapical stellate mark, the medial prensiseta with the dorsal face straight, and the acrophallus with an apical lobe.

Description. Body length 2.97–4.19 mm, mostly yellow in ground color, yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.78–0.82 mm) than long (0.54–0.60 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown to dark brown, and occiput brown medially and with brown mark sublaterally extended nearly to vertical setae. Parafacial and gena yellow. Frons, length (0.37–0.42 mm) less than width at vertex (0.46–0.53 mm), slightly narrowed to anterior margin (0.36–0.43 mm). Gena with few and small setulae yellowish on middle and ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.25–0.28). Eye ovoid, long diameter (0.58–0.68 mm), width (0.54–0.56 mm). Antenna testaceous yellow, first flagellomere more long than wide. Maxillary palpus pale brown at apex with 2-3 distinct acuminate setulae.

Thorax: Length 1.26–1.48 mm, ground color of scutum brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia except anterior central area of scutum with pale gray microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size in

apical area, near base of scutellum. Second anepisternal seta lanceolate, white to yellow (concolorous with setulae).

Wing: Length 3.43–3.59 mm, width 1.32–1.58 mm. Wings (Figs. 7, 8) with area between pterostigma and crossvein r-m reticulate, with distinctly darker border on anterodistal margin. Pterostigma yellow. Cell r_1 with 3 marginal hyaline spots: largest immediately distad of pterostigma, oblique and reaching cell r_{2+3}, but never reaching cell r_{4+5}; second triangular, extended almost to vein R_{2+3}, usually touching vein; and small triangular or rounded subapical spot usually touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with medial dark ray complete, sometimes faint). Cell r_{4+5} with apical rays complete; without distinct medial dark spot touching vein R_{4+5} near base of apical rays within the subapical stellate mark. Cells br, bm, cu*a*, dm, and m_4 and anal lobe reticulate. Cell m_1 with 2 dark rays reaching posterior wing margin; basal marginal hyaline spot not reaching vein M_1. Halter whitish to yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color mostly yellow (sometimes with few dark spots). Microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, except in medial area; centrally and posterior margin with sparse setulae; tergites 3–6 with setulae uniformly dense; tergite 6 on posterior margin with row of setae large (> 3 times as long as setulae). Oviscape yellow, length 0.92–0.98 mm, width 0.80–0.83 mm at base and 0.26–0.28 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 22) length 0.72–0.77 mm. Aculeus (Fig. 23) pale brown, length 0.68–0.71 mm, tip triangular, length 0.07–0.09 mm, with lateral margin nonserrate (Fig. 24). Spermathecae brown, subspherical, length 0.17–0.19 mm, surface with papillae (Fig. 25).

Male: Setulae on tergites similar to female in size, density, color and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 36) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally (Figs. 36). Medial surstylus with pair of prensisetae, each conical, with dorsal face straight; lateral prensiseta ca. ⅔ as long as medial prensiseta (Fig. 36); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of lateral prensiseta. Phallapodeme Y-shaped, 0.36–0.38 mm long (Fig. 54). Glans 0.22–0.25 mm long, with apical lobe width twice that of base (Fig. 48); vesica very short.

Distribution. *Neotropical.* Guatemala (Baja Verapaz, Chimaltenango, Huehuetenango, Quiche, Sololá), Mexico (Chiapas, Distrito Federal, Durango, Guanajuato, Jalisco,

Michoacán, Nayarit, Oaxaca, San Luis Potosí, Sinaloa, Sonora, Veracruz, Zacatecas) (Norrbom *et al.*, 2010). Peru (Huánuco). Elevational records range from 1000-2000 m. The gap in distribution suggests that this species may have been introduced in Peru.

Biology. This species has been reared from flowerheads of *Baccharis salicifolia* (Ruiz & Pav.) Pers. (Astereae) in Guatemala (Norrbom *et al.*, 2010). One adult female was swept from *Baccharis neglecta* Britton. Adults have been collected in May-November in Guatemala and Mexico, and in February, August and September to Peru.

Type data. The holotype female (USNM type No. 63547) is labeled "La Primavera Jalisco, Mex. 7/8/56 R. &K. Dreisbach" / "Euarestoides dreisbachi Foote Holotype" [handwriting; red label].

Specimens examined. GUATEMALA: Baja Verapaz: San Jeronimo, 1000 m, swept from flowering *Baccharis salicifolia* (90G30), 27–28 Oct 1990, A. L. Norrbom & E. Muñiz, 13m 15f (USNM); same, reared ex flowers of *Baccharis salicifolia* (90G30), 13m 12f (USNM), 2m 2f (UVG). **Chimaltenango**: Chimaltenango, 19–20 Aug 1965, P. J. Spangler, 3m 3f (USNM). **Huehuetenango**: San Idelfonso Ixtahuacan, along river, 15.41551°N 91.76618°W, 1598 m, on *Baccharis salicifolia* (07G61), 24 Nov 2007, B. D. Sutton, A. L. Norrbom, J. Monzón, F. Camposeco, 5m 12f (USNM USNMENT00671600–16); same, emerged 28 Nov–11 Dec 2007 reared ex flowerheads of *Baccharis salicifolia* (07G61) collected 24 Nov 2007, 8m 9f (USNM USNMENT00671459–75), 6m 4f (FSCA), 1m 1f (UVG). **Quiche**: Chichicastenango, 8 km N, 1829 m, 23 Oct 1976, E. S. Ross, 1m (CAS). **Sololá**: Panajachel, 19 Aug 1963, D. Q. Cavagnaro & M. E. Irwin, 2m 3f (CAS). **MEXICO: Chiapas**: San Cristobal de Las Casas, 2194 m, Malaise trap, 10 Jun 1969, 1f (CNC). **Distrito Federal**: Guadelupe Hidalgo, 10 Jul 1932, R. Haag, 1m (MCZ); Guadelupe Hidalgo, 2134 m, 10 Jul 1932, C. E. White, 1m 2f (MCZ); Guadelupe Hidalgo, 2134 m, 10 Jul 1943, C. E. White, 2m 1f (MCZ). **Durango**: San Juan del Río, 1585 m, 30 Jul 1947, W. Gertsch, 1m (AMNH); Durango City 38.1 km S, sweeping foliage of *Baccharis salicifolia*, 5 Aug 1988, P. E. Boldt, 1f (USNM). **Guanajuato**: Acombaro, 11 mi SW, 17 Aug 1954, J. W. MacSwain, 1f (UCB); Guanajuato, 15 Jul 1954, R. F. Smith, 3m 2f (UCB); Guanajuato, 8 km N, 25 Jul 1954, E. I. Schlinger, 1m 1f (UCB). **Jalisco**: El Tigre, 18 Jul 1954, E. I. Schlinger, 7m 1f (UCB); Encarnacion de Diaz, 12 mi S, 18 Aug 1953, C. & P. Vaurie, 1m 1f (AMNH); Guandalajara, McConnell 1909, H. Kahl, 1m (USNM); Huentitan el Bajo, Parque el Mirador, 5 Sep 1972, B. Villegas, 1f (UCD); La Quemada, 20 mi N, 27 Jul 1954, M. Cazier, W. Gertsch, Bradts, 1m (AMNH); Teocaltiche, Rancho La Quinta, 1707 m, 25 Aug 1979, B. Villegas, 6m 9f (UCD); Zapopan, Sep 1965, N. L. H. Krauss, 1m (USNM). **México**: México: Real de Arriba,

Temescaltepec, 22 May 1933, H. E. Hinton & R. L. Usinger, 2m 2f (CAS). **Michoacán**: San Jose Purua, Jun 1965, N. L. H. Krauss, 1m (USNM); Uruapan, 1600–1700 m, Aug 1975, N. L. H. Krauss, 6m 2f (USNM). **Nayarit**: Ahuacatlan, 14 Sep 1970, G. E. & R. M. Bohart, 1m 1f (LACM); Tepic, 15–17 Sep 1953, B. Malkin, 1f (CAS). **Oaxaca**: Oaxaca, 8 Jul 1952, E. E. Gilbert & C. D. MacNeil, 1f (UCB); Oaxaca, 17°02'N 96°40'W, *Baccharis salicifolia*, 9 Aug 1987, W. A. Palmer, 2m 1f (USNM). **San Luis Potosí**: San Luis Potosi, 4 mi W, 25 Jun 1953, C. & P. Vaurie, 1f (AMNH). **Sinaloa**: Lorenzo, S of, 11 Sep 1970, G. E. & R. M. Bohart, 1f (LACM). **Sonora**: Alamos, on *Baccharis*, 7 Sep 1970, G. E. & R. M. Bohart, 5m 2f (LACM); Alamos, 3–4 Sep 1991, T. Griswold, 1m (LACM). **Veracruz**: Balastrera, on foliage *Lantana hispida*, 3 Sep 1989, K. R. Pullen, 1m (USNM). **Zacatecas**: Fresnillo, 9 mi S, 10 Aug 1954, E.G. Linsley, 1f (UCB); Nochistlan, 1981 m, 21 Aug 1979, B. Villegas, 3m 12f (UCD); Nochistlan, 22 Sep 1975, B. Villegas, 1m 4f (UCD); Río Grande, 1768 m, 19 Aug 1979, B. Villegas, 2m 1f (UCD); Zacatecas, 55 mi NW, Hwy. 45, sweeping *Baccharis neglecta*, 3 Aug 1988, P. E. Boldt, 1f (USNM). **PERU: Huánuco:** Huanuco, 19-20 Aug 1971, 1,850 m, C. & M. Vardy, 1m (BMNH); same, 10 km N Rio Huallaga, 4 Feb 1984, W. N. Mathis, 2f (USNM); same, 16 Sep 1954, 2000 m, E. I. Schlinger & E. S. Ross, 2m 1f (CAS).

***Euarestoides* n. sp. 1**

Figs. 9, 26–29, 37, 43, 49, 55, 58

Diagnosis. This species differs from all other species of *Euarestoides* in having the ground color of the scutum yellow, two distinct dark spots within the stellate mark in cell r_{4+5}, and the glans with two large spines at the base. It differs from the other species except *Euarestoides* n. sp. 3 in lacking complete darker border on anterodistal margin of reticulate area between the pterostigma and crossvein r-m. It further differs from *Euarestoides* n. sp. 3 in having prensiseta with the dorsal face convex (Fig. 37) and the acrophallus without a large apical lobe (Fig. 49).

Description. Body length 2.70–2.85 mm, yellow in ground color, yellow microtrichose. Setae generally pale brown to brown.

Head: Slightly higher (0.70–0.75 mm) than long (0.48–0.53 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown to dark brown, and occiput brown medially and with brown mark sublaterally extended nearly to vertical setae. Parafacial and gena yellow. Frons, length (0.32–0.40 mm) less than width at vertex (0.46–0.48 mm), slightly narrowed to

anterior margin (0.36–0.46 mm). Gena with few small setulae mixed (acuminate dark and lanceolate yellowish) on middle and ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.23–0.24). Eye ovoid, long diameter (0.54–0.58 mm), width (0.48–0.49 mm). Antenna testaceous yellow, first flagellomere as long as wide. Maxillary palpus pale brown at apex with 3 distinct acuminate setulae.

Thorax: Length 1.21–1.26 mm, ground color of scutum yellow, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size in apical area, near base of scutellum. Second anepisternal, seta lanceolate, white to yellow (concolorous with setulae).

Wing: Length 2.98–3.10 mm, width 1.10–1.18 mm. Wing (Fig. 9) with reticulate area between pterostigma and crossvein r-m, without or with very faint, incomplete, darkened border along anterodistal margin. Pterostigma with basal half yellowish and apical half darker. Cell r_1 with 3 marginal hyaline spots: largest immediately distad of pterostigma, oblique and extending into cell r_{2+3}, but not reaching vein R_{4+5}; second spot triangular, usually touching vein R_{2+3}; and small triangular subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (cell with complete or incomplete medial dark ray). Cell r_{4+5} with apical rays complete; with 2 distinct medial dark spots touching vein R_{4+5} within the subapical stellate mark; hyaline subbasal spot near anterior end of crossvein dm-m small, no more than half width of cell. Cells br, bm, cu*a*, dm, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter mostly yellow and with apex darker.

Legs: Entirely yellow.

Abdomen: In both sexes ground color yellow. Microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, posterior margin with sparse setulae; tergites 3–6 with setulae uniformly dense; posterior margin with row of setae slightly increasing in size (> 3 times as long as setulae). Oviscape yellow, length 0.71 mm, width 0.56 mm at base and 0.20 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 26) length 0.71 mm. Aculeus (Fig. 27) pale brown, length 0.72 mm, tip triangular, length 0.16 mm, with lateral margin nonserrate (Fig. 28). Spermathecae elongate, length 0.14 mm, surface with papillae (Fig. 29).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly

anteroventrally (Fig. 37). Medial surstylus with pair of prensisetae equal in size; medial prensiseta with dorsal face distinctly convex (Fig. 37); group of 2–3 setulae between prensisetae and also group of 2-3 setulae near base of lateral prensiseta. Phallapodeme Y-shaped, 0.58 mm long, mostly dark brown (Fig. 55). Glans 0.32 mm long, without apical lobe, and with 2 large spines at base (Fig. 49); vesica very short.

Distribution. *Neotropical.* Peru (Cusco). The type series was collected at 2849-3296 m altitude.

Biology. This species has not been reared, but two of the type specimens were collected on *Baccharis boliviensis* (Wedd.) Cabrera (Astereae). Adults have been collected in January and June.

Type data. The holotype male is labeled "PERU: Cusco: Ollantaytambo, E of, WP 665, 13.26707°S" / "72.22823°W, 2849 m, on *Baccharis boliviensis* (12-PE-36), 8 Jun 2012, A. L. Norrbom & B. D. Sutton" / "USNMENT00744412" [plastic bar code label]. The holotype is double mounted (minuten), and is in excellent condition, and is deposited in the MHNJP. Paratypes: PERU: Cusco: Carretera Manu, dirt side road, ravine, WPB-34, 13.57279°S 71.70208°W, 3296 m, 28 Jan 2013, A. L. Norrbom, G. J. Steck & B. D. Sutton, 1m (USNM USNMENT00875891); Ollantaytambo, E of, WP 665, 13.26707°S 72.22823°W, 2849 m, on *Baccharis boliviensis* (12-PE-36), 8 Jun 2012, A. L. Norrbom & B. D. Sutton, 1f (USNM USNMENT00744411).

***Euarestoides* n. sp. 2**

Figs. 1, 10–11, 30–33, 38, 44, 50, 56, 58

Euarestoides sp.: Prado *et al.*, 2002: 1018 [distribution, host plants]; Savaris *et al.*, 2015: 18 [distribution, host plant].

Diagnosis. This species differs from *Euarestoides* n. sp. 1 and *Euarestoides* n. sp. 3 in having a completely darkened border on anterodistal margin of reticulate area between the pterostigma and crossvein r-m. It differs from *E. abstersus, E. acutangulus* and *E. dreisbachi* in having distinct dark spot in cell r_{4+5} within the subapical stellate mark (Figs. 10–11) and the acrophallus of the glans without an apical lobe (Fig. 50). It further differs from *E. acutangulus* and *E. dreisbachi* in having the ray in cell r_1 broad, similar to subapical ray, and it differs from *E. abstersus* in having darker border on anterodistal margin of reticulate area between the pterostigma and crossvein r-m reaching the costa subapically in the pterostigma

(the pterostigma with small hyaline spot between the dark border and the apex of vein R_1), the aculeus lateral margin not serrate, the medial prensiseta with the dorsal face convex (Fig. 38).

Description. Body length 2.36–2.71 mm, mostly yellow to brown in ground color, gray microtrichose. Setae generally pale brown (Fig. 1).

Head: Slightly higher (0.60–0.74 mm) than long (0.48–0.56 mm). Generally yellow, frons yellow to orange, ocellar tubercle dark brown, and occiput brown medially and with brown mark sublaterally extended nearly to vertical setae. Parafacial and gena yellow. Frons, length (0.31–0.34 mm) less than width at vertex (0.36–0.39 mm), slightly narrowed to anterior margin (0.31–0.36 mm). Gena with few and small setulae acuminate and pale brown on middle and ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.17–0.23). Eye ovoid, long diameter (0.49–0.63 mm), width (0.46–0.51 mm). Antenna testaceous yellow, first flagellomere more long than wide. Maxillary palpus pale brown at apex with 2-3 distinct acuminate setulae.

Thorax: Length 0.94–1.09 mm, ground color of scutum dark brown, of scutellum brown dorsally and yellow lateral and ventral. Mesonotum mostly gray microtrichose. Setulae lanceolate, whitish to yellow, slightly increasing in size in apical area, near base of scutellum. Second anepisternal seta lanceolate, white to yellow (concolorous with setulae).

Wing: Length 2.40–3.23 mm, width 0.82–1.18 mm. Wings (Figs. 10, 11) with area between pterostigma and crossvein r-m mostly hyaline with few brown or gray spots and with darker border on anterodistal margin reaching costa, and with distinct subapical stellate mark. Pterostigma hyaline with dark brown spot subapically. Cell r_1 with 3 marginal hyaline spots: largest immediately distad of pterostigma, oblique and reaching cell r_{2+3}, but never reaching cell r_{4+5}; second triangular, extended almost to vein R_{2+3}, but never touching vein; and small triangular or quadrate subapical spot never touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell r_{4+5} with hyaline spot bordering crossvein r-m oblong touching veins R_{2+3} and R_{4+5}; apical rays complete; distinct medial dark spot touching vein R_{4+5} near base of apical rays within the subapical stellate mark. Cell dm with subapical ray arising from basal area of crossvein r-m. Cells bm, cu*a* and m_4 and anal lobe with few brown to gray spots. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter whitish to yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; tergites 3–6 with anterior margin bare; area central and posterior margin with setulae uniformly dense; posterior margin with a row of slightly increasing in size on posterior margin. Oviscape yellow, length 0.83–0.94 mm, width 0.60–0.68 mm at base and 0.20–0.22 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 30) length 0.98–1.00 mm. Aculeus (Fig. 31) pale brown, length 1.00–1.02 mm, tip triangular, length 0.14–0.16 mm, with lateral margin nonserrate (Fig. 32). Spermathecae brown, subspherical length 0.11–0.12 mm, surface with few papillae (Fig. 33).

Male: Setulae on tergites similar to female in size, density, color and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 38) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally; and with apex sclerotized (Figs. 38, 44). Medial surstylus with pair of prensisetae; medial prensiseta with dorsal face convex; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta (Fig. 38); group of 2-3 setulae near base of medial prensiseta. Phallapodeme Y-shaped, 0.37–0.39 mm long, mostly dark brown (Fig. 56). Glans 0.26–0.28 mm long, without apical lobe (Fig. 50); vesica very short.

Distribution. *Neotropical.* Brazil (Bahia, Minas Gerais, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, São Paulo). Elevational records range from 610-822 m.

Biology. This species has been reared from flowerheads of *Moquiniastrum polymorphum* (Less.) G. Sancho (Gochnatieae) (Savaris *et al.*, 2015). Prado *et al.*, (2002) reported that it breeds in *Moquiniastrum barrosoae* (Cabrera) G. Sancho, *Moquiniastrum floribundum* (Cabrera) G. Sancho and *Richterago discoidea* (Less.) Kuntze. Adults have been collected in February, March, September and October.

Type data. The holotype male is labeled “BRASIL: S[ão] P[aulo], Votorantim, SP 079, km 103, 28.ii.2014, 23°36'31.51"S, 47°28'02.52"O, 738 m, rede entomológica, M. Savaris” / “USNMENT00118524” [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the DZUP. Paratypes: same data as holotype, 6m 3f (USNM USNMENT00262496–97, USNMENT00118517, DZUP USNMENT00118519–23, USNMENT 00119507). **BRASIL. Bahia**: Palmeiras, 12°30'25.20"S 41°34'46.49"W, 822 m, 1 Oct 2012, Luminosa, A. M. Silva-Neto, 1m (DZUP USNMENT00262504). **Minas Gerais**: Diamantina, São João da Chapada, Serra da Guine 18°6.6'S 43°44.08'W, 7 Sep 1996, Lewinsohn, Prado, Santos, Silva, PIC96683 1m (USNM); Joaquim Felicio, Sera do Cabral, cerado, 17°43.56'S 44°11.17'W, 3 Sep 1996, Lewinsohn, Prado, Santos, Silva, PIC96624 1f (USNM). **Rio de Janeiro**: Marich, accesso a Barra, 4 Mar 1986, ex capitula *Moquiniastrum*

polymorphum (Less.) G. Sancho (17002), TLT 170, T. M. Lewinsohn, R. F. Monteiro, 2m (USNM). **Rio Grande do Sul**: Passo Fundo, 28°14'29.88"S 52°27'28.70"W, 610 m, 8 Mar 2009, reared from flowerheads of *Moquiniastrum polymorphum* (Less.) G. Sancho, M. Savaris, 1m (MUZAR USNMENT00119506); Passo Fundo, 28°14'30.23"S 52°27'35.64"W, 13 Feb 2009, M. Savaris, 2f (DZUP USNMENT00118535–36) 1f (USNM USNMENT00118532). **Santa Catarina:** Nova Teutônia, 27°11'S 52°23'W, 300-500 m, 13 Oct 1961, Fritz Plaumann, 1f (CNC).

***Euarestoides* n. sp. 3**

Figs. 12–13, 39, 45, 51, 57–58

Diagnosis. This species differs from other species of *Euarestoides* except *Euarestoides* n. sp. 1 in lacking dark border on anterodistal margin of reticulate area between the pterostigma and crossvein r-m. It differs from *Euarestoides* n. sp.1 in lacking distinct dark spot in cell r_{4+5} within the subapical stellate mark (Figs. 12–13), the ground color of the scutum brown, the medial prensiseta with the dorsal face straight (Fig. 39), and the acrophallus with a large apical lobe (Fig. 51).

Description. Body length 2.91–3.20 mm, yellow to brown in ground color, yellow microtrichose. Setae generally pale brown to brown.

Head: Slightly higher (0.84–0.86 mm) than long (0.54–0.58 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown to dark brown, and occiput brown medially and with brown mark sublaterally extended nearly to vertical setae. Parafacial and gena yellow. Frons, length (0.38–0.39 mm) less than width at vertex (0.51–0.54 mm), slightly narrowed to anterior margin (0.37–0.41 mm). Gena with few and small setulae mixed (acuminate dark and lanceolate yellowish) on middle and ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.27–0.28). Eye ovoid, long diameter (0.68–0.66 mm), width (0.51–0.53 mm). Antenna testaceous yellow, first flagellomere more long than wide. Maxillary palpus pale brown at apex with 3 distinct acuminate setulae.

Thorax: Length 1.56–1.66 mm, ground color of scutum brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size in apical area, near base of scutellum. Second anepisternal seta lanceolate, white to yellow (concolorous with setulae).

Wing: Length 3.83–3.89 mm, width 1.49 mm. Wings (Figs. 12, 13) with area between pterostigma and crossvein r-m reticulate, without or with very faint incompletely darkened

border along anterodistal margin. Pterostigma with basal half yellowish and with apical hyaline spot. Cell r_1 with 3 marginal hyaline spots: largest immediately distad of pterostigma, oblique and reaching cell r_{2+3}, but never reaching cell r_{4+5}; second rounded sometimes touching vein R_{2+3}; and small rounded subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell r_{4+5} with apical rays complete; hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m large, more than ⅔ half the width of cell; stellate mark with tiny medial hyaline spot. Cells br, bm, cu*a*, dm, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Basal marginal hyaline spot not reaching vein M_1. Halter yellow.

Legs: Entirely yellow.

Abdomen: Ground color brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum. Female: unknow.

Male: Syntergite 1+2 with small setulae on lateral of anterior margin, centrally bare, posterior margin with sparse setulae; tergites 3–5 with setulae uniformly dense. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 39) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally (Figs. 39, 45). Medial surstylus with pair of conical, straight prensisetae; lateral prensiseta ca. ⅔ as long as medial prensiseta (Fig. 39); near base of lateral prensisetae a group of 2-3 setulae. Phallapodeme Y-shaped, 0.38 mm long (Fig. 57). Glans 0.42 mm long, with large and curved apical lobe (Fig. 51); vesica very short.

Distribution. *Neotropical.* Colombia (Antioquia).

Biology. No host plant information is known for this species. The type specimens were collected in January.

Type data. The holotype male is labeled “Rionegro (Ant.) 29-I-1959” / “C. Carmona Veza” / “CAS” [white square] / “USNMENT00262577” [plastic bar code label]. The holotype is double mounted (triangle paper), is in fair condition, and is deposited in the CAS. The type locality is at approximantely 6.155°N 75.389°W. Paratype: same data as holotype, 1m (USNM USNMENT00262578).

Genus *Plaumannimyia* Hering 1938

Taxonomy

Plaumannimyia Hering, 1938: 190. Type species – *Plaumannimyia pallens* Hering, by original designation; Hering, 1940a: 29 [description one species]; Hering, 1941: 121 [key], 153 [diagnosis]; Aczél, 1950: 283 [catalog]; Foote, 1967: 35 [catalog], 1980: 15 [key], 41 [diagnosis]; Norrbom *et al.*, 1999: 192 [catalog]; Norrbom *et al.*, 2010: 42 [taxonomy]. *Trypanaresta* Hering, 1940b: 10 [description], 11 [key to 5 species]. Type species – *Trypanea imitatrix* Hering, by original designation; Hering, 1941: 121 [key, Peruvian genera], 152 [diagnosis; supplement to key to species]; Aczél, 1950: 293 [catalog]; Foote, 1967: 53 [catalog], 1980: 14 [key], 49 [diagnosis]; Gandolfo & Norrbom, 1997: 248 [description one species]; Norrbom *et al.*, 1999: 237 [catalog]; Norrbom *et al.*, 2010: 42 [synonymy]. *Goniurellia*: Foote, 1980: 15 [key], 30 [diagnosis]. Misidentification [Neotropical records].

Diagnosis. *Plaumannimyia* species differ from all other Tephritidae by the following combination of characters: Face and frons in profile meeting at distinct angle of about 90°; 2 pairs of frontal setae acuminate, if 3 pairs, then the anterior seta small, lanceolate and white; posterior notopleural seta lanceolate and white; anepisternal and katepisternal setae usually lanceolate; anepimeral seta lanceolate; 1-2 pairs of scutellar setae, posterior pair less than 0.5 times as long as anterior pair; wing pattern reticulate or stellate, with narrow rays extended to apices of veins R_{4+5} and M_1; hind femur without anterodorsal or posterodorsal preapical seta; male surstyli usually short, if long and curved, medial prensiseta greatly enlarged, more than three times as long as wide (Fig. 543, indicated by black arrow).

Description. Body: Nonmetallic, usually predominantly yellow (Figs. 59–61), and occasionally predominantly brown (Fig. 64). Setae generally acuminate (Fig. 548, indicated by white arrow) or lanceolate (Fig. 547, indicated by white arrow).

Head: Slightly higher than long. Face and frons in profile meeting at distinct angle of about 90° (Fig. 519, indicated by yellow arrow). Generally yellow, frons yellow to orange, ocellar tubercle brown, and occiput brown medially and with brown mark sublaterally near midheight of eye, sometimes connected to dark medial area. Parafacial and gena yellowish. Frons wide at vertex and slightly narrowed to anterior margin; anteriomedially with a few whitish setulae smaller than numerous fronto-orbital setulae (Fig. 546, indicated by white

arrow). Head setae equally long in both sexes. Three frontal setae, anterior seta smaller, lanceolate, white (sometimes absent); posterior 2 setae acuminate, paler brown to black (Fig. 518). Anterior orbital seta acuminate, posterior seta smaller, whitish and lanceolate. Ocellar and medial vertical setae acuminate. Lateral vertical, postocellar and postocular setae whitish, lanceolate. Genal seta usually yellow brown to brown, acuminate, occasionally white and lanceolate. Face in lateral view slightly concave, in anterior view with facial carina weak, ventral facial margin strongly concave. Eye usually ovoid or rarely spherical. Lateral vertical, postocellar and postocular setae whitish, lanceolate. Antenna testaceous yellow, not reaching ventral margin of face; arista yellow at base and dark towards apex, entirely pubescent (Fig. 534). Maxillary palpus yellow, spatulate (Fig. 519, indicated by black arrow). Labella yellow, not elongated (Fig. 519, indicated by white arrow).

Thorax: Predominantly yellow, occasionally entirely yellow or brown, densely covered by microtrichia (Fig. 547, indicated by black arrow). Ground color of scutum usually black (Figs. 59–60, 62–64), of scutellum yellow to pale brown. Postalar wall with distinct brown spot. Scutellum usually with 2 pairs of setae, posterior pair lanceolate (white) (Fig. 62) or acuminate (brown or pale brown) (Fig. 64), and less than 0.5 times as long as anterior pair, or occasionally absent (rarely with 3 pairs). Two notopleural setae, posterior smaller, lanceolate, white; 1 anepisternal and katepisternal setae usually lanceolate, occasionally acuminate; anepimeral and postalar seta lanceolate (white) or acuminate (brown or pale brown); other thoracic setae acuminate.

Wing: Pattern reticulate or stellate (Figs. 65–155), usually with narrow rays extended to apices of veins R_{4+5} and M_1. Vein Sc subapically turned anteriorly at 80–90° angle (Fig. 520, indicated by black arrow). Vein R_1 setulose dorsally and with gap of setulae at level of Sc bend (Fig. 520, indicated by yellow arrow). Vein R_{4+5} with few setae at base (Fig. 520, indicated by white arrow). Cell cu*a* with short posterodistal lobe.

Legs: Usually yellow to orange, occasionally with brown markings. Hind femur without anterodorsal or posterodorsal preapical seta (Fig. 522, indicated by white arrow). Some species with male foreleg modified.

Abdomen: Often yellowish, occasionally entirely yellow or brown to black. Abdominal tergites with microtrichia and setulae concolorous with those on mesonotum. Sternite 3 of male of some species with medial clusters of setulae (Fig. 537). Sternite 5 of male with posterior margin usually concave, but in some species with strong indentation (inverted U-shape) (Fig. 535, indicated by white arrow).

Female terminalia: Oviscape yellow to black, tapered, subconical to funnel-shaped, usually length 2 times width of base. Eversible membrane with 4 taenia on basal third, 2 dorsal and 2 ventral; medial and apical third covered by small or tiny denticles (Figs. 156–194). Aculeus short, flat, usually with basal third sclerotized (Figs. 195–197, 199–200, 202–204, 208–212, 214217, 219–223, 225–233), occasionally with ventral area nonsclerotized (Figs. 198, 201, 205–207, 213, 215–216, 218, 224). Aculeus tip triangular, lateral margin usually nonserrate (Figs. 234–236, 238–239, 241–243, 247–251, 253, 256, 258–263, 265–272, 541), occasionally serrate distal to cloacal openning (Figs. 237, 240, 244–246, 252, 254–255, 257, 264, 542). Aculeus tip with 2 pairs of hairlike sensilla and slightly notched at extreme apex (Fig. 545). Two spermathecae, subspherical or elongated, usually with sclerotized neck and often surface with papillae (Figs. 273–311).

Male terminalia: Lateral surstylus fused indistinguishably to epandrium. Medial surstylus with pair of prensisetae (Figs. 312–354). Lateral surstylus usually short, straight or directed slightly anteroventrally (Figs. 312–315, 317–319, 321–323, 328–332, 334–335, 338, 340–354), if long and curved (Figs. 359, 363, 367–370, 376, 379–380, 382), medial prensiseta greatly enlarged, more than three times as long as wide (Fig. 543). Glans non-spiculose and acrophallus without or with very short apical lobe (Figs. 398–438). Proctiger sometimes bilobed apically (Figs. 319, 327).

Distribution. Nearctic and Neotropical, with much greater species diversity of the genus *Plaumannimyia* in the Neotropical Region, where all species are known to occur. Only two species, *P. flava* and *P. imitatrix,* have distributions in the Nearctic Region. Argentina has the greatest number of species (15 species), followed by Brazil (14 species), Chile (12 species), Peru (11 species), Bolivia (8 species), Ecuador (4 species), Colombia, Mexico and USA (2 species), and Costa Rica and Venezuela (1 species).

Biology. Host plants are known for 30 of 43 species. Rearing records are all from flowerheads of the family Asteraceae. The flies are specialized in plants of the tribe Astereae (30 species), especially the genus *Baccharis* L. (27 species). There are also records from other genera of Astereae: *Conyza* Less. (*P. thomsoni* and *Plaumannimyia* n. sp. 18), *Grindelia* Willd (*P. thomsoni*), *Gutierrezia* Lag. (*P. valdesiana*), *Heterothalamus* Less. (*P. imitatrix*), *Parastrephia* Nutt. (*Plaumannimyia* n. sp. 11 and *Plaumannimyia* n. sp. 20), and *Solidago* L. (*P. thomsoni*). A few species has been reared from flowerheads of different tribes: Gochnatieae, genus *Moquiniastrum* (Cabrera) G. Sancho (*P. imitatrix* and *P. miseta*),

Senecioneae, genus *Senecio* L. (*P. coelestina*), and Inuleae, genus *Pluchea* Cass. (*P. thomsoni*).

Key to Species of *Plaumannimyia*

1. Wing pattern reticulate, without distinct stellate mark on apical half (Figs. 65–74); cell r_1 with marginal hyaline areas rounded or semicircular, not extended into cell r_{2+3}; dark rays to apices of veins R_{4+5} and M_1 usually broad (except in *Plaumannimyia* n. sp. 16, Figs. 73, 74)..... 2
- Wing pattern with distinct stellate mark on apical half (Figs. 75–155); cell r_1 with marginal hyaline areas usually triangular, elongate oblique or irregular, often extended into cell r_{2+3}; dark rays to apices of veins R_{4+5} and M_1 usually narrow, at least basally..... 6

2. Cell r_1 with marginal hyaline marks not reaching vein R_{2+3} (Figs. 65–72); cell m_1 with distal hyaline spot extending anteriorly at most to vein M_1; rays to apices of veins R_{4+5} and M_1 broad..... 3
- Cell r_1 with marginal hyaline marks reaching vein R_{2+3} (Figs. 73, 74); cell m_1 with distal hyaline spot extending anteriorly at least to vein M_1; rays to apices of veins R_{4+5} and M_1 narrow, at least basally. Brazil..... *Plaumannimyia* **n. sp. 16**

3. Scutal ground color brown (Figs. 59, 60); wing markings mostly brown (Figs. 65–68, 71, 72); male fore femur with anteroventral setae sometimes elongate basally, but not wavy (Fig. 524); male fore basitarsomere without elongate ventral setae..... 4
- Scutal ground color yellow (Fig. 61); wing markings extensively yellowish (Figs. 69, 70); male fore femur with anteroventral setae long thin and wavy (Fig. 525); male fore basitarsomere with elongate ventral setae (Fig. 528). Brazil..... *P. costaemaculata* Hering

4. Wing markings between pterostigma and crossvein r-m similar in color to those on basal part (Figs. 65–68); cell r_{4+5} without small darker spot medially; medial prensiseta with medial margin convex (Figs. 365, 382)..... 5
- Wing markings between pterostigma and crossvein r-m darker than those on basal part (Figs. 71, 72); cell r_{4+5} with small darker spot medially; medial prensiseta with medial margin straight (Fig. 383). Brazil..... *Plaumannimyia* **n. sp. 10**

5. Basal third of cell r_{2+3} with hyaline spots larger, touching veins R_{2+3} and R_{4+5}, subapical dark area in cells r_{2+3} and r_{4+5} not defined (Figs. 65, 66); male with proctiger not bilobed (Fig. 322); Brazil. ..... *P. pallens* Hering

- Basal third of cell r_{2+3} with hyaline spots small, not touching veins R_{2+3} and R_{4+5}, subapical dark area in cells r_{2+3} and r_{4+5} defined (Figs. 67, 68); male with proctiger strongly bilobed (Fig. 339); Bolivia, Colombia, Ecuador, Peru. ..... *Plaumannimyia* **n. sp. 9**

6. Pterostigma and crossvein r-m connected by solid, dark brown or yellow band (Figs. 86–104, 111–142); middle and base of cell dm usually without distinct yellow or brown reticulation (except *P. flava*, *subaster*, *Plaumannimyia* n. sp. 6, *Plaumannimyia* n. sp. 18 with faint reticulation)..... 7

- Pterostigma and crossvein r-m not connected by solid band (Figs. 75–85, 105–110, 143–155), usually reticulate or including hyaline or pale spots (paler bordering crossvein r-m in *Plaumannimyia* n. sp. 25); middle and base of cell dm usually with distinct brown or yellow reticulation 31

7. Pterostigma and crossvein r-m connected by solid, broad, dark brown band (Figs. 111–142) 8

- Pterostigma and crossvein r-m connected by a solid, broad, yellow band (Figs. 86–104). 23

8. Basal margin of broad ray between pterostigma and crossvein r-m extended (fork shaped) to vein Rs and cell r_1 (Figs.111–122, 126–136). 9

- Basal margin of broad ray between pterostigma and crossvein r-m not extended (fork shaped or not) to vein Rs and cell r_1 (Figs. 123–125, 137–142). 20

9. Cell r_{2+3} with 2 marginal hyaline spots (with medial dark ray) (rarely one hyaline spot in *P. scutellata*)..... 10

- Cell r_{2+3} with 1 marginal hyaline spot (i.e., without medial dark ray) (rarely a second very small hyaline spot in *P. suspecta*)..... 16

10. Scutellum with 2 pairs of marginal setae, apical pair at least 3 times as large as scutellar setulae. 11

- Scutellum with 1 pair of marginal setae, or if apical pair present, minute, no more than 2 times as large as scutellar setulae, white and inflated. Guatemala and Mexico. .*P. eugenia* (Wulp)

11. Subbasal hyaline spot in cell r_{4+5} (anterior to crossvein dm-m) not elongate, at most 1.5 times as long as wide; one or more of hyaline marginal marks in cells r_1 and r_{2+3} extending across cell, usually reaching vein R_{2+3}..... 12

- Subbasal hyaline spot in cell r4+5 elongate, at least 2 times as long as wide; hyaline marginal marks in cells r1 and r_{2+3} small, none extending across cell. Peru. .... *Plaumannimyia* **n. sp. 20**

12. Cell dm with 2 subapical rays; cell m_4, anal lobe, and basal half of cell dm with faint reticulation (sometimes appearing hyaline). 13

- Cell dm with 0-1 subapical ray (*Plaumannimyia* n. sp. 5 also with spot near midlength of cell); cells dm, and m_4 and anal lobe hyaline or with broad or splotchy faint or dark markings..... 15

13. Wing without pale marks in cells br and r_{4+5} close to crossvein r-m (Figs. 113–116); hind femur without larger anteroventral setae, male with surtyli short and directed anteroventrally (Fig. 536); lateral prensisetae not vestigial; ventral area of basal third of aculeus sclerotized (Figs. 217, 226), aculeus tip nonserrate (Fig. 541). 14

- Wing with pale marks in cells br and r_{4+5} close to crossvein r-m (Figs. 111, 112); hind femur with larger anteroventral setae (Fig. 526), male with surtyli long and directed posteroventrally (Fig. 535); lateral prensisetae vestigial; ventral area of basal third of aculeus nonsclerotized (Fig. 200), aculeus tip serrate (Fig. 542). Brazil. ..... *P. dolores* (Hering)

14. Male apex of the arista expanded; reticulation in cells dm and m_4 stronger and extending into cell br (Figs. 113, 114), hyaline area between crossvein bm-m and brown area in br measured along vein M_1 0.89-0.99 times; apical third of the male fore tibia with dorsal setae erect. Bolivia and Peru. ..... *Plaumannimyia* **n. sp. 6**

- Male apex of the arista not expanded; reticulation in cells dm and m_4 not extending into cell br (Figs. 115, 116), hyaline area between crossvein bm-m and brown area in br measured along vein M_1 0.69-0.73 times; apical third of the male fore tibia without dorsal setae erect. Peru. ..... *Plaumannimyia* **n. sp. 18**

15. Crossvein r-m separated from crossvein dm-m by ca. length of r-m; cell br with very strong bend in posterior margin of dark area, distance from bend to crossvein r-m equal to length of crossvein r-m; distal part of cell dm (between subapical ray and crossvein dm-m) entirely yellowish; posterior half of cell dm and most of cell m_4 solid, pale yellow; dark spot in cell r_{4+5} within the subapical stellate mark strong and distinct (Fig. 62); hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m small, not more than half width of cell. male fore basitarsus with fine setulae on dorsal side yellow brown and no longer than width of tarsomere. Peru. ..... *Plaumannimyia* **n. sp. 5**

- Crossvein r-m more than its length from crossvein dm-m; distal part of cell dm at least partially hyaline; posterior half of cell dm and most of cell m_4 solid, brown; dark spot in cell r_{4+5} within the subapical stellate mark not distinct and strong; hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m large, more than half width of cell. male fore basitarsus with fine setulae on dorsal side dark brown and longer than width of tarsomere. Argentina, Bolivia, Chile, Ecuador and Peru..... *P. scutellata* (Séguy)

16. Cell m_4 with distinct reticulate or solid, usually paler brown mark bordering vein M_4 and usually extended to subapical ray in cell dm (Figs. 129–134). 17

- Cell m_4 at most with a few marginal spots or mostly or entirely yellowish (Figs. 126, 135, 136). 19

17. Cell m_4 with distinct reticulate paler brown mark bordering vein M_4 and usually extended to subapical ray in cell dm (Figs. 129–132); width of marginal apical spot in cell r_{4+5} less than twice width of hyaline spot near anterior end of crossvein dm-m; male fore tibia in lateral view without large subapical protuberance..... 18

- Cell m_4 with distinct solid paler brown mark bordering vein M_4 and usually extended to subapical ray in cell dm (Figs. 133–134); width of marginal apical spot in cell r_{4+5} twice width of hyaline spot near anterior end of crossvein dm-m; male fore tibia in lateral view with large subapical protuberance (Fig. 508). Argentina and Bolivia ..... *P. ameghinoi* (Brèthes)

18. Cell dm with subapical ray incomplete or curving apically to connect with dark area bordering crossvein dm-m, not connected to dark area bordering vein M_4; dark area bordering vein M_4 usually interrupted; dark rays in cell m_1 often incomplete or fusing to each other; cell br with distance of dark area from bend to crossvein r-m less than length of r-m; male fore tibia in anterior view strongly curved, and with protuberance on basal half with dense group of fine and elongated setae (Fig. 532). Argentina and Chile ..... *P. suspecta* (Malloch)
- Cell dm with subapical ray arising between crossvein r-m and anteroapical corner, at most directed slightly obliquely basally, more or less parallel with crossvein dm-m, connected to dark area bordering vein M_4; dark area bordering vein M_4 complete; dark rays in cell m_1 complete, reaching wing margin, and separate from each other; cell br with distance of dark area from bend to crossvein r-m at least twice length of crossvein r-m; male fore tibia in anterior view not strongly curved, but in lateral view with apical protuberance with fine and short erect setae. Chile .....*P. plagiata* (Blanchard)

19. Cell dm with subapical ray arising from anteroapical corner; cell br with very strong bend in posterior margin of dark area, distance from bend to crossvein r-m about equal to length of crossvein r-m; male fore tibia curved; basitarsus strongly dorsally flattened (Fig. 533); male fore tarsomeres with dorsal long setae (distincly longer than lateral setae). Chile and Peru ....*Plaumannimyia* **n. sp. 19**
- Cell dm with subapical ray arising from basal area of crossvein r-m; cell br without very strong bend in posterior margin of dark area, distance from bend to crossvein r-m at least twice length of crossvein r-m; male fore tibia straight; basitarsus cilindrical; tarsomeres with dorsal short setae (as long as lateral setae). Argentina. ..... *Plaumannimyia* **n. sp. 17**

20. Cell cu*a* and parts of anal lobe and m_4 hyaline; base of cell dm hyaline; distance from bend to crossvein r-m no more than twice length of crossvein r-m. 21
- Cell cu*a* and parts of anal lobe and m_4 dark brown; base of cell dm often partly dark brown; distance from bend to crossvein r-m at least twice length of crossvein r-m. Argentina and Bolivia.....*Plaumannimyia* **n. sp. 11**

21. Scutellum with 2 pairs of marginal setae, apical pair at least 3 times as large as scutellar setulae. 22

- Scutellum with 1 pair of marginal setae, or if apical pair present, minute, no more than twice as large as scutellar setulae, white and inflated; hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m large, more than half width of cell. Male fore tarsomere 3 with transverse dorsal row of long thin setae (Fig. 527). Argentina, Brazil, Peru and Venezuela .... *P. thomsoni* (Hendel)

22. Cell dm with subapical ray extended to more of half of cell; cell r_1 with 2 marginal hyaline spots; basal marginal hyaline spot not reaching cell r_{2+3}; crossvein r-m separated from crossvein dm-m by more than length of crossvein r-m. Chile. ..... *Plaumannimyia* **n. sp. 13**

- Cell dm with subapical ray absent or arising at crossvein r-m, not reaching on half of cell; cell r_1 with 3 marginal hyaline spots; basal marginal hyaline spot reaching cell r_{2+3}; crossvein r-m separated from crossvein dm-m by ca. length of crossvein r-m. Argentina .... *P. valdesiana* (Gandolfo & Norrbom)

23. Wing with area extended from pterostigma to crossvein r-m with distinctly darkened border along anterodistal margin of yellow band (Figs. 96, 101–104)..... 24

- Wing with area extended from pterostigma to crossvein r-m without darkened border along anterodistal margin of yellow band (Figs. 86–95, 97–100). 26

24. Scutellum with 2 pairs of marginal setae; ray to apex of R_{4+5} complete; apical hyaline spot in cell r_1 reaching vein $R_{2+3;}$ cell dm without subapical ray. 25

- Scutellum with 3 pairs of marginal setae; ray to apex of R_{4+5} incomplete; apical hyaline spot in cell r_1 not reaching vein $R_{2+3;}$ cell dm with faint subapical ray. Argentina .... *Plaumannimyia* **n. sp. 23**

25. Area extended from pterostigma to crossvein r-m with darker border on anterodistal margin reaching costa (Figs. 103, 104); hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m smaller, no more than ⅔ width of cell, with shape cylindrical; oviscape brown or black; body gray. Argentina, Bolivia, Brazil, Peru and USA..... *P. imitatrix* (Hering)

- Area extended from pterostigma to crossvein r-m with darker border on anterodistal margin reaching the pterostigma (Figs. 101, 102); hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m large, more than ⅔ width of cell, with shape not cylindrical; oviscape yellow or paler brown; body yellowish. Brazil, Costa Rica, Mexico and USA ..... *P. flava* (Adams)

26. Ray to apex of R_{4+5} absent or incomplete. 27
- Ray to apex of R_{4+5} present, complete. 29

27. Cell dm with 2-3 isolated dot-like spots; cells r_{2+3} and r_{4+5} without paler brown spot within the stellate mark; hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m smaller, no more than ⅔ width of cell; male often with brown spot in cell c; male fore tibia with dorsal erect setae on apical third; in lateral view basitarsus narrower basally than apically, without setulae on the posterior apical half, and with posterodorsal row of elongate setae (Fig. 530). 28
- Cell dm without 2-3 isolated dot-like spots; cells r_{2+3} and r_{4+5} with paler brown spot within the stellate mark; hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m large, reaching veins R_{4+5} and M_4; male without brown spot in cell c; male fore tibia with dorsal oblique setae on apical third; in lateral view basitarsus cylindrical, with setulae on the posterior apical half, and without a posterodorsal row of elongate setae. Argentina ..... *P. difficilis* (Malloch)

28. Anterior orbital seta acuminate and darker than the posterior seta. In male: cell c with large dark brown spot, and pterostigma usually with brown spot; cell r_1 with 2-3 hyaline spots (apical and subapical spots often partly or completely fused) (Figs. 86, 87). Brazil..... ..... *P. coelestina* (Hering)
- Anterior orbital seta lanceolate and white as the posterior seta. In male: cell c sometimes with small brown spot; pterostigma without brown spot; cell r_1 with 3 marginal hyaline spots (Fig. 89, 90). Brazil..... *P. miseta* (Hering)

29. Scutal ground color and oviscape brown to black; basal marginal hyaline spot in cell r_1 not extended into cell r_{2+3}; stellate mark distinct brown or paler brown. 30
- Scutal ground color and oviscape yellow; basal marginal hyaline spot in cell r_1 extended into cell r_{2+3}; stellate mark distinct yellow except for small and strong brown spot in r_{4+5} near base of apical rays and sometimes some of the rays, particularly those in cell m_1. Argentina and Bolivia ..... *Plaumannimyia* **n. sp. 21**

30. Hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m small, not more than half width of cell. the brown part of the stellate mark large, reaching the crossvein dm-m in cell r_{4+5}; cell r_1 with apical marginal hyaline spot not reaching vein R_{2+3}; male with surstyli elongate and curved posteroventrally (Fig. 535); aculeus tip serrate (Fig. 542). Brazil..... ..... *Plaumannimyia* **n. sp. 4**

- Hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m large, more than half width of cell. the brown part of the stellate mark smaller, not reaching the crossvein dm-m in cell r_{4+5}; cell r_1 with apical marginal hyaline spot reaching vein R_{2+3}; male with surstyli short and straight anteroventrally (Fig. 536); aculeus tip nonserrate (Fig. 541). Argentina and Chile..... ..... *P. subaster* (Malloch)

31. Area extended from pterostigma to vein M_1 with distinct yellow or paler brown reticulation (except *Plaumannimyia* n. sp. 22 has mixed yellowish and brown) (Figs. 75–85, 107, 108). 32

- Area extended from pterostigma to vein M_1 with distinct dark brown band, but having hyaline areas bordering crossvein r-m (Figs. 109, 110, 143–155)..... 38

32. Scutum without dorsocentral vitae; pterostigma with basal half yellowish or paler brown, area between pterostigma and crossvein r-m with distinct yellow or paler brown reticulation (Figs. 75–85). 33

- Scutum with 2 strong dark brown dorsocentral vitae (Fig. 62); pterostigma with basal half distinct brown; Area between pterostigma and crossvein r-m mixed yellowish and brown reticulation (Figs. 107, 108). Brazil..... *Plaumannimyia* **n. sp. 22**

33. Cell r_1 with basal marginal hyaline spot large, oblique, reaching vein R_{2+3} (Figs. 84, 85, 105, 106). 34

- Cell r_1 with basal marginal hyaline spot small, rounded, no more than ⅔ width of cell; never reaching vein R_{2+3} (Figs. 75–83). 35

34. Area extended from pterostigma to crossvein r-m without darkened border along anterodistal margin; cell r_{4+5} with diffuse hyaline spot near base; cell m_1 with basal marginal hyaline spot not reaching vein M_1; hyaline spots in cell dm denser, and smaller or equal than the hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m (Figs. 84, 85); male with surstyli short and straight anteroventrally (Fig. 536); aculeus tip nonserrate (Fig. 541). Bolivia, Ecuador and Peru ..... *Plaumannimyia* **n. sp. 3**

- Area extended from pterostigma to crossvein r-m with distinctly darkened border along anterodistal margin; cell r_{4+5} with distinct hyaline spot near base; cell m_1 with basal marginal hyaline spot reaching vein M_1; hyaline spots in cell dm more extensive, than the hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m (Figs. 105, 106); male with surstyli elongate and curved posteroventrally (Fig. 535); aculeus tip serrate (Fig. 542). Brazil ..... *Plaumannimyia* **n. sp. 14**

35. Cell r_{4+5} with marginal hyaline spot; cell r_{2+3} with 2 marginal hyaline spots not minute; cell r_1 with 1 basal marginal hyaline spots smaller, rounded, no more than ⅔ width of cell; hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m touching vein M_1 (Figs. 75–79, 81–83). 36

- Cell r_{4+5} without marginal hyaline spot; cell r_{2+3} with 1 marginal hyaline spot minute; cell r_1 with 2 basal marginal hyaline spots smaller, rounded, no more than ⅔ width of cell; hyaline spot in cell r_{4+5} normally at or slightly proximal to anterior end of crossvein dm-m is slightly distal to crossvein dm-m and does not touch vein M_1 (Fig. 80). Argentina ..... *Plaumannimyia* **n. sp. 12**

36. Cell r_{4+5} without distinct dark spot and usually with multiple small hyaline spots within the subapical stellate mark (Figs. 75–79); width of marginal apical spot in cell r_{4+5} less than twice width of hyaline spot near anterior end of crossvein dm-m; hind femur without slightly enlarged anteroventral setulae. 37

- Cell r_{4+5} with distinct dark spot and no more than one small hyaline spot, within the subapical stellate mark (Figs. 81–83); width of marginal apical spot in cell r_{4+5} twice width of hyaline spot near anterior end of crossvein dm-m; hind femur with 2 slightly enlarged anteroventral setulae. Colombia, Ecuador and Peru ..... *Plaumannimyia* **n. sp. 2**

37. Cell r_1 with apical marginal hyaline spot in reaching vein R_{2+3} (Figs. 75, 76); stellate mark relatively small; cell r_{2+3} with 2-3 distinct hyaline spots; cell r_{2+3} with basal marginal hyaline spot touch vein R_{4+5}; ray to apex of vein R_{4+5} usually complete. Chile. .... *Plaumannimyia* **n. sp. 1**

- Cell r_1 with apical marginal hyaline spot not reaching vein R_{2+3}; stellate mark larger; cell r_{2+3} with fewer tiny hyaline spots; cell r_{2+3} with basal marginal hyaline spot not touch vein R_{4+5}; ray to apex of R_{4+5} often interrupted or connected to dark spot in middle of apex of cell r_{2+3} (Figs. 77–79). Chile. ..... *Plaumannimyia* **n. sp. 24**

38. Apical scutellar setae lanceolate, white, poorly differentiated from scutellar setulae (Fig. 62). 39

- Apical scutellar setae acuminate, dark, well differentiated from scutellar setulae (Fig. 64)..... 40

39. Cell r_1 with basal marginal hyaline spot square (as wide as long); cells dm and m_4 mostly hyaline and without reticulation in brown area of cell br; male with surstyli short and straight anteroventrally (Fig. 536); aculeus tip nonserrate (Fig. 541). Chile. ..... *Plaumannimyia* **n. sp. 25**

- Cell r_1 with basal marginal hyaline spot oblique (more long than wide); cells dm and m_4 with distinct reticulation extending in brown area of cell br (Figs. 109, 110); male with surstyli elongate and curved posteroventrally (Fig. 535); aculeus tip serrate (Fig. 542). Brazil. ..... *Plaumannimyia* **n. sp. 8**

40. Cell r_{4+5} with 1-2 hyaline spots in middle of dark area between crossvein dm-m and apex of vein R_{2+3} (Figs. 145–148, 153–155); male fore tibia with strong mediolateral concave area (Fig. 532)..... 41

- Cell r_{4+5} without hyaline spots in middle of dark area between crossvein dm-m and apex of vein R_{2+3} (Figs. 149–152); male fore tibia without or with faint mediolateral concave area. 42

41. Apex of cell r_{2+3} with 2 hyaline spots separated by medial dark ray or spot arising from costal margin (Figs. 153–155); male fore basitarsus strongly expanded (Fig. 533); male sternite 3 with setulae similar to those of tergites 2 and 4; male fore tarsus entirely yellow. Argentina and Chile ..... *Plaumannimyia* **n. sp. 7**

- Apex of cell r_{2+3} with a single hyaline area, without medial dark ray, although costa often with narrow brown border, especially in male (Figs. 145–148); male fore basitarsus faint expanded (Fig. 509); male sternite 3 with paired medial clusters of setulae (Fig. 537); male fore tarsus with apical 2-3 segments dark brown. Chile. ..... *P. delicatella* (Blanchard)

42. Apex of cell r_{2+3} usually with 2 hyaline spots, basal one large, extending almost to vein R_{4+5} or fusing with other apical spots (some specimens with 1 hyaline spot) (Figs. 151, 152); male fore tibia without concave area; male fore basitarsus with dorsal short setae (as long as lateral setae) (Fig. 528); male fore apical tarsomere entirely yellow; male sternite 3 without medial clusters of setulae; male with apical surstyli not distinct truncated and extended (Fig. 326); spermathecae elongated (Fig. 286). Argentina and Chile ..... *P. setulosa* (Malloch)

- Apex of cell r_{2+3} usually with 1 hyaline spot (Figs. 149, 150) (some males with 2 hyaline spots), if 2, basal one small, not extending to vein R_{4+5} or fusing with other apical spot; male fore tibia with faint mediolateral concave area; male fore basitarsus with dorsal long setae (distinct longer than lateral setae) (Figs. 510, 549); male fore apical tarsomere dark brown; male sternite 3 with paired medial clusters of setulae (Fig. 537); male with apical surstyli distinct truncated and extended (Fig. 345); spermathecae subspherical (Fig. 302). Bolivia. .... *Plaumannimyia* **n. sp. 15**

***Plaumannimyia ameghinoi* (Brèthes)**

Figs. 133–134, 156, 195, 234, 273, 312, 355, 398, 439, 482–483, 507–508

Urellia ameghinoi Brèthes, 1908b: 471 [description; Argentina]; Malloch, 1933: 264 [list]; Foote, 1967: 56 [catalog, as unplaced Tephitinae species].
Trypanea ameghinei: Hendel, 1914: 76 [n. comb.; misspelling].
Trypanea ameghinoi: Malloch, 1933: 290 [key], 291; Hering, 1942: 18 [Argentina: Salta]; Aczél, 1950: 299 [catalog].
Trypanaresta ameghinoi: Norrbom *et al.,* 1999: 237 [n. comb.; catalog].
Plaumannimyia ameghinoi: Norrbom *et al.,* 2010: 42 [n. comb.].

Diagnosis. This species differs from most other congeners in having solid, broad, dark brown band between the pterostigma and crossvein r-m, cell dm hyaline except for a subapical ray completely crossing it, solid, usually paler brown mark bordering vein M_4 and usually extended to subapical ray in cell dm. From five others species with this combination of characters (*P. plagiata, P. scutellata, P. suspecta,* some specimens of *Plaumannimyia* n. sp. 11 and *Plaumannimyia* n. sp. 20), it can be distinguished as follows: It differs in having the male fore tibia with a large subapical protuberance (Figs. 507, 508). It differs from *Plaumannimyia* n. sp. 11 in having the base of the dark brown band between the pterostigma and crossvein r-m with a distinct extension (fork shaped) to the fork of vein Rs and vein R_1, and the male fore tarsomeres with long setae. It differs from *P. plagiata* in having solid brown mark in cell m_4. It differs from *Plaumannimyia* n. sp. 20 in having the length of the hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m less than 2/3 the width of cell r_{4+5}; the apical hyaline spot slightly longer than wide, and the basal marginal hyaline spot in cell r_1 larger, reaching vein R_{2+3}. It differs from *P. suspecta* in having solid brown mark in cell m_4, hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m smaller, not reaching vein M_1, the male fore tibia in anterior view not strongly curved, and male sternite 3 with paired medial clusters of setulae. It differs from *P. scutellata* in having a solid and darker brown mark in cell m_4, not reaching the posterior border of the wing, and hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m smaller, not reaching vein M_1.

Description. Body length 2.97–3.25 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown to dark brown.

Head: Slightly higher (0.78–0.83 mm) than long (0.48–0.56 mm). Generally yellow, frons yellow, ocellar tubercle brown and with few setulae white, and occiput brown medially and

with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.39–0.44 mm) less than width at vertex (0.56–0.58 mm), slightly narrowed to anterior margin (0.41–0.48 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.25–0.26). Eye ovoid, long diameter (0.61–0.70 mm), width (0.48–0.52 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.06–1.28 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 3.13–3.66 mm, width 1.18–1.51 mm. Wing pattern stellate (Figs. 133, 134). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with distinct subapical stellate mark. Cell c mostly hyaline or sometimes with medial dark spot. Pterostigma dark brown with small hyaline distal spot. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, triangular, extended almost to vein R_{2+3} (sometimes reaching cell r_{2+3}); second small, rounded, and not extended almost to vein R_{2+3} (sometimes absent); and small quadrate subapical spot touching vein R_{2+3}. Cell r_{2+3} with 1 marginal hyaline spot (i.e., without medial dark ray). Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m not touching vein M_1; width of marginal apical spot twice width of hyaline spot near anterior end of crossvein dm-m. Cell dm mostly hyaline, with subapical ray reaching vein M_4. Cell m_4 with distinct solid paler brown mark bordering vein M_4 and usually extended to subapical ray in cell dm. Cells cu*a*, part of cell bm, and anal lobe with brown spot. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: mostly yellow (sometimes hind femur with brown spot in anterior area). Medial and posterior femora with setulae lanceolate, white to yellow in anterior area. Male fore with tibia in lateral view with large subapical protuberance (Fig. 508); basal half with elongated setae (distinctly longer than lateral setae), and apical third over subapical lobe with dorsal setae erect (Figs. 507, 508).

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6. Oviscape brown to black, length 1.33 mm, width 0.68 mm at base and 0.20 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 156) length 1.38 mm. Aculeus (Fig. 195) pale brown, length 1.23 mm, in dorsal view with basal area sclerotized; tip triangular length 0.23 mm, with lateral margin nonserrate (Fig. 234). Spermathecae brown, subspherical, length 0.16 mm, surface with few papillae (Fig. 273).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 312) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Figs. 312), in lateral view with dorsal lobe (Fig. 355). Medial surstylus with pair of prensisetae; lateral prensiseta conical, more than ⅔ as long as medial prensiseta (Fig. 312); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.33 mm long (Fig. 439). Glans 0.34 mm long (Fig. 398); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (Jujuy, Salta, Santa Cruz), Bolivia (Cochabamba, La Paz). Elevational records include 2610 and 3900 m in Bolivia.

Biology. Three adults of this species have been reared, one from flowerheads of *Baccharis salicifolia* (Ruiz & Pav.) Pers., one from an uncertain species of *Baccharis*, and one from galls on *Baccharis boliviensis* (Wedd.) Cabrera. Unfortunately, the label data for the single specimen reared from *B. boliviensis* did not include what part of the plant was galled. Adults have been collected in February, March, April and December.

Type data. This species was described from an unstated number of specimens from Argentina: Chubut: San Jorge, collected by "Don Carlos Ameghino". With mention of an ovipositor in the description, the type material included at least one female. Dr. Pablo Ricardo Mulieri kindly located and photographed (Figs. 482, 483) a putative syntype female in the MACN, where the Brèthes collection was deposited, that female is here designated as the lectotype to stabilize the usage of this name. It has labels with "7465" [handwritten; white label with red submarginal border]; "Patagonia San Jorge" [handwritten; green label with black submarginal border]; "ameghinoi Brèthes" [handwritten; white label with black submarginal border]; "LECTOTYPE ♀ *Urellia ameghinoi* Brèthes. by Savaris & Norrbom

[red-bordered label added by us]; and "Plaumannimyia ameghinoi ♀ (Brèthes) det. Savaris & Norrbom iv 2016". The lectotype is double mounted (paper rectangle), and is in poor condition (most head and thorax setae missing, legs and venter largely covered by glue), but fortunately the excellent wing illustration provided in the original description also clearly indicates the identity of this species.

Specimens examined. ARGENTINA: Jujuy: [unspecified locality], reared from flower heads of *Baccharis salicifolia*, 23 Apr 1993, D. Gandolfo, 1m (USNM USNMENT00105069); Humahuaca, 9.6 km N, Rt. 9, in galls *Baccharis boliviensis*, 7 May 1988, D. Gandolfo Bac82a, 1m (USNM USNMENT00105070); Iturbe, Feb 1970, L. E. Peña, 1m (MZUSP USNMENT00119264); Volcán, emerged from seed heads of *Baccharis*, 23 Apr 1983, D. Gandolfo & H. Cordo, 1m (USNM USNMENT00105071). **Santa Cruz:** Estancia Julia, Rio Chico, 49°40'S 69°30'W, 22 Dec 1960, L. E. Peña, 2m (CNC USNMENT00104988; USNMENT00262624). **BOLIVIA: Cochabamba:** Cochabamba, 17°23.3'S 66°7'W, 2610 m, 25 Mar 2001, A. Freidberg, 1m (USNM USNMENT00216778). **La Paz:** El Alto, 14 km S, 16°40.1'S 68°11'W, 3900 m, 20 Mar 2001, A. Freidberg, 1m (USNM USNMENT00056349); Aroma, Huaraco, 14 Apr 1981, J. P. Arce, 1f (ANCB USNMENT00215199).

***Plaumannimyia coelestina* (Hering)**

Figs. 86–88, 157, 196, 235, 274, 313, 356, 399, 440, 520, 546

Trypanea coelestina Hering, 1938: 192 [description; Brazil].

Trypanaresta coelestina: Hering, 1940b: 11 [n. comb.; key]; Aczél, 1950: 294 [catalog]; Foote, 1967: 53 [catalog]; Norrbom *et al.*, 1999: 237 [catalog]; Prado *et al.*, 2002: 1023 [host plants; distribution].

Plaumannimyia coelestina: Norrbom *et al.*, 2010: 42 [n. comb.]; Savaris *et al.*, 2015: 18 [host plants].

Diagnosis. This species differs from all of its congeners (except *P. miseta*) in having 2 isolated dot-like spots in cell dm. It differs from *P. miseta* in having the anterior orbital seta acuminate and darker than the posterior seta. The male is unique in having a broad medial brown mark in cell c and a large dark brown mark in the pterostigma, but the rest of the area between the pterostigma and crossvein r-m is a solid yellow band, paler than the stellate mark, and without darker border on anterodistal margin, and only two narrow rays extended

from stellate mark to costa anteriorly, one to basal third of margin of cell r_1 and one to apex of vein R_1. The male further differs from other species except *P. miseta* in having the male fore tibia with dorsal erect setae on apical third; (in other species the setulae are not erect), and the fore first tarsomere in lateral view narrower basally than apically, without setulae on the posterior apical half, and with posterodorsal row of elongate setae (Fig. 530, indicated by arrows). The male further differs from the other species except *Plaumannimyia* n. sp. 4 in having longer basal ventral setae on the fore femur. The female resembles *P. difficilis*, *P. miseta*, *P. subaster*, *Plaumannimyia* n. sp. 4, *Plaumannimyia* n. sp. 21, and *Plaumannimyia* n. sp. 23 in having the solid yellow band between the pterostigma and crossvein r-m. It differs from *P. difficilis*, *P. subaster*, *Plaumannimyia* n. sp. 4 and *Plaumannimyia* n. sp. 21, in lacking the ray to the apex of vein R_{4+5} (it is incomplete or absent in *P. difficilis*), also is differs from *P. difficilis* not having paler brown spot in stellate mark on cells r_{2+3} and r_{4+5}. It differs from *Plaumannimyia* n. sp. 23 in lacking a darker border on anterodistal margin of the solid yellow band between the pterostigma and crossvein r-m.

Description. Body length 2.48–3.37 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.63–0.74 mm) than long (0.46–0.48 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.36–0.39 mm) less than width at vertex (0.44–0.51 mm), slightly narrowed to anterior margin (0.32–0.34 mm). Three frontal setae, anterior seta smaller, lanceolate, white to yellow; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate, posterior seta smaller, lanceolate, white to yellow. Gena with few small acuminate, pale brown setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.17–0.21). Eye ovoid, long diameter (0.48–0.60 mm), width (0.34–0.48 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 0.97–1.18 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta laceolate, white to yellow (concolorous with setulae), about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 2.93–3.20 mm, width 1.15–1.22 mm. Wing pattern stellate (Figs. 86–88). Area between pterostigma and crossvein r-m with solid, broad, yellow band, without distinctly darker border on anterodistal margin and with distinct subapical stellate mark. Cell c hyaline in female, and with a broad medial brown spot in male. Pterostigma entirely yellow in female, and with large dark brown spot in male. Cell r_1 with 3 marginal hyaline spots in female: first largest, elongate, oblique, reaching vein R_{2+3}; second triangular and not touching vein R_{2+3}; and small triangular or quadrate subapical spot usually not touching vein R_{2+3}. Male with only two narrow rays extended from stellate mark to costa anteriorly, one to basal third of margin of cell r_1 and one to apex of vein R_1. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray), male with anterior marginal hyaline spot large, touching vein R_{2+3}. Male with long medially mark dark in cell br. Cell r_{4+5} with anterior apical ray absent, posterior complete; hyaline spot near anterior end of crossvein dm-m large, more than ⅔ width of cell; with faint medially dark spot touching vein R_{4+5} near base of apical rays within the subapical stellate mark. Cell dm with two isolated dot-like spots; anteroapical corner yellow. Cells bm and cu*a* mostly hyaline or faint yellow. Cell m_4 and anal lobe with few dark spots (reticulate). Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow. Male fore tibia with fine dorsal erect setae on apical third; basitarsus in lateral view narrower basally than apically, without setulae on the posterior apical half, and with posterodorsal row of elongate setae (Fig. 530, indicated by arrows).

Abdomen: In both sexes ground color brown (sometimes yellowish at base) and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 0.83–1.00 mm, width 0.56–0.65 mm at base and 0.22–0.24 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 157) length 1.08 mm. Aculeus (Fig. 196) pale brown, length 1.04 mm, in dorsal view with basal area sclerotized; tip triangular length 0.18 mm, with lateral margin nonserrate (Fig. 235). Spermathecae pale brown, subspherical, length 0.12 mm, surface with few papillae (Fig. 274).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 313) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally, and narrow apically (Figs. 313, 356), in lateral view with dorsal lobe (Fig.

356). Medial surstylus with pair of prensisetae; lateral prensiseta conical, as long as medial prensiseta; medial prensisetae with dorsal face faint concave, and apex truncate (Fig. 313); with group of 2–3 setulae between prensisetae and also group of 2-3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.26 mm long (Fig. 440). Glans 0.26 mm long (Fig. 399); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Brazil (Minas Gerais, Paraná, Rio Grande do Sul, Santa Catarina, São Paulo). Elevational records range from 300–1400 m.

Biology. This species has been recorded from eight species of *Baccharis* (Astereae), including: *Baccharis brachylaenoides* DC., *B. brachylaenoides* DC. var. *ligustrina* (DC.) Maguire & Wurdack, *B. dracunculifolia* DC., *B. helichrysoides* DC., *B. leucopappa* DC., *B. retusa* DC., *B. trinervis* Pers., *B. vulneraria* Baker (Prado *et al.,* 2002, Savaris *et al.,* 2015). It has also been reared from one species of Senecioneae, *Senecio selloi* (Spreng.) DC., considered an occasional host by Prado *et al.,* (2002). The larvae feed in the flowerheads. Adults have been collected in February-June and October.

Type data. Hering (1938) described this species from specimens collected at Nova Teutônia, Brazil by Fritz Plaumann (the collector identified in the introduction of the paper on p. 187), the male holotype collected on “19.VI” 1937. The holotype male is labeled “Type” [white label with large red border] / “19. 6. 1937 Brasilien Nova Teutônia, 27° 11' B. 52° 23' L. Fritz Plaumann” [white label with black submarginal border]/ “Trypanea coelestina ♂ Type det. M. Hering 1937” [handwritten; white label] / “12”. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the BMNH.

Specimens examined. BRAZIL: Paraná: Colombo, Bairro Canguiri, 25°23'3.58"S 49°8'15.33"W, 26 Oct 2013, M. Savaris, 1m (DZUP USNMENT00119419); same, 25°22'45.4"S 49°7'53.12"W, 908 m, 20 Feb 2014, M. Savaris, 1m (DZUP USNMENT00119420); same, 15 Mar 2013, M. Savaris, 1m (DZUP USNMENT00119421); Santa Rita, 25°22'44.4"S 49°7'53.2"W, 909 m, 02 Feb 2013, M. Savaris, 2f (USNM USNMENT00119461–62); same, 26 Mar 2012, M. Savaris, 1f (USNM USNMENT00119460); same, 908 m, 26 Jan 2013, M. Savaris, 3f (DZUP USNMENT00119455–57); Curitiba, 25 km SE of, roadside near "capao", reared ex flowers of *Baccharis helichrysoides* DC. (91B3), 28 May 1991, A. L. Norrbom & C. Carvalho, 11m 12f (DZUP USNMENT00052053–56), USNM USNMENT00052057–75); Palmas, 26°31'46.11"S 51°58'30.25"W, 1049 m, emerged 10 Mar 2015 reared from flowerheads of *Baccharis leucopappa* DC. collected 3 Mar 2015, M. Savaris & A. L. Norrbom, 8m 7f (USNM USNMENT00119434–37, USNMENT00119438–44, USNMENT00119469–72).

Palmas, Linha Alegria, Faz. Cerro Chato, 26°30'8.53"S 51°40'14.72"W, 1213 m, 05 Apr 2013, M. Savaris, S. Lampert, 6m (DZUP USNMENT00119430–32, USNMENT00262515–16, USNMENT00119525); same, 1210 m, 05 Apr 2013, M. Savaris, S. Lampert, 3f (DZUP USNMENT00119445–47); same, 1213 m, 25 Mar 2014, M. Savaris, S. Lampert, 2m (USNM USNMENT00262514, USNMENT00262517); Ponta Grossa, Parque Estadual de Vila Velha, 25°13'59.74"S 49°59'56.91"W, 965 m, 03 Mar 2013, S. Lampert, M. Savaris, 1f (DZUP USNMENT00119454); same, 02 Mar 2013, S. Lampert, M. Savaris, 1m (DZUP USNMENT00119418); Tijucas do Sul, Morro Araçatuba, 25°54'8.28"S 48°59'35.11"W, 1400 m, 12 Oct 2014, M. Savaris, S. Lampert, 1m (USNM USNMENT00119433). **Rio Grande do Sul:** Passo Fundo, 28°14'30.23"S 52°27'35.64"W, ex from of capitula *Baccharis punctulata*, 06 Feb 2009, M. Savaris, 1f (DZUP USNMENT00119448); Passo Fundo, Reserva Particular do Patrimônio Natural Maragato, 28°14'29.88"S 52°27'28.7"W, 610 m, 8 Mar 2009, M. Savaris, 5m 5f (DZUP USNMENT00119422, USNMENT00119426–29, USNMENT00119449–53), same, ex *Baccharis dracunculifolia* DC., 8 Mar 2009, M. Savaris, 1m (DZUP USNMENT00119423); same, ex *Baccharis helichrysoides* DC., 8 Mar 2009, M. Savaris, 2m (DZUP USNMENT00119424–25); Porto Alegre, ex flowers of *Baccharis punctulata*, Apr 1963, F. D. Bennett, 1f (USNM USNMENT00119464); Porto Alegre, ex flowers of *Baccharis spicata*, Jun 1963, F. D. Bennett, 1m (USNM USNMENT00119466). **Santa Catarina**: Seara, Nova Teutônia, 27°11'S 52°23'W, 300-500 m, 10 Jun 1938, F. Plaumann, 1m (BMNH USNMENT00119468); same, 8 Jun 1938, F. Plaumann, 1m (BMNH USNMENT00119467); same, Jun 1963, F. Plaumann, 1f (CNC USNMENT00119463). **São Paulo**: Piedade, Rodovia 079, km 120, 23°40'36.38"S 47°26'17.99"W, 28 Feb 2014, M. Savaris, S. Lampert, 1m (DZUP USNMENT00119524).

***Plaumannimyia costaemaculata* Hering**

Figs. 61, 69–70, 158, 197, 236, 275, 314, 357, 400, 441, 525, 538, 539

Plaumannimyia costaemaculata Hering, 1940b: 29 [description; Brazil]; Aczél, 1950: 284 [catalog]; Foote, 1967: 35 [catalog]; Norrbom *et al.*, 1999: 192 [catalog]; Norrbom *et al.*, 2010: 42 [citation].

Diagnosis. This species differs from most other congeners in having a reticulate wing, without a distinct stellate pattern, the area between the pterostigma and crossvein r-m reticulate and of the same color as the distal area, and cell r_1 with the marginal hyaline marks

small, rounded and not extended into cell r_{2+3}. It differs from four others species with this combination of characters (*P. pallens*, *Plaumannimyia* n. sp. 9, *Plaumannimyia* n. sp.10, and *Plaumannimyia* n. sp. 16), it can be distinguished as follows: It differs in having the scutal ground color yellow, the wing more yellowish, the male fore femur with the anteroventral setae long thin and wavy (Fig. 525), and the male fore basitarsomere with elongate ventral setae (unique to this species and *Plaumannimyia* n. sp. 22) (Fig. 528). It further differs from *Plaumannimyia* n. sp.10 and *Plaumannimyia* n. sp. 16 in lacking a darker spot in cell r_{4+5}. Other useful diagnostic characters include: wing with darker margins around many of the hyaline spots; male terminalia with surtyli long and directed posteroventrally, lateral prensisetae very short and medial prensiseta large; ventral area of basal third of aculeus nonsclerotized, aculeus tip serrate almost to cloacal opening (Fig. 542).

Description. Body length 3.63–3.70 mm, yellow in ground color, yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.72–0.83 mm) than long (0.51–0.54 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and with few setulae white, and occiput yellow medially and with faint dark mark sublaterally extend to near vertical setae. Parafacial and gena yellow. Frons, length (0.37–0.41 mm) less than width at vertex (0.48–0.51 mm), slightly narrowed to anterior margin (0.34–0.39 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on ventral and basal margin. Genal seta usually acuminate, pale brown (sometimes lanceolate, white, same color as setulae), gena height to eye long diameter ratio (0.24–0.27). Eye ovoid, long diameter (0.56–0.63 mm), width (0.43–0.48 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.22–1.41 mm, ground color of scutum yellow, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white, about ⅓ as long as basal seta. Second anepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 3.66–3.99 mm, width 1.45–1.55 mm. Wing pattern reticulate, mostly yellow (Figs. 61, 69, 70). Area between pterostigma and crossvein r-m reticulate. Cell c mostly yellow with medial dark spot. Pterostigma yellow to brown with apical hyaline spot. Cell r_1 with 3 marginal hyaline spots small, rounded and not extended to cell r_{2+3}. Cell r_{2+3} with 1

marginal hyaline spot, near or touching vein R_{2+3}. Cell r_{4+5} with apical rays broad and complete; hyaline spot near anterior end of crossvein dm-m large, more than half width of cell or equal or larger than width of apical hyaline spot. Cells bm and cu*a* yellowish. Cells dm, m_1 and m_4 and anal lobe reticulate. Cell m_1 with marginal hyaline spots not reaching vein M_1. Cell m_4 with apical marginal hyaline spot not touching vein M_4. Halter yellow.

Legs: Entirely yellow. Male fore femur with anteroventral setae long thin and wavy (Fig. 525); male fore basitarsomere with elongate ventral setae (Fig. 528).

Abdomen: In both sexes ground color yellow and microtrichia and setulae on abdominal terga concolorous with those on mesonotum (Fig. 61).

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6. Oviscape yellow with black border apical, length 0.65–0.73 mm, width 0.53–0.60 mm at base and 0.19–0.24 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 158) length 0.72 mm. Aculeus (Fig. 197) pale brown, length 0.60 mm, in dorsal view with ventral basal area nonsclerotized; tip triangular, length 0.14 mm, with lateral margin serrate (Fig. 236). Spermathecae brown, elongated, length 0.16 mm, surface with papillae (Fig. 275).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 with strong indentation (inverted U-shape) (Fig. 535). Epandrium in posterior view globose, with setulae and microtrichia distributed evenly (Fig. 314). Lateral surstylus long, directed posteroventrally (Fig. 357). Medial surstylus with pair of prensisetae; lateral prensiseta minute, conical; medial prensiseta very large (3x the size of the lateral) (Fig. 543). Phallapodeme Y-shaped, 0.51 mm long (Fig. 441). Glans 0.32 mm long (Fig. 400); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Brazil (Paraná, Santa Catarina, São Paulo). Elevational records range from 908–1680 m.

Biology. This species was reared from flowerheads of *Baccharis selloi* Baker. Adults have been collected in March, April, June, July and September.

Type data. The holotype female is labeled “Type” [white label with large red marginal border] / “Type” [red label] / “2.vi.1938 No. 34 Brasilien Nova Teutônia, 27° 11' B. 52° 23' L. Fritz Plaumann” [white label with black submarginal border] / “*Plaumannimyia costaemaculata* ♀ Type det. M. Hering 1938” [handwritten; white label] / “34”. The holotype is double mounted (minuten), is in fair condition, and is deposited in the BMNH.

Specimens examined. BRAZIL: Paraná: Colombo, Bairro Canguiri, 25°22'45.4"S 49°7'53.12"W, 908 m, 25 Jul 2012, M. Savaris, 1f (DZUP USNMENT00262736); Palmas,

Linha Alegria, Faz. Cerro Chato, 26°30'8.53"S 51°40'14.72"W, 1213 m, 03 Mar 2015, M. Savaris, S. Lampert, A. L. Norrbom, 6m 7f (USNM USNMENT00262728–33, USNMENT00262831, USNMENT00262740–43, USNMENT00119510–11); same, 1210 m, 05 Apr 2013, M. Savaris, S. Lampert, 1m 3f (DZUP USNMENT00262734–35, USNMENT00262738–39); same, 25 Mar 2014, M. Savaris, S. Lampert, 2m 2f (DZUP USNMENT00262518, USNMENT00262475, USNMENT00262737, USNMENT00262568), same, emerged 11 Mar 2015 reared from flowerheads of *Baccharis selloi* Baker, collected 2-4 Mar 2015, M. Savaris, 2f (USNM USNMENT00119338–39). **São Paulo**: Campos do Jordão, Parque Ferradura, Pousada Fazendinha, wet area, WP 161, 22.72500°S 45.51865°W, 1680 m, 5 Sep 2016, M. Savaris, S. Lampert, A.L. Norrbom & L. Wendt, 1f (USNM USNMENT00677393).

***Plaumannimyia delicatella* (Blanchard)**

Figs. 145–148, 159, 198, 237, 276, 315, 358, 401, 442, 484–485, 509–510

Acinia delicatella Blanchard, 1852: 459 [description, Chile]; Hendel, 1914: 83 [catalog, as unknown species]; Stuardo, 1946: 134 [catalog]; Aczél, 1950: 315 [catalog]; Foote, 1967: 58 [catalog, as unplaced species].

Trypanea aorista Hendel, 1914: 74 [key], 82 [description, Chile]; Norrbom *et al.*, 1999: 237 [synonymy].

Trypanea tripuncta Malloch, 1933: 279 [key], 281 [description; Argentina, Chile]; Norrbom *et al.*, 1999: 237 [synonymy].

Tephritis aorista: Hering, 1944: 19 [n. comb.; key]; Aczél, 1950: 296 [catalog]; Foote, 1967: 43 [catalog].

Trupanea aorista: Stuardo, 1946: 134 [n. comb.; catalog].

Trupanea tripuncta: Stuardo, 1946: 135 [n. comb.; catalog].

Tephritis tripuncta: Hering, 1944: 22 [n. comb.; key]; Aczél, 1950: 298 [catalog]; Foote, 1967: 43 [catalog].

Tephritis marisolae Frías, 1988: 77 [description; Chile; host plant]; Norrbom *et al.*, 1999: 237 [synonymy].

Trypanaresta marisolae: Frías, 1992: 71 [n. comb.; host plant].

Trypanaresta delicatella: Norrbom *et al.*, 1999: 237 [n. comb.; catalog].

Plaumannimyia delicatella: Norrbom *et al.*, 2010: 42 [n. comb.].

Acinia delicatetla Aczél, 1950: 315. Misspelling of *delicatella* Blanchard.

[not] *Trypanea* (*Tephritis*) *aorista*: Malloch, 1933: 280 [misidentification of *Plaumannimyia* n. sp. 7].

Diagnosis. This species differs from most other congeners in having area between pterostigma and crossvein r-m with solid brown band except for small hyaline areas bordering crossvein r-m. It differs from six others species with this combination of characters (*P. dolores*, *P. setulosa*, *Plaumannimyia* n. sp. 7, *Plaumannimyia* n. sp. 8, *Plaumannimyia* n. sp. 15, and *Plaumannimyia* n. sp. 25), it can be distinguished as follows: It differs in having (except *Plaumannimyia* n. sp. 7) the male fore tibia in anterior view strongly curved, and male foreleg tarsomeres 2-4 brown (*Plaumannimyia* n. sp. 15 only apical tarsomere brown). It differs from *Plaumannimyia* n. sp. 7 in having apex of cell r_{2+3} with a single hyaline area, without medial dark ray, although costa often with narrow brown border, especially in male (Figs. 145–148); male fore basitarsus faint expanded (Fig. 509); male sternite 3 with paired medial clusters of setulae (Fig. 537) and anepisternal seta lanceolate. It differs from *P. dolores* in lacking hind femur with larger anteroventral setae (Fig. 526); male without surtyli long and directed posteroventrally (Fig. 535); aculeus tip serrate (Fig. 542). It differs from *Plaumannimyia* n. sp. 8 and *Plaumannimyia* n. sp. 25 in having apical scutellar setae acuminate, dark, well differentiated from scutellar setulae. It differs from *P. setulosa* and *Plaumannimyia* n. sp. 15 in having cell r_{4+5} with 1-2 hyaline spots in middle of dark area between crossvein dm-m and base of apical rays.

Description. Body length 2.40–3.68 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown to dark brown.

Head: Slightly higher (0.66–0.80 mm) than long (0.43–0.56 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.37–0.43 mm) less than width at vertex (0.46–0.53 mm), slightly narrowed to anterior margin (0.37–0.44 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with small lanceolate, white to yellow setulae on ventral margin, genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.15–0.19). Eye ovoid, long diameter (0.54–0.66 mm), width (0.39–0.51 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 0.97–1.30 mm, ground color of scutum and scutellum dark brown. Mesonotum covered by bright gray and yellow microtrichia. Setulae lanceolate, white to

yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, dark brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, dark brown.

Wing: Length 3.06–3.50 mm, width 1.08–1.25 mm. Wing pattern stellate (Figs. 145–148). Area between pterostigma and crossvein r-m with solid brown band except for small hyaline areas bordering crossvein r-m. Cell c mostly hyaline, with basal and medial dark spot. Pterostigma dark brown with small hyaline distal spot. Cell r_1 with 3 marginal hyaline spots: first large, quadrate or oblique touching vein R_{2+3}; second triangular or rounded usually touching vein R_{2+3}; and quadrate or rounded subapical spot touching vein R_{2+3}. Cell r_{2+3} with 1 marginal hyaline spot, without medial dark ray, although costa often with narrow brown border, especially in male. Cell r_{4+5} usually with apical rays complete in female and incomplete in male; hyaline spot near anterior end of crossvein dm-m large, usually touching veins R_{4+5} and M_1; with 1 hyaline spot in middle of dark area between crossvein dm-m and base of apical rays. Cell br with apical hyaline spot in dark area near crovein r-m. Cell dm with basal third mostly hyaline. Cells bm, cu*a*, apical ⅔ of dm, and m_4, and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: In both sexes femora and tibia entirely yellow or often dark; tarsomeres entirely yellow in female; male fore tarsus with apical 3-5 segments dark brown. Male fore tibia in anterior view with strong mediolateral concave area, straight in female; basal half with elongated setae (distinctly longer than lateral setae), and apical third with small dorsal setae erect. Male tarsomeres with dorsal long setae (distinct longer than lateral setae); basitarsus dorsally flattened (Figs. 509, 510).

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 1.05–1.07 mm, width 0.68–0.77 mm at base and 0.18–0.20 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 159) length 1.24 mm. Aculeus (Fig. 198) pale brown, length 1.04 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.17 mm, with lateral margin nonserrate (Fig. 237). Spermathecae brown, subspherical, length 0.14 mm, surface with few papillae (Fig. 276).

Male: Setulae on tergites similar to female in size, density and distribution. Sternite 3 with paired medial clusters of setulae (Fig. 537). Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 315) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 315), in lateral view with dorsal lobe (Fig. 358). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensiseta with dorsal face convex (Fig. 315); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544, indicated by arrows). Phallapodeme Y-shaped, 0.25 mm long (Fig. 442). Glans 0.22 mm long (Fig. 401); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Chile (Aconcagua, Araucanía, Biobío, Coquimbo, Maule, Region Metropolitana de Santiago, Valparaíso). Elevational records range from 200-1800 m.

Biology. This species has been recored from flowerheads of *Baccharis concava* (Ruiz & Pav.) Pers. (Frías 1988 (fly as *Tephritis marisolae*)). It has also been reared from flowerheads of *B. salicifolia* (Ruiz & Pav.) Pers. Numerous specimens were swept from *Baccharis linearis* (Ruiz & Pav.) Pers. (= *B. rosmarinifolia*), and it was also collected on an undetermined, broadleaved *Baccharis* species. Adults have been collected in all months except July, more commonly in October, November, and December.

Type data. *Acinia delicatella*: Blanchard (1852) first described this species from an unstated number of specimens of unknown sex from Chile "en el norte a Coquimbo, etc." In the Macquart Collection (MNHNP) under no. 1960 there was one female syntype, here designated lectotype to stabilize the usage of this name. It is mounted on a rectangular piece of plastic with a green base and bears the following labels (Figs. 484, 485): “15 43” [circular label with green back]; “MUSEUM PARIS CHILI GAY 15-43”; "Acinia" on one side and "delicatella Blanch." on the other in Blanchard's writing (compared with the sample Blanchard label in Horn and Kahle (1936, XXII, 35)); “LECTOTYPE ♀ Acinia delicatella Blanch. by Savaris & Norrbom” [red-bordered label added by us]; and “Plaumannimyia delicatella ♀ (Blanch.) det. Norrbom iv 2016”. There was also a pin with no specimen and with only a circular "15, 43" label. Most of the scutal microtrichia and setulae are missing on the lectotype of *A. delicatella*, which explains Blanchard's statement in the original description that the thorax is shiny and dark. The scutum normally has a yellow-gray or pale brown appearance from the dense microtrichia.

Trypanea aorista: Hendel (1914) described this taxon from a single male (holotype by monotypy) in the “Dres. Mus.” (SMT; examined by ALN, May 1992) from “Chile,

Valparaiso" collected in "März" (March). It has the following labels: green "Chile, Valparaiso, O. Garlepp c.", green "Coll. W. Schnuse 1911 - 3", white "46", red "Type [machine print] Trypanea aorista Hendel [Hendel's writing]", white "Trypanea aorista H. [Hendel's writing] det. Hendel [machine]". It is slightly teneral but otherwise in good condition except for missing the right wing, and is deposited in the SMT.

Trypanea tripuncta: The holotype female (BMNH) from Argentina. Rio Negro: Bariloche was examined.

Tephritis marisolae: The holotype male (UMCE) from Chile: Valparaiso, Algarrobo, was not examined, but its description was adequate to indicate that it is clearly conspecific with *P. delicatella*.

Specimens examined. CHILE: Araucanía: Cautín, Los Coigues, L. Villar, 16-31 Dec 1964, L. E. Peña, 1m (CNC); Cautín, Parque Nacional Conguillío, Sierra Nevada, 38°36'S 71°38'W, 1600 m, subalpine scrub, sweeping vegetation, 20 Dec 1990, D. H. Burckhardt & D. Agosti 15, 1f (MHNG). Lago Caburgua, SW shore between Playa Blanca & Caburgua, 39°12'S 71°48'W, collected on flowering broadleaved *Baccharis* sp. (96CH23), 12-16 Nov 1996, A. L. Norrbom & G. J. Steck, 2m 37f (USNM USNMENT00048998–36). Malleco: Angol, 37°48'S 72°43'W, 28 Feb 1929, 1f (USNM USNMENT00105156); same, 30 Oct 1955, J. Briceño B., 1m (CAS). Malleco, Parque Nacional Nahuelbuta, near "Administracion", 37°50'S 73°W, 1100 m, mixed Nothofagus forest with Araucaria along river, and pasture with shrubs, sweeping vegetation, 14-17 Dec 1990, D. H. Burckhardt & D. Agosti 9m, 1f (MHNG). Pucón, 6 km E, 1 km W of Río Turbio, 39°16'S 71°55'W, sweeping *Baccharis rosmarinifolia* (96CH28), 12-16 Nov 1996, A. L. Norrbom & G. J. Steck, 23m 18f (USNM USNMENT00050005–37); (DZUP USNMENT00050038–41); (ANCB USNMENT00050054–55); (USAA USNMENT00050052–53); 8m 2f (FSCA). Volcan Villarrica, 39°25'15"S 71°56'21"W, swept in Nothofagus near treeline, 9 Nov 1989, S. A. Marshall, 1f (DEBUG). **Biobío**: Ñuble, San Carlos, 18 km E, 36.477°S 71.658°W, 24 Dec 1950, Ross & Michelbacher, 1f (CNC). Ñuble, Termas de Chillán, 1250 m, mixed Nothofagus forest, 12-13 Dec 1990, D. H. Burckhardt & D. Agosti, 3m (MHNG). **Coquimbo**: Choapa, Panamericana Norte, km 272, ex *Baccharis concava*, 20 Jun 1985, M. Elgueta, 1f (USNM USNMENT00105157). Cuesta Los Hornos, 18 Oct 1958, L. E. Peña, 3m 3f (USNM USNMENT00105137–42); 11m 5f (CNC). Elqui, 100 km E La Serena, Chapilca & Guanta, btw., 29°50'S 70°30'W, 1100 m, dry quebrada with scattered shrubs, 3 Dec 1993, D. H. Burckhardt 3, 2m 1f (MHNG). Elqui, Vicuña, 19.3 km E, 4 Dec 1950, Ross & Michelbacher, 2m 1f (CAS). Elqui, Vicuña, 15 km E, 30°10'S 70°40'W, 850 m, river bed

with *Baccharis*, dry slopes with shrub, 5 Dec 1993, D. H. Burckhardt 10, 2m 5f (MHNG). Hacienda Illapel, 21-24 Nov 1959, L. E. Peña, 1m (CNC). Hacienda Illapel, Rio Illapel, 600-900 m, 19 Oct 1966, E. I. Schlinger & M. E. Irvin, 2m (USNM USNMENT00105161–62); 2m (UCR). Huanta, 16 km S, 7 Dec 1950, Ross & Michelbacher, 1m (CAS); same, 8 km S, 7 Dec 1950, Ross & Michelbacher, 4m (CAS). Junta, 16 km W of, 7 Dec 1950, Ross & Michelbacher, 2m 2f (USNM USNMENT00105145–48); 25m 35f (CAS), same, 8 km W of, 7 Dec 1950, Ross & Michelbacher, 3m 11f (CAS). La Serena, 32.1 km E, 3 Dec 1950, Ross & Michelbacher, 3f (CAS); same, 50 km S, 1 Dec 1950, 3m 1f (CAS); same, 1m (USNM USNMENT00105149). Laguana Dam, 8 km N, 6 Dec 1950, Ross & Michelbacher, 1m 1f (USNM USNMENT00105143–44); same, 2439 m, 6 Dec 1950, Ross & Michelbacher, 3m 20f (CAS); same, 5 Dec 1950, Ross & Michelbacher, 1f (CAS). Limarí, Parque Nacional Fray Jorge, 30°39'47"S 71°40'11"W, 30 Apr 1966, R. H. Gonzalez, 1m 3f (Univ. del Norte, Chile). Limarí, Parque Nacional Fray Jorge, between Quebrada Las Vacas, "Administracion", and Río Limarí, 200 m, open Mediterranean scrub, sweeping vegetation, 7-9 Dec 1990, D. H. Burckhardt & D. Agosti 2, 1m (USNM USNMENT00048886); 7m 4f (MHNG). Limarí, Parque Nacional Fray Jorge, 10 km E, dry wash, 28 Dec 1966, M. E. Irwin, 1m 7f (UCR). Los Vilos, 7 km N, 16 Aug 1966, M. E. Irwin & E. I. Schlinger, 2f (UCR). Rancho Fray Jorge, 10 Dec 1950, Ross & Michelbacher, 1m (CAS). Rivadavia, 29°58'37"S 70°33'38"W, 29 Oct 1957, L. E. Peña, 2m 4f (CNC). Socos, 30°45'46"S 71°29'25"W, 2 Nov 1957, L. E. Peña, 1m 2f (CNC). **Maule:** Curico, 6 km E of Los Quenes, Fundo la Montana Estero la Palma at Rio Teno, 4 Jan 1967, M. E. Irwin, 1f (UCR). Curico, El Coigo, 1-20 Oct 1960, L. E. Peña, 1f (CNC). Talca, Talca, 35°26'S 71°40'W, 15 Oct 1958, L. E. Peña, 1m 1f (USNM USNMENT00105150–51), 1m 5f (CNC). **Region Metropolitana de Santiago**: El Manzano, 30 May 1971, L. E. Peña, 1m 1f (FMNH USNMENT00216931–32). Fundo Rinconada, Maipu, Quebrada de la Plata, 33°31'S 70°47'W, 510 m, Malaise trap, 17 Oct 1996, M. E. Irwin, 1f (USNM USNMENT00105159); same, 25 Jan 1966, M. E. Irwin, 2f (UCR); same, 22 Aug 1996, M. E. Irwin, 1f (CAS); same, 8 Aug 1966, M. E. Irwin, 1f (UCR); same, 29 Aug 1966, M. E. Irwin, 1m (UCR). Las Condes, 15 km E, 33°25'S 70°35'W, 19 Mar 1966, M. E. Irwin, 4m 10f (UCR). Near Maipú, Quebrada de la Plata, 33°30'S 70°55'W, 510 m, Malaise trap, 2 Feb 1966, M. E. Irwin, 1m 4f (UCR), 1f (CAS); same, 8 Feb 1996, M. E. Irwin, 1f (UCR); same, 10 Nov 1966, M. E. Irwin, 1f (USNM USNMENT00105081); 1f (UCR); same, 17 Oct 1996, M. E. Irwin, 2f (UCR); same, 22 Sep 1996, M. E. Irwin, 1f (USNM USNMENT00105158); 1f (UCR). Peñalolén, 33°28'6"S 70°32'3"W, Dec 1954, L. E. Peña, 1m (CNC). **Valparaíso:** Aconcagua, Zapallar, Quebrada E Tigre, 32°33'S 71°28'W, 12

Aug 1966, R. H. Gonzalez, 1m (CAS). El Granizo, near border of Parq. Nac. Cerro La Campana, 32°59'S 71°10'W, rocky creek, reared ex flower heads of *Baccharis salicifolia* (96CH1), 3 Nov 1996, A. L. Norrbom & G. J. Steck, 2m 4f (USNM USNMENT00049331–36); same, 2f (USNM USNMENT00049222–23); same, 1m 8f (USNM USNMENT00049230–38); same, 4f (USNM USNMENT00049225–28). El Ouisco, 6 Oct 1976, D. Frías L., 1f (USNM USNMENT00105103). El Ouisco, 6 Oct 1976, D. Frías L., 5m (USNM USNMENT00104990, USNMENT00105104–07). Los Andes, Portillo, 32°50'S 70°8'W, 1800 m, alpine scrub, 31 Dec 1993, D. H. Burckhardt 43, 1m (MHNG). Los Andes, San Martín de Los Andes, 6 Dec 1946, Heyward & Willink, 4m 2f (IML). Los Andes: Dec 1944, 1f (MZSP). Parq. Nac. Cerro La Campana, El Granizo entrance, 32°59'S 71°10'W, sweeping *Baccharis* spp., 3 Nov 1996, A. L. Norrbom, G. J. Steck & B. A. McPheron, 1m (USNM USNMENT00049696). Quintay, 33°23'28"S 71°41'34"W, 21 Apr 1961, N. L. H. Krauss, 1m (USNM USNMENT00105160); same, en *Baccharis concava*, 10 Oct 1988, D. Frías, 1m (USNM USNMENT00105152); same, 11 Oct 1988, D. Frías, 1m 2f (USNM USNMENT00105153–55). Rio Blanco, Nov 1969, L. E. Peña, 1f (MZSP). Valparaíso: Río Aconcagua, N bank, near mouth, opposite Concón, 32°55'S 70°31'W, sweeping *Baccharis salicifolia* (96CH7), 6 Nov 1996, A. L. Norrbom & G. J. Steck, 1f (USNM USNMENT00049570–74); same, 1m 1f (USNM USNMENT00049576–77); same, 1m 2f (DZUP USNMENT00049578–80). Valparaíso, Mar, C. A. W. Schnuse expedition, 1m (SMT).

Remarks. This species is sexually dimorphic in both wing pattern and characters of the foreleg. Both sexes have distinctive wing patterns in which the apex of cell r_{2+3} has only one hyaline area, thare is no medial dark ray (see Malloch, 1933, pl. V, fig. 3 and Hendel, 1914, fig. 82). In the female, the ray in cell r_{4+5} ending at the apex of vein R_{2+3} is frequently complete, although it is interrupted in the holotype of *T. tripuncta*. In the male, it is almost always broadly interrupted and much of the costal margin of cell r_{2+3} is also usually very narrowly bordered with brown. In the male the fore tibia has a strong concave area mediolaterally, the fore basitarsus is expanded, and the apical two or three tarsal segments are dark brown.

Malloch (1933) described *Trypanea tripuncta* from females of this species, and *Trypanea aorista* Hendel and *Tephritis marisolae* Frías were described from males. All three of these names were placed in synonymy of *delicatella* by Norrbom *et al.,* (1999), but without explanation.

***Plaumannimyia difficilis* (Malloch)**

Figs. 97–98, 160, 199, 238, 277, 316, 359, 402, 443

Trypanea difficilis Malloch, 1933: 279 [key], 280 [description; Argentina].
Trypanaresta difficilis: Hering, 1940b: 11 [n. comb.; key]; Aczél, 1950: 294 [catalog]; Foote, 1967: 53 [catalog]; Norrbom *et al.*, 1999: 237 [catalog].
Plaumannimyia difficilis: Norrbom *et al.*, 2010: 42 [n. comb.].

Diagnosis. This species differs from most other congeners in having the area between the pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and without darker border on anterodistal margin. It differs from five others species with this combination of characters (*P. coelestina*, *P. miseta*, *P. subaster*, *Plaumannimyia* n. sp. 4, and *Plaumannimyia* n. sp. 21), it can be distinguished as follows: It differs in having paler brown spot in stellate mark on cells r_{2+3} and r_{4+5}. It differs from (*P. subaster*, *Plaumannimyia* n. sp. 4 and *Plaumannimyia* n. sp. 21) in lacking the complete ray to the apex of vein R_{4+5}. It differs from *P. coelestina* and *P. miseta* in not having two isolated dot-like spots in cell dm; the male further differs in lacking the fore tibia with the setulae on the apical third of dorsal side erect, and and the fore first tarsomere in lateral view narrower basally than apically, without setulae on the posterior apical half, and with posterodorsal row of elongate setae (Fig. 530, indicated by arrows). It differs from *Plaumannimyia* n. sp. 4 in having apical hyaline spot in cell r_1 reaching vein R_{2+3}, and in lacking a darker spot in cell r_{4+5} within the stellate mark. It differs from (*P. flava*, *P. imitatrix*, *Plaumannimyia* n. sp. 14 and *Plaumannimyia* n. sp. 23) in lacking a darker border on anterodistal margin of the solid yellow band between the pterostigma and crossvein r-m.

Description. Body length 3.04–4.16 mm, mostly yellow in ground color, yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.88–1.02 mm) than long (0.60–0.63 mm). Generally yellow, frons yellow to orange, ocellar tubercle dark brown and with few setulae white, and occiput brown medially and with small brown mark sublaterally. Parafacial and gena yellow. Frons, length (0.49–0.51 mm) less than width at vertex (0.63–0.66 mm), slightly narrowed to anterior margin (0.46–0.48). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.21–0.26). Eye ovoid,

long diameter (0.68–0.77 mm), width (0.53–0.54 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.25–1.60 mm, ground color of scutum mostly brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white to yellow, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 2.83–3.53 mm, width 0.95–1.25 mm. Wing pattern stellate (Figs. 97, 98). Area between pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and without or with a faint darker border on anterodistal margin not touching the pterostigma. Cell c hyaline. Pterostigma entirely yellow. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, oblique, extended to cell r_{2+3}; second triangular, usually touching vein R_{2+3}; and small triangular or quadrate subapical spot touching vein R_{2+3}.Cell r_{2+3} usually with two marginal hyaline spots (rarely one). Cells r_{2+3} and r_{4+5} with paler brown spot in stellate mark. Cell r_{4+5} with apical rays incomplete or with anterior apical ray absent ; hyaline spot near anterior end of crossvein dm-m large, more than ⅔ half the width of cell, usually touching veins M_1 and R_{4+5}. Cells bm, cu*a*, dm, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin (rarely medial and apical hyaline spots connected). Halter yellow.

Legs: Enterely yellow.

Abdomen: In both sexes ground color brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape yellow to brown, with black border apical, length 1.11 mm, width 0.85 mm at base and 0.27 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 160) length 1.32 mm. Aculeus (Fig. 199) pale brown, length 1.10 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.21 mm, with lateral margin nonserrate (Fig. 238). Spermathecae brown, elongated, length 0.19 mm, surface with papillae (Fig. 277).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 316) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly

anteroventrally (Figs. 316), in lateral view with dorsal lobe (Fig. 359). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensiseta with dorsal face convex (Fig. 316); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.35 mm long (Fig. 443). Glans 0.31 mm long (Fig. 402); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (La Pampa, La Rioja, Mendoza, Río Negro, Santa Cruz, Tucumán). One specimen was collected at 360 m altitude.

Biology. This species was reared from flowerheads of *Baccharis spartioides* (Hook. & Arn. ex DC.) J. Remy. Adults have been collected in January, March, May, November and December.

Type data. The holotype female (BMNH (E) 1486015) is labeled "Type" [white label with large red border] / "*Trypanea* (*Tephritis*) *difficilis* Type det. JRMALLOCH" [handwritten; white label with black submarginal border] / "Mendoza 5 i.1927. " [white label, machine print] /

"Argentina: Mendoza Prov. F.& M Edwards. B.M.1927–63." [white label, machine print]. The holotype is double mounted (minuten), is in fair condition (without right wing), and is deposited in the BMNH.

Specimens examined. ARGENTINA: La Pampa: 25 de Mayo, 3 km N, on Rt. 151, sweeping *Baccharis spartioides*, 23 Nov 1991, P. E. Boldt & H. A. Cordo, 1m (USNM USNMENT00119489). **La Rioja:** Miranda, Jan 1970, L. E. Peña, 3m 2f (MZUSP USNMENT00119487-88, USNMENT00262627, USNMENT00262654, USNMENT00262702). **Río Negro:** San Antonio Oeste, 42 km S, reared from capitula of *Baccharis spartioides*, 30 Dec 1993, D. Gandolfo 153149, 1m (USNM USNMENT00104866). **Santa Cruz:** Los Antiguos, 5.6 km E, 360 m, 23 Nov 1966, E. I. Schlinger & M. Irwin, 1f (UCR USNMENT00262576). **Tucumán**: Amaicha del Valle, 1900 m, 1 Mar 1978, A. Willink, 1f (IML).

Remarks. The holotype female of *P. difficilis*, from Argentina, lacks the ray to the apex of R_{4+5} which is present in Chilean specimens. It is variable in a series from Argentina. This might be a variable character or there may be more than one species involved. More study is needed. Male foreleg not modified (Chilean specimens examined, at least).

***Plaumannimyia dolores* (Hering)**

Figs. 111–112, 161, 200, 239, 278, 317, 360, 403, 444, 486–487, 526, 535, 543

Trypanea dolores Hering, 1938: 192 [description; Brazil]; Aczél, 1950: 302 [catalog]; Foote, 1967: 57 [catalog, as unplaced Tephritinae species].
Trypanaresta dolores: Norrbom *et al.*, 1999: 237 [n. comb.; catalog].
Plaumannimyia dolores: Norrbom *et al.*, 2010: 42 [n. comb.]; Savaris *et al.*, 2015: 18 [host plant].

Diagnosis. This species differs from most other congeners in having dark brown stellate mark, solid, broad, dark brown band between the pterostigma and crossvein r-m, and in having medial ray in cell r_{2+3} (i.e., cell with 2 marginal hyaline spots). It differs from five others species with this combination of characters (*P. eugenia*, *P. scutellata*, *Plaumannimyia* n. sp. 5, *Plaumannimyia* n. sp. 6, and *Plaumannimyia* n. sp. 18), it can be distinguished as follows: It differs in having larger anteroventral setae on the hind femur (Fig. 526), pale marks in cells br and r_{4+5} close to crossvein r-m (Figs. 111, 112), as well as differences in the male and female terminalia: male with surtyli long and directed posteroventrally, lateral prensisetae very short and medial prensiseta large; ventral area of basal third of aculeus nonsclerotized, aculeus tip serrate almost to cloacal opening.
Description. Body length 3.53–3.88 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally pale brown.
Head: Slightly higher (0.85–0.94 mm) than long (0.60–0.66 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and with few setulae white, and occiput brown medially and with brown mark sublaterally extend to near vertical setae. Parafacial and gena yellow. Frons, length (0.43–0.48 mm) less or equal than width at vertex (0.48–0.56 mm), slightly narrowed to anterior margin (0.44–0.51 mm). Three frontal setae, anterior seta smaller, lanceolate, white to yellow (sometimes pale brown); posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small acuminate and dark setulae on ventral and basal margin. Genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.19–0.25). Eye ovoid, long diameter (0.68–0.72 mm), width (0.54–0.60 mm). Antenna testaceous yellow, first flagellomere as long as wide.
Thorax: Length 1.31–1.65 mm, ground color of scutum brown to dark brown, of scutellum mostly yellow with basal medial dorsal face dark. Mesonotum covered by bright yellow

microtrichia except anterior central area of scutum with gray microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ⅓ as long as basal seta. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.
Wing: Length 3.13–3.69 mm, width 1.15–1.38 mm. Wing pattern stellate (Figs. 111, 112). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with distinct subapical stellate mark. Cell c hyaline. Pterostigma brown with apical hyaline spot. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, triangular, extended almost to vein R_{2+3} (sometimes into cell r_{2+3}); second small triangular or rounded not reaching vein R_{2+3}; and small rounded or triangular subapical spot usually touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cells br and r_{4+5} with pale marks in close to crossvein r-m. Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m not more than half width of cell. with distinct medial dark spot touching vein R_{4+5} near base of apical rays. Cell dm with 2 subapical rays; distal part of cell dm between subapical ray and crossvein dm-m entirely yellowish. Cells bm, cu*a*, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.
Legs: Entirely yellow. Hind femur with larger anteroventral setae (Fig. 526).
Abdomen: In both sexes ground color brown to dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.
Female: Syntergite 1+2 with few and small setulae on lateral of anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 0.77 mm, width 0.56 mm at base and 0.19 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 161) length 0.80 mm. Aculeus (Fig. 200) pale brown, length 0.75 mm, in dorsal view with ventral basal area nonsclerotized; tip triangular, length 0.16 mm, with lateral margin serrate (Fig. 239). Spermathecae dark brown, elongated, length 0.15 mm, surface with few papillae (Fig. 278).
Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 with strong indentation (inverted U-shape) (Fig. 535). Epandrium in posterior view (Fig. 317) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus long, directed posteroventrally (Fig. 360). Medial surstylus with pair of prensisetae; lateral prensiseta minute, conical; medial prensiseta very large (3x the size of the lateral) (Fig.

543). Phallapodeme Y-shaped, 0.44 mm long (Fig. 444). Glans 0.30 mm long (Fig. 403); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Brazil (Paraná, Santa Catarina, Rio Grande do Sul). Elevational records range from 908-909 m.

Biology. This species has been reared from flowerheads of *Baccharis anomala* DC. (Savaris *et al.*, 2015). Adults have been collected in February, March, June, July and November.

Type data. This species was described from an unstated number of specimens of both sexes from Nova Teutônia, Brazil, collected "15.VI.1937" by Fritz Plaumann (collector identified in introduction of paper, on p. 187). Dr. Daniel Whitmore kindly located and photographed a female in the BMNH (Fig. 486), where the Hering collection was deposited, that is a putative syntype. This female is here designated as the lectotype of *Trypanea dolores* Hering to stabilize the usage of this name. It is labeled (Fig. 487) "SYN-TYPE" [white label with large blue marginal border] / "Type" [red label] / 15.6.1937 "Brasilien Nova Teutônia, 27° 11' B. 52° 23' L. Fritz Plaumann" [white label with black border] / "15" / "Trypanea dolores Type det. M. Hering 1937" [handwritten; white label] / "LECTOTYPE ♀ *Trypanea dolores* Hering by Savaris & Norrbom" [red-bordered label added by us]; and " *Plaumannimyia dolores* ♀ (Hering) det. Savaris & Norrbom iv 2016". The lectotype is double mounted (minuten), is in excellent condition, and is deposited in the BMNH.

Specimens examined. BRAZIL: Paraná: Campina Grande do Sul, 25°17'47.21"S 49°2'15.2"W, 904 m, Malaise, 11 Mar 2013, M. Savaris, 1f (USNM USNMENT00677359); Colombo, Bairro Canguiri, 25°22'45.4"S 49°7'53.12"W, 908 m, 25 Jul 2012, M. Savaris, 1f (USNM USNMENT00119386); same, 25°22'45.62"S 49°7'57.1"W, 909 m, 15 Mar 2013, M. Savaris, 1f (USNM USNMENT0011937); Santa Rita, 25°22'44.4"S 49°7'53.2"W, 909 m, 02 Feb 2013, M. Savaris, 1m (DZUP USNMENT00262635); same, 25°22'44.65"S 49°7'53.3"W, 909 m, 18 Mar 2012, M. Savaris, 1m (DZUP USNMENT00262569); same, 25°22'45.62"S 49°7'57.1"W, 909 m, 10 Mar 2013, M. Savaris, 1m (DZUP USNMENT00119387). **Rio Grande do Sul**: Passo Fundo, Reserva Particular do Patrimônio Natural Maragato, 28°14'29.88"S 52°27'28.7"W, ex capítulo *Baccharis anomala* DC., 3 Feb 2009, M. Savaris, 1f (USNM USNMENT00119388). **Santa Catarina**: Seara, Nova Teutônia, 27°11'S 52°23'W, 8 Jun 1938, F. Plaumann, 1m (BMNH USNMENT00119389); same, 25 Nov 1938, F. Plaumann, 1f paratype (IML).

***Plaumannimyia eugenia* (Wulp)**

Figs. 117–118, 162, 201, 240, 279, 318, 361, 404, 445, 511–512

Urellia eugenia Wulp, 1900: 427 [description; Mexico]; Cresson, 1907: 106 [Mexico: Jalisco].
Trypanea eugenia: Hendel, 1914: 74 [n. comb.; key], 81 [citation; Chilean & Peruvian specimens misidentified]; Malloch, 1942: 2, 5 [key], 8.
Euarestoides eugenia: Hering, 1941: 164 [n. comb.; key], 165 [diagnosis; Peruvian specimens misidentified]; Aczél, 1950: 293 [catalog]; Foote, 1967: 24 [catalog].
Tephritis eugenia: Hering, 1944: 22 [n. comb.; key].
Trupanea eugenia: Stuardo, 1946: 135 [catalog].
Trypanaresta eugenia: Norrbom *et al.*, 1999: 237 [n. comb.; catalog].
Plaumannimyia eugenia: Norrbom *et al.*, 2010: 42 [n. comb.; distribution; host plants].

Diagnosis. This species differs from most other congeners in having dark brown stellate mark, solid, broad, dark brown band between the pterostigma and crossvein r-m, and the apical scutellar seta absent or minute (less than 3 times as long as the scutellar setulae). It differs from *P. thomsoni*, the only other species with this combination of characters, in having medial ray in cell r_{2+3} (i.e., cell with 2 marginal hyaline spots) and having the male foreleg differently modified. In the male foreleg, the dorsal setulae of tibia are erect, and the dorsal setulae of the basitarsus are elongate (Figs. 511, 512). In wing pattern it resembles (*P. dolores*, *P. scutellata*, *Plaumannimyia* n. sp. 5, *Plaumannimyia* n. sp. 6, and *Plaumannimyia* n. sp. 18). It differs from *P. dolores* in lacking larger anteroventral setae on the hind femur, lacking pale marks in cells br and r_{4+5} close to crossvein r-m, as well as differences in the male terminalia, and from that species, *Plaumannimyia* n. sp. 6 and *Plaumannimyia* n. sp. 18 in having less extensive markings in cell dm. It differs from *P. scutellata* and *Plaumannimyia* n. sp. 5 in having the markings in cell m_4 more reticulate and in having the male foreleg differently modified (Figs. 511, 512).

Description. Body length 2.36–3.33 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown.

Head: Slightly higher (0.63–0.78 mm) than long (0.48–0.56 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.32–0.39 mm) less than width at vertex (0.43–0.49 mm), slightly

narrowed to anterior margin (0.32–0.36 mm). Three frontal setae, anterior seta minute, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate pale brown, posterior seta usually absent, sometimes minute, white and lanceolate. Gena with small lanceolate and white setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.20–0.29). Eye ovoid, long diameter (0.48–0.61 mm), width (0.39–0.48 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 0.94–1.19 mm, ground color of scutum brown to dark brown, of scutellum mostly yellow, with basal medial dorsal face dark. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta minute (< 3x length of setulae), lanceolate, white or absent. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 2.69–2.90 mm, width 1.02–1.12 mm. Wing pattern stellate (Figs. 117, 118). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with distinct subapical stellate mark. Cell c hyaline; anteroapical corner brown. Pterostigma dark brown with small and narrow hyaline distal spot. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, triangular, extended almost to vein R_{2+3} (sometimes reaching cell r_{2+3}); and 2 small, rounded, one medial and another subapical, both not extended almost to vein R_{2+3}; Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m large, more than half width of cell; faint medially dark spot touching vein R_{4+5} near base of apical rays within the subapical stellate mark. Cells bm and cu*a* hyaline. Cell dm mostly hyaline, with subapical ray reaching vein M_4. Cell m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow. Male fore tibia in anterior view with faint mediolateral concave area, straight in female; basal half with elongated setae (distinctly longer than lateral setae), and apical third with small dorsal setae erect. Male basitarsus with dorsal long setae (distinct longer than lateral setae) (Figs. 511, 512).

Abdomen: In both sexes ground color brown to dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of

tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 0.97 mm, width 0.60 mm at base and 0.22 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 162) length 1.06 mm. Aculeus (Fig. 201) pale brown, length 1.06 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.18 mm, with lateral margin nonserrate (Fig. 240). Spermathecae brown, elongated, length 0.18 mm, surface with papillae (Fig. 279).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 318) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 318), in lateral view with dorsal lobe (Fig. 361). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta (Fig. 318); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.30 mm long (Fig. 445). Glans 0.27 mm long (Fig. 404); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Guatemala (Sacatepéquez); Mexico (Aguascalientes, Distrito Federal, Guanajuato, Guerrero, Jalisco, Michoacán, Morelos, Nayarit, Oaxaca, Veracruz). Elevational records range from 457-2115 m. The records from Peru and Chile reported by Hendel (1914, as *Trypanea eugenia*) and Hering (1941, as *Euarestoides eugenia*) were based on misidentifications of *P. scutellata* and *Plaumannimyia* n. sp. 19.

Biology. This species has been reared from flowerheads of at least two species of Astereae, *Archibaccharis serratifolia* (Kunth) S. F. Blake, and *Baccharis serraefolia* DC. (Norrbom *et al.*, 2010). *Baccharis salicifolia* (Ruiz & Pav.) Pers. is a possible host (Norrbom *et al.*, 2010); it is unclear from label information whether an adult female was collected on or reared from this plant. Additional adults are labeled as bred from flowers of "*Baccharis dracunculoides*", but this is an unavailable name and the identity of the plant is uncertain. Adults have been collected in February, June, July, August, September, and December, and adults have been reared from infested flowerheads collected in April in Mexico and Guatemala in October and November.

Type data. The lectotype male (BMNH(E) 1486017), designated by Foote (1965a: 247), is labeled "Co-type" [white label with large yellow border] / "B.C.A Dipt.II. Urellia eugenia, v.d.W." [white label; machine print] / "Chilpancingo, Guerrero, 1402 m, June. H. H. Smith" [white label; machine print] / "LECTOTYPE Urellia eugenia Wulp by Foote 1965" [white

label with red submarginal border]. The lectotype is double mounted (minuten), is in fair condition (without right wing), and is deposited in the BMNH.

Specimens examined. GUATEMALA: Sacatepéquez: Volcán de Agua, trail from Ciudad Viejo, reared ex flowers of *Archibaccharis serratifolia*, 19 Oct 1990, A. L. Norrbom, 2m (USNM USNMENT00055972-73); Volcan de Agua, trail from Santa Maria de Jesus, cultivated zone, 14.49255°N 90.71864°W, 2115 m, emerged 21 Nov 2007 reared ex flowerheads of *Baccharis serraefolia* (07G06) collected 13 Nov 2007, B. D. Sutton, A. L. Norrbom, J. Monzón, 2m (USNM USNMENT00671313-14). **MEXICO: Aguascalientes:** Calvillo, 16 km NE of, 5 Jul 1984, Carroll, Schaffner, Friedlander, 1f (USNM USNMENT00212651); Calvillo, 16 km NE of, 5 Jul 1984, J. B. Woolley, 1f (TAMU USNMENT00212652). **Distrito Federal:** Mexico City, Sep 1965, N. L. H. Krauss, 1m (USNM USNMENT00056100). **Guanajuato:** Guanajuato, 15 Jul 1954, R. F. Smith, 1m (UCB USNMENT00055980); Guanajuato, 8 km N, 25 Jul 1954, E. I. Schlinger, 1f (UCB USNMENT00056567). **Guerrero:** Chichihualco, 24.1 km SW, 15 Jul 1984, Carroll, Schaffner, Friedlander, 1m 1f (TAMU USNMENT00212647-48) 1m 1f (USNM USNMENT00212649-50); Chichihualco, 24.1 km W of, approx. 1500 ft [457 m], 15 Jul 1984, J. B. Woolley, 1m 2f (TAMU USNMENT00212644-46); Chilapa, 11.2 km W of, 16 Jul 1984, J. B. Woolley, 1m 1f (FSCA USNMENT00214920-21) 1m 2f (TAMU USNMENT00212653-55). **Jalisco:** El Tigre, 18 Jul 1954, E. I. Schlinger, 2f (UCB USNMENT00056068-69); La Primavera, 7 Aug 1956, R. & K. Dreisbach, 1m 1f (USNM USNMENT00056050-51). **Michoacán:** Zitácuaro, 10 km E, on Rt. 15, 19°25'N 100°18'W, 28 Feb 1998, A. Freidberg, 1f (TAUI USNMENT00056088). **Morelos:** Cuernavaca, 18°55'N 99°15'W, bred from flowers of *Baccharis dracunculoides*, Apr 1945, N. L. H. Krauss 545, 2m 3f (USNM USNMENT00216995-99); Cuernavaca, 18°55'N 99°15'W, 4-6 Dec 1987, F. D. Parker, 1m (LACM USNMENT00212522). **Nayarit:** Chapalilla, 15 km N, *Baccharis*, 19 Jul 1951, P. D. Hurd, 1f (USNM USNMENT00056115). **Oaxaca:** Oaxaca, 17°2'N 96°40'W, *Baccharis salicifolia* (R.&P.) Pers., 9 Aug 1987, W. A. Palmer 87221-1-2, 1m 1f (USNM USNMENT00216993-94); Tamazulpan, 1.6 km N, 12 Jul 1973, Mastro & Schaffner, 1f (TAMU USNMENT00212643); Tamazulapan, 12.8 km SE, 4 Jul 1964, A. G. Raske, 1m (UCB USNMENT00056493). **Veracruz:** Tejería, 19°21'54" 96°53'54", 1000 m, 23 Feb 1998, A. Freidberg, 1m (TAUI USNMENT00056512) 1m (USNM USNMENT00056513).

Remarks. Wulp (1900) and Foote (1965b) stated there are two pairs of scutellar setae, but the type specimens only have one pair.

***Plaumannimyia flava* (Adams)**

Figs. 101–102, 163, 202, 241, 280, 319, 362, 405, 446

Urellia flava Adams, 1904: 451 [description; USA]; Snow, 1904: 345 [Arizona]; Byers *et al.*, 1962: 181 [type data]; Foote, 1962: 175 [type data].
Euarestoides flava: Foote, 1962: 175 [type data, key, n. comb.]; Foote & Blanc, 1963: 26 [review, California], 95 [host plants].
Euarestoides flavus: Foote, 1965b: 669 [catalog]; Wasbauer, 1972: 14, 114 [host plant]; Foote *et al.*, 1993: 156 [key; distribution], 160 [diagnosis]; Headrick & Goeden, 1995: 199 [behavior]; 245 [host plant].
Euarestoides arnaudi Foote, 1958: 291 [description; USA; host plant]; Foote, 1962: 175 [key]; Foote & Blanc, 1963: 26 [review, California], 95 [host plants]; Foote, 1965b: 669 [catalog]; Arnaud, 1979: 330 [type data]; Goeden, 1983: 399 [host plant]; Goeden, 1986: 326 [host plant]; Foote *et al.*, 1993: 156 [key; distribution], 160 [diagnosis]; Norrbom *et al.*, 1999: 237 [synonymy].
Trypanaresta flava: Norrbom *et al.*, 1999: 237 [n. comb.; catalog].
Plaumannimyia flava: Norrbom *et al.*, 2010: 42 [n. comb.].

Diagnosis. This species differs from most other congeners in having the area between the pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and with distinctly darker border on anterodistal margin. It differs from three others species with this combination of characters (*P.imitatrix*, *Plaumannimyia* n. sp. 14 and *Plaumannimyia* n. sp. 23), it can be distinguished as follows: It differs from *P. imitatrix* in lacking the darker border on anterodistal margin of the solid yellow band, reaching vein costa, in having hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m large, more than ⅔ width of cell, and with shape not cylindrical (Figs. 101, 102), oviscape yellow to paler brown and body more yellowish (gray in *P. imitatrix*). It differs from *Plaumannimyia* n. sp. 14 in having more distinctly solid yellow band between the pterostigma and crossvein r-m (partially reticulate in *Plaumannimyia* n. sp. 14), in lacking the darker border on anterodistal margin of the solid yellow band, reaching vein costa, the stellate mark without small hyaline spots in cell r_{4+5}, and in characters of the terminalia: the male has elongate and curved surstyli, and the female has the ventral area of basal third of aculeus nonsclerotized, and aculeus tip serrate. It differs from *Plaumannimyia* n. sp. 23 in having scutellum with 2 pairs of marginal setae; complete ray to the apex of vein $R_{4+5,}$ and apical hyaline spot in cell r_1 reaching vein R_{2+3}. Both sexes

resemble (*P. coelestina*, *P. difficilis*, *P. miseta*, *P. subaster*, *Plaumannimyia* n. sp. 4, and *Plaumannimyia* n. sp. 21) in having the solid yellow band between the pterostigma and crossvein r-m, but is differs in having distinct darker border on anterodistal margin of the solid yellow band.

Description. Body length 2.78–4.13 mm, mostly yellow in ground color, yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.85–0.86 mm) than long (0.60–0.62 mm). Generally yellow, frons yellow to orange, ocellar tubercle dark brown and with few setulae white, and occiput brown medially and with brown mark sublaterally extend to near vertical setae. Parafacial and gena yellow. Frons, length (0.36–0.46 mm) less than width at vertex (0.48–0.56 mm), slightly narrowed to anterior margin (0.37–0.48 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.18–0.21). Eye ovoid, long diameter (0.56–0.66 mm), width (0.43–0.56 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.10–1.43 mm, ground color of scutum brown (sometimes mostly yellow), of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white to yellow, about ⅓ as long as basal seta. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 3.23–3.63 mm, width 1.18–1.35 mm. Wing pattern stellate (Figs. 101, 102). Area between pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and with distinctly darker border on anterodistal margin, not reaching vein costa. Cell c hyaline, sometimes with faint medial dark spot. Pterostigma entirely yellow. Cell r_1 with 3 marginal hyaline spots: first largest, oblique, elongate, extended to cell r_{2+3}; second triangular, usually not extended almost to vein R_{2+3} (sometimes touching vein); and small triangular or quadrate subapical spot usually touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m large, equal or more than ⅔ width of cell; with distinct medial dark spot touching vein R_{4+5} near base of apical rays. Cells bm, cu*a*, dm,

and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color yellow (sometimes with dark spots) and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape yellow to brown, length 0.90–0.86 mm, width 0.78–0.80 mm at base and 0.27–0.29 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 163) length 1.20 mm. Aculeus (Fig. 202) pale brown, length 1.12 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.22 mm, with lateral margin nonserrate (Fig. 241). Spermathecae brown, subspherical, length 0.20 mm, surface with papillae (Fig. 280).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 319) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally (Figs. 319), in lateral view with dorsal lobe (Fig. 362). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensisetae with ventral margin convex (Fig. 319); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.33 mm long (Fig. 446). Glans 0.37 mm long (Fig. 405); vesica ca. ⅓ length of internal sclerites.

Distribution. *Nearctic* and *Neotropical.* Brazil (Paraná, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, São Paulo), Costa Rica (Guanacaste), Mexico (Chiapas, Jalisco, Michoacán, Puebla, Sonora, Yucatán), USA (Arizona, coastal California, coastal Oregon, western Texas).

Biology. This species has been recorded from flowerheads of three species of *Baccharis* (Astereae), including *B. pilularis* DC. (Foote, 1958; Foote & Blanc, 1963), *B. pilularis* DC. ssp. *consanguinea* (DC.) C.B. Wolf (Foote & Blanc, 1963; Goeden, 1986), *B. salicifolia* (Ruiz & Pav.) Pers. (Wasbauer, 1972, host as *B. viminea*, Goeden, 1983, host as *B. glutinosa*), and *B. sarothroides* A. Gray (Headrick & Goeden, 1995).

Type data. *Urellia flava*: The holotype female is labeled “Bill Wms. Fork Ariz. Aug F. H. Snow” [handwritten; white label] / “TYPE Urellia flava Adams” [red label] / “USNMENT00119700” [plastic bar code label]. The holotype is directly pinned, is in fair condition, and is deposited in the UKaL.

Euarestoides arnaudi: The holotype female is labeled “SanMateoCo. Cal. 4.IX.1952 P.H.Arnaud Canada Road Behind Belmont” [white label; handwritten and machine print] / “on *Baccharis pilularis*” [white label] / “Euarestoides arnaudi Foote Holotype” [red label]. The holotype is directly pinned, is in fair condition, and is deposited in the USNM.

Specimens examined. BRAZIL: [unspecified locality], 3450, 1m (MZSP USNMENT00119682). **Paraná:** Colombo, Bairro Canguiri, 25°22'45.4"S 49°7'53.12"W, 905 m, 16 Mar 2012, M. Savaris, 1m 2f (USNM USNMENT00119671, USNMENT00119692–93); same, 908 m, 25 Jul 2012, M. Savaris, 1f (DZUP USNMENT00119683); same, 25°22'45.62"S 49°7'57.1"W, 909 m, 01 Mar 2014, M. Savaris, 1m (DZUP USNMENT00119663); same, 2 Feb 2013, M. Savaris, 3f (DZUP USNMENT00119684–86). Santa Rita, 25°22'45.62"S 49°7'57.1"W, 909 m, 10 Mar 2013, M. Savaris, 1m (USNM USNMENT00119662); same, 1 Mar 2013, M. Savaris, 1m (DZUP USNMENT00119664); same, 25°22'45.91"S 49°7'56.73"W, 911 m, 12 May 2012, M. Savaris, 1f (DZUP USNMENT00119687). Palmas, Linha Alegria, Faz. Cerro Chato, 26°30'8.53"S 51°40'14.72"W, 1210 m, 05 Apr 2013, M. Savaris, S. Lampert, 1m (DZUP USNMENT00119673). Ponta Grossa, Parque Estadual de Vila Velha, 25°13'59.74"S 49°59'56.91"W, 965 m, 02 Mar 2013, S. Lampert, M. Savaris, 1m (USNM USNMENT00119344); same, 11 Mar 2013, S. Lampert, M. Savaris, 2m (USNM USNMENT00119660–61). **Rio de Janeiro**: Itatiáia, Compos. BI, 13 Mar 1942, J. F. Zikán, 1m (UCR USNMENT00119707). Itatiaia, Lago Azul, 26 Sep 1954, Travassos, Barth, Albuquerque & Barros, 1m (MZUSP USNMENT00119681). **Rio Grande do Sul:** Parque Nacional Aparados da Serra, Rio do Boi, floodplain, 29.2009°S 50.04708°W, 197 m, 6 Mar 2015, M. Savaris, S. Lampert & A. L. Norrbom, 1m 1f (USNM USNMENT00119674, USNMENT00119705). Passo Fundo, Embrapa Trigo, 28°13'43.75"S 52°24'21.16"W, 673 m, 12 Set 2013, M. Savaris, S. Lampert, 1m (DZUP USNMENT00262612). Passo Fundo, Reserva Particular do Patrimônio Natural Maragato, 28°14'31.97"S 52°27'38.44"W, 634 m, 31 Aug 2013, M. Savaris, 1m 3f (DZUP USNMENT00119665, USNMENT00119690–91, USNMENT00119694); same, 25 Mar 2012, A. P. Scarparo, L. Lorini, 1m 1f (DZUP USNMENT00119672, USNMENT00262530); same, 637 m, 13 Sep 2013, M. Savaris, 1f (DZUP USNMENT00119689); same, 28°14'46.13"S 52°27'40.64"W, 600 m, 28 Aug 2013, M. savaris, 1f (DZUP USNMENT00119688). **Santa Catarina**: Chapecó, Linha Caravágio, 27°2'51.87"S 52°37'16.7"W, 670 m, 29 Nov 2014, M. Savaris, 1m 1f (USNM USNMENT00119527, USNMENT00119526). Seara, Nova Teutônia, 27°11'S 52°23'W, 300-500 m, Jun 1963, F. Plaumann, 3f (CNC USNMENT00119702–04); same, Jul 1970, F.

Plaumann, 1f (MZSP USNMENT00119701); same, Apr 1971, F. Plaumann, 1f (MZSP USNMENT00119699). **São Paulo**: Barueri, 23°31'S 46°53'W, 3 Feb 1968, K. Lenko, 1m (MZSP USNMENT00119680). São Paulo: Eug. Lefevre, Campos do Jordão, 1200 m, 26 Oct 1962, L.T.F., L.T., Rabello & Dente, 1m (MZSP USNMENT00119679). São Paulo: São Paulo, 23°32'S 46°37'W, 18 Oct 1965, V. N. Alin, 2f (USNM USNMENT00119697–98); same, 5 Dec 1970, V. N. Alin, 1m 4f (ZMUM USNMENT00119675–78, USNMENT00119696); same, 17 Feb 1971, 1f (UCD USNMENT00119695). **COSTA RICA: Guanacaste**: Cerro Vista al Mar, 900 m, 23 Jun 2001, A. Freidberg, 3m 5f (USNM USNMENT00056073–75), TAUI (USNMENT00056522–26). Parque Nacional Guanacaste, 9 km S of Santa Cecilia, Estación Pitilla, 11°N 85°26'W, LN 330200 380200, 700 m, Mar 1991, P. Rios, 2m 1f (INBio INBioCRI000300614, INBio INBioCRI001111234, INBioCRI001111247). Río Naranjo, 3 km SE, 10°40'N 85°4'W, 11 Apr 1993, F. D. Parker, 1f (LACM USNMENT00212520); same, 24-26 May 1993, F. D. Parker, 1f (LACM USNMENT00212521). San José: San Antonio de Escazú, 9°55'N 84°8'W, 23-24 Sep 1989, F. D. Parker, 1f (LACM USNMENT00056334); same, 31 Jan 1988, F. D. Parker, 1f (LACM USNMENT00056111); same, 3-16 Jul 1988, F. D. Parker, 1m 1f (LACM USNMENT00056034–35). **MEXICO: Chiapas**: 62 km SW of Palenque, Cascadas de Agua Azul, 7 May 1985, A. Freidberg, 1f (TAUI USNMENT00056546); Ixtapa, 16°48'N 92°55'W, 11 Apr 1962, L. A. Stange, 1f (UCD USNMENT00213149). **Jalisco**: La Primavera, 7 Aug 1956, R. & K. Dreisbach, 1m paratype (USNM USNMENT00119657). **Michoacán**: Morelia, 9 Apr 1938, L. J. Lipovsky, 1f (UKaL USNMENT00119710). Zitácuaro, 10 km E, on Rt. 15, 19°25'N 100°18'W, 28 Feb 1998, A. Freidberg, 4m 1f (TAUI USNMENT00056095–99). **Puebla**: Tehuacan, 23 Jun 1951, P. D. Hurd, 1f (USNM USNMENT00119717). **Sonora**: 31 mi S Nogales, Arizona, 27 Jan 1964, M. E. Irwin, 1m (UCR USNMENT00119656). **Yucatán**: Reserva Ría Lagartos, Mpio. Tizimin, entrada a Zac bó, 21°28'58"N 87°42'2"W, selva baja caducifolia espinosa, trampa luz-cortina, 15 Oct 1996, Paz R., 1f (ISET). **UNITED STATES: Arizona**: Cochise Co., Benson, 4.8 km W of, junction of Highway I-10 & AZ90, ex pupa in flowerhead of *Baccharis sarothroides*, 29 Jan 1987, C. J. De Loach 3337, 1f 1p (USNM USNMENT00119711). Greenlee Co., Duncan, 32°43'17"N 109°6'17"W, 15 Jun 1950, L. D. Beamer, 1m (UKaL USNMENT00215381). Pima Co., Tucson, 32°13'18"N 110°55'33"W, 25 Oct 1940, Bryant, 1m (CAS); same, 15 Apr 1933, Bryant, 2m (USNM USNMENT00119654–55); 2m (USNM). Pima Co, 12 km SE of Tucson, Wilmot Cienga, low desert scrubs, weeping *Baccharis*, 20 Mar 1986, W. E. Steiner & J. E. Lowry, 2m (USNM USNMENT00119653, USNMENT00262629). San Carlos, 30 Apr 1938, Parker AL

Melander Collection 1961, 1f (USNM USNMENT00119712). Yavapai Co., Bill Williams Fork, Aug, F. H. Snow, 1f holotype of *Urellia flava* Adams (UKaL USNMENT00119700); same, Yavapai Co., Bill Williams Fork, F.H. Snow, 1f (UKaL). **California**: Alameda Co., Berkeley, 37°52'N 122°15'45"W, ex S. f. umbellif. Blant, 10 Aug 1961, F. L. Blanc, 1f (USNM USNMENT00109719); same, 4 Oct 1938, L. R. Gillogly, 1f (USNM); same, 18 Oct 1939, L. R. Gillogly, 1m 1p (USNM USNMENT00105116). Contra Costa Co., Richmond, 37°55'42"N 122°21'W, 23 Jul 1974, M .L. Siri, 1m (UCD); same, Moraga, 22 Sep 1976, D. G. Denning, 2f (UCD). Del Norte Co., Klamath, 9.6 km N, 13 Aug 1953, G. A. Marsh & R. O. Schuster, 1m paratype of *Euareotoides arnaudi* Foote (USNM USNMENT00213155). Humboldt Co., Beatrice, *Baccharis pilularis consanguinea* (on), 4 Aug 1940, P. B. Bliven, 1m (CAS). Humboldt Co., Eureka, 40°48'8"N 124°9'45"W, 20 Aug 1955, B. P. Bliven, 1f (CAS). Humboldt Co., Falk, 20 Sep 1970, B. P. Bliven, 1f (CAS). Los Angeles Co., Wilmington, McPhail trap, 8 Oct 1963, J. H. Caldwell, 1f (CDFA). Marin Co., Fort Kronkhite, G.G. Rec. Area, *Baccharis pilularis* (swept), 6 Oct 1990, P. H. Arnaud, Jr., 1m (CAS). Riverside Co., Palm Springs, 33°49'49"N 116°32'40"W, at flower *Chrysothamnus*, 28 Dec 1952, P. H. Arnaud, 1m (USNM USNMENT00119658). Riverside Co., Whitewater Canyon, 34°21'21"N 118°21'10"W, 11 Apr 1965, C. Slobodschikoff, 1f (USNM USNMENT00109718), 1f (FLB). San Diego Co., Carlsbad, 32°32'34"N 117°7'17"W, 16 Apr 1977, D. K. Faulkner, 1m (USNM USNMENT00119659), 1f (SDNHM), 2m (FLB). San Diego Co., Fallbrook, emerged 29 May 1963 reared ex flower heads of *Baccharis viminia* collected , E. D. Algert, 5f (CDFA); same, 8 Jul 1963, E. D. Algert, 1m 2f (Algert). San Diego Co., La Jolla, 32°50'50"N 117°16'24"W, near, reared ex flowers of *Baccharis glutinosa*, 27 Mar 1981, R. D. Goeden, 1m (UCR). San Diego Co., San Diego, 32°45'15"N 117°11'46"W, 12 Feb 1977, D. K. Faulkner, 1m (SDNHM). San Francisco, Muir Nature Trail, *Baccharis pilularis* sanguinea (on), 22 Aug 1990, P. H. Arnaud, Jr., 1m 1f (CAS). San Francisco, San Francisco, 37°45'N 122°27'W, 21 Aug 1959, P. H. Arnaud, 1m (USNM). San Luis Obispo Co., San Luis Obispo, 24 Apr 1971, D. K. Faulkner, 1m (SDNHM). San Mateo Co., Belmont, *Baccharis pilularis*, 21 Sep 1952, P. H. Arnaud, Jr., 1f holotype (USNM). San Mateo Co., Canada Road behind Belmont, on *Baccharis pilularis*, 21 Sep 1952, P. H. Arnaud, 1m paratype (USNM USNMENT00213150–51), 3m 3f (USNM), 1m 1f (DZUP DZUP493536–37); same, swept from *Baccharis pilularis* subsp. *consanguinea*, 21 Aug 1959, P. H. Arnaud, 1m (USNM USNMENT00105273). San Mateo Co., Daly City, 37°42'21"N 122°27'39"W, *Bacchaaris pilularis consanguinea* (swept), 30 Sep 1990, P. H. Arnaud, Jr., 9m 6f (CAS). San Mateo Co., Half Moon Bay, 37°27'49"N 122°25'39"W, *Eriophyllum*

staechadifolium var. *artemisiaefolium*, 28 Jun 1960, F. L. Blanc, 1m (FLB), 1m (USNM). San Mateo Co., Kings Mountain Road, on *Baccharis pilularis*, 20 Sep 1952, P. H. Arnaud, 3m (USNM). San Mateo Co., Montara, 37°32'32"N 122°30'54"W, on foliage of *Baccharis pilularis*, 31 Aug 1957, P. H. Arnaud, Jr., 1m (FLB), 2m 2f (USNM). San Mateo Co., Redwood City, 37°29'7"N 122°14'7"W, collected on *Baccharis pilularis*, 12 Oct 1952, P. H. Arnaud, 1f (USNM USNMENT00105274); same, 27 Aug 1950, P. H. Arnaud, 1f (USNM USNMENT00105275). San Mateo Co., San Bruno, 37°37'50"N 122°24'36"W, *Baccharis pilularis consanguinea* (swept), 7 Oct 1979, P. H. Arnaud, Jr., 1m (CAS). San Mateo Co., San Gregorio, 22 Aug 1953, P. H. Arnaud, 1m (USNM). San Mateo Co., Sandhill Rd, on *Baccharis pilularis*, 17 Oct 1952, P. H. Arnaud, 1f (USNM). San Mateo Co., Skyline Blvd., La Honda road, 22 Oct 1952, P. H. Arnaud, 2f (USNM). San Mateo Co., Woodside, 20 Sep 1981, P. H. Arnaud, Jr., 1m (CAS). Santa Barbara Co., Santa Cruz Is., Central Valley, 34°1'N 119°45'W, reared ex *Baccharis pilularis consanguinea*, 11 Oct 1983, R. D. Goeden, 1m 2f (UCR); same, Prisoners Harbor road, 34°1'17"N 119°41'2"W, *Baccharis pilularis*, 19 Mar 1977, A. J. Major, 1m (UCR). Santa Clara Co., Palo Alto, Stanford Univ., 37°25'38"N 122°10'9"W, 27 Oct 1952, P. H. Arnaud, 1m 1f paratype of *Euareotoides arnaudi* Foote (USNM USNMENT00213153–54); same, 1m paratype of *Euareotoides arnaudi* Foote (USNM); same, 18 Oct 1953, P. H. Arnaud, 1m 1f (USNM); same, 4 Nov 1953, P. H. Arnaud, 1m (USNM); same, 20 Oct 1953, P. H. Arnaud, 2m 2f (USNM); same, 11 Sep 1957, P. H. Arnaud, 1f (USNM). Santa Cruz Co., La Selva Beach, 2.4 km ENE of, swept from *Baccharis* sp., 2 Sep 1992, R. Morgan, 1f (Morgan); same, on flowers of *Baccharis pilularis*, 21 Sep 1992, R. Morgan, 1m 1f (Morgan). Santa Cruz Co., Rio del Mar, *Baccharis* sp. (swept), 17 Jul 1991, R. Morgan, 1m 1f (Morgan); same, *Baccharis pilularis* (on flrs), 4 Sep 1992, R. Morgan, 1m (Morgan). Santa Cruz Co., Scotts Valley, *Baccharis* sp. (swept), 9 Nov 1992, R. Morgan, 3m 1f (Morgan). Santa Cruz Co., Soquel, 36°59'17"N 121°57'20"W, *Baccharis* sp. (on), 26 Nov 1977, S.F.Muzzio, 1f (CAS); same, *Baccharis* sp. (swept), 11 Sep 1991, R. Morgan, 2m (Morgan). Santa Cruz Co., Univ. of California, Santa Cruz Campus, *Baccharis pilularis* (swept), 20 Oct 1990, P. H. Arnaud, Jr., 13m 3f (CAS); same, Watsonville, 36°54'37"N 121°45'21"W, *Baccharis* sp. (swept), 8 Aug 1991, R. Morgan, 1m (Morgan). Sonoma Co., Hilton, 30 Oct 1959, T. R. Haig, 1f (FLB). Sonoma Co., Santa Rosa, 38°27'N 122°43'30"W, 7 Dec 1959, T. R. Haig, 1m (FLB). Stevens Creek, headwaters, 762 m, 19 Oct 1946, P. H. Arnaud, 1m (USNM). Ventura Co., Oxnard, 34°11'51"N 119°10'34"W, McPhail trap in lemon, B. Osuna, 1m (CDFA); same, Ventura River, mouth of, 34°16'32"N 119°18'25"W, 24 Apr 1966, J. A. Powell, 1f (CIS). **New Mexico**: Las Cruces,

32°18'20"N 106°46'W, 12 Jun 1950, L. D. Beamer, 1f (USNM USNMENT00262628); same, 17 Jun 1950, L. D. Beamer, 1m 2f (USNM USNMENT00119649, USNMENT00119715–16); same, 25 Apr 1954, R.H Beamer, 3m 2f (UKaL USNMENT00119650–52, USNMENT00119713–14). **Oregon**: Curry Co., Brookings, at seashore, 14 Aug 1972, F. L. Blanc, 1m 7f (FLB), 1m 6f (USNM). Gold Beach (1 mi SE), *Baccharis* sp. (on), 30 Jun 1967, K. Goeden, 1 adults (ODA); same, (10 km S), Whalehead St. Park, 29 Jul 1988, R. Danielsson, 2m 2f (ZIL), 1m (FLB); same, (14 mi S), *Baccharis* sp. (swept), 14 Jul 1991, F. L. Blanc, 1m 3f (FLB). **Texas**: Presidio Co., Fort Leaton State Park, *Baccharis glutinosa* (swept), 6 Sep 1984, T. O. Robbins, 2m (Boldt); same, reared from larva feeding on flowerheads of *Baccharis glutinosa*, 6 Sep 1984, T. O. Robbins 1841, 3m (USNM USNMENT00105271, USNMENT0010527, USNMENT00105278), 1f (USNM). Presidio Co., Marfa, 20 mi S of, on Highway 67, *Baccharis glutinosa* (swept), 6 Sep 1984, T. O. Robbins, 3f (Boldt); same, reared from flowerheads of *Baccharis glutinosa*, 6 Sep 1984, T. O. Robbins 1839, 3f (USNM USNMENT00105272, USNMENT00105276–77).

***Plaumannimyia imitatrix* (Hering)**

Figs. 103–104, 164, 203, 242, 281, 320, 363, 406, 447, 488–489

Trypanea imitatrix Hering, 1938: 193 [description; Brazil].
Trypanaresta imitatrix: Hering, 1940b: 11 [n. comb.; key]; Aczél, 1950: 294 [catalog]; Foote, 1967: 53 [catalog]; Norrbom *et al.*, 1999: 237 [catalog]; Prado *et al.*, 2002: 1023 [host plants]; Sabedot-Bordin *et al.*, 2011: 17 [host plants].
Plaumannimyia imitatrix: Norrbom *et al.*, 2010: 42 [n. comb.]; Savaris *et al.*, 2015: 18 [host plants].

Diagnosis. This species differs from most other congeners in having the area between the pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and with distinctly darker border on anterodistal margin. It differs from three others species with this combination of characters (*P. flava*, *Plaumannimyia* n. sp. 14 and *Plaumannimyia* n. sp. 23), it can be distinguished as follows: It differs from *P. flava* in having the darker border on anterodistal margin of the solid yellow band, reaching vein costa, in having hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m smaller, no more than ⅔ width of cell, and with shape cylindrical (Figs. 103, 104), oviscape brown or black and body gray (yellowish in *P. flava*). It differs from *Plaumannimyia* n. sp. 14 in having more distinctly solid yellow band

between the pterostigma and crossvein r-m (partially reticulate in *Plaumannimyia* n. sp. 14), and the stellate mark without small hyaline spots in cell r_{4+5}, and in characters of the terminalia: the male has elongate and curved surstyli, and the female has the ventral area of basal third of aculeus nonsclerotized, and aculeus tip serrate. It differs from *Plaumannimyia* n. sp. 23 in having scutellum with 2 pairs of marginal setae; complete ray to the apex of vein $R_{4+5,}$ and apical hyaline spot in cell r_1 reaching vein R_{2+3}. Both sexes resemble (*P. coelestina*, *P. difficilis*, *P. miseta*, *P. subaster*, *Plaumannimyia* n. sp. 4, and *Plaumannimyia* n. sp. 21) in having the solid yellow band between the pterostigma and crossvein r-m, but is differs in having distinct darker border on anterodistal margin of the solid yellow band.

Description. Body length 2.40–413 mm, dark brown in ground color, yellow microtrichose. Setae generally pale brown to brown.

Head: Slightly higher (0.60–0.92 mm) than long (0.44–0.56 mm). Generally yellow, frons yellow to orange, ocellar tubercle dark brown and with few setulae white, and occiput brown medially and with brown mark sublaterally extend to near vertical setae. Parafacial and gena yellow. Frons, length (0.29–0.46 mm) less or equal than width at vertex (0.39–0.58 mm), usually slightly narrowed to anterior margin (0.34–0.52 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.20–0.21). Eye ovoid, long diameter (0.44–0.68 mm), width (0.37–0.52 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 0.95–1.50 mm, ground color of scutum brown to dark brown, of scutellum mostly brown with lateral margin yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white to yellow, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 2.97–3.26 mm, width 1.08–1.15 mm. Wing pattern stellate (Figs. 103, 104). Area between pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and with distinctly darker border on anterodistal margin, reaching the pterostigma or touching vein costa. Cell c hyaline, sometimes with faint medial dark spot. Pterostigma yellow with a dark spot distal. Cell r_1 with 3 marginal hyaline spots: first largest, oblique, elongate, extended to cell r_{2+3}; second triangular, usually not extended almost to vein R_{2+3}

(sometimes touching vein); and small triangular or quadrate subapical spot usually touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m large, ca. ⅔ of width of cell; with distinct medial dark spot touching vein R_{4+5} near base of apical rays. Cells bm, cu*a*, dm, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 0.65–0.76 mm, width 0.49–0.70 mm at base and 0.22–0.24 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 164) length 0.94 mm. Aculeus (Fig. 203) pale brown, length 0.86 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.16 mm, with lateral margin nonserrate (Fig. 242). Spermathecae brown, subspherical, length 0.15 mm, surface with papillae (Fig. 281).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 320) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally (Fig. 320), in lateral view with dorsal lobe (Fig. 363). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensiseta with ventral margin convex (Fig. 320); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.28 mm long (Fig. 447). Glans 0.26 mm long (Fig. 406); vesica ca. ⅓ length of internal sclerites.

Distribution. *Nearctic* and *Neotropical.* Argentina (Misiones), Bolivia (La Paz, Santa Cruz), Brazil (Minas Gerais, Paraná, Rio Grande do Sul, Santa Catarina, São Paulo), Peru (Huánuco), USA (California, Oregon). Elevational records range from 140-1900 m.

Biology. This species has been reared from flowerheads of seven species of Astereae, including *Baccharis dracunculifolia* DC. (Prado *et al.*, 2002, Savaris *et al.*, 2015), *B. megapotamica* Spreng. (Savaris *et al.*, 2015), *B. punctulata* DC. (Prado *et al.*, 2002, Savaris *et al.*, 2015), *B. spicata* (Lam.) Baill. (Savaris *et al.*, 2015), *B. trinervis* Pers. (Prado *et al.*, 2002), *B. vulneraria* Baker (Savaris *et al.*, 2015) and *Heterothalamus psiadioides* Less.

(Prado *et al.,* 2002), and one species of Gochnatieae, *Moquiniastrum polymorphum* (Less.) G. Sancho (Sabedot-Bordin *et al.,* 2011, Savaris *et al.,* 2015).

Type data. This species was described from an unstated number of specimens of both sexes from Nova Teutônia, Brazil, collected "15.VI.1937" by Fritz Plaumann (collector identified in introduction of paper, on p. 187). Dr. Daniel Whitmore kindly located and photographed a female and a male in the BMNH, where Hering collection was deposited, that are putative syntypes. The male (Fig. 488) is here designated as the lectotype of *Trypanea imitatrix* Hering to stabilize the usage of this name. It is labeled (Fig. 489) "Type" [white label with large red marginal border] / "Type" [red label] / "9.6.1937 Brasilien Nova Teutônia, 27° 11' B. 52° 23' L. Fritz Plaumann" [white label with black marginal border] / "Trypanea imitatrix ♂ Type det. M. Hering 1937" [handwritten; white label] / "LECTOTYPE ♂ Trypanea imitatrix Hering by Savaris & Norrbom" [red-bordered label added by us]; and "*Plaumannimyia imitatrix* (Hering) det. Savaris & Norrbom iv 2016". The lectotype is double mounted (minuten), is in excellent condition, and is deposited in the BMNH.

Specimens examined. ARGENTINA: Misiones: Iguazú Natl. Park, hosteria Hoppe, 140 m, Malaise trap, 10-11 Apr 1974, C. R. Vardy, 1f (USNM). **BOLIVIA: La Paz**: NE of Santa Fé, Colonia Luayza, Entel (telephone) antenna, 15°46'35.2"S 67°35'48.1"W, 1900 m, on *Baccharis trinervis* (Lam.) Pers. (01-Bol-23), 13 Apr 2001, A. L. Norrbom, 1m (USNM USNMENT00055820). **Santa Cruz**: Florida, 4 km N of Bermejo, Refugio Los Volcanes, El Sillar road towards Bermejo, 18.1205°S 63.6146°W, 1390 m, emerged 6-12 Mar 2014 reared ex male flowerheads of *Baccharis linearifolius* (14-Bol-04) collected 2 Mar 2014, G. J. Steck, B. D. Sutton, A. L. Norrbom & A. Saravia, 1m (USNM USNMENT00744935–36); 1m (FSCA). **BRAZIL: Minas Gerais**: Belo Horizonte, UFMG campus, Estação Ecológica, clear trail 60 m in from road near swamp, 800 m, Malaise trap, 5-12 Jul 1993, S. D. Gaimari, 3f (INHS). **Paraná**: Colombo, Canguiri, 1 Mar 2013, 25°22'45.62"S,49°07'57.10"W, 909 m, rede entomológica, M. Savaris, 2m 5f (DZUP USNMENT00120031–36, USNMENT00120016); same, 2 Mar 2014, M. Savaris, 1f (USNMENT00120017), same, 2 Feb 2013, 25°22'45.62"S,49°07'57.10"W, 909 m, rede entomológica, M. Savaris, 2m 2f (DZUP USNMENT00120029–30, USNMENT00120012, USNMENT00120015); same, 15 Mar 2013, McPhail, M. Savaris, 1f (DZUP USNMENT00120018); same, 3 Mar 2013, M. Savaris, 2f (DZUP USNMENT00120019, USNMENT00120021); same, 10 Nov 2013, M. Savaris, 1f (DZUP USNMENT00120022); same, 26 Oct 2013, 25°23'3.68"S 49°8'15.33"W, rede entomológica, M. Savaris, 1f (DZUP USNMENT00120023). Curitiba, Parque Iguassu, road to zoo along river, reared ex flowerheads of *Baccharis punctulata* DC. (91B7), 29 May

1991, A. L. Norrbom & C. Carvalho, 1m 1p (USNM). Santa Rita, 2 Feb 2013, 25°22'44.40"S 49°07'53.20"W, 909 m, rede entomológica, M. Savaris, 2f (DZUP USNMENT00120013–14); same, 18 Mar 2012, 25°22'44.65"S 49°07'53.30"W, 909 m, rede entomológica, M. Savaris, 1f (DZUP USNMENT00120020). Palmas, Linha Alegria, Faz. Cerro Chato, 25 Mar 2014, 26°30'8.53"S 51°40'14.72"W, 1213 m, M. Savaris, S. Lampert, 2m 2f (USNM USNMENT00262523–26); same, 05 Apr 2013, 26°30'8.53"S 51°40'14.72"W, 1210 m, rede entomologica, M. Savaris, S. Lampert, 2m (DZUP USNMENT00119964–65). Ponta Grossa, Parque Estadual de Vila Velha, 2 Mar 2013, 25°13'59.74"S 49°59'56.91"W, 965 m, rede entomológica, S. Lampert, M. Savaris, 1f (USNMENT00120009); same, 3 Mar 2013, 25°13'59.74"S 49°59'56.91"W, 965 m, rede entomológica, S. Lampert, M. Savaris, 1f (USNMENT00120010). São José dos Pinhais, 9 Mar 2013, 25°36'18.40"S 49°11'37.12W", 880 m, rede entomológica, A. C. Domahovski 1m (DZUP USNMENT00120004); same, 30 Oct 2013, 25°36'18.40"S 49°11'37.12W", 880 m, rede entomológica, A. C. Domahovski 1f (DZUP USNMENT00120011). Tijucas do Sul, Morro Araçatuba 31 Jul 2013, 1650 m, 25°54'8.28"S 48°59'35.11"W, 1650 m, rede entomológica, M. Savaris, S. Lampert, 2m 1f (DZUP USNMENT00120005–06, USNMENT00262527). **Rio Grande do Sul:** Passo Fundo, 08 Mar 2009, 28°14'29.88"S 52°27'28.70"W, 610 m, reared ex flowerheads of *Baccharis spicata* (Lam.) Baill., M. Savaris, 1m (MUZAR USNMENT00119959); same, reared ex flowerheads of *Moquiniastrum polymorphum* (Less.) G. Sancho, M. Savaris 1m (MUZAR USNMENT00119958); same, 28°14'30.23"S 52°27'35.64"W, reared ex flowerheads of *Baccharis megapotamica* Spreng., M. Savaris 2m (MUZAR USNMENT00119957). Passo Fundo, Reserva Particular do Patrimônio Natural Maragato, 31 Aug 2013, 28°14'31.97"S 52°27'38.44"W, 637 m, rede entomológica, M. Savaris 9m 4f (DZUP USNMENT00262528–29, USNMENT00119346, USNMENT00119998–03, USNMENT00119980–82, USNMENT00119348); same, 13 Set 2013, rede entomológica, M. Savaris 1m 1f (DZUP USNMENT00119963, USNMENT00120007); same, 11 Mar 2012, McPhail, A.P. Scarparo, L. Lorini, 1m (DZUP USNMENT00119962); same, 23 Set 2011, McPhail, A.P. Scarparo, L. Lorini, 1f (DZUP USNMENT00119983); same, 28°14'29.88"S 52°27'35.46"W, 673 m, armadilha McPhail, 3 Mar 2012, A. P. Scarparo, 1f (MASPC). Passo Fundo, Embrapa Trigo, 12 Set 2013, 28°13'43.75"S 52°24'21.16"W, 673 m, rede entomológica, M. Savaris, S. Lampert 2m 1f (DZUP USNMENT00119960–61, USNMENT00119984). **Santa Catarina**: Agua Doce, BR 153, 22 Set 2013, 26°47'43.96"S 51°41'36.22"W, 1252 m, Capitulo, M. Savaris, 1f (DZUP USNMENT00120008). Chapecó, Linha Caravágio, 29 Nov 2014, 27°02'51.87"S 52°37'16.70"W, 670 m, M. Savaris, S. Lampert 1f (USNM

USNMENT00119522). Seara, Nova Teutônia, 27°11'S 52°23'W, 300-500 m, 12 Jul 1937, F. Plaumann, 1f (BMNH); same, 17 Nov 1961, F. Plaumann, 1f (CNC); same, 16 Oct 1962, F. Plaumann, 1f (CNC); same, Sep 1963, F. Plaumann, 3m (CNC); same, Jun 1967, F. Plaumann, 1f (MZSP USNMENT00119706); same, 20 Sep 1967, F. Plaumann, 1f (CNC). **São Paulo**: Campinas, 22°53'21"S 47°4'39"W, Mar 1924, F. X. Williams, 1f (BBM). Campos do Jordão, 1600 m, Mar 1965, P. Wygodzinsky, 1f (UCR). Embu, 23.64889°S 46.85194°W, Sep 1949, F. Lane, 1m (MZSP). São Paulo, 23°32'S 46°37'W, 21 Dec 1970, V. N. Alin, 1f (ZMUM). **PERU: Huánuco**: Tingo María, 17 Jun 1962, W. T. Van Velzen, 1m 1f (CAS); same, 22 Jun 1962, W. T. Van Velzen, 1m (CAS). **UNITED STATES: California:** San Mateo Co., Redwood City, 12 Oct 1952, on *Baccharis pilularis*, P. H. Arnaud, 1f (USNM USNMENT00105274); same, Montara 31 Aug 1957, on foliage *Baccharis pilularis* DC., P. H. Arnaud, 1m (USNM USNMENT00119976); same, Canada Road Behind Belmont 21 Set 1952, on *Bacharis pilularis*, 1m (USNM USNMENT00119977); same, Skyline Blvd. La Handa road, 22 Oct 1952, on *Baccharis pilularis*, P. H. Arnaud, 1f (USNM USNMENT00119979). California: Stanford Univ, 18 Oct 1953, P. H. Arnaud, 1m (USNM USNMENT00119975); same, 20 Oct 1953, P. H. Arnaud, 1f (USNM USNMENT00119974). California: Santa Clara Co., Headwaters Stevens, Creek, Alt. Approx. 762 m, 19, Oct 1946, P. H. Arnaud, 1m (USNMENT00119978). **Oregon**: Curry Co. Brookings, at seashore, 14 Aug 1972, F. L. Blanc Collector, 2f (USNMENT00119972–73).

***Plaumannimyia miseta* (Hering)**

Figs. 63, 89–90, 165, 204, 243, 282, 321, 364, 407, 448, 522, 530, 545

Trypanea miseta Hering, 1938: 416 [description; Brazil].
Trypanaresta miseta: Hering, 1940b: 11 [n. comb.; key]; Aczél, 1950: 293 [catalog]; Foote, 1967: 53 [catalog]; Norrbom *et al.*, 1999: 237 [catalog].
Plaumannimyia miseta: Norrbom *et al.*, 2010: 42 [n. comb.]; Savaris *et al.*, 2015: 18 [host plants].

Diagnosis. This species differs from all of its congeners having the anterior orbital seta lanceolate and white. It further differs from all other species except *P. coelestina* in having having two isolated dot-like spots in cell dm. The male further differs from other species except *P. coelestina* in having the fore first tarsomere in lateral view narrower basally than apically, without setulae on the posterior apical half, and with posterodorsal row of elongate

setae. The male further differs from that of *P. coelestina* in lacking a broad medial brown mark in cell c and having at most a small brown spot on the costa at the subcostal break, having three brown rays extending from the stellate mark to the costa anteriorly in cell r_1, the medial one broad, and the fore femur basal ventral setae not elongate. Both sexes resemble (*P. coelestina*, *P. difficilis*, *P. subaster*, *Plaumannimyia* n. sp. 4, and *Plaumannimyia* n. sp. 21) in having the area between the pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and without darker border on anterodistal margin. The female further differs from (*P. difficilis*, *P. subaster*, *Plaumannimyia* n. sp. 4, and *Plaumannimyia* n. sp. 21), in lacking the ray to the apex of vein R_{4+5} (it is incomplete or absent in *P. difficilis*). It differs from (*P. flava*, *P. imitatrix*, *Plaumannimyia* n. sp. 14 and *Plaumannimyia* n. sp. 23) in lacking a darker border on anterodistal margin of the solid yellow band between the pterostigma and crossvein r-m.

Description. Body length 2.68–3.73 mm, mostly dark brown in ground color, yellow microtrichose. Setae generally pale brown (Fig. 63).

Head: Slightly higher (0.71–0.83 mm) than long (0.51–0.54 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and occiput brown medially and with brown mark sublaterally extend to near vertical setae. Parafacial and gena yellow. Frons, length (0.43–0.49 mm) less or equal than width at vertex (0.48–0.53 mm), slightly narrowed to anterior margin (0.37–0.41 mm). Three frontal setae, anterior seta smaller, lanceolate, white to yellow; posterior 2 setae acuminate, pale brown. Anterior and posterior orbital seta lanceolate, white to yellow. Gena with small acuminate, pale brown setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.20–0.26). Eye ovoid, long diameter (0.61–0.65 mm), width (0.44–0.48 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.28–1.32 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta laceolate, white to yellow (concolorous with setulae), about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 3.33–3.63 mm, width 1.28–1.38 mm. Wing pattern stellate (Figs. 89, 90). Area between pterostigma and crossvein r-m with solid, broad, yellow band, without distinctly darker border on anterodistal margin and with distinct subapical stellate mark. Cell c mostly

hyaline with a small medial brown spot. Pterostigma entirely yellow. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, oblique, reaching vein R_{2+3}; second triangular and small triangular or quadrate subapical spot, both usually not touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray); anterior marginal hyaline spot large, usually touching vein R_{2+3}. Cell r_{4+5} with anterior apical ray absent, posterior complete; hyaline spot near anterior end of crossvein dm-m large, ca. ⅔ of width of cell; with faint medially dark spot touching vein R_{4+5} near base of apical rays within the subapical stellate mark. Cell dm with two isolated dot-like spots; anteroapical corner yellow. Cells bm and cu*a* mostly hyaline or faint yellow. Cell m_4 and anal lobe with few dark spots (reticulate). Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow. Male fore tibia with fine dorsal erect setae on apical third; basitarsus in lateral view narrower basally than apically, without setulae on the posterior apical half, and with posterodorsal row of elongate setae (Fig. 530, indicated by arrows).

Abdomen: In both sexes ground color brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Posterior border of the tergites yellow. Oviscape brown to black, length 1.02–1.10 mm, width 0.53–0.66 mm at base and 0.20–0.22 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 165) length 1.42 mm. Aculeus (Fig. 204) pale brown, length 1.30 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.23 mm, with lateral margin nonserrate (Fig. 243). Spermathecae pale brown, subspherical, length 0.15 mm, and surface with papillae (Fig. 282).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 321) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally, and narrow apically (Fig. 321), in lateral view with dorsal lobe (Fig. 364). Medial surstylus with pair of prensisetae; lateral prensiseta conical, as long as medial prensiseta; medial prensiseta with dorsal face faint concave, and apex truncate (Fig. 321); with group of 2–3 setulae between prensisetae and also group of 2-3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.28 mm long (Fig. 448). Glans 0.28 mm long (Fig. 407); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Brazil (Minas Gerais, Paraná, Rio Grande do Sul, Santa Catarina, São Paulo). Elevational records range from 300-1400 m.

Biology. This species has been reared from flowerheads of two species of *Baccharis* (Astereae), including *B. helichrysoides* DC. and *B. punctulata* DC., and one species of Gochnatieae, *Moquiniastrum polymorphum* (Less.) G. Sancho (Savaris *et al.*, 2015).

Type data. The holotype male (BMNH (E) 1486021) is labeled "HOLO-TYPE" [white label with large red marginal border] / "Type" [red label] / "*Trypanea miseta* Type det. M. Hering 1938" [handwritten; white label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the BMNH.

Specimens examined. BRAZIL: [unspecified locality], 3450, 4m 3f (MZSP); same, 8516, 1m (MZSP). **Minas Gerais**: Belo Horizonte, swept on *Baccharis dracunculifolia* DC, 4 Dec 1995, C. A. K. Miranda, 1m (USNM USNMENT00050365). Sapucaí-Mirim, Ciudade Azul, 22°44'S 45°45'W, 1400, 7 Nov 1953, L. Trav. F., M. Kuhlmann, C. Gans & S. Madeiros, 1m (MZSP).

Paraná: Curitiba, 25°25'S 49°15'W, ex distorted flowerhead of *Baccharis anomala*, Mar 1963, F. D. Bennett, 1m (USNM); same, ex flowers *Baccharis anomala*, Mar 1963, F. D. Bennett, 3m 6f (USNM); same, on *Baccharis* 808, Mar 1963, F. D. Bennett, 1f (USNM). Curitiba, Centro politécnico, 25°26'48.36"S 49°13'54.71"W, 923 ex flowerhead undetermined species, 12 Mar 2012, M. Savaris, 2m 2f (USNM). Ponta Grossa, Parque Estadual de Vila Velha, 25°13'59.74"S 49°59'56.91"W, 965, 11 Mar 2013, S. Lampert, M. Savaris, 1m (DZUP USNMENT00119729); same, 03 Mar 2013, S. Lampert, M. Savaris, 1m (DZUP USNMENT00119730). São José dos Pinhais, Estrada dos Castelhanos, 25°46'32.3"S 48°56'3.45"W, 392, 03 Nov 2013, M. Savaris, 11m (DZUP USNMENT00262613, USNMENT00119722–25, USNMENT001197241, USNMENT00119720, USNMENT00262532, USNMENT00119726–28). **Rio Grande do Sul**: Passo Fundo, Reserva Particular do Patrimônio Natural Maragato, 28°14'31.97"S 52°27'38.44"W, 634, 31 Aug 2013, M. Savaris, 9m (DZUP USNMENT00119731–39); same, Reserva Particular do Patrimônio Natural Maragato, 28°14'46.13"S 52°27'40.64"W, 600, 28 Aug 2013, M. savaris, 2m (DZUP USNMENT00119740–41). Porto Alegre, ex flowers of *Baccharis punctulata*, Apr 1963, F. D. Bennett, 1f (USNM). **Santa Catarina**: Seara, Nova Teutônia, 27°11'S 52°23'W, 300-500, Jun 1963, F. Plaumann, 1f (CNC); same, May 1970, F. Plaumann, 1f (MZSP USNMENT00105111); same, Aug 1970, F. Plaumann, 1m (MZSP); same, Oct 1970, F. Plaumann, 1m (MZSP). **São Paulo**: Campos do Jordão Nov 1926, J. Lane, 1f (CAS). São

Paulo, 23°32'S 46°37'W, 5 Dec 1970, V. Alin, 1m 2f (ZMUM); same, 21 Dec 1971, V. Alin, 1m 1f (ZMUM); 18 Nov 1974, V. Alin, 1m (ZMUM).

***Plaumannimyia pallens* Hering**

Figs. 65–66, 166, 205, 244, 283, 322, 365, 408, 449, 490–491

Plaumannimyia pallens Hering, 1938: 190 [description; Brazil]; Aczél, 1950: 284 [catalog]; Foote, 1967: 35 [catalog]; Norrbom *et al.*, 1999: 192 [catalog]; Prado *et al.*, 2002: 1022 [host plants]; Norrbom *et al.*, 2010: 42 [citation]; Savaris *et al.*, 2015: 18 [host plants].

Diagnosis. This species differs from most other congeners in having a reticulate wing, without a distinct stellate pattern, the area between the pterostigma and crossvein r-m reticulate and of the same color as the distal area, and cell r_1 with the marginal hyaline marks small, rounded and not extended into cell r_{2+3}. From four others species with this combination of characters (*P. costaemaculata*, *Plaumannimyia* n. sp. 9, *Plaumannimyia* n. sp.10, and *Plaumannimyia* n. sp. 16), it can be distinguished as follows: It differs from *P. costaemaculata* in having the scutal ground color brown, the wing less yellowish, the male fore femur with the anteroventral setae not wavy (Fig. 524), and the male fore basitarsomere without elongate ventral setae. It differs from *Plaumannimyia* n. sp. 9 in having generally smaller hyaline spots in the wing pattern, a less defined subapical dark area in cells r_{2+3} and r_{4+5}, and the apex of the proctiger of the male not bilobed (Fig. 339). It differs from *Plaumannimyia* n. sp. 16 in having the rays to the apices of veins r_{4+5} and M_1 broader and lacking a darker spot in cell $r_{4+5;}$ and from *Plaumannimyia* n. sp.10 in having the markings between the pterostigma and crossvein r-m similar in color to those on the basal part of the wing, in lacking a darker spot in cell $r_{4+5,}$ and in having medial prensiseta with ventral margin medially convex (Fig. 382). Other useful diagnostic characters include: wing with darker margins around many of the hyaline spots; male terminalia with surtyli long and directed posteroventrally, lateral prensisetae very short and medial prensiseta large; ventral area of basal third of aculeus nonsclerotized, and aculeus tip serrate.

Description. Body length 2.80–3.05 mm, mostly yellow in ground color, yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.43–0.44 mm) than long (0.42–0.48 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and with few setulae white, and occiput brown medially and with dark mark sublaterally extend to near vertical setae. Parafacial and gena

yellow. Frons, length (0.36–0.39 mm) less than width at vertex (0.41–0.42 mm), slightly narrowed to anterior margin (0.31–0.32 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with small lanceolate and white setulae on ventral and basal margin. Genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.21–0.23). Eye ovoid, long diameter (0.44–0.46 mm), width (0.41–0.42 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.04–1.10 mm, ground color of scutum brown, of scutellum mostly yellow with basal dorsal face dark. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 2.70–2.80 mm, width 1.02–1.12 mm. Wing pattern reticulate (Figs. 65, 66). Area between pterostigma and crossvein r-m reticulate. Wing with darker margins around many of the hyaline spots. Cell c mostly yellow with faint medial dark spot. Pterostigma yellow with 2 hyaline spots, one basal and another apical. Cell r_1 with 3 marginal hyaline spots small, rounded and not extended to cell r_{2+3}, basal and apical spots sometimes touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots. Cell r_{4+5} with apical rays broad and complete; hyaline spot near anterior end of crossvein dm-m large, ca. ⅔ of width of cell or equal or larger than width of apical hyaline spot. Cells bm, cu*a*, dm, m_1, and m_4 and anal lobe reticulate. Cell m_1 with marginal hyaline spots not reaching vein M_1. Cell m_4 with apical marginal hyaline spot not touching vein M_4. Halter yellow.

Legs: Entirely yellow. Male fore femur with basal anteroventral setae long and thin (Fig. 524).

Abdomen: In both sexes ground color mostly yellow with dark spots, microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape yellow to brown with dark border apical, length 0.73–0.77 mm, width 0.49–0.53 mm at base and 0.14–0.19 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 166) length 0.78 mm. Aculeus (Fig. 205) pale brown, length 0.68 mm, in dorsal view with ventral basal

area nonsclerotized; tip triangular, length 0.14 mm, with lateral margin serrate (Fig. 244). Spermathecae brown, elongated, length (0.16 mm), surface with papillae (Fig. 283).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 with strong indentation (inverted U-shape) (Fig. 535). Epandrium in posterior view globose, with setulae and microtrichia distributed evenly (Fig. 322). Lateral surstylus long, directed posteroventrally, without dorsal lobe (Fig. 365). Medial surstylus with pair of prensisetae; lateral prensiseta minute, conical; medial prensiseta very large and medially convex (3x the size of the lateral) (Figs. 322, 365). Apex of the proctiger not bilobed (Fig. 322). Phallapodeme Y-shaped, 0.31 mm long (Fig. 449). Glans 0.24 mm long (Fig. 408); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Brazil (Paraná, Rio Grande do Sul, Santa Catarina). Elevational records range from 197-1650 m.

Biology. This species has been reared from flowerheads of five species of *Baccharis* (Astereae), including *B. dracunculifolia* DC., *B. microdonta* DC., *B. punctulata* DC., *B. spicata* (Lam.) Baill., and *B. uncinella* DC. (Prado *et al.,* 2002, Savaris *et al.,* 2015).

Type data. This species was described from an unstated number of specimens of both sexes from Nova Teutônia, Brazil, collected "8.VI.1937" by Fritz Plaumann (collector identified in introduction of paper, on p. 187). Dr. Daniel Whitmore kindly located and photographed a female and a male in the BMNH, where the Hering collection was deposited, that are putative syntypes. The male (Fig. 490) is here designated as the lectotype of *Plaumannimyia pallens* Hering to stabilize the usage of this name. It is labeled (Fig. 491) "Type" [white label with large red border] / "Type" [red label] / "8.6.1937 Brasilien Nova Teutônia, 27° 11' B. 52° 23' L. Fritz Plaumann" [white label with black border] / "5" / "*Plaumannia* [*sic*] *pallens* ♂-Type det. M. Hering 1937" [handwritten; white label] / "LECTOTYPE ♂ *Plaumannimyia pallens* Hering by Savaris & Norrbom" [red-bordered label added by us]; and "Plaumannimyia pallens ♂ Hering det. Savaris & Norrbom iv 2016". The lectotype is double mounted (minuten), is in excellent condition, and is deposited in the BMNH.

Specimens examined. BRAZIL: Paraná: Colombo, Bairro Canguiri, 25°22'45.62"S 49°7'57.1"W, 909, 2 Feb 2013, M. Savaris, 5f (USNM USNMENT00119568–72); same, 1 Mar 2013, M. Savaris, 1f (USNM USNMENT00119573); same, 3 Mar 2013, M. Savaris, 1f (USNM USNMENT00119574); same, 02 Mar 2014, M. Savaris, 1m (USNM USNMENT00119575); same, 13 Apr 2014, M. Savaris, 1m (USNM USNMENT00119611); same, 01 Mar 2014, M. Savaris, 1m (USNM USNMENT00262832); same, 22 Mar 2014, M. Savaris, 1m (USNM USNMENT00119631); Bairro Canguiri, 25°23'3.58"S 49°8'15.33"W,

26 Oct 2013, M. Savaris, 1f (USNM USNMENT00119579); Santa Rita, 25°22'44.4"S 49°7'53.2"W, 908 , 14 Apr 2012, M. Savaris, 1m 1f (USNM USNMENT00119576, USNMENT00119624); Santa Rita, 25°22'44.65"S 49°7'53.3"W, 909 , 18 Mar 2012, M. Savaris, 2f (USNM USNMENT00119577–78); Santa Rita, 25°22'45.62"S 49°7'57.1"W, 909 , 01 Mar 2013, M. Savaris, 7m 3f (USNM USNMENT00119580–82, USNMENT00119617–22); same, 3 Mar 2013, M. Savaris, 1m 1f (DZUP USNMENT00119566; USNM USNMENT00119623); same, 10 Mar 2013, M. Savaris, 2m (USNM USNMENT00119629, USNMENT00119630); Curitiba, 25°25'S 49°15'W, Mar 1954, N. L. H. Krauss, 1f (USNM USNMENT00105115); Curitiba, 25°25'S 49°15'W, flowerheads of *Baccharis anomala*, Mar 1963, F. D. Bennett 809, 1m (USNM USNMENT00119601); same, ex flowers of *Baccharis dracunculifolia*, Mar 1963, F. D. Bennett 608, 2m 1f 1p (USNM USNMENT00119603, USNMENT00105112–13); same, on *Baccharis*, 1963, F. D. Bennett 807, 1m (USNM USNMENT00105114); 2f (CIBC); Curitiba, Centro politécnico, 25°26'48.36"S 49°13'54.71"W, 923 m, ex flowerhead undetermined species, 12 Mar 2012, M. Savaris, 13m 11f (MASPC); Palmas, Linha Alegria, Faz. Cerro Chato, 26°30'8.53"S 51°40'14.72"W, 1213, 03 Mar 2015, M. Savaris, S. Lampert, A. L. Norrbom, 1m 1f (USNM USNMENT00119508–09); same, 2-4 Mar 2015, M. Savaris, 4m (USNM UUSNMENT00119612–13, USNMENT00119347, USNMENT00119616); same, 25 Mar 2014, M. Savaris, S. Lampert, 2m 2f (USNM USNMENT00262539–41, USNMENT00262537); Ponta Grossa, Parque Estadual de Vila Velha, 25°13'59.74"S 49°59'56.91"W, 965 m, 02 Mar 2013, S. Lampert, M. Savaris, 5m 2f (USNM USNMENT00119632–36, USNMENT00119645–46); same, 11 Mar 2013, S. Lampert, M. Savaris, 1f (DZUP USNMENT00119565); Tijucas do Sul, Morro Araçatuba, 25°54'8.28"S 48°59'35.11"W, 1650 m, 31 Jul 2013, M. Savaris, S. Lampert, 1f (DZUP USNMENT00119567). **Rio Grande do Sul**: Cambará do Sul, Parque Nacional Aparados da Serra, 29.17032°S 50.09855°W, 8 Mar 2015, M. Savaris, S. Lampert & A. L. Norrbom, 1f (USNM USNMENT00119583); Passo Fundo, Campus UPF, 28°13'14.38"S 52°23'49.45"W, 666 m ex capítulo *Baccharis punctulata* DC., 6 Feb 2009, M. Savaris, 1m 1f (MUZAR); Passo Fundo, Reserva Particular do Patrimônio Natural Maragato, 28°14'31.97"S 52°27'38.44"W, 634 m, 31 Aug 2013, M. Savaris, 3f (DZUP USNMENT00119558, USNMENT00119643–44); same, 13 Sep 2013, M. Savaris, 13f (DZUP USNMENT00119559–64, USNMENT00119637–43); Pelotas, on *Baccharis dracunculifolia*, Apr 1963, 597, 1f 1p (USNM USNMENT00119602); Porto Alegre, on *Baccharis dracunculifolia*, Apr 1962, 614, 1m 1p (USNM USNMENT00119604). **Santa Catarina**: Praia Grande, Nacional Aparados da Serra, trilha Rio do Boi, floodplain, 29.2009°S

50.04708°W, 197 m, 6 Mar 2015, M. Savaris, S. Lampert & A. L. Norrbom, 2m 1f (USNM USNMENT00119584, USNMENT00119614–15); São Lourenço do Oeste, 26°24'2.16"S 52°51'24.16"W, 11 Jan 2013, M. Savaris, S. Lampert, 2f (DZUP USNMENT00119647–48); Seara, Nova Teutônia, 27°11'S 52°23'W, 9 Jun 1937, F. Plaumann, 4m 7f (USNM USNMENT00119587–93, USNMENT00119607–09); same, 10 Jun 1937, F. Plaumann, 1m (USNM USNMENT00119605); same, 11 Jun 1937, F. Plaumann, 1m (USNM USNMENT00119606); same, 16 Jul 1937, F. Plaumann, 3f (USNM USNMENT00105117, USNMENT00119594, USNMENT00119595); same, 18 Jun 1937, F. Plaumann, 1f (USNM USNMENT00119586); same, 19 Jul 1937, F. Plaumann, 1m 3f (USNM USNMENT00119596–98, USNMENT00119610); same, 6 Apr 1938, F. Plaumann, 1f (BMNH USNMENT00119600); same, 300-500 m, Jul 1945, F. Plaumann, 1f (CNC USNMENT00119599).

***Plaumannimyia plagiata* (Blanchard)**

Figs. 131–132, 167, 206, 245, 284, 323, 366, 409, 450, 492–493, 506

Acinia plagiata Blanchard, 1852: 458 [description; Chile]; Malloch, 1933: 264 [list]; Stuardo, 1946: 134 [catalog]; Aczél, 1950: 316 [catalog]; Foote, 1967: 58 [catalog, as unplaced species].
Trypanea plagiata: Hendel, 1914: 75 [n. comb.; key], 76 [catalog].
Trypanaresta plagiata: Norrbom *et al.*, 1999: 237 [n. comb.; catalog].
Plaumannimyia plagiata: Norrbom *et al.*, 2010: 42 [n. comb.].

Diagnosis. This species differs from most other congeners in having solid, broad, dark brown band between the pterostigma and crossvein r-m, cell dm hyaline except for a subapical ray completely crossing it, solid, usually paler brown mark bordering and usually extended to subapical ray in cell dm. From five others species with this combination of characters (*P. ameghinoi*, *P. scutellata*, *P. suspecta* some specimens of *Plaumannimyia* n. sp. 11, and *Plaumannimyia* n. sp. 20), it can be distinguished as follows: It differs in having male fore tibia with apical protuberance. Is differs from *P. ameghinoi* in lacking more distinct solid paler brown mark in cell m_4, and extending from vein M_4 to subapical ray in cell dm. Is differs from *Plaumannimyia* n. sp. 11 in having the base of dark brown band between the pterostigma and crossvein r-m with a distinct extension (fork shape) of vein Rs to vein R_1, and male fore tarsomeres with long setae. Is differs from *Plaumannimyia* n. sp. 20 in lacking

hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m less than 2/3 width of cell r_{4+5}; apical hyaline spot slightly longer than wide, and in having the basal marginal hyaline spot in cell r_1 reaching vein R_{2+3}. Is differs from *P. scutellata* in having more reticulate paler brown mark in cell m_4, and one marginal hyaline spot in cell r_{2+3} (*P. scutellata* with 2 marginal hyaline spots, rarely one). Is differs from *P. suspecta* in lacking the male fore tibia in anterior view strongly curved, and with protuberance on basal half with dense group of fine and elongated setae.

Description. Body length 3.00–3.55 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown.

Head: Slightly higher (0.78–0.87 mm) than long (0.53–0.54 mm). Generally yellow, frons yellow, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.37–0.43 mm) less than width at vertex (0.54–0.60 mm), slightly narrowed to anterior margin (0.44–0.54 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.19–0.21). Eye ovoid, long diameter (0.63–0.66 mm), width (0.49–0.51 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.22–1.30 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 3.10–3.49 mm, width 1.08–1.28 mm. Wing pattern stellate (Figs. 131, 132). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with distinct subapical stellate mark. Cell c mostly hyaline, with basal and medial dark spot. Pterostigma dark brown with small and narrow hyaline distal spot. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, triangular, extended almost to vein R_{2+3} (sometimes reaching cell r_{2+3}); second small, triangular, and not extended almost to vein R_{2+3}; and small quadrate or rounded subapical spot usually touching vein R_{2+3}. Cell r_{2+3} with 1 marginal hyaline spot (i.e., without medial dark ray). Cell r_{4+5} with apical rays narrow and complete; hyaline spot near anterior end of crossvein dm-m smaller, no more than half width

of cell; faint dark spot touching vein R_{4+5} near base of apical rays. Cell dm mostly hyaline, with subapical ray reaching vein M_4. Cell m_4 with distinct solid paler brown mark bordering vein M_4 and usually extending from vein M_4 to subapical ray in cell dm. Cells cu*a*, bm, and m_4, and anal lobe with brown spots (reticulate). Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: mostly yellow (sometimes hind femur with brown spot in anterior area). Medial and posterior femora with setulae lanceolate, white to yellow in anterior area. Male fore with tibia in lateral view with apical protuberance; basal half with elongated setae (distinctly longer than lateral setae), and apical third over apical lobe with dorsal setae erect. Male fore tarsomeres with dorsal long setae (distincly longer than lateral setae).

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 0.94–0.95 mm, width 0.68–0.70 mm at base and 0.22–0.26 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 167) length 1.14 mm. Aculeus (Fig. 206) pale brown, length 0.98 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.17 mm, with lateral margin nonserrate (Fig. 245). Spermathecae brown, subspherical, length 0.14 mm, surface with papillae (Fig. 284).

Male: Setulae on tergites similar to female in size, density and distribution. Sternite 3 with clusters of setulae (Fig. 537). Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 323) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 323), in lateral view with dorsal lobe (Fig. 366). Medial surstylus with pair of prensisetae; lateral prensiseta conical, half of long of medial prensiseta; medial prensiseta with dorsal face convex (Fig. 323); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.31 mm long (Fig. 450). Glans 0.29 mm long (Fig. 409); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Chile (Coquimbo, Valparaíso). Elevational records range from 100-200 m.

Biology. No host plant information is known for this species.

Type data. Blanchard (1852) described this species from an unstated number of specimens of unknown sex from Chile: "las provinces del sur". Under no. 1959 in the Macquart Collection

(MNHNP) there were two female syntypes, both mounted on rectangular pieces of plastic with green bases. The first female (Fig. 492), here designated as the lectotype to stabilize the usage of this name, has the following labels (Fig. 493): “15 43” [circular label with green back]; “MUSEUM PARIS CHILI GAY 15-43”; "Acinia" on one side and "plagiata Blanch" on the other, in Blanchard's writing (compared with the sample Blanchard label in Horn and Kahle (1936, XXII, 35)); “LECTOTYPE ♀Acinia plagiata Blanch. by Savaris & Norrbom” [red-bordered label added by us]; and “Plaumannimyia plagiata (Blanch.) det. Norrbom iv 2016”. The lectotype is in fair condition, with considerable damage to the head, the scutum with a large crease and missing some setae and setulae, and the legs partially covered by glue, but the wings are in good condition. The female paralectotype has the same labels as the lectotype except the one in Blanchard’s writing, and we added a paralectotype label rather than a lectotype label.

Specimens examined. CHILE: Coquimbo: La Serena, 32.1 km E, 3 Dec 1950, Ross & Michelbacher, 1m (CAS USNMENT00262706); same, 50 km S, 1 Dec 1950, Ross & Michelbacher, 2m 1f (CAS USNMENT00119269, USNMENT00104989, USNMENT00119281). Limarí, Ovalle, 1 Aug 1960, L. E. Peña, 2m 6f (CNC USNMENT00119267–68, USNMENT00119276–80, USNMENT00262626); same, 28 Jan 1969, C. Vivar T., 1m (USNM USNMENT00105072); same, 8 km SW, 12 Dec 1950, Ross & Michelbacher, 1m 2f (CAS USNMENT00119272, USNMENT00119266, USNMENT00105108). Limarí, Parque Nacional Fray Jorge, 30°39'47"S 71°40'11"W, 200 m, 7-9 Dec 1990, Bruckhardt & Agosti, 2m 4f (MHNG USNMENT00119265; USNMENT00262563–64, USNMENT00119273–75); same, 10 km E, dry wash, 28 Dec 1966, M. E. Irwin, 2m (UCR USNMENT00119270, USNMENT00105087); same, 15 km SW of Pachingo, 100-200 m, 20 Oct 1966, E. I. Schlinger & M. E. Irwin, 1m (UCR USNMENT00262625). **Valparaíso**: Colmo, 2 km N, Savanilla, 26 Jul 1960, L. Campos, 1m (ENE USNMENT00119271).

***Plaumannimyia scutellata* (Séguy)**

Figs. 64, 119–121, 168, 207, 246, 285, 324–325, 367–368, 410, 451–452, 494–497, 513–514, 536–537, 549

Acanthiophilus scutellatus Séguy, 1933: 258 [description; Ecuador]; Aczél, 1950: 290 [catalog]; Foote, 1967: 57 [catalog; as unplaced Tephritinae species].
Tephritis scutellata: Hering, 1944: 22 [n. comb.; key]; Aczél, 1950: 297 [catalog].
Trypanaresta scutellata: Norrbom *et al.,* 1999: 237 [n. comb.; catalog].
Plaumannimyia scutellata: Norrbom *et al.,* 2010: 42 [n. comb.]; Norrbom *et al.,* 2013: 23 [host plants].
Trypanea eugenia: Hendel, 1914: 81 [in part, Chile and Peru records].
Euarestoides eugenia: Hering, 1941: 165 [in part, Chile and Peru records].

Diagnosis. This species differs from most other congeners in having dark brown stellate mark, solid, broad, dark brown band between the pterostigma and crossvein r-m, and in having medial ray in cell r_{2+3} (i.e., cell with 2 marginal hyaline spots, but ray rarely absent (Fig. 64)). It differs from five others species with this combination of characters (*P. dolores*, *P. eugenia*, *Plaumannimyia* n. sp. 5, *Plaumannimyia* n. sp. 6, and *Plaumannimyia* n. sp. 18), it can be distinguished as follows: It differs from *Plaumannimyia* n. sp. 5 in lacking the posterior half of cell dm and most of cell m_4 solid, pale yellow, distinct dark spot in cell r_{4+5} within the subapical stellate mark; hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m small, not more than half width of cell. crossvein r-m separated from crossvein dm-m by ca. length of crossvein r-m; distal part of cell dm (between subapical ray and crossvein dm-m) entirely yellowish brown. It further differs from *P. dolores* in lacking larger anteroventral setae on the hind femur, lacking pale marks in cells br and r_{4+5} close to crossvein r-m, as well as differences in the male terminalia. It further differs from *Plaumannimyia* n. sp. 6 in lacking the expanded apex of the male arista, the reticulation in cells dm and m_4 stronger and extending into cell br. It further differs from *P. eugenia* in having a larger apical scutellar seta (more than 3 times as long as the scutellar setulae). It differs from *Plaumannimyia* n. sp. 18 in lacking extensive reticulation in cell dm, and in having the male fore tarsus with long dorsal setulae (Figs. 513, 514), and sternite 3 with medial clusters of setulae (Fig. 537).
Description. Body length 2.74–3.50 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown (Fig. 64).

Head: Slightly higher (0.70–0.71 mm) than long (0.48–0.49 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.36–0.39 mm) less than width at vertex (0.51–0.53 mm), slightly narrowed to anterior margin (0.36–0.41 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, brown, gena height to eye long diameter ratio (0.19–0.26). Eye ovoid, long diameter (0.53–0.55 mm), width (0.44–0.46 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.07–1.11 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 3.30–3.71 mm, width 1.09–1.32 mm. Wing pattern stellate (Figs. 119–121). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with distinct subapical stellate mark. Cell c mostly hyaline with faint basal and medial dark spot. Pterostigma dark brown with small hyaline distal spot. Cell r_1 usually with 3 marginal hyaline spots: first largest, elongate, triangular, extended almost to vein R_{2+3} (sometimes reaching into cell r_{2+3}); second small, rounded or triangular, and not extended almost to vein R_{2+3} (sometimes absent); and small quadrate subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots; only one specimem with 1 marginal hyaline spot (Fig. 121). Cell r_{4+5} with apical rays complete; with medially dark spot touching vein R_{4+5} near base of apical rays; hyaline spot near anterior end of crossvein dm-m large, ca. ⅔ of width of cell. Cell dm mostly hyaline, with subapical ray crossing, not reaching vein M_4; with solid brown mark bordering vein M_4 and usually extending from vein M_4 to subapical ray. Cells bm, cu*a*, and m_4, anal lobe and alula mostly brown. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: mostly yellow; hind femur with faint brown spot in anterior area. Medial and posterior femora with setulae lanceolate, white to yellow only in anterior area. Male fore tibia in anterior view slightly curved, and with elongated setae on basal half (distinctly longer than lateral setae), and apical third with small dorsal setae erect. Male fore basitarsus slightly

dorsally flattened. Male fore tarsomeres with dorsal long setae (distinctly longer than lateral setae) (Figs. 513, 514). Male fore apicaltarsus usually dark.

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 0.75–1.11 mm, width 0.77–0.80 mm at base and 0.26–0.27 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 168) length 0.84 mm. Aculeus (Fig. 207) pale brown, length 0.86 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.16 mm, with lateral margin nonserrate (Fig. 246). Spermathecae brown, subspherical, length 0.12 mm, surface with few papillae (Fig. 285).

Male: Setulae on tergites similar to female in size, density and distribution. Sternite 3 with clusters of setulae (Fig. 537). Posterior margin of sternite 5 concave. Epandrium in posterior view (Figs. 324, 325) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Figs. 367, 368), in lateral view with dorsal lobe (Figs. 367, 368). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta (Figs. 324, 325); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.28 mm long (Figs. 451, 452). Glans 0.18 mm long (Fig. 410); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (Jujuy), Bolivia (Cochabamba, La Paz, Modesto Omiste, Oruro), northern Chile (Antofagasta, Tarapacá), Ecuador (Cotopaxi, Quito), Peru (Apurímac, Arequipa, Ayacucho, Cusco, Huánuco, Lima). Elevational records range from 2610-5000 m.

Biology. This species has been reared from flowerheads of *Baccharis pulchella* Sch. Bip. ex Griseb. (Norrbom *et al.,* 2013). Adults have been collected on *Baccharis linearifolia* (Lam.) Pers. and *B. mandonii* Sch. Bip. ex Klatt, which may be possible hosts (Norrbom *et al.,* 2013).

Type data. Séguy (1933) described this species from "Equateur [Ecuador]: Quito, octobre 1930 (type) et Calderon, décembre 1930 (cotype = paratype) (R. Benoist)". Dr. Christophe Daugeron kindly located and photographed the cotype (Figs. 494–497) in the MNHNP, but could not find the holotype. The cotype is labeled "DÉCEMBRE" [white label with black marginal border] / "COTYPE" [brown label] / "acanthiophilus scutellatus cotype E. SEGUY

det. 1933" [handwritten; brown label] / "MUSEUM PARIS ÉQUATEUR CALDERON R. BENOIST 1930" [white label with black marginal border]. The cotype is double mounted (minuten), is in fair condition.

Specimens examined. ARGENTINA: Jujuy: Barrios, S. La Quiaca, 3500 m, 31 Oct 1968, L. E. Peña, 1m (CNC). **BOLIVIA: Cochabamba**: Cochabamba, 17°23.3'S 66°7'W, 2610 m, 25 Mar 2001, A. Freidberg, 1f (USNM USNMENT00216779); Leque Palca, 2 km W of, 17°38.2'S 66°58.4'W, 3950 m, 23 Mar 2001, A. Freidberg, 6m 5f (USNM USNMENT00216781–84, USNMENT00216786–87, USNMENT00216798–02); 3m 3f (ANCB USNMENT00215220–25); 1m 1f (DZUP USNMENT00216780, USNMENT00216785); Pongo, 5 km W of, 17°42.9'S 66°36'W, 3820 m, 23 Mar 2001, A. Freidberg, 1m 1f (USNM USNMENT00216789–90). **La Paz**: 10 km SE of Tiahanacu, Lloco Lloco, 16°34.7'S 68°31.9'W, 4025 m, 28 Mar 2001, S. D. Gaimari, 1m (USNM USNMENT00056545); E of Tiahuanaco, Apacheta Cuu-Cuyu, 4100 m, 28 Dec 1975, L. E. Peña, 1m 4f (CNC) 1m 1f (USNM USNMENT00105109–10); Aroma, Huaraco, amar. 2, above, 21 Jun 1980, 1m (USNM USNMENT00215206); same, amar. 3, above, 20 Jun 1980, 3m (ANCB USNMENT00215201, USNMENT00215203–04); same, amar. 4, above, 21 Jun 1980, 1m (ANCB USNMENT00215202); same, papa amarsa, 21 Dec 1993, V. B. C., 1m (ANCB USNMENT00215205); El Alto, 14 km S, 16°40.1'S 68°11'W, 3900 m, 20 Mar 2001, A. Freidberg, 1f (USNM USNMENT00216788); Guaqui, Lake Titicaca, 30 May 1903, C. A. W. Schnuse expedition, 1f 1m (SMT); La Paz, 15 km NE of, 16°24.6'S 68°2.9'W, 4300 m, 29 Mar 2001, A. Freidberg, 6m 5f (USNM USNMENT00216808–18) 2m (CDFA USNMENT00215237–38) 2m (LACM USNMENT00215235–36) 3m 4f (ANCB USNMENT00215228–34); same, 6 km NE of, 16°25.7'S 68°4.3'W, 4130 m, 19 Mar 2001, A. Freidberg, 3m 2f (USNM USNMENT00216793–97); Patacamaya, 7 km NE of, 17°9.5'S 67°56.7'W, 3800 m, 21 Mar 2001, A. Freidberg, 1m 1f (USNM USNMENT00216791–92); Tiahuanaco, 10 km SE of, 16°34.7'S 68°31.9'W, 4025 m, 28 Mar 2001, A. Freidberg, 1m 1f (USNM USNMENT00216819–20). **Oruro**: Caracollo, 21 Mar 2001, A. Freidberg, 1m 1f (USNM USNMENT00216806–07); Pazña, S of town, 18°36.2'S 66°54.7'W, 3750 m, 22 Mar 2001, A. Freidberg, 2f (ANCB USNMENT00215226–27) 1m 2f (USNM USNMENT00216803–05). **Potosí**: Villazón, 40 km NE of, 3659 m, 18 Feb 1951, Ross & Michelbacher, 1f (CAS). **CHILE: Antofagasta**: Talabre, 28 Feb 1959, L. E. Peña, 6m 7f (CNC) 2m 1f (USNM USNMENT00105044–46); same, 28 Feb 1960, L. E. Peña, 6m 6f (CNC) 1m (USNM USNMENT00105043). **Tarapacá**: Cordillera Iquique, Chiapa, S of, 3800 m, 13 Apr 1969, L. E. Peña, 1f (USNM USNMENT00105039); same, 23 Apr 1969, L.

E. Peña, 2m (USNM USNMENT00105037–38); Putre, Aug 1965, H. Vargas, 2m 1f (USNM USNMENT00105034–36); same, collected in net, Aug 1965, H. Vargas, 1m (Univ. del Norte, Chile); Tarapacá, 26 Nov 1954, L. E. Peña, 1m 2f (IML). **ECUADOR: Cotopaxi**: Latacunga, N of, 3000 m, 21 Feb 1955, E. I. Schlinger & E. S. Ross, 1f (CAS USNMENT00105090). **PERU: Apurímac**: Mamara, 14°15'S 72°34'W, O. Garlepp, 1m 1f (SMT). **Arequipa**: Arequipa, 13 Nov 1902, [C. A. W. Schnuse expedition], 1m (SMT); same, 14 Nov 1902, 1m 1f (SMT). **Ayacucho**: Rt. 26A, NE of Puquio, puna, WP 571, 14.64653°S 74.05079°W, 4088 m, 14 Dec 2011, Norrbom, Steck, Sutton & Nolazco, 1f (USNM USNMENT00744109); Rt. 26A, W of Lucanas, WP 497, 14.61545°S 74.27716°W, 3496 m, on flowering *Baccharis mandonii* (11-PE-01), 3 Dec 2011, Norrbom, Steck, Sutton & Nolazco, 1m (USNM USNMENT00744159). **Cajamarca**: Cajamarca, 1 km SE of town, 2439 m, fertile valley in Andes, shrubs on arid hillside, 28 Aug 1971, P. S. & H. L. Broomfield, 1m (BMNH). **Cusco**: Carretera Manu, dirt side road, ravine, WPB-34, 13.57279°S 71.70208°W, 3296 m, 28 Jan 2013, A. L. Norrbom, G. J. Steck & B. D. Sutton, 4m 3f (USNM/FSCA USNMENT00744765–67, USNMENT00744768–71); 5m 2f (CEBIO); Carretera Manu, dirt side road, WPB-33, 13.56942°S 71.69928°W, 3330 m, 28 Jan 2013, A. L. Norrbom, G. J. Steck & B. D. Sutton, 1m (USNM USNMENT00744712); Carretera Manu, near jct. with road to Caicay, WPB-32, 13.58354°S 71.70835°W, 3099 m, sweeping *Baccharis*, 28 Jan 2013, A. L. Norrbom, G. J. Steck & B. D. Sutton, 1m 2f (USNM USNMENT00744707–09); 2f (CEBIO); Cusco, 8 km S, 3500 m, 6 Aug 1971, C. & M. Vardy, 1m 1f (BMNH USNMENT00105083–84); Paucartambo-Pisac road, between Rayancancha & Tocra, ~ km 5, WP 625, 13.34049°S 71.7267°W, 3607 m, on *Baccharis peruviana* (12-PE-51), 13 Jun 2012, A. L. Norrbom & B. D. Sutton, 1m (USNM); Pto. Maldonado Hwy. (30C), 7 km above (E of) Cjunucunca, WP 655, 13.66157°S 71.59068°W, 4108 m, 7 Jun 2012, A. L. Norrbom, B. D. Sutton & B. Luz Puma, 2m 1f (USNM USNMENT00744244–45, USNMENT00744834); same, above Cjunucunca, Km 11-12, WP 677, 13.66333°S 71.59669°W, 4044 m, 10 Jun 2012, A. L. Norrbom & B. D. Sutton, 1m (USNM USNMENT00744314); 1m 3f (USAA); same, above Cjunucunca, WP 678, 13.6629°S 71.60089°W, 3979 m, 10 Jun 2012, A. L. Norrbom & B. D. Sutton, 2m 1f (USNM USNMENT00744031–33); 1m 2f (CEBIO); Pto. Maldonado Hwy. (30C), above Cjunucunca, WP 678, 13.6629°S 71.60089°W, 3979 m, emerged 22-25 Jun 2012 reared ex flowerheads of *Baccharis pulchella* Sch. Bip. ex Griseb. (12-PE-45), collected 10 Jun 2012, A. L. Norrbom & B. D. Sutton, 4m 2f (USNM USNMENT00055339–40, USNMENT00055342–45); 2m 2f (USAA); 1m 1f (FSCA); 4m 2f (CEBIO); Sacsayhuaman, 3900 m, 5 Aug 1971, C. & M.

Vardy, 1f (BMNH USNMENT00105089); Sicuaní, 14°16'16"S 71°13'37"W, 22 Jun 1903, [C. A. W. Schnuse expedition], 1m (SMT); Urcos, 9 Feb 1978, P. M. Marsh, 4f (USNM USNMENT00105047–50). **Huánuco**: Huánuco, 10 km N of Rio Huallaga, 9°55'S 76°14'W, 4 Feb 1984, 1f (USNM USNMENT00105040); same, 16 Sep 1954, E. I. Schlinger & E. S. Ross, 1f (CAS). **Lima**: San Mateo, 11°45'34"S 76°18'2"W, 20 Nov 1971, K. Raven, 1f (USNM USNMENT00105041); same, 20 Nov 1971, M. Ortiz, 1f (USNM USNMENT00105042).

***Plaumannimyia setulosa* (Malloch)**

Figs. 151–152, 169, 208, 247, 286, 326, 369, 411, 453

Trypanea setulosa Malloch, 1933: 279 [key], 281 [description; Argentina].
Trupanea setulosa: Stuardo, 1946: 134 [catalog].
Tephritis setulosa: Hering, 1944: 26 [n. comb.; key]; Aczél, 1950: 297 [catalog]; Foote, 1967: 43 [catalog].
Trypanaresta setulosa: Norrbom *et al.*, 1999: 267 [n. comb.; catalog].
Plaumannimyia setulosa: Norrbom *et al.*, 2010: 42 [n. comb.].

Diagnosis. This species differs from most other congeners in having area between pterostigma and crossvein r-m with solid brown band except for small hyaline areas bordering crossvein r-m. It differs from six others species with this combination of characters (*P. delicatella*, *P. dolores*, *Plaumannimyia* n. sp. 7, *Plaumannimyia* n. sp. 8, *Plaumannimyia* n. sp. 15, and *Plaumannimyia* n. sp. 25), it can be distinguished as follows: It differs from *P. delicatella* and *Plaumannimyia* n. sp. 7 in having cell r_{4+5} without hyaline spots in middle of dark area between crossvein dm-m and apex of vein R_{2+3} (Figs. 151, 152); male fore tibia without mediolateral concave area. It differs from *P. dolores* in lacking hind femur with larger anteroventral setae (Fig. 526); male without surtyli long and directed posteroventrally (Fig. 535); aculeus tip serrate (Fig. 542). It differs from *Plaumannimyia* n. sp. 8 in lacking the apical scutellar seta paler than the basal seta; cell r_1 with basal marginal hyaline spot oblique (more long than wide); male without surtyli long and directed posteroventrally; aculeus tip serrate. It differs from *Plaumannimyia* n. sp. 15 in having apex of cell r_{2+3} usually with 2 hyaline spots, basal one large, extending almost to vein R_{4+5} or fusing with other apical spots; male fore tibia without concave area; male fore basitarsus without dorsal long setae (distinct longer than lateral setae); in having male fore apical tarsomere entirely yellow; male sternite

3 without medial clusters of setulae; male with apical surstyli not distinct truncated and extended (Fig. 326), and spermathecae elongated. It differs from *Plaumannimyia* n. sp. 25 in having apical scutellar setae acuminate, dark, well differentiated from scutellar setulae; in lacking most of cell m_4 hyaline, at most with small subbasal brown spot, small brown mark near the apex of vein CuA+CuP, an apical brown area, and occasionally small, pale medial brown spot.

Description. Body length 2.80–3.10 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally dark brown.

Head: Slightly higher (0.80–0.88 mm) than long (0.54–0.61 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally extending to the border of vertex. Parafacial and gena yellow. Frons, length (0.43–0.46 mm) less than width at vertex (0.48–0.56 mm), slightly narrowed to anterior margin (0.37–0.39 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate dark brown, posterior seta smaller, lanceolate and white. Gena with small lanceolate, white to yellow setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.28–0.30). Eye ovoid, long diameter (0.61–0.63 mm), width (0.51–0.63 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.17–1.24 mm, ground color of scutum and scutellum dark brown. Mesonotum covered by bright gray and yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, dark brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, dark brown.

Wing: Length 2.67–3.13 mm, width 0.95–1.22 mm. Wing pattern stellate (Figs. 151, 152). Area between pterostigma and crossvein r-m with solid brown band except for small hyaline areas bordering crossvein r-m. Cell c mostly hyaline, with basal and medial dark spot. Pterostigma enterily dark brown. Cell r_1 with 3 marginal hyaline spots: first large, quadrate, touching vein R_{2+3}; second quadrate or triangular touching vein R_{2+3}; and small quadrate or rounded subapical spot, usually touching vein R_{2+3} in male and not touching in female. Cell r_{2+3} usually with 2 marginal hyaline spots, basal one large, extending almost to vein R_{4+5} or fusing with other apical spots. Cell r_{4+5} usually with apical rays complete; hyaline spot near anterior end of crossvein dm-m large, more ⅔ of width of cell; middle dark area between crossvein dm-m and base of apical rays without hyaline spots. Cells br, bm, cu*a*, dm, and m_4,

and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin (sometimes first and second rays connected and basal marginal hyaline spot not reaching vein M_1). Halter yellow to brown.

Legs: In both sexes femora usually with anteroventral brown mark, tibia and tarsomeres entirely yellow. Anterior area of medial and posterior femora with setulae whitish to yellow and lanceolate.

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape blackish, length 0.90 mm, width 0.60 mm at base and 0.26 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 169) length 0.96 mm. Aculeus (Fig. 208) pale brown, length 0.94 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.20 mm, with lateral margin nonserrate (Fig. 247). Spermathecae yellow to brown, elongated, length 0.21 mm, surface with few papillae (Fig. 286).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 326) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally (Fig. 326), in lateral view with dorsal lobe (Fig. 369). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ½ as long as medial prensiseta; medial prensiseta with dorsal face convex (Fig. 326); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.32 mm long (Fig. 453). Glans 0.27 mm long (Fig. 411); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (Neuquén, Río Negro), Chile (Araucanía, Biobío, Los Lagos). Elevational records range from 800-1900 m.

Biology. No host plant information is known for this species.

Type data. The holotype male (BMNH (E) 1486023) is labeled "Type" [white label with large red marginal border] / "*Trypanea* (*Trypanea*) *setulosa* Type det. JR MALLOCH" [handwritten; white label with black submarginal border] / "L. Gutierrez 3-14.xi.1926." [white label, machine print] / "Argentina: Terr. Rio Negro. F.& M. Edwards. B.M.1927–63." [white label, machine print]. The holotype is double mounted (minuten), is in poor condition (without head and left wing), and is deposited in the BMNH.

Specimens examined. ARGENTINA: Neuquén: Neuquén, 38°57'S 68°14'W, 11-16 Dec 1950, K. J. Hayward, 1m (IML USNMENT00262567). **Río Negro:** Puerto Moreno, 3.7 km S, 800 m, 17 Nov 1966, 1m 1f (UCR USNMENT00119258; USNMENT00262623). **CHILE: Araucanía:** Malleco, Pino Hachado, 1900 m, 8 Jan 1959, L. E. Peña, 1m (CNC USNMENT00262708). **Biobío:** Arauco, Caramavide, 1-6 Jan 1954, L. E. Peña, 1f (CNC USNMENT00262653). **Los Lagos:** Llanquihue, Puerto Varas, Dec 1926, R. & E. Shannon, 1f allotype (USNM USNMENT00105051).

***Plaumannimyia subaster* (Malloch)**

Figs. 93–95, 170, 209, 248, 287, 327, 370, 412, 454

Trypanea subaster Malloch, 1933: 279 [key], 280 [description; Argentina].
Trypanaresta subaster: Hering, 1940b: 11 [n. comb.; key]; Aczél, 1950: 293 [catalog]; Foote,1967: 53 [catalog]; Norrbom *et al.,* 1999: 237 [catalog].
Plaumannimyia subaster: Norrbom *et al.,* 2010: 42 [n. comb.].

Diagnosis. This species differs from most other congeners in having the area between the pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and without darker border on anterodistal margin. It differs from five others species with this combination of characters (*P. coelestina*, *P. difficilis*, *P. miseta*, *Plaumannimyia* n. sp. 4, and *Plaumannimyia* n. sp. 21), it can be distinguished as follows: It differs from *Plaumannimyia* n. sp. 4 in having apical hyaline spot in cell r_1 reaching vein R_{2+3}, and in lacking a darker spot in cell r_{4+5} within the stellate mark, and hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m small, not more than half width of cell, the brown part of the stellate mark large. It differs from *P. difficilis* in lacking paler brown spot in stellate mark on cells r_{2+3} and r_{4+5}, and in having the complete ray to the apex of vein R_{4+5}. It differs from *P. coelestina* and *P. miseta* in not having two isolated dot-like spots in cell dm; the male further differs in lacking the fore tibia with the setulae on the apical third of dorsal side erect, and and the fore first tarsomere in lateral view narrower basally than apically, without setulae on the posterior apical half, and with posterodorsal row of elongate setae (Fig. 530). It differs from *Plaumannimyia* n. sp. 21 in lacking the scutal ground color and oviscape yellow, and most of the stellate mark pale brown, but with a distinct dark brown spot within it in cell r_{4+5}. It differs from (*P. flava*, *P. imitatrix*, *Plaumannimyia* n. sp. 14 and *Plaumannimyia* n. sp. 23) in

lacking a distinct darker border on anterodistal margin of the solid yellow band between the pterostigma and crossvein r-m.

Description. Body length 3.14–4.55 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally pale brown to brown.

Head: Slightly higher (0.82–1.11 mm) than long (0.60–0.77 mm). Generally yellow, frons yellow, ocellar tubercle brown and with few setulae yellow, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.46–0.61 mm) less than width at vertex (0.65–0.70 mm), slightly narrowed to anterior margin (0.43–0.54 mm). Three frontal setae, anterior seta smaller, lanceolate, yellow or yellow to orange; posterior 2 setae acuminate, pale brown or brown. Anterior orbital seta acuminate, posterior seta smaller, lanceolate, yellow or yellow to orange. Gena with few small lanceolate and yellow setulae on ventral margin, genal seta acuminate, pale brown (sometimes lanceolate concolorous with setulae), gena height to eye long diameter ratio (0.28–0.32). Eye ovoid, long diameter (0.60–0.80 mm), width (0.48–0.65 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.19–1.62 mm, ground color of scutum brown to dark brown, of scutellum mostly yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, yellow or yellow to orange, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, yellow or yellow to orange (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 3.00–3.66 mm, width 1.02–1.28 mm. Wing pattern stellate (Figs. 93–95). Area between pterostigma and crossvein r-m with solid, broad, yellow band, without distinctly darker border on anterodistal margin and with distinct subapical stellate mark. Cell c mostly hyaline with faint basal and medial dark spot. Pterostigma entirely yellow. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, oblique, not extended into cell r_{2+3}; second triangular or quadrate reaching vein R_{2+3}; and small triangular or quadrate subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., with medial dark ray); medial dark ray sometimes incomplete. Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m large, more than ⅔ width of cell. Cells bm, cu*a*, dm, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 1.04–1.19 mm, width 0.71–0.82 mm at base and 0.27–0.32 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 170) length 1.14 mm. Aculeus (Fig. 209) pale brown, length 1.06 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.16 mm, with lateral margin nonserrate (Fig. 248). Spermathecae brown, elongated, length 0.26 mm, surface with papillae (Fig. 287).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 327) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 327), in lateral view with dorsal lobe (Fig. 370). Medial surstylus with pair of prensisetae; lateral prensiseta conical, more than ⅔ as long as medial prensiseta (Fig. 327); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.35 mm long (Fig. 454). Glans 0.32 mm long (Fig. 412); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (Río Negro), Chile (Araucanía, Coquimbo, Maule, Santiago, Tarapacá, Valparaíso). Elevational records range from 45-510 m.

Biology. This species has been reared from flowerheads of *Baccharis rosmarinifolia* Hook. & Arn. Adults were swept on top of *Baccharis salicifolia* (Ruiz & Pav.) Pers. and *Baccharis* spp., in Chile.

Type data. The holotype male (BMNH (E) 1486022) is labeled "Type" [white label with large red marginal border] / "*Trypanea* (*Tephritis*) *subaster* Type det. JR MALLOCH" [handwritten; white label with black submarginal border] / "Bariloche Rio Negro AgrNov1926 R& E Shannon" [white label, machine print]. The holotype is double mounted (paper triangle), is in fair condition (without right wing), and is deposited in the BMNH.

Specimens examined. CHILE: Araucanía: between Radal & Los Laureles, Choroico, 38°59'S 72°18'W, sweeping *Baccharis* spp. along old railroad track, 15 Nov 1996, A. L. Norrbom & G. J. Steck, 1f (FSCA USNMENT00049536); Lago Caburgua, SW shore between Playa Blanca & Caburgua, 39°12'S 71°48'W, collected on flowering broadleaved *Baccharis* sp. (96CH23), 16 Nov 1996, A. L. Norrbom & G. J. Steck, 3m 1f (USNM

USNMENT00049303–06); Pucón, 3 km SW, S shore of Lago Villarrica, Puente Carmelito, 39°18'S 72°5'W, sweeping *Baccharis* spp., 12-15 Nov 1996, A. L. Norrbom & G. J. Steck, 1m (USNM USNMENT00049814); Pucón, 6 km E, 1 km W of Río Turbio, 39°16'S 71°55'W, sweeping *Baccharis rosmarinifolia* (96CH28), 12-16 Nov 1996, A. L. Norrbom & G. J. Steck, 1m (DZUP USNMENT00049473) 1m 1f (FSCA USNMENT00049474, USNMENT00049486) 4m 1f (USNM USNMENT00049472, USNMENT00049477-78, USNMENT00049482, USNMENT00049485). **Coquimbo:** Cuesta Los Hornos, 18 Oct 1958, L. E. Peña, 2m (CNC USNMENT00119551–52); La Junta, 8 km W of, 7 Dec 1950, Ross & Michelbacher, 1m (CAS USNMENT00119540); La Serena, 32.1 km E, 3 Dec 1950, Ross & Michelbacher, 1m 5f (CAS USNMENT00119535–39, USNMENT00119556); Limarí, Parque Nacional Fray Jorge, 30°39'47"S 71°40'11"W, 200 m, 7-9 Dec 1990, Bruckhardt & Agosti, 3f (MHNG USNMENT00119544–46); Rivadavia [29°58'37"S 70°33'38"W], 29 Oct 1957, L. E. Peña, 1m 1f (CNC USNMENT00119547–48) 1f (USNM USNMENT00119549); Vicuña, 19.3 km E, 4 Dec 1950, Ross & Michelbacher, 1m (CAS USNMENT00119557). **Maule:** Curico, El Colgo, 1-20 Oct 1960, L. E. Peña, 2m 1f (CNC USNMENT00119532, USNMENT00119553–54). **Region Metropolitana de Santiago:** 5 km N Tiltil, 5 km SW Rungue, Estero Tiltil, 33°3'S 70°56'W, 6 Nov 1996, A. L. Norrbom & G. J. Steck, 1f (USNM USNMENT00049610); Las Condes, Puente Nilhue, 1 Mar 1981, M. Cerdon, 1f (USNM USNMENT00119534); Prov. Cordillera, Las Vertientes, road to Rio Maipo bridge, 33°35'S 70°28'W, collected on *Baccharis rosmarinifolia* (96CH12), 9-10 Nov. 1996, A. L. Norrbom & G. J. Steck, 1m (USNM USNMENT00049666); near Maipú, Quebrada de la Plata, 33°30'S 70°55'W, 510 m, Malaise, 10 Nov 1966, M. E. Irwin, 1f (UCR USNMENT00119531); Peñalolén [33°28'6"S 70°32'3"W], Dec 1954, L. E. Peña, 1m (CNC USNMENT00119550); San Gabriel, 1 km SE of, Puente El Yeso, 39°12'S 71°48'W, sweeping *Baccharis* spp., 18 Nov 1996, A. L. Norrbom & G. J. Steck, 2m 1f (DZUP USNMENT00049104–06) 3m (FSCA USNMENT00049097, USNMENT00049107, USNMENT00049110); 9m 2f (USNM USNMENT00049099, USNMENT00049108–09, USNMENT00049111–18); San Jose de Maipo, 2 km S, E bank of Rio Maipo, Puente El Toyo, 33°39'S 70°22'W, sweeping *Baccharis* spp., 9 Nov 1996, A. L. Norrbom & G. J. Steck, 1m (USNM USNMENT00049630). **Tarapacá:** Atacama, Bahia Copiapo, coastal dunes, 45 m, 5 Oct 1966, M. E. Irwin, 1f (CAS USNMENT00119530) 1m (USNM USNMENT00262548). **Valparaíso:** El Granizo, near border of Parq. Nac. Cerro La Campana, 32°59'S 71°10'W, rocky creek, sweeping *Baccharis salicifolia* (96CH1), 3 Nov 1996, A. L. Norrbom, G. J. Steck & B. A. McPheron, 1m 1f

(USNM USNMENT00049239, USNMENT00049251); Los Andes, Dec 1944, 1m 1f (MZUSP USNMENT00119533, USNMENT00119555).

***Plaumannimyia suspecta* (Malloch)**

Figs. 129–130, 171, 210, 249, 288, 328, 371, 413, 455, 532

Trypanea suspecta Malloch, 1933: 278 [key], 279 [description; Argentina]; Foote, 1967: 57 [catalog; as unplaced Tephritinae species].
Tephritis suspecta: Hering, 1944: 22 [n. comb.; key]; Aczél, 1950: 298 [catalog].
Trypanaresta suspecta: Norrbom *et al.,* 1999: 238 [n. comb.; catalog].
Plaumannimyia suspecta: Norrbom *et al.,* 2010: 42 [n. comb.].

Diagnosis. This species differs from all other species of *Plaumannimyia* in having the male fore tibia in anterior view strongly curved, with protuberance on basal half with dense group of fine and elongated setae (Fig. 532). It also differs from most other congeners in having solid, broad, dark brown band between the pterostigma and crossvein r-m, cell dm hyaline except for a subapical ray completely crossing it, solid, usually paler brown mark bordering and usually extended to subapical ray in cell dm. From five others species with this combination of characters (*P. ameghinoi*, *P. plagiata*, *P. scutellata*, some specimens of *Plaumannimyia* n. sp. 11, and *Plaumannimyia* n. sp. 20), it can be distinguished as follows: It differs from *P. ameghinoi* in lacking more distinct solid paler brown mark in cell m_4, and extending from vein CuA+CuP to subapical ray in cell dm, and in lacking male fore tibia with large subapical protuberance. It differs from *Plaumannimyia* n. sp. 11 in having the base of dark brown band between the pterostigma and crossvein r-m with a distinct extension (fork shape) of vein Rs to vein R_1, and male fore tarsomeres with long setae. It differs from *P. plagiata* in lacking male fore tibia with apical protuberance, and sternite 3 without clusters of setulae. It differs from *Plaumannimyia* n. sp. 20 in lacking hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m less than 2/3 width of cell r_{4+5}; apical hyaline spot slightly longer than wide, and in having the basal marginal hyaline spot in cell r_1 reaching vein R_{2+3}. Is differs from *P. scutellata* in having more reticulate paler brown mark in cell m_4, and one marginal hyaline spot in cell r_{2+3} (*P. scutellata* with 2 marginal hyaline spots, rarely one).
Description. Body length 3.27–4.40 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown to dark brown.

Head: Slightly higher (0.94–0.95 mm) than long (0.63–0.66 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae yellow, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.44–0.51 mm) less than width at vertex (0.58–0.66 mm), slightly narrowed to anterior margin (0.44–0.53 mm). Two frontal setae acuminate, brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, lanceolate, white to yellow. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, brown, gena height to eye long diameter ratio (0.18–0.19). Eye ovoid, long diameter (0.70–0.78 mm), width (0.54–0.56 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.38–1.40 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, yellow to orange, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, yellow to orange (concolorous with setulae), other thoracic setae acuminate, brown to dark brown.

Wing: Length 3.00–3.33 mm, width 1.33–1.41 mm. Wing pattern stellate (Figs. 129, 130). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with distinct subapical stellate mark. Cell c mostly hyaline with faint basal and medial dark spot. Pterostigma dark brown with small hyaline distal spot. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, triangular, extended almost to vein R_{2+3} (sometimes reaching into of cell r_{2+3}); second small, rounded or triangular and not extended almost to vein R_{2+3} (sometimes absent); and small quadrate or triangular subapical spot touching vein R_{2+3}. Cell r_{2+3} with 1 marginal hyaline spot (i.e., without medial dark ray). Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m large, ca. ½ of width of cell; width of marginal apical spot more or less equal the width of hyaline spot near anterior end of crossvein dm-m. Cell dm mostly hyaline, with subapical ray crossing, not reaching vein M_4 (sometimes subapical ray connected with dark ray over crossvein dm-m). Cells bm, cu*a*, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin (sometimes first and second rays not completely connected). Halter yellow.

Legs: mostly yellow (sometimes hind femur with brown spot in anterior area). Male fore tibia in anterior view strongly curved, and with protuberance on basal half with dense group of fine and elongated setae, and apical third with small dorsal setae erect (Fig. 532). Male fore

basitarsus dorsally flattened. Male fore tarsomeres with dorsal long setae (distinctly longer than lateral setae).

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 1.04–1.31 mm, width 0.70–0.78 mm at base and 0.22–0.29 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 171) length 1.29–1.40 mm. Aculeus (Fig. 210) pale brown, length 1.25–1.32 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.25–0.28 mm, with lateral margin nonserrate (Fig. 249). Spermathecae brown, subspherical, length 0.16–0.19 mm, surface with few papillae (Fig. 288).

Male: Setulae on tergites similar to female in size, density and distribution. Sternite 3 with small clusters of setulae. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 328) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 328), in lateral view with dorsal lobe (Fig. 371). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta (Fig. 328); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.35 mm long (Fig. 455). Glans 0.32 mm long (Fig. 413); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (Río Negro), Chile (Araucanía, Maule, Región Metropolitana de Santiago, Valparaíso). One male was collected at 510 m altitude in Chile.

Biology. One female of this species has been reared from flowerheads of *Baccharis linearis* (Ruiz & Pav.) Pers. (= *B. rosmarinifolia* Hook. & Arn.) and nine additional adults were collected on or swept from this plant. Additional adults were swept from or collected on *Baccharis* species.

Type data. The holotype female (BMNH (E) 1486020) is labeled “Type” [white label with large red marginal border] / “*Trypanea suspecta* Type det. JR MALLOCH” [handwritten; white label with black submarginal border] / “Argentina: Terr. Rio Negro. F.& M. Edwards. B.M.1927–63.” [white label, machine print] / “L. Correntoso. 18-25.xi.1926.” [white label, machine print]. The holotype is double mounted (minuten), is in fair condition (without left wing and right broken), and is deposited in the BMNH.

Specimens examined. ARGENTINA: Río Negro: Bariloche, Nov 1926, R. & E. Shannon, 1f paratype (USNM USNMENT00105064). **CHILE: Araucanía:** Lago Caburgua, SW shore between Playa Blanca & Caburgua, 39°12'S 71°48'W, collected on flowering broadleaved *Baccharis* sp. (96CH23), 12-16 Nov 1996, A. L. Norrbom & G. J. Steck, 1f (USNM USNMENT00049037); Pucón, 6 km E, 1 km W of Río Turbio, 39°16'S 71°55'W, sweeping *Baccharis rosmarinifolia* (96CH28), 12-16 Nov 1996, A. L. Norrbom & G. J. Steck, 1m 2f (USNM USNMENT00049488–90). **Maule:** Curico, El Coigo, 1-20 Oct 1960, L. E. Peña, 1m (CNC USNMENT00105063). **Region Metropolitana de Santiago:** Tiltil, Caleu [33°2''S 70°57'9''W], 13 Mar 1983, M. Cerda, 1m (USNM USNMENT00105065); Caleu, Lo Marin, 4 Mar 1984, M. Cerda, 1f (USNM USNMENT00105066); Prov. Cordillera, Las Vertientes, road to Rio Maipo bridge, 33°35'S 70°28'W, collected on *Baccharis rosmarinifolia* (96CH12), 9-10 Nov 1996, A. L. Norrbom & G. J. Steck, 1m 1f (DZUP USNMENT00049672–73) 2m 2f (USNM USNMENT00049667–69, USNMENT00049900); Cordillera, San Jose de Maipo, reared ex capitula of *Baccharis rosmarinifolia* (92CH2B), 29 Mar 1992, A. L. Norrbom, 1f (USNM USNMENT00105068); near Guayacán & jct. Rios Colorado & Maipo, km 0-0.5 road to Los Maitenes, 33°36'S 70°22'W, sweeping *Baccharis* sp., 17 Nov 1996, A. L. Norrbom & G. J. Steck, 2f (USNM USNMENT00049342–43); near Maipú, Quebrada de la Plata, 33°30'S 70°55'W, 510 m, Malaise trap, 2 Feb 1966, M. E. Irwin, 1m (UCR USNMENT00119263); San Gabriel, 1 km SE of, Puente El Yeso, 39°12'S 71°48'W, sweeping *Baccharis* spp., 18 Nov 1996, A. L. Norrbom & G. J. Steck, 1m (USNM USNMENT00049098). **Valparaíso:** El Granizo, near border of Parq. Nac. Cerro La Campana, 32°59'S 71°10'W, rocky creek, sweeping flowerless *Baccharis* sp., 3 Nov 1996, A. L. Norrbom, G. J. Steck & B. A. McPheron, 1f (USNM USNMENT00049259); Limache, Cuesta La Dormida, 23 Jun 1965, N. Hichins O., 1m (USNM USNMENT00105067).

***Plaumannimyia thomsoni* (Hendel)**

Figs. 138–140, 172, 211, 250, 289, 329, 372, 414, 456, 527, 540–541

Trypeta plagiata Thomson, 1869: 583. Preoccupied by Blanchard (1852).
Urellia plagiata: Brèthes, 1908a: 367 [n. comb.; key; redescription; wing image].
Trypanea thomsoni Hendel, 1914: 75 [key], 76, new name for *plagiata* Thomson (1869); Malloch, 1933: 290 [key], 291 [Argentina: Mendoza]; Aczél, 1950: 311 [catalog].
Trupanea thomsoni: Foote, 1967: 52 [catalog].
Trypanaresta thomsoni: Norrbom *et al.*, 1999: 238 [n. comb.; catalog]; Prado *et al.*, 2002: 1023 [host plants].
Plaumannimyia thomsoni: Norrbom *et al.*, 2010: 42 [n. comb.].

Diagnosis. This species differs from most other congeners in having dark brown stellate mark, solid, broad, dark brown band between the pterostigma and crossvein r-m, and the apical scutellar seta absent or minute (less than 2 times as long as the scutellar setulae). It differs from *P. eugenia*, the only other species with this combination of characters, in lacking a medial ray in cell r_{2+3} (cell r_{2+3} with only 1 marginal hyaline spot). In wing pattern it resembles *P. valdesiana* and *Plaumannimyia* n. sp. 13, but differs in having hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m larger, and further differs from *P. valdesiana* in having a subapical ray in cell dm. The male can be distinguished from other species by characters of the fore leg, including the tibia with a row of erect dorsal setulae, the first and second tarsomeres with slightly elongate dorsal setae, and the third tarsomere with a cluster of longer dorsal setae (Fig. 527).

Description. Body length 2.57–3.03 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.61–0.73 mm) than long (0.48–0.51 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.34–0.37 mm) less than width at vertex (0.43–0.46 mm), slightly narrowed to anterior margin (0.31–0.36 mm). Three frontal setae, anterior seta minute, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate pale brown, posterior seta lanceolate, white. Gena with small lanceolate, white to yellow setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter

ratio (0.16–0.18). Eye ovoid, long diameter (0.49–0.58 mm), width (0.39–0.44 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 0.98–1.02 mm, ground color of scutum brown to dark brown, of scutellum mostly yellow, with basal medial dorsal face dark. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta minute, usually one equal length of setulaes and another < 3x length of setules (sometimes absent), lanceolate, white. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 2.47–2.93 mm, width 0.99–1.08 mm. Wing pattern stellate (Figs. 138–140). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (sometimes fork shape), and with distinct subapical stellate mark. Cell c hyaline. Pterostigma dark brown with small and narrow hyaline distal spot. Cell r_1 usually with 3 marginal hyaline spots (sometimes two): first largest, elongate, triangular, extended into cell r_{2+3}; second small, triangular or rounded not extended to the vein R_{2+3} (sometimes absent); and small triangular or quadrate subapical spot usually touching vein R_{2+3}. Cell r_{2+3} with one large marginal hyaline spot. Cell r_{4+5} with apical rays narrow and complete; hyaline spot near anterior end of crossvein dm-m large, more than half width of cell; faint medially dark spot touching vein R_{4+5} near base of apical rays within the subapical stellate mark. Cells bm, cu*a* and anal lobe hyaline. Cell dm with subapical ray arising from anteroapical. Cell m_4 mostly hyaline usually with apical dark spots and rarely with darks spots on basal and medial areas. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow. Male fore tibia with dorsal elongated setae (distinctly longer than lateral setae). The first and second tarsomeres with slightly elongate dorsal setae, and the third tarsomere with a cluster of longer dorsal setae (Fig. 527).

Abdomen: In both sexes ground color brown to dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 0.73–0.76 mm, width 0.58–0.60 mm at base and 0.17–0.19 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 172) length 0.98 mm. Aculeus (Fig. 211) pale brown, length 0.80 mm, in dorsal view with basal area sclerotized; tip triangular, length

0.16 mm, with lateral margin nonserrate (Fig. 250). Spermathecae brown, subspherical, length 0.12 mm, surface with papillae (Fig. 289).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 329) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 329), in lateral view with small dorsal lobe (Fig. 372). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta (Fig. 329); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.25 mm long (Fig. 456). Glans 0.19 mm long (Fig. 414); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (Bahia Blanca, Buenos Aires, Catamarca, Chubut, Córdoba, Corrientes, La Pampa, La Rioja, Mendoza, Río Negro, Santa Fé, San Juan, San Luiz), Brazil (Paraná, Rio Grande do Sul, Santa Catarina, São Paulo), Peru (Huánuco), Venezuela (Dependencias Federales). Elevational records range from 50-1850 m.

Biology. This species has been reared from flowerheads of three species of Astereae, *Conyza bonariensis* (L.) Cronquist, *C. canadensis* (L.) Cronquist, *Solidago chilensis* Meyen, and one species of Inuleae, *Pluchea sagittalis* (Lam.) Cabrera (Prado *et al.*, 2002). Other host plants records found on the labels of the specimens are: *Grindelia* sp., *Baccharis dracunculifolia* DC., *Baccharis glutinosa* Pers., *Baccharis ulicina* Hook & Arn., *Baccharis salicifolia* (Ruiz & Pav.) Pers.

Type data. The holotype female (NRS) is labeled “Buen Ayr.” [Buenos Aires], [white label, machine print] / “Kinb.” [white label, machine print] / “Typus”. The holotype is directly pinned, is in fair condition, and is deposited in the NRS.

Specimens examined. ARGENTINA. **Bahia Blanca**: ex scale material, 8 Jan 1943, P. A. Berry, 2m (USNM USNMENT00105001–02). **Buenos Aires**: Buenos Aires, 3 Jan 1909, J. Brèthes, 1f (USNM USNMENT00119383). **Catamarca**: El Suncho, 1850 m, 23-31 Dec 1946, R. Golbach, 2f (IML). Belén, 27 Jan 1969, Tomsic & Willink Entomofauna Subandina, 1m (IML). **Chubut**: Punta Norte, 26 km S, reared from capitula of *Baccharis* sp., 12 Jan 1994, D. Gandolfo, 154004, 3m 3f (USNM USNMENT00105007–12). Puerto Pirámide, reared from capitula of Compositae V *Baccharis*?, 18 Dec 1993, D. Gandolfo, 149708, 1m 4f (USNM USNMENT00105013–17). **Córdoba**: La Cumbre, flowers heads *Solidago chilensis*, 25 Feb 1990, Soli6a, 1m (USNM USNMENT00105022). **Corrientes**: Curuzú Cuatiá, Feb 1920, J. Brèthes, 2f (USNM USNMENT00119384). **La Pampa**: Rt. 22, 69.2 km E of La

Adela, ex *Baccharis pingraea*, 15 Jan 1990, P. E. Boldt, 1m (USNM USNMENT00105019). **La Rioja**: Chamical, 10 km, emerged from seed heads of Compositae sp., 10 Apr 1993, H. Cordo & D. Gandolfo, 1f (USNM USNMENT00105018). **Mendoza**: Uspallata, 24 Jan 1950, M. Aczél, 1m 1f (USNM USNMENT00105023–24). **Río Negro**: Chichinales, Rt. 22, 48.2 km E, emerged from seed heads of *Grindelia* sp., 15 Dec 1988, GRI113b, 1f (USNM USNMENT00105020). Gral. Fernandez Oro, 18 Feb 1978, O. S. Flint, Jr., 1m 3f (USNM USNMENT00104996–99). Sierra Grande, 10 km S, reared from capitula of *Baccharis ulicina*, 30 Dec 1993, D. Gandolfo 153244, 1m 3f (USNM USNMENT00105003–06). **Santa Fé**: Wildermuth, 32°S 61°25'W, 50 m, 20 Jan 1994, T. Jenuy, 1m 1f (MHNG USNMENT00104994; USNMENT00119382). **San Juan**: Barreal del Leoncito, *Baccharis salicifolia*, 28 Jan 1990, Bac80b, 1f (USNM USNMENT00105021). **San Luis**: Eleodoro Lobos, 32.1 km E. of, R.A., 7 Feb 1951, Ross and Michelbacher 1f (USNM USNMENT00119385). **BRAZIL**. **Paraná**: Colombo, Bairro Canguiri, 25°22'45.62"S 49°07'57.10"W, 909 m, 01 Mar 2014, rede entomológica, M. Savaris, 3f (USNM USNMENT00262573; USNMENT00119369-70); same, 02 Mar 2014, rede entomológica, M. Savaris, 4m 2f (DZUP USNMENT00262572; USNMENT00262632; USNMENT00119350; USNMENT00119359; USNM USNMENT00262633, USNMENT00119371); same, 02 Feb 2013, rede entomológica, M. Savaris, 8m (DZUP USNMENT00262574; USNMENT00119351; USNMENT00119353-58); same, 13 Jun 2014, rede entomológica, M. Savaris, 1m (USNM USNMENT00119363). Colombo, Santa Rita, 25°22'44.65"S 49°07'53.30"W, 909 m, 26 Mar 2012, rede entomológica, M. Savaris, 1f (DZUP USNMENT00119367). Colombo, Santa Rita, 25°22'44.40"S 49°07'53.20"W, 909 m, 02 Feb 2013, rede entomológica, M. Savaris, 2f (USNM USNMENT00119372-73). Curitiba, 25°25'S 49°15'W, Feb 1976, H. S. Telford, 1f (USNM USNMENT00105026). Ponta Grossa, Parque Estadual de Vila Velha, 25°13'59.74"S 49°59'56.91"W, 965 m, 11 Mar 2013, rede entomológica, S. Lampert, M. Savaris, 1m (DZUP USNMENT00119352). **Rio Grande do Sul**: Pelotas, ex flowers of *Baccharis dracunculifolia*, Apr 1963, F. D. Bennett, 1f 1p (USNM USNMENT00744931). **Santa Catarina**: Seara, Nova Teutônia, 27°11'S 52°23'W, 9 Jun 1938, Fritz Plaumann, 1m 1f (USNM USNMENT00119362; USNMENT00119374), same, 5 Jun 1937, Fritz Plaumann, 1f (USNM USNMENT00119375); same, 29 Jun 1937, Fritz Plaumann, 1f (USNM USNMENT00119376); same, 300-500 m, Jun 1962, Fritz Plaumann, 1f (USNM USNMENT00119377). Nova Teutônia, F. Plaumann 1m (FMNH USNMENT00105088). Praia Grande, Pousada Aracema, 29.20328°S 50.01283°W, sweeping *Coniza* sp., 5-9 Mar 2015, M. Savaris, S. Lampert & A.L. Norrbom, 2m 4f (USNM

USNMENT00119349, USNMENT00119366, USNMENT00119368; DZUP USNMENT00119364, USNMEMT00119512-13). **São Paulo**: Vila Americana, Feb 1924, F. X. Williams, 1m (USNM USNMENT00119361). São Paulo, 21 Dec 1971, B. А$_{ЛИН}$, 1m 3f (USNM USNMENT00119360; USNMENT00119378-80). Campinas, Feb 1924, F. X. Williams, 1f (USNM USNMENT00119381). **PERU**. **Huánuco**: 11 km N of Huánuco, Espensa, 5 Feb 1984, W. N. Mathis, 2m (USNM USNMENT00104993, USNMENT00105000). **VENEZUELA**. **Dependencias Federales**: 21 km N. of La Victoria on Rt. 4, nr. Colonia Tovar, La Mora, sweeping *Conyza bonariensis* (L.) Cronq. (V-1), 28 May 1988, A. L. Norrbom & G. J. Steck, 1f (USNM USNMENT00105025).

***Plaumannimyia valdesiana* (Gandolfo & Norrbom)**

Figs. 141–142, 173, 212, 251, 290, 330, 373, 415, 457

Trypanaresta valdesiana Gandolfo & Norrbom, 1997: 249 [description; Argentina; host plants].

Plaumannimyia valdesiana: Norrbom *et al.*, 2010: 42 [n. comb.].

Diagnosis. This species differs from most other congeners in having dark brown stellate mark, solid, broad, dark brown band between the pterostigma and crossvein r-m, the base of which does not have an extension across the fork of vein Rs to vein R_1. From three other species with this combination of characters (*P. thomsoni*, *Plaumannimyia* n. sp. 11, and *Plaumannimyia* n. sp. 13), it can be distinguished as follows: It differs from *P. thomsoni* in lacking a subapical ray in cell dm, having hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m smaller, having larger (more than 3 times as long as the scutellar setulae) acuminate apical scutellar setae, the male fore tibia without apical erect dorsal setulae, and the dorsal setulae of the male fore tarsus not elongate. It differs from *Plaumannimyia* n. sp. 13 in lacking a subapical ray in cell dm, having larger hyaline marks in cell r_1 (including a subapical hyaline spot usually present). It differs from *Plaumannimyia* n. sp. 11 in having cell dm, except for narrow brown areas along the anterodistal corner and the distal margin, at least the basal ¾ of cell m_4, and the rest of the wing basad of these cells and the pterostigma hyaline.

Description. Body length 3.20–4.13 mm, mostly yellow in ground color, yellow and gray microtrichose. Setae generally pale brown.

Head: Slightly higher (0.65–0.92 mm) than long (0.55–0.67 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally extended nearly to vertical setae. Parafacial and gena yellow. Frons, length (0.48–0.70 mm) equal or more than width at vertex (0.63–0.66 mm), slightly narrowed to anterior margin (0.49–0.56 mm). Three frontal setae, anterior seta minute, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate pale brown, posterior seta lanceolate, white. Gena with small lanceolate, white to yellow setulae on ventral margin, genal seta acuminate, pale brown (sometimes concolorous with setulae), gena height to eye long diameter ratio (0.20–0.22). Eye ovoid, long diameter (0.63–0.70 mm), width (0.49–0.53 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.24–1.41 mm, ground color of scutum brown, of scutellum mostly yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, less than ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 2.70–3.50 mm, width 1.11–1.16 mm. Wing pattern stellate (Figs. 141, 142). Area between pterostigma and crossvein r-m with solid, broad, dark brown band, and with distinct subapical stellate mark. Cell c hyaline. Pterostigma dark brown with small and narrow hyaline distal spot. Cell r_1 usually with 3 marginal hyaline spots: first largest, elongate, triangular, extended into cell r_{2+3}; second small, triangular or rounded not touching vein R_{2+3}; and small triangular or quadrate subapical spot usually touching vein R_{2+3}. Cell r_{2+3} with 1 marginal hyaline spot (sometimes two). Cell r_{4+5} with apical rays narrow and complete; hyaline spot near anterior end of crossvein dm-m large, ca. ½ of width of cell; faint medially dark spot touching vein R_{4+5} near base of apical rays within the subapical stellate mark. Cells bm cu*a* and anal lobe hyaline. Cell dm mostly hyaline, with small brown mark in anteroapical corner. Cell m_4 mostly hyaline usually with small apical dark spot. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color yellow to brown. Tergites 3-6 mostly brown with posterior border yellow, and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown, length 0.78–0.92 mm, width 0.48–0.60 mm at base and 0.16–0.26 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 173) length 0.96 mm. Aculeus (Fig. 212) pale brown, length 0.86 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.17 mm, with lateral margin nonserrate (Fig. 251). Spermathecae brown, elongated, length 0.18 mm, surface with papillae (Fig. 290).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 330) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 330), in lateral view with dorsal lobe (Fig. 373). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ½ as long as medial prensiseta (Fig. 330); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.36 mm long (Fig. 457). Glans 0.27 mm long (Fig. 415); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (Chubut, Río Negro, Salta). Elevational records range between 10-750 m.

Biology. This species has been reared from flowerheads of three species of *Gutierrezia* (Astereae), including *G. mandonii* (Sch. Bip.) Solbrig, *G. solbrigii* Cabrera, and *G. spathulata* (Phil.) Kurtz (Gandolfo & Norrbom, 1997).

Type data. The holotype male is labeled "ARGENTINA, Chubut P. Pirámide, 25-Mar-95, Gandolfo-Calcaterra" [white label with black marginal border] / "reared from larva in flower head of *Gutierrezia solbrigii* 197097" [white label with black marginal border] / "HOLOTYPE" [red label]. The holotype is double mounted (minuten), is in fair condition, and is deposited in the MACN.

Specimens examined. ARGENTINA: Chubut: Puerto Pirámide, reared from capitula of *Gutierrezia solbrigii*, 10 Jan 1994, D. Gandolfo 153800, 1f (USNM USNMENT00105056); Puerto Pirámide, reared from capitula of *Gutierrezia solbrigii*, 25 Mar 1995, D. Gandolfo & Calcaterra 197097, 2m (USNM USNMENT00105057–58); Puerto Pirámide, Pla. de Valdès, emerged from seed head *Gutierrezia solbrigii*, 13 Dec 1988, Gu198a, 1f (USNM USNMENT00105060); Puerto Madryn, reared from larvae in flower head of *Gutierrezia solbrigii*, 27 Mar 1995, D. Gandolfo & Calcaterra 197468, 1f 1p (USNM

USNMENT00105055); Punta Norte, 44 km SW, reared from capitula of *Gutierrezia solbrigii*, 20 Dec 1993, D. Gandolfo 149792, 1m 1f (USNM USNMENT00105052–53). **Río Negro:** San Antonio Oeste, reared from capitula of *Gutierrezia solbrigii*, 8 Dec 1993, D. Gandolfo 149010, 1m (USNM USNMENT00105054). **Salta:** Guemes, Hwy. R34, sweeping *Flourensia riparia*, 7 Nov 1990, P. E. Boldt 4762, 1m (USNM USNMENT00105059).

***Plaumannimyia* n. sp. 1**

Figs. 75–76, 174, 213, 252, 291, 331, 374, 416, 458, 544, 550

Diagnosis. This species differs from most other congeners in having the area between pterostigma and crossvein r-m reticulate and without darker border on anterodistal margin, and with distinct subapical stellate mark. Of the others species with this combination of characters, it differs from *Plaumannimyia* n. sp. 24 in having smaller subapical stellate mark with 2-3 hyaline spots in cell r_{2+3}, and apical hyaline spot in cell r_1 reaching vein R_{2+3}. It differs from *Plaumannimyia* n. sp. 3 in lacking an oblique marginal hyaline area in cell r_1 beginning at the apex of vein R_1 and extending into cell r_{2+3}. It differs from *Plaumannimyia* n. sp. 12 in having distinct marginal hyaline marks in cells r_{2+3} and r_{4+5}, and it differs from *Plaumannimyia* n. sp. 2 in having a lacking or having less distinct dark spot in cell r_{4+5} within the subapical stellate mark, lacking a row of slightly enlarged anteroventral setulae on the hind femur, and usually having multiple spots in cell r_{4+5} within the subapical stellate mark. It differs from *Plaumannimyia* n. sp. 22 in lacking brown vittae on the scutum, having the pale spots within the area between the pterostigma and crossvein r-m hyaline rather than yellow, and having more extensive brown markings in the basal half of cell dm. It differs from *Plaumannimyia* n. sp. 16 in having the hyaline marks in cell r_1 less rounded, fewer hyaline spots within the stellate mark, and the darker spot in cell r_{4+5} within the subapical stellate mark usually lacking, or if present larger than in *Plaumannimyia* n. sp. 16.

Description. Body length 3.33–3.96 mm, mostly dark brown in ground color, gray microtrichose. Setae generally dark brown to black.

Head: Slightly higher (0.85–0.90 mm) than long (0.56–0.66 mm). Generally whitish to yellow, frons yellow, ocellar tubercle brown, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena whitish to yellow. Frons, length (0.43–0.44 mm) less than width at vertex (0.54–0.60 mm), slightly narrowed to anterior margin (0.43–0.46 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae black, acuminate. Anterior orbital seta acuminate, posterior seta smaller, whitish and

lanceolate. Gena with only few small lanceolate and whitish setulae on middle and ventral margin, genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.26–0.29). Eye ovoid, long diameter (0.62–0.66 mm), width (0.53–0.58 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.19–1.39 mm, ground color of scutum dark brown, of scutellum in dorsal view mustly brown to dark brown, lateral yellow. Mesonotum mostly gray microtrichose. Setulae lanceolate, whitish to yellow and with equal size. Scutellum with 2 pairs of setae, apical seta acuminate, dark, about ⅓ as long as basal seta. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, dark.

Wing: Length 3.43–3,46 mm, width 1.32–1.35 mm. Wing pattern stellate (Figs. 75, 76). Area between pterostigma and crossvein r-m reticulate and without darker border on anterodistal margin, and with distinct subapical stellate mark. Pterostigma mostly dark brown usually with small hyaline spot. Cell r_1 with 4 hyaline marginal spots: first small, rounded, usually connected with second spot and not extended into cell r_{2+3}; second largest, oblique and reaching vein R_{2+3}; third triangular and extended almost to vein R_{2+3}; and small triangular or quadrate subapical spot often touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete or incomplete medial dark ray); 2 distinct small hyaline spots in cell r_{2+3} within the subapical stellate mark. Cell r_{4+5} with apical rays complete and 3 distinct small hyaline spots within the subapical stellate mark. Cells dm, bm, cu*a*, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin; basal marginal hyaline spot not reaching vein M_1. Halter whitish to yellow.

Legs: In both sexes femora usually with brown spots, tibia and tarsomeres entirely yellow. Anterior area of medial and posterior femora with setulae whitish to yellow and lanceolate.

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally with few setulae, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6. Oviscape black, length 0.97–1.00 mm, width 0.71–0.73 mm at base and 0.22–0.26 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 174) length 1.20 mm. Aculeus (Fig. 213) pale brown, length 1.03 mm, in dorsal view with ventral area of basal third sclerotized; tip triangular, length 0.19 mm, with lateral margin nonserrate (Fig. 252). Spermathecae yellow to brown, elongated, length 0.21mm, surface with papillae (Fig. 291).

Male: Setulae on tergites similar to female in size, density, color and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 331) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally (Figs. 331), in lateral view with dorsal lobe (Fig. 374). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta (Fig. 331); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.39 mm long (Fig. 458). Glans 0.37 mm long (Fig. 416); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Chile (Coquimbo, Valparaíso). The type was collected at 10 m altitude.

Biology. No host plant information is known for this species. The holotype was collected "on top of *Baccharis*". Adults have been collected in February, July, September, November and December.

Type data. The holotype male is labeled "Chile, Valparaiso Prov. Quintay, II-19-1967 10m.E.I.Schlinger on top of *Baccharis* in dune area" / "CAS" [white square] / "USNMENT00262554" [plastic bar code label]. The holotype is double mounted (triangle paper), is in moderate condition (abdomen dissected), and is deposited in the CAS. Paratypes: **CHILE: Coquimbo:** Los Vilos, 35.4 km N, 13 Dec 1950, Ross & Michelbacher, 1f (CAS USNMENT00119498); Parque Nacional Fray Jorge, 10 km E, dry wash, 28 Dec 1966, M. E. Irwin, 1f (UCR USNMENT00262555). **Valparaíso:** Algarrobo, 33°23'28"S 71°41'34"W, 9 Sep 1975, D. Frías L., 1m 1f (USNM USNMENT00105079–80); Algarrobo, 33°23'28"S 71°41'34"W, 21 Jul 1951, Kuschel & L. E. Peña, 1m (IML USNMENT00262709).

***Plaumannimyia* n. sp. 2**

Figs. 81–83, 175, 214, 253, 292, 332, 375, 417, 459

Diagnosis. This species differs from most other congeners in having the area between the pterostigma and crossvein r-m reticulate and paler than the stellate mark, and without darker border on anterodistal margin. Of the other species with this combination of characters, it differs from *Plaumannimyia* n. sp. 3 in lacking an oblique marginal hyaline area in cell r_1 beginning at the apex of vein R_1 and extending into cell r_{2+3}. It differs from *Plaumannimyia* n. sp. 12 in having distinct marginal hyaline marks in cells r_{2+3} and r_{4+5}, it differs from *Plaumannimyia* n. sp. 24 in having distinct dark spot in cell r_{4+5} within the subapical stellate

mark, a row of slightly enlarged anteroventral setulae on the hind femur, no more than one small hyaline spot in cell r_{4+5} within the subapical stellate mark (*Plaumannimyia* n. sp. 24 usually has multiple spots), and apical hyaline spot in cell r_1 reaching vein R_{2+3}, and it differs from *Plaumannimyia* n. sp. 1 in having distinct dark spot in cell r_{4+5} within the subapical stellate mark, two slightly enlarged anteroventral setulae on the hind femur, no more than one tiny hyaline spot in cell r_{2+3} within the subapical stellate mark (*Plaumannimyia* n. sp. 1 usually has two spots).

Description. Body length 2.51–3.20 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally paler brown to brown.

Head: Slightly higher (0.70–0.78 mm) than long (0.44–0.52 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown to black, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.36–0.39 mm) less than width at vertex (0.49–0.53 mm), slightly narrowed to anterior margin (0.37–0.41 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, dark brown. Anterior orbital seta acuminate, posterior seta smaller, whitish and lanceolate. Gena with few small lanceolate and whitish setulae on ventral margin, genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.30–0.31). Eye ovoid, long diameter (0.49–0.56 mm), width (0.44–0.46 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.10–1.26 mm, ground color of scutum dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia except anterior central area of scutum with pale gray microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ½ as long as basal seta. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 2.94–2.97 mm, width 1.19–1.62 mm. Wing pattern stellate (Figs. 81–83). Area between pterostigma and crossvein r-m reticulate and without darker border on anterodistal margin, and with distinct subapical stellate mark. Pterostigma mostly yellow. Cell r_1 with 4 hyaline marginal spots: first and second small, rounded, not extended into cell r_{2+3} (sometimes connected with submarginal hyaline spot and reaching vein R_{2+3}); third triangular and extended almost to vein R_{2+3}; and small triangular or quadrate subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray); 1-2 tiny hyaline spots in cell r_{2+3} within the subapical stellate mark. Cell r_{4+5} with apical rays

complete and with medially dark spot touching vein R_{4+5} near base of apical rays. Cells dm, bm, cu*a*, and m_4 and anal lobe reticulate. Cell m_1 with 2 dark rays reaching posterior wing margin; basal marginal hyaline spot not reaching vein M_1. Halter whitish to yellow.

Legs: mostly yellow (sometimes hind femur with anteroventral brown spot). Anterior area of medial and posterior femora with setulae white to yellow and lanceolate. Hind femur with usually two slightly enlarged anteroventral setulae.

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6. Oviscape brown to black, length 0.83–0.90 mm, width 0.66–0.82 mm at base and 0.27–0.29 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 175) length 1.24 mm. Aculeus (Fig. 214) pale brown, length 1.01 mm, in dorsal view with basal area wide and sclerotized; tip triangular, length 0.15 mm, with lateral margin nonserrate (Fig. 253). Spermathecae brown, subspherical, length 0.20 mm, surface with papillae (Fig. 292).

Male: Setulae on tergites similar to female in size, density, color and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 332) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Figs. 332), in lateral view with dorsal lobe (Fig. 375). Medial surstylus with pair of prensisetae; lateral prensiseta conical, more than ⅔ as long as medial prensiseta (Fig. 332); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.37 mm long (Fig. 459). Glans 0.34 mm long (Fig. 417); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Colombia (Boyacá), Ecuador (Azuay, Chimborazo, Cotopaxi), Peru (Apurimac, Cajamarca, Cusco). Elevational records range between 2439-4108 m.

Biology. This species has been reared from flowerheads of *Baccharis tricuneata* (L.f.) Pers. Adults have also been collected on *Baccharis linearifolia* subsp. *polycephala* (Wedd.) Joch. Müll. (= *B. peruviana* Cuatrec.). Adults have been collected in February-June, August, October and December.

Type data. The holotype male is labeled “PERU: Apurimac: above Sañayca, WP 83, 14.20788°S 73.36537°W, 3581 m, emerged 10-23 Dec 2013 reared ex flowerheads of *Baccharis tricuneata* (13-PE-43) collected 8 Dec 2013, A. L. Norrbom & B. D. Sutton” / “USNMENT00875862” [plastic bar code label]. The holotype is double mounted (minuten)

and is in excellent condition, and is deposited in the MHNJP. Paratypes: **COLOMBIA: Boyacá:** Sogamoso, 29 May 1946, E. A. Chapin, 3m (USNM USNMENT00105075-77). **ECUADOR: Azuay:** Cuenca, 28 km S, 2500-2800 m, 15 Mar 1965, L. E. Peña, 1m (CNC USNMENT00119417). **Chimborazo:** Alausi, 64.3 km S, 20 Feb 1955, E. I. Schlinger & E. S. Ross, 1f (CAS USNMENT00119413); Licto, 21 km ESE of, stream above Rio Alao, 3500 m, montane woodland, 18-19 Oct 1987, J. Rawlins, C. Young & R. Davidson, 1f (CMP USNMENT00262557). **Cotopaxi:** Latacunga, 25.7 km N, 3000 m, 21 Feb 1955, E. I. Schlinger & E. S. Ross, 1m 1f (CAS USNMENT00119414-15); Latacunga, N of, 3300 m, Dec 1970, L. E. Peña, 1m (MZUSP USNMENT00262556). **PERU: Apurimac:** above Sañayca, WP 76, 14.22256°S 73.3622°W, 3769 m, sweeping *Baccharis* spp., 7 Dec 2013, A. L. Norrbom & B. D. Sutton, 1f (MHNJP USNMENT00875854) 2f (USNM USNMENT00875853 USNMENT00875855); above Sañayca, WP 83, 14.20788°S 73.36537°W, 3581 m, emerged 10-23 Dec 2013 reared ex flowerheads of *Baccharis tricuneata* (13-PE-43) collected 8 Dec 2013, A. L. Norrbom & B. D. Sutton, 1m 1f (MHNJP USNMENT00875841, USNMENT00875861) 3m 3f (USNM USNMENT00875842-47). **Cajamarca:** Cajamarca, 1 km SE of town, 2439 m, fertile valley in Andes, shrubs on arid hillside, 28 Aug 1971, P. S. & H. L. Broomfield, 1m (BMNH USNMENT00262551). **Cusco:** Cusco, 3600 m, 6 Apr 1905, [C. A. W. Schnuse expedition], 1m (SMT USNMENT00119416); Est. Biol. Wayqecha, Trocha Picaflor, 13°10'26.2"S 71°35'14.1"W, 2800 m, 11 Dec 2011, Norrbom, Steck, Sutton & Nolazco, 1m (USNM USNMENT00744098); Paucartambo-Pisac road, between Rayancancha & Tocra, ~ km 5, WP 625, 13.34049°S 71.7267°W, 3607 m, on *Baccharis peruviana* (12-PE-51), 13 Jun 2012, A. L. Norrbom & B. D. Sutton, 1m1f (MHNJP) 1m1f (USNM); Pto. Maldonado Hwy. (30C), 7 km above (E of) Cjunucunca, WP 655, 13.66157°S 71.59068°W, 4108 m, 10 Jun 2012, A. L. Norrbom & B. D. Sutton, 2f (USNM USNMENT00744251, USNMENT00744256); same, 2 Dec 2013, 1f (MHNJP USNMENT00744833) 1m (USNM USNMENT00744832); same, grassy ravine, 5 Dec 2013, 1m 1f (MHNJP USNMENT00744850, USNMENT00744852) 1f (USNM USNMENT00744851).

***Plaumannimyia* n. sp. 3**

Figs. 84–85, 176, 215, 254, 293, 333, 376, 418, 460

Diagnosis. This species differs from most other congeners in having the area between the pterostigma and crossvein r-m reticulate and paler than the stellate mark, and without darker border on anterodistal margin. Of the other species with this combination of characters, it differs from *Plaumannimyia* n. sp. 1, *Plaumannimyia* n. sp. 2 and *Plaumannimyia* n. sp. 24 in having an oblique marginal hyaline area in cell r_1 beginning at the apex of vein R_1 and extending into cell r_{2+3}, and it further differs from *Plaumannimyia* n. sp. 1 and *Plaumannimyia* n. sp. 24 in having more distinct dark rays and hyaline marks in cells r_{2+3} and r_{4+5}, and no more than one small hyaline spot in cell r_{4+5} within the subapical stellate mark (*Plaumannimyia* n. sp. 1 and *Plaumannimyia* n. sp. 24 usually have multiple spots). It differs from *Plaumannimyia* n. sp. 12 in having distinct marginal hyaline marks in cells r_{2+3} and r_{4+5}.

Description. Body length 2.50–3.40 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.70–0.78 mm) than long (0.53–0.54 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.36–0.41 mm) less than width at vertex (0.49–0.54 mm), slightly narrowed to anterior margin (0.35–0.36 mm). Three frontal setae, anterior seta smaller, lanceolate, white to yellow; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate, posterior seta smaller, lanceolate, white to yellow. Gena with few small lanceolate and white to yellow setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.23–0.28). Eye ovoid, long diameter (0.54–0.60 mm), width (0.46–0.51 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.20–1.28 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ⅓ as long as basal seta. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 3.33–3.56 mm, width 1.18–1.32 mm. Wing pattern stellate (Figs. 84, 85). Area between pterostigma and crossvein r-m reticulate and without darker border on anterodistal margin, and with distinct subapical stellate mark. Pterostigma mostly yellow. Cell r_1 with 3

marginal hyaline spots: first largest, elongate, oblique, extended to cell r_{2+3}; second oblique and not extended almost to vein R_{2+3}; and small triangular or quadrate subapical spot usually touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell br entirely reticulate. Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m no more than ⅔ width of cell. Cells bm, cu*a*, dm, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6; posterior margin of tergite 6 with row of setae large, acuminate and pale brown. Oviscape brown to black, length 0.85 mm, width 0.77 mm at base and 0.31 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 176) length 1.06 mm. Aculeus (Fig. 215) pale brown, length 1.00 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.22 mm, with lateral margin nonserrate (Fig. 254). Spermathecae brown, subspherical, length 0.15 mm, surface with papillae (Fig. 293).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 333) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Figs. 333), in lateral view with dorsal lobe (Fig. 376). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta (Fig. 333); with group of 2–3 setulae between prensisetae and also group of 2-3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.40 mm long (Fig. 460). Glans 0.37 mm long (Fig. 418); vesica less than ⅓ length of internal sclerites.

Distribution. *Neotropical.* Bolivia (La Paz), Ecuador (Napo), and Peru (Cusco, Huánuco). Elevational records range from 1900-2400 m.

Biology. This species has not been reared. Adults were collected on *Baccharis latifolia* (Ruiz & Pav.) Pers. and *Baccharis trinervis* (Lam.) Pers. Adults have been collected in February, April and September.

Type data. The holotype female is labeled “PERU. Cuzco: Paucartambo, Buenos Aires, km 132, 2400m. 2 Sep 1988, Amnon Freidberg” / “USNMENT00105092” [plastic bar code

label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the USNM. Paratypes: **BOLIVIA: La Paz:** NE of Santa Fé, Colonia Luayza, Entel (telephone) antenna, 15°46'35.2"S 67°35'48.1"W, 1900 m, on *Baccharis trinervis* (Lam.) Pers. (01-Bol-23), 13 Apr 2001, A. L. Norrbom, 1f (USNM USNMENT00055821). **ECUADOR: Napo:** El Chaco, 5 km N, Malaise trap & wet net, 15 Feb 1983, M. J. Sharkey, 1m (USNM USNMENT00105093). **PERU: Huánuco:** Rt. 3N, 2 km N of Pachachupan, 9°46'24"S 76°5'49"W, 2270 m, on flowering *Baccharis latifolia* (Ruiz & Pav.) Pers. (10-PE-28), 22 Apr 2010, N. Nolazco & A.L. Norrbom, 1m (USNM USNMENT00745140).

***Plaumannimyia* n. sp. 4**

Figs. 91–92, 177, 216, 255, 294, 334, 377, 419, 461

Diagnosis. This species differs from most other congeners in having the area between the pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and without darker border on anterodistal margin. It differs from five others species with this combination of characters (*P. coelestina*, *P. difficilis*, *P. miseta*, *P. subaster*, and *Plaumannimyia* n. sp. 21), it can be distinguished as follows: It differs in having hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m small, not more than half width of cell (variable in *Plaumannimyia* n. sp. 21), the basal marginal hyaline spot in cell r_1 not extended into cell r_{2+3}, the brown part of the stellate mark large, and in characters of the terminalia: the male has elongate and curved surstyli, and the female has the ventral area of basal third of aculeus nonsclerotized, and aculeus tip serrate. The male further differs from the other species except *P. coelestina* in having longer basal ventral setae on the fore femur (Fig. 524). *Plaumannimyia* n. sp. 4 also differs from *P. coelestina* and *P. miseta* in not having two isolated dot-like spots in cell dm. It differs from *P. flava*, *P. imitatrix*, *Plaumannimyia* n. sp. 14 and *Plaumannimyia* n. sp. 23 in lacking a darker border on anterodistal margin of the solid yellow band between the pterostigma and crossvein r-m.

Description. Body length 2.50–3.50 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown.

Head: Slightly higher (0.66–0.80 mm) than long (0.46–0.56 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown or brown to black, and with few setulae white, and occiput brown medially and with brown mark sublaterally extend to near vertical setae. Parafacial and gena yellow. Frons, length (0.39–0.43 mm) equal than width at vertex (0.34–0.43 mm), slightly narrowed to anterior margin (0.32–0.41 mm). Three frontal setae, anterior

seta smaller, lanceolate, white or white to yellow; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on basal margin, ventral area with few small acuminate, dark setulae. Genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.24–0.27). Eye ovoid, long diameter (0.51–0.62 mm), width (0.41–0.50 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.05–1.28 mm, ground color of scutum brown to dark brown, of scutellum yellow (sometimes with dorsal face dark). Mesonotum covered by bright yellow microtrichia except anterior central area of scutum with pale gray microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white, about ⅓ as long as basal seta. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 2.64–2.80 mm, width 0.89–1.15 mm. Wing pattern stellate (Figs. 91, 92). Area between pterostigma and crossvein r-m with solid, broad, yellow band, without distinctly darker border on anterodistal margin and with distinct subapical stellate mark. Cell c mostly hyaline. Pterostigma entirely yellow. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, oblique, not extended into cell r_{2+3}; second triangular, not reaching vein R_{2+3}; and small rounded or quadrate subapical spot not touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m small, not more than half width of cell; with distinct medial dark spot touching vein R_{4+5} near base of apical rays. Cells bm, cu*a*, dm, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: entirely yellow.

Abdomen: In both sexes ground color brown to dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6. Oviscape brown to black, length 0.66–0.80 mm, width 0.46–0.53 mm at base and 0.17–0.20 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 177) length 0.78 mm. Aculeus (Fig. 216) pale brown, length 0.70 mm, in dorsal view with basal area nonsclerotized; tip triangular, length 0.16 mm, with lateral margin serrate (Fig. 255). Spermathecae brown, elongated, length 0.14 mm, surface with papillae (Fig. 294).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 with strong indentation (inverted U-shape) (Fig. 535). Epandrium in posterior view (Fig. 334) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus long, directed posteroventrally (Fig. 377). Medial surstylus with pair of prensisetae; lateral prensiseta minute, conical; medial prensiseta very large (3x the size of the lateral) (Fig. 543). Phallapodeme Y-shaped, 0.40 mm long, mostly dark brown (Fig. 461). Glans 0.30 mm long (Fig. 419); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Brazil (Minas Gerais, Paraná). Elevational records include 800-965 m.

Biology. No host plant information is known for this species. Adults have been collected in March and July.

Type data. The holotype male is labeled "BRASIL: P[a]R[aná], Ponta Grossa, Parq. Est. Vila Velha, 11.iii.2013, 25°13'59.74"S, 49°59'56.91"O, 965 m, rede entomológica, S. Lampert, M. Savaris" / "USNMENT00677382" [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the DZUP. Paratypes: **BRAZIL: Minas Gerais:** Belo Horizonte, Estação Ecológica, Campus UFMG, clear trail 60 m in from road near swamp, 800 m, 19-22 Jul 1993, Malaise Trap, S. D. Gaimari, 1f (USNM USNMENT00119335). **Paraná:** Ponta Grossa, Parque Estadual de Vila Velha, 25°13'59.74"S 49°59'56.91"W, 965 m, 02 Mar 2013, rede entomológica, S. Lampert, M. Savaris 1m (USNM USNMENT00119336).

***Plaumannimyia* n. sp. 5**

Figs. 122, 335, 378, 420, 462

Diagnosis. This species differs from most other congeners in having dark brown stellate mark, solid, broad, dark brown band between the pterostigma and crossvein r-m, and a medial ray in cell r_{2+3} (i.e., cell with 2 marginal hyaline spots). It differs from five others species with this combination of characters (*P. dolores*, *P. eugenia*, *P. scutellata*, *Plaumannimyia* n. sp. 6, and *Plaumannimyia* n. sp. 18), it can be distinguished as follows: It differs in having the posterior half of cell dm and most of cell m_4 solid, pale yellow. It further differs from *P. dolores* in lacking larger anteroventral setae on the hind femur, lacking pale marks in cells br and r_{4+5} close to crossvein r-m, as well as differences in the male terminalia. It further differs from *Plaumannimyia* n. sp. 6 in lacking the expanded apex of the male arista, and from *Plaumannimyia* n. sp. 18 in having the apical dorsal setae of the male fore tibia erect. It

further differs from *P. eugenia* in having a larger apical scutellar seta (more than 3 times as long as the scutellar setulae), and *P. scutellata* in having the male foreleg differently modified (tibia not curved and dorsal setulae on tarsus not elongate).

Description. Body length 3.14 mm, yellow in ground color, yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.86 mm) than long (0.58 mm). Generally yellow, frons yellow, anteriomedially with a whitish setulae smaller, ocellar tubercle yellow to brown with smaller setulae, and occiput brown medially and with brown mark V-shape. Parafacial and gena yellow. Frons, length (0.41 mm) less than width at vertex (0.54 mm), slightly narrowed to anterior margin (0.48 mm). Three frontal setae, anterior seta smaller, lanceolate, white to yellow; posterior 2 setae acuminate, pale brown and closed. Anterior orbital seta acuminate, posterior seta smaller, lanceolate, white to yellow. Gena with few small acuminate and dark setulae on medial and ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.19). Eye spherical, long diameter (0.64 mm), width (0.49 mm). Lateral vertical, postocellar and postocular setae lanceolate and white to yellow. Antenna testaceous yellow, first flagellomere as long as wide. Maxillary palpus and labella yellow.

Thorax: Length 1.28 mm, ground color of scutum yellow, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta missing. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 3.30 mm, width 1.25 mm. Wing pattern stellate (Fig. 122). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with distinct subapical stellate mark. Cell c mostly hyaline. Pterostigma mostly dark with narrow hyaline spot on anterior margin. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, triangular, touching vein R_{2+3}; second very small, rounded, not extended almost to vein R_{2+3}; and small triangular or quadrate subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell br with very strong bend in posterior margin of dark area, distance from bend to crossvein r-m equal to length of crossvein r-m. Crossvein r-m separated from crossvein dm-m by ca. length of crossvein r-m. Cell r_{4+5} with apical rays complete; with distinct medial dark spot touching vein R_{4+5} near base of apical rays; hyaline spot near anterior end of crossvein dm-m small, not more than half width of cell. Cell dm with spot near midlength and subapical ray incomplete; distal part

of cell between subapical ray and crossvein dm-m entirely yellowish. Posterior half of cell dm and most of cells m_4, bm, and cu*a*, and anal lobe solid, pale yellow. Cell m_1 medially with 2 dark rays reaching posterior wing margin.

Legs: Entirely yellow. Male fore tibia with fine and elongated setulae on dorsal side, third apical erect. Basitarsus with fine setulae on dorsal side, yellow and no longer than width of tarsomere.

Abdomen: Ground color yellow and microtrichia and setulae on abdominal terga concolorous with those on mesonotum. Female: unknow. Male: Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 335) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex rounded (Figs. 335), in lateral view with dorsal lobe (Fig. 378). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta (Fig. 335); with group of 2–3 setulae between prensisetae and also group of 2-3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.28 mm long (Fig. 462). Glans 0.22 mm long (Fig. 420); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Peru (Lambayeque). The holotype was collected between 10-25 m altitude.

Biology. No host plant information is known for this species. The holotype was collected in July.

Type data. The holotype male is labeled “PERU: Dept. Lambayeque Lambayeque, 2 km W., 20-VII-1982, B. Miller, L. A. Stange” / “USNMENT00105033” [plastic bar code label]. The holotype is double mounted (paper triangle), is in fair condition (abdomen dissected), and is deposited in the FSCA.

***Plaumannimyia* n. sp. 6**

Figs. 113–114, 176, 217, 256, 295, 336, 379, 463

Diagnosis. The male differs from all other species of *Plaumannimyia* in having the apex of the arista expanded, and from most other species in having the fore tibia with a small dorsal subapical lobe. This species differs from most other congeners in having dark brown stellate mark, solid, broad, dark brown band between the pterostigma and crossvein r-m, and in having medial ray in cell r_{2+3} (i.e., cell with 2 marginal hyaline spots). From five others species with this combination of characters, it can be distinguished as follows: It differs from *Plaumannimyia* n. sp. 5 in having more extensive reticulate markings in cells dm and m_4 and

the male fore basitarsus with elongate dorsal setae. It differs from *P. dolores* in lacking larger anteroventral setae on the hind femur (Fig. 526), lacking pale marks in cells br and r_{4+5} close to crossvein r-m, as well as differences in the male terminalia. It differs from *Plaumannimyia* n. sp. 18 in having the reticulation in cells dm and m_4 stronger and extending into cell br, the shape of the brown area in cell br (hyaline area between crossvein bm-m and brown area in cell br measured along vein $M_{1,}$ 0.89-0.99 times distance from crossvein bm-m to crossvein r-m vs. 0.69-0.73 times in *Plaumannimyia* n. sp. 18), and in having the dorsal setae of the male fore tibia erect. It differs from *P. eugenia* in having a larger apical scutellar seta (more than 3 times as long as the scutellar setulae). It differs from *P. scutellata* in having extensive reticulation in cell dm.

Description. Body length 3.50–395 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.87–1.02 mm) than long (0.60–0.71 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.46–0.53 mm) less than width at vertex (0.65–0.70 mm), slightly narrowed to anterior margin (0.49–0.63 mm). Three frontal setae, anterior seta smaller, lanceolate, white to yellow (sometimes pale brown); posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate, posterior seta smaller, lanceolate, white to yellow. Gena with few small lanceolate and white to yellow setulae on medial and ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.28–0.29). Eye ovoid, long diameter (0.61–0.70 mm), width (0.53–0.61 mm). Antenna testaceous yellow, first flagellomere as long as wide. Arista with apex expanded.

Thorax: Length 1.43–1.58 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia except anterior central area of scutum with pale gray microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, sometimes basal seta with apex expanded; apical seta acuminate, pale brown, about ½ as long as basal seta. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 3.96–4.32 mm, width 1.49–1.71 mm. Wing pattern stellate (Figs. 113, 114). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with distinct subapical stellate mark. Cell c mostly hyaline or sometimes with faint medial dark spot. Pterostigma dark brown with small and narrow hyaline distal spot.

Cell r_1 with 3 marginal hyaline spots: first largest, elongate, triangular, extended to cell r_{2+3}; second small, triangular, not touching vein R_{2+3}; and small rounded or quadrate subapical spot not touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Hyaline area between crossvein bm-m and brown area in cell br measured along vein M_1 0.89-0.99 times. Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m smaller, no more than half width of cell; dark spot touching vein R_{4+5} near base of apical rays faint. Cell dm with 2 subapical rays. Cells bm, cu*a*, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow. Male fore tibia in anterior view faint curved; dorsal face of male fore tibia with elongated setae on basal half (distinctly longer than lateral setae); apical third with dorsal setae erect; and basitarsus with dorsal long setae.

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6; posterior margin of tergite 6 with row of setae large, acuminate and pale brown. Oviscape brown to black, length 1.11 mm, width 0.85 mm at base and 0.27 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 178) length 1.08 mm. Aculeus (Fig. 217) pale brown, length 1.04 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.21 mm, with lateral margin nonserrate (Fig. 256). Spermathecae dark brown, subspherical, length 0.19 mm, surface with few papillae (Fig. 295).

Male: Setulae on tergites similar to female in size, density and distribution. Sternite 3 with paired medial clusters of setulae (Fig. 537). Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 336) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Figs. 336), in lateral view with dorsal lobe (Fig. 379). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta (Fig. 336); with group of 2–3 setulae between prensisetae and also group of 2-3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.30 mm long (Fig. 463).

Distribution. *Neotropical.* Bolivia (Santa Cruz, Ichilo), Peru (Cusco). The only altitude record is 2400 m in Peru.

Biology. No host plant information is known for this species. The type specimens were collected in September and October.

Type data. The holotype male is labeled "BOLIVIA Br. Ichilo R. Rain Forest Oct. 15-16, 1966 B.&K. Burks" / "USNMENT00105031" [plastic bar code label]. The holotype is double mounted (paper triangle), is in fair condition (abdomen dissected), and is deposited in the USNM. Paratype: **PERU: Cusco:** Paucartambo, Buenos Aires, km 132, 2400 m, 2 Sep 1988, A. Freidberg, 1f (USNM USNMENT00104798).

***Plaumannimyia* n. sp. 7**

Figs. 153–155, 179, 218, 257, 296, 337, 380, 421, 464, 515–516

Trypanea aorista: Malloch, 1933: 279 [key], 280 [misidentification].

Diagnosis. This species differs from most other congeners in having area between pterostigma and crossvein r-m with solid brown band except for small hyaline areas bordering crossvein r-m. It differs from six others species with this combination of characters (*P. delicatella*, *P. dolores*, *P. setulosa*, *Plaumannimyia* n. sp. 8, *Plaumannimyia* n. sp. 15, and *Plaumannimyia* n. sp. 25), it can be distinguished as follows: It differs in having male fore basitarsus strongly expanded (Fig. 533). It differs from *P. delicatella* in having the apex of cell r_{2+3} with 2 hyaline spots separated by medial dark ray or spot arising from costal margin (Figs. 153–155); male sternite 3 with setulae similar to those of tergites 2 and 4; male fore tarsus entirely yellow. It differs from *P. dolores* in lacking hind femur with larger anteroventral setae (Fig. 526); male without surtyli long and directed posteroventrally (Fig. 535); aculeus tip serrate (Fig. 542). It differs from *Plaumannimyia* n. sp. 8 and *Plaumannimyia* n. sp. 25 in having apical scutellar setae acuminate, dark, well differentiated from scutellar setulae. It differs from *P. setulosa* and *Plaumannimyia* n. sp. 15 in having cell r_{4+5} with 1-2 hyaline spots in middle of dark area between crossvein dm-m and base of apical rays.

Description. Body length 2.36–3.86 mm, dark brown in ground color, gray and yellow microtrichose. Setae generally brown to dark brown.

Head: Slightly higher (0.61–0.82 mm) than long (0.43–0.56 mm). Generally yellowish, except occiput and part of postgena brown; frons setulose medially, yellow or yellow to orange, ocellar tubercle dark brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye extend to vertex. Parafacial and gena

yellow. Frons, length (0.31–0.39 mm) less than width at vertex (0.44–0.56 mm), slightly narrowed to anterior margin (0.32–0.46 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few lanceolate and white setulae on ventral margin, genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.18–0.24). Eye ovoid, long diameter (0.49–0.68 mm), width (0.39–0.51 mm). Antenna testaceous yellow; first flagellomere as long as wide; arista mostly brown.

Thorax: Length 1.11–1.50 mm, ground color of scutum and scutellum dark brown. Mesonotum covered by bright gray and yellow microtrichia. Setulae sparse, lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, dark brown, about ⅓ as long as basal seta. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, dark brown.

Wing: Length 3.00–3.63 mm, width 0.99–1.41 mm. Wing pattern stellate (Figs. 153–155). Area between pterostigma and crossvein r-m with solid brown band except for small hyaline areas bordering crossvein r-m. Cell c mostly hyaline, with basal and medial dark spot. Pterostigma dark brown with small hyaline distal spot (sometimes also with 1 small hyaline spot medially). Cell r_1 with 3 marginal hyaline spots: first large, quadrate, touching vein R_{2+3}; second triangular, usually extended almost to vein R_{2+3}; and small quadrate subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (sometimes connected). Cell r_{4+5} usually with apical rays complete (sometimes incomplete); hyaline spot near anterior end of crossvein dm-m large, more than ⅔ width of cell, sometimes touching veins R_{4+5} and M_1; with 1-2 hyaline spots in middle of dark area between crossvein dm-m and and base of apical rays. Cells bm, cu*a*, dm, m_4, and m_1, and anal lobe reticulate. Halter yellow.

Legs: In both sexes femora and tibia entirely yellow or often dark; tarsomeres entirely yellow. Male fore tibia in anterior view with strong mediolateral concave area, straight in female; basal half with elongated setae (distinctly longer than lateral setae), and apical third with small dorsal setae erect. Male tarsomeres with dorsal long setae (distinct longer than lateral setae); basitarsus dorsally flattened (Figs. 515, 516).

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6. Oviscape brown to black, length 0.61–0.85 mm, width 0.56–0.65 mm at base and 0.19–0.24 mm at apex; with evenly

distributed white setulae. Eversible membrane (Fig. 179) length 0.94 mm. Aculeus (Fig. 218) pale brown, length 0.84 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.18 mm, with lateral margin nonserrate (Fig. 257). Spermathecae brown, subspherical, length 0.12 mm, surface with papillae (Fig. 296).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 337) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 337), in lateral view with dorsal lobe (Fig. 380). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensiseta with dorsal face convex (Fig. 337); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.32 mm long (Fig. 464). Glans 0.22 mm long (Fig. 421); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (Río Negro), Chile (Araucanía, Aysén, Biobío, Los Lagos, Osorno, Magallanes). Elevational records range from 30-1250 m in Chile.

Biology. This species has not been reared. One female was collected sweeping *Baccharis linearis* (Ruiz & Pav.) Pers. (= *B. rosmarinifolia* Hook. & Arn.), and another is labeled "*Baccharis* Scrub". Adults have been collected in January, February, November and December.

Type data. The holotype male is labeled "Bariloche RioNegro ArgNov1926 R&E Shannon" / "Tephritis aorista (Hendel) ♂ Dr. M. Aczél det." / "USNMENT00105118" [plastic bar code label]. The holotype is double mounted (triangle paper), is in fair condition, and is deposited in the USNM. Paratypes: **ARGENTINA: Río Negro:** Bariloche, 28-30 Nov 1926, F. & M. Edwards, 2f (BMNH); Bariloche, Nov 1926, R. & E. Shannon, 1f (BMNH) 2f (IML) 11f (USNM USNMENT00105119-21, USNMENT00105123-29, USNMENT00119334); Correntoso, Nov 1926, R. & E. Shannon, 1f (USNM USNMENT00105122); Lago Gutierrez, 28-30 Nov 1926, F. & M. Edwards, 1m2f (BMNH); Lago Gutierrez, 3-14 Nov 1926, F. & M. Edwards, 1f (USNM USNMENT00105130); Puerto Moreno, 3.7 km S, 800 m, 17 Nov 1966, E. I. Schlinger & M. I. Irwin, 1m (UCR USNMENT00262559). **CHILE: Araucanía:** Malleco, Parque Nacional Nahuelbuta, near "Administracion", 37°50'S 73°W, 1100 m, mixed Nothofagus forest with Araucaria along river, and pasture with shrubs, sweeping vegetation, 14-17 Dec 1990, D. H. Burckhardt & D. Agosti, 1m 1f (MHNG USNMENT00119318, USNMENT00119486); Pucón, 6 km E, 1 km W of Río Turbio, 39°16'S 71°55'W, sweeping *Baccharis rosmarinifolia* (96CH28), 12-16 Nov 1996, A. L. Norrbom & G. J. Steck, 1f

(USNM USNMENT00049479). **Aysén:** Puerto Ibanez, Lag. Buenos Aires, 12-15 Jan 1961, L. E. Peña, 10m 5f (CNC USNMENT00119328-32, USNMENT00119476-85) 4m 1f (USNM USNMENT00104991, USNMENT00105131-34). **Biobío:** Arauco, Caramavida Nahuelbuta, 20 km W of, 750 m, 13 Jan 1967, E. I. Schlinger, 1f (CAS USNMENT00119333); Ñuble, Termas de Chillán, 10 km W of, 1250 m, mixed Nothofagus forest, 12-13 Dec 1990, D. H. Burckhardt & D. Agosti, 1f (MHNG USNMENT00119319). **Los Lagos:** Chiloé I., Puntra, 19 Dec 1926, F. & M. Edwards, 1f (BMNH); Chiloé, San Pedro, *Baccharis* scrub, 11 Nov 1958, 1f (BMNH USNMENT00119327); Chiloé, 30 km SW of Castro, Cucao, Parque Nacional Chiloé, near Administracion, 42°37'S 74°8'W, 30 m, degraded temperate rainforest, 4-6 Jan 1991, D. H. Burckhardt & D. Agosti, 2m 2f (MHNG USNMENT00119321-22, USNMENT00119474-75) 1m (USNM USNMENT00119473); Chiloé, Cucao, Parque Nacional de Chiloé, 50 m, 13 Jan 1994, 1m (USNM USNMENT00105135); Llanquihue, Las Quemas, 50 m, degraded Valdivian rain forest, 12 Jan 1994, H. Burkhardt, 1f (MHNG USNMENT00262558); Osorno, Pucatrihue, Feb 1967, L. E. Peña, 1f (MZUSP USNMENT00119323, USNMENT00119326). **Magallanes:** Ultima Esperanza, Parque Nacional Torres del Paine, along road between Lagunas Mellizas and Lago Toro, 0-100 m, steppe with small patches of scrub, sweeping vegetation, 11 Jan 1991, D. H. Burckhardt & D. Agosti 38, 1f (MHNG USNMENT00119320).

***Plaumannimyia* n. sp. 8**

Figs. 109–110, 180, 219, 258, 297, 338, 381, 422, 465

Diagnosis. This species differs from most other congeners in having dark brown stellate mark, without a distinct solid, broad, dark brown band between the pterostigma and crossvein r-m, and in having medial ray in cell r_{2+3} (i.e., cell with 2 marginal hyaline spots). Both sexes resemble (*P. dolores*, *P. eugenia*, *P. scutellata*, *Plaumannimyia* n. sp. 5, *Plaumannimyia* n. sp. 6, and *Plaumannimyia* n. sp. 18) in having the dark brown band between the pterostigma and crossvein r-m, and a medial ray in cell r_{2+3}, but is differs in having distinct larger reticulate markings in cells dm and m_4, stellate mark with small hyaline spots in cells r_{2+3} and $r_{4+5,}$ dark brown band between the pterostigma and crossvein r-m with smaller hyaline spots in cell r_{2+3}, as well as differences in the male and female terminalia (except for *P. dolores*), with surtyli long and directed posteroventrally, lateral prensisetae very short and medial prensiseta large; ventral area of basal third of aculeus nonsclerotized, aculeus tip serrate.

Description. Body length 2.85–2.90 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown.

Head: Slightly higher (0.71–0.73 mm) than long (0.41–0.48 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and with few setulae white, and occiput brown medially and with brown mark sublaterally extend to near midheight of eye. Parafacial and gena yellow. Frons, length (0.34–0.36 mm) less than width at vertex (0.41–0.44 mm), slightly narrowed to anterior margin (0.36–0.37 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown or brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on basal margin, ventral area with few small acuminate, dark setulae. Genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.26–0.27). Eye ovoid, long diameter (0.51–0.58 mm), width (0.37–0.44 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.19–1.22 mm, ground color of scutum brown to dark brown, of scutellum mostly yellow with basal dorsal face dark. Mesonotum covered by bright yellow and gray microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white, about ⅓ as long as basal seta. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 3.20–3.36 mm, width 1.12–1.25 mm. Wing pattern stellate (Figs. 109, 110). Area extended from pterostigma to vein M_1 with distinct dark brown band, but having hyaline areas bordering crossvein r-m, and with distinct subapical stellate mark. Cell c mostly hyaline with small medial brown spot. Pterostigma brown, usually with small apical hyaline spot. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, oblique, extended into cell r_{2+3}; second triangular or oblique not reaching vein R_{2+3}; and small triangular or quadrate subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m large, more than ⅔ half the width of cell. Cells bm, cu*a*, dm, and m_4 and anal lobe distinct reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin; basal marginal hyaline spot usually not reaching vein M_1 (sometimes first and second rays not completely connected). Halter yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown, length 0.75 mm, width 0.58 mm at base and 0.20 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 180) length 0.72 mm. Aculeus (Fig. 219) pale brown, length 0.70 mm, in dorsal view with basal ventral area nonsclerotized; tip triangular, length 0.16 mm, with lateral margin serrate (Fig. 258). Spermathecae brown, elongated, length 0.15 mm, surface with few papillae (Fig. 297).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 with strong indentation (inverted U-shape) (Fig. 535). Epandrium in posterior view (Fig. 338) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus long, directed posteroventrally, without dorsal lobe (Fig. 381). Medial surstylus with pair of prensisetae; lateral prensiseta minute, conical; medial prensiseta very large (3x the size of the lateral) (Fig. 338). Phallapodeme Y-shaped, 0.45 mm long (Fig. 465). Glans 0.20 mm long (Fig. 422); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Brazil (Paraná). Elevational records range from 880-1445 m.

Biology. This species has been reared from flowerheads of *Baccharis oblongifolia* (Ruiz & Pav.) Pers. (Savaris plant voucher number BOT000510). Adults have been collected in August and November.

Type data. The holotype male is labeled “BRASIL: P[a]R[aná], Campina Grande do Sul, Morro Camapuã, 15.viii.2013, 1445m, 25°15'34.16"S, 48°51'42.85"W, capitulo [of *Baccharis oblongifolia*], S. Lampert, M. Savaris” / “USNMENT00262727” [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the DZUP. Paratypes **BRAZIL: Paraná:** Campina Grande do Sul, Morro Camapuã, 25°15'34.16"S 48°51'42.85"W, 1445 m, capítulo, 15 Aug 2013, S. Lampert & M. Savaris, 1m (USNM USNMENT00262562); São José dos Pinhais, 25°36'18.4"S 49°11'37.12"W, 880 m, 1 Nov 2014, rede entomológica, A. C. Domahovski, 1m 1f (DZUP USNMENT00119528-29) 1f (USNM USNMENT00262652).

***Plaumannimyia* n. sp. 9**

Figs. 59, 67–68, 181, 220, 259, 298, 339, 382, 423, 466

Diagnosis. This species differs from most other congeners in having a reticulate wing, without a distinct stellate pattern, the area between the pterostigma and crossvein r-m reticulate and of the same color as the distal area, and cell r_1 with the marginal hyaline marks small, rounded and not extended into cell r_{2+3}. It differs from four others species with this combination of characters (*P. costaemaculata*, *P. pallens*, *Plaumannimyia* n. sp.10, and *Plaumannimyia* n. sp. 16), it can be distinguished as follows: It differs in having the proctiger of the male strongly bilobed (Fig. 339). It further differs from *P. costaemaculata* in having the scutal ground color brown, the wing less yellowish, the male fore femur with the anteroventral setae not wavy (Fig. 524), and the male fore basitarsomere without elongate ventral setae. It further differs from *P. pallens* in having generally smaller hyaline spots in the wing pattern and defined subapical dark area in cells r_{2+3} and r_{4+5}. It differs from *Plaumannimyia* n. sp. 16 in lacking a small darker spot in cell r_{4+5} and in having the rays to the apices of veins r_{4+5} and M_1 broader, and from *Plaumannimyia* n. sp.10 in having the markings between the pterostigma and crossvein r-m similar in color to those on the basal part of the wing, in lacking a darker spot in cell r_{4+5}, and in having medial prensiseta with ventral margin medially convex (Figs. 339, 382). Other useful diagnostic characters include: wing with darker margins around many of the hyaline spots; male terminalia with surtyli long and directed posteroventrally, lateral prensisetae very short and medial prensiseta large; ventral area of basal third of aculeus nonsclerotized, and aculeus tip serrate.

Description. Body length 2.93–3.13 mm, mostly yellow in ground color, yellow microtrichose. Setae generally pale brown (Fig. 59).

Head: Slightly higher (0.63–0.66 mm) than long (0.48–0.51 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and with few setulae white, and occiput brown medially and with dark mark sublaterally extend to near vertical setae. Parafacial and gena yellow. Frons, length (0.34–0.39 mm) less than width at vertex (0.39–0.41 mm), slightly narrowed to anterior margin (0.29–0.37 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with small lanceolate and white setulae on ventral and basal margin. Genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.21–0.30). Eye ovoid, long diameter (0.46–0.49 mm), width (0.38–0.44 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.09–1.16 mm, ground color of scutum brown, of scutellum mostly yellow with basal dorsal face dark. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.
Wing: Length 2.57–2.97 mm, width 1.12–1.18 mm. Wing pattern reticulate (Figs. 67, 68). Area between pterostigma and crossvein r-m reticulate. Wing with darker margins around many of the hyaline spots. Cell c mostly yellow with faint medial dark spot. Pterostigma yellow with two hyaline spots, one basal and another apical. Cell r_1 with 3 marginal hyaline spots small, rounded and not extended to cell r_{2+3}, apical spots sometimes touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots. Cell r_{4+5} with apical rays broad and complete; hyaline spot near anterior end of crossvein dm-m small, less than half width of cell. Cells bm, cu*a*, dm, m_1, and m_4 and anal lobe reticulate. Cell m_1 with marginal hyaline spots not reaching vein M_1. Cell m_4 usually with apical marginal hyaline spot not touching vein M_4. Halter yellow.
Legs: Entirely yellow. Male fore femur with basal anteroventral setae long and thin (Fig. 524).
Abdomen: In both sexes ground color mostly yellow with dark spots and microtrichia and setulae on abdominal terga concolorous with those on mesonotum (Fig. 59).
Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape yellow to brown with dark border apical, length 0.66–0.68 mm, width 0.56–0.66 mm at base and 0.17–0.19 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 181) length 0.74 mm. Aculeus (Fig. 220) pale brown, length 0.66 mm, in dorsal view with ventral basal area nonsclerotized; tip triangular, length 0.13 mm, with lateral margin serrate (Fig. 259). Spermathecae brown, elongated, length 0.19 mm, surface with papillae (Fig. 298).
Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 with strong indentation (inverted U-shape) (Fig. 535). Epandrium in posterior view globose, with setulae and microtrichia distributed evenly (Fig. 339). Lateral surstylus long, directed posteroventrally, without dorsal lobe (Fig. 382). Medial surstylus with pair of prensisetae; lateral prensiseta minute, conical; medial prensiseta very large and medially convex (3x the size of the lateral) (Figs. 339, 382). Apex of the proctiger strong bilobed (Fig.

339). Phallapodeme Y-shaped, 0.34 mm long (Fig. 466). Glans 0.30 mm long (Fig. 423); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Bolivia (Cochabamba, La Paz), Colombia (Valle del Cauca), Ecuador (Azuay), Peru (Apurimac, Cusco, Huánuco, Junín). Elevational records range from 800-3820 m.

Biology. This species has been reared from flowerheads of *Baccharis tricuneata* (L.f.) Pers., in Peru. Three males were collected on *Baccharis trinervis* (Lam.) Pers. Adults have been collected in February, March, April, May and September, and adults were reared from infested flowerheads collected in December.

Type data. The holotype female is labeled "PERU. Huanuco: Tingo Maria (1 km S.) 6 Feb 1984 WN Mathis" / "USNMENT00105102" [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the USNM. Paratypes: **BOLIVIA: Cochabamba:** Pongo, 5 km W of, 17°42.9'S 66°36'W, 3820 m, 23 Mar 2001, A. Freidberg, 1f (ANCB) 2f (TAUI USNMENT00056421-22) 1m 1f (USNM USNMENT00055909–10); Sacaba, 20 km E, 17°25.1'S 65°53.9'W, 3450 m, 24 Mar 2001, A. Freidberg, 1f (TAUI USNMENT00056508). **La Paz:** 40 km N of Caranavi, Cumbre Alto Beni, Entel (telephone) antenna, 15°40.522'S 67°29.348'W, on *Baccharis trinervis* (Lam.) Pers. (01-Bol-23), 14 Apr 2001, A. L. Norrbom, 2m (USNM USNMENT00055446-47); Guanay, 9 km NW, 15°29.5'S 67°53.8'W, 840 m, 13 Mar 2001, A. Freidberg, 1m (ANCB USNMENT00055994); NE of Santa Fe, Colonia Luayza, Entel (telephone) antenna, 15°46'35.2"S 67°35'48.1"W, 1900 m, on *Baccharis trinervis* (Lam.) Pers. (01-Bol-23), 13 Apr 2001, A. L. Norrbom, 6m 1f (ANCB USNMENT00055812, USNMENT00055824-28, USNMENT00055832) 1m 1f (TAUI USNMENT00055807-08) 9m 4f (USNM USNMENT00055809-11, USNMENT00055813-19, USNMENT00055829-31).

COLOMBIA: Valle del Cauca: Pichindé, 1630 m, 21 Sep 1976, Bell, Breed, Michener, 1m (UKaL USNMENT00118516). **ECUADOR: Azuay:** Cuenca, 2 km N, 2200 m, 14 Mar 1965, L. E. Peña, 1m (CNC USNMENT00262830). **PERU: Apurimac**: above Sañayca, WP 83, 14.20788°S 73.36537°W, 3581 m, emerged 10-23 Dec reared ex flowerheads of *Baccharis tricuneata* (13-PE-43), collected 8 Dec 2013, A. L. Norrbom & B. D. Sutton, 1f (USNM USNMENT00875849). **Cusco:** 50 km NW of Pilcopata, Paucartambo, Puente San Pedro, 1600 m, 3 Sep 1988, A. Freidberg, 1f (USNM USNMENT00105101). **Huánuco**: Tingo María, 1 km S, 6 Feb 1984, W. N. Mathis, 1f (USNM USNMENT00105102).

Other specimens examined. Peru: Junín: Valle Chanchamayo, 800 m, 1 May 1939, W. R. Weyrauch, WRW 4834, 2m 1f [on single pin] (IML).

***Plaumannimyia* n. sp. 10**

Figs. 60, 71–72, 182, 221, 260, 299, 340, 383, 424, 467, 518–519, 534, 542, 547–548

Diagnosis. This species differs from most other congeners in having a reticulate wing, without a distinct stellate pattern, the area between the pterostigma and crossvein r-m reticulate and of the same color as the distal area, and cell r_1 with the marginal hyaline marks small, rounded and not extended into cell r_{2+3}. Of the other species with this combination of characters (*P. costaemaculata*, *P. pallens*, *Plaumannimyia* n. sp. 9, and *Plaumannimyia* n. sp. 16), it can be distinguished as follows: It differs from *P. costaemaculata* in having the scutal ground color brown, the wing less yellowish, the male fore femur with the anteroventral setae not wavy (Fig. 524), and the male fore basitarsomere without elongate ventral setae. It differs from *P. pallens* in having the markings between the pterostigma and crossvein r-m darker than those on the basal part of the wing, and in having a small darker spot in cell r_{4+5}. It further differs from *Plaumannimyia* n. sp. 16 in having the rays to the apices of veins r_{4+5} and M_1 broader and the marginal hyaline marks in cell r_1 noy extended almost to vein R_{2+3}, and from *Plaumannimyia* n. sp. 9 in having the markings between the pterostigma and crossvein r-m darker than those on the basal part of the wing, in having a darker spot in cell r_{4+5}, and in having medial prensiseta with ventral margin medially straight. Other useful diagnostic characters include: wing with darker margins around many of the hyaline spots; male terminalia with surtyli long and directed posteroventrally, lateral prensisetae very short and medial prensiseta large; ventral area of basal third of aculeus nonsclerotized, and aculeus tip serrate.

Description. Body length 3.13–3.43 mm, mostly yellow in ground color, gray and yellow microtrichose. Setae generally pale brown to brown (Fig. 60).

Head: Slightly higher (0.71–0.78 mm) than long (0.54–0.58 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, with few setulae white, and occiput brown medially and with brown mark sublaterally extend to near vertical setae. Parafacial and gena yellow. Frons, length (0.39–0.43 mm) less than width at vertex (0.48–0.51 mm), slightly narrowed to anterior margin (0.34–0.46 mm). Three frontal setae, anterior seta smaller, usually lanceolate, white (rarely one laceolate white and another acuminate dark); posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate pale brown, posterior seta smaller, white and lanceolate. Gena with lanceolate and white setulae on basal margin. Genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.21–0.31). Eye ovoid, long diameter

(0.54–0.65 mm), width (0.46–0.53 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.16–1.36 mm, ground color of scutum brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia except anterior central area of scutum with pale gray microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 3.03–3.36 mm, width 1.22–1.35 mm. Wing pattern reticulate (Figs. 71, 72). Area between pterostigma and crossvein r-m reticulate. Cell c mostly haline with faint basal and medial dark spot. Pterostigma mostly brown with subapical hyaline spot touching vein costa. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, oblique; second rounded, both not touching vein R_{2+3}; and rounded subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (with medial broad dark ray complete); anterior marginal hyaline spot large, touching apex of vein R_{2+3}. Cell r_{4+5} with apical rays broad and complete; hyaline spot near anterior end of crossvein dm-m large, ca. ⅔ of width of cell or equal or more larger than width of apical hyaline spot; with distinct medial dark spot touching vein R_{4+5} near base of apical rays. Cells br, bm, cu*a*, dm, m_1, and m_4 and anal lobe reticulate. Cell m_1 with apical marginal hyaline spot touching vein M_1 but not extended into cell r_{4+5}. Cell m_4 with apical marginal hyaline spot touching vein M_4. Halter yellow.

Legs: Entirely yellow. Hind femur with row of anteroventral setae acuminate.

Abdomen: In both sexes syntergite 1+2 yellow in ground color; tergites 3-6 mostly brown with posterior border yellow, and microtrichia and setulae on abdominal terga concolorous with those on mesonotum (Fig. 60).

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown, length 0.68–0.71 mm, width 0.43–0.45 mm at base and 0.10–0.20 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 182) length 0.68 mm. Aculeus (Fig. 221) pale brown, length 0.74 mm, in dorsal view with basal area nonsclerotized; tip triangular, length 0.14 mm, with lateral margin serrate (Fig. 260). Spermathecae brown, elongated, length 0.15 mm, surface with few papillae (Fig. 299).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 with strong indentation (inverted U-shape) (Fig. 535). Epandrium in posterior view globose, with setulae and microtrichia distributed evenly (Fig. 340). Lateral surstylus long, directed posteroventrally (Fig. 383). Medial surstylus with pair of prensisetae; lateral prensiseta minute, conical; medial prensiseta very large (3x the size of the lateral) (Fig. 340). Phallapodeme Y-shaped, 0.42 mm long (Fig. 467). Glans 0.24 mm long (Fig. 424); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Brazil (Paraná, Santa Catarina). Elevational records range from 670-1400 m.

Biology. No host plant information is known for this species.

Type data. The holotype male is labeled "BRASIL: P[a]R[aná], Tijucas do Sul, Morro Araçatuba 12.x.2014, 1400 m, 25°54'8.28"S, 48°59'35.11"W, rede entomológica, M. Savaris, S. Lampert" / "USNMENT00262711" [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the DZUP. Five paratypes same data as holotype, 3m 2f (DZUP USNMENT00262721–24). Other paratypes are as follows: **BRAZIL: Paraná**: Ponta Grossa, Parque Estadual de Vila Velha, 25°13'59.74"S 49°59'56.91"W, 965 m, 11 Mar 2013, S. Lampert, M. Savaris, 1m 5f (DZUP USNMENT00262560, USNMENT00262712–15, USNMENT00119515); same, 02 Mar 2013, S. Lampert, M. Savaris, 4m (USNM USNMENT00262561, USNMENT00262716–18). **Santa Catarina**: Chapecó, Linha Caravágio, 27°2'51.87"S 52°37'16.7"W, 670 m, 05 Ago 2014, M. Savaris, 1f (USNM USNMENT00262719).

***Plaumannimyia* n. sp. 11**

Figs. 123–125, 183, 222, 261, 300, 341, 384, 425, 468

Diagnosis. This species differs from most other congeners in having solid, broad, dark brown band between the pterostigma and crossvein r-m, cell dm usually with basal half brown (in some specimes hyaline), solid, usually paler brown mark bordering and usually extended to subapical ray in cell m_4. This species is similar (*P. ameghinoi*, *P. plagiata*, *P. scutellata*, *P. suspecta*, and *Plaumannimyia* n. sp. 20,), but differs in lacking the base of dark brown band between the pterostigma and crossvein r-m with a distinct extension (fork shape) of vein Rs to vein R_1, and male foreleg not modified. Both sexes resemble (*P. thomsoni*, *P. valdesiana* and *Plaumannimyia* n. sp. 13) in having the base of dark brown band between the

pterostigma and crossvein r-m without a distinct extension (fork shape) of vein Rs to vein R_1, but is differs in lacking the basal half of wing hyaline.

Description. Body length 2.80–3.83 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown to dark brown.

Head: Slightly higher (0.70–0.88 mm) than long (0.51–0.54 mm). Generally yellow, frons yellow to orange, ocellar tubercle dark brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye extended to border of eye. Parafacial and gena yellow. Frons, length (0.39–0.44 mm) less than width at vertex (0.46–0.56 mm), slightly narrowed to anterior margin (0.34–0.37 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate dark brown, posterior seta smaller, white to yellow and lanceolate. Gena with mixed small lanceolate, white and acuminate dark setulae on ventral margin, genal seta acuminate, dark brown (sometimes lanceolate white or pale brown), gena height to eye long diameter ratio (0.24–0.28). Eye ovoid, long diameter (0.49–0.68 mm), width (0.44–0.49 mm). Antenna testaceous yellow, first flagellomere as long as wide. Maxillary palpus with 4-5 acuminate, dark, large apical setae; other setae lanceolate, white to yellow.

Thorax: Length 1.05–1.31 mm, ground color of scutum and scutellum dark brown. Mesonotum covered by bright yellow microtrichia except anterior central area of scutum with pale gray microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, dark brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, dark brown.

Wing: Length 2.60–2.90 mm, width 1.02–1.12 mm. Wing pattern stellate (Figs. 123–125). Area between pterostigma and crossvein r-m with solid, broad, dark brown band, the base of which does not have an extension across the fork of vein Rs to vein R_1, and with distinct subapical stellate mark. Cell c mostly hyaline with faint basal dark spot. Pterostigma entirely dark brown. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, triangular, extended almost to vein R_{2+3} (sometimes reaching cell r_{2+3}); second usually small, rounded, and not extended almost to vein R_{2+3} (sometimes large touching vein); and small triangular or quadrate subapical spot usually touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (with medial dark ray complete or sometimes incomplete). Cell r_{4+5} with apical rays complete and narrow at base; hyaline spot near anterior end of crossvein dm-m usually small not touching vein M_1 (Fig. 123), sometimes large and touching vein M_1 (Figs. 124, 125); faint

medially dark spot touching vein R_{4+5} near base of apical rays. Cell br with apical half dark brown. Cell cu*a* dark. Cell dm usually witn basal third dark (sometimes reticulate or hyaline). Cell m_4 with basal third dark; usually with distinct solid brown mark in cell m_4 bordering vein M_4 and usually extending from vein M_4 to subapical ray in cell m_4. Anal lobe mostly hyaline. Usually Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin (sometimes basal and medial hyaline spots connected). Halter yellow.
Legs: mostly yellow, except by large brown spot, more than ⅔ of length of femora (rarely entirely yellow). Medial and hind femora covered with setulae lanceolate, white to yellow.
Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.
Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6. Oviscape brown to black, length 0.51–0.68 mm, width 0.53–0.60 mm at base and 0.19–0.22 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 183) length 0.84 mm. Aculeus (Fig. 222) pale brown, length 0.62 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.10 mm, short, with lateral margin nonserrate (Fig. 261). Spermathecae brown, subspherical, length 0.15 mm, surface with few papillae (Fig. 300).
Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 341) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 341), in lateral view with dorsal lobe (Fig. 384). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensiseta with ventral margin convex (Fig. 341); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.31 mm long (Fig. 468). Glans 0.25 mm long (Fig. 425); vesica ca. ⅓ length of internal sclerites.
Distribution. *Neotropical.* Argentina (Jujuy), Bolivia (La Paz, Oruro). Elevational records range from 3350-3800 m.
Biology. The only host information for this species comes from the labels of the holotype and two paratypes “emerged from seed head *Parastrephia* ?”.
Type data. The holotype male is labeled “Parastrephia? Emerged from seed head” / “ARGENTINA Jujuy prov. 38.6 km N. Humahuaca 7. May. 88” / “Para1c” / “USNMENT00105029” [plastic bar code label]. The holotype is double mounted (paper triangle), is in moderate condition, and is deposited in the USNM. Paratypes: **ARGENTINA:**

Jujuy: Abra Pampa, 10 km W of, 3350 m, 30 Oct 1968, L. E. Peña, 1f (CNC USNMENT00119405); Cieneguillas, 3650 m, 28 Oct 1968, L. E. Peña, 1m 2f (CNC USNMENT00119404, USNMENT00262634 USNMENT00677383) 1f (USNM USNMENT00105091); Humahuaca, 38.6 km N, emerged from seed head *Parastrephia*?, 7 May 1988, Para1a, 2m (USNM USNMENT00105027-28); Rio Cincel, S end L. Pozuelos, 3800 m, 3 Nov 1968, L. E. Peña, 1m (CNC USNMENT00105030). **BOLIVIA: La Paz:** Aroma, Huaraco, 14 Apr 1981, J. P. Arce, 1f (USNM USNMENT00215212); Aroma, Huaraco, TrAmp. V. Moericke, 4 Jul 1981, J. P. Arce, 2f (ANCB USNMENT00215210-11); Aroma, Huaraco, amar. 3, below, 20 Jun 1980, 1m (ANCB USNMENT00215208); Aroma, Huaraco, amar. 3, below, 4 Jul 1980, 1m (USNM USNMENT00215207); Aroma, Huaraco, amar. 2, below, 20 Jun 1980, 1m (ANCB USNMENT00215209). **Oruro:** Challapata, 45 km S, 19°12.9'S 66°47.7'W, 3690 m, 22 Mar 2001, A. Freidberg, 1m (USNM USNMENT00055074).

***Plaumannimyia* n. sp. 12**

Figs. 80, 342, 385, 426, 469

Diagnosis. This species differs from all of its congeners in lacking a marginal hyaline spot in cell cell r_{4+5} and having a minute one in cell r_{2+3}. It is also unique in that the hyaline spot in cell r_{4+5} normally at or slightly proximal to anterior end of crossvein dm-m is slightly distal to crossvein dm-m and does not touch vein M_1. The Area between pterostigma and crossvein r-m is reticulate and paler than the stellate mark, and lacks a darker border on anterodistal margin. The marginal hyaline marks in cell r_1 are small and do not extend into cell r_{2+3}.

Description. Body length 3.92 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally paler brown.

Head: Slightly higher (1.02 mm) than long (0.60 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.51 mm) less than width at vertex (0.77 mm), slightly narrowed to anterior margin (0.60 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, dark brown. Anterior orbital seta acuminate, pale brown, posterior seta smaller, whitish and lanceolate. Gena with many large lanceolate and whitish setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.27). Eye ovoid, long diameter (0.75 mm), width (0.53 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Maxillary palpus mostly yellow, except apical area dark; 3-4 acuminate, dark, large apical setae; other setae lanceolate, white to yellow.

Thorax: Length 1.55 mm, ground color of scutum brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, yellow to orange, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae (all missing). Second anepisternal seta lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 4.0 mm, width 1.65 mm. Wing pattern stellate (Fig. 80). Area between pterostigma and crossvein r-m reticulate and without darker border on anterodistal margin, and with distinct apical brown mark. Cell c with basal and medial brown spots. Pterostigma yellow to brown with small hyaline spots. Cell r_1 with 4 hyaline marginal spots: first and second small, rounded; third triangular, and small rounded subapical spot, all not reaching vein R_{2+3}. Cell r_{2+3} with minute hyaline spot. Cell r_{4+5} without marginal hyaline spot; hyaline spot normally at or slightly proximal to anterior end of crossvein dm-m is slightly distal to crossvein dm-m and does not touch vein M_1. Cell cu*a* with small distal acute projection. Cell m_4 with apical marginal hyaline spot not touching vein M_4. Cells br, bm, cu*a*, dm, m_4, and m_1, and anal lobe reticulate. Cell m_1 with marginal hyaline spots not reaching vein M_1. Halter yellow.

Legs: Entirely yellow. Femora with setulae white to yellow all lanceolate. Tibia with setulae acuminate (dark) and lanceolate (white to yellow) together. Fore femur with 3 anteroventral long setae (< 3x length of setules). Basal third of medial tibia with 2 anteroventral long setae (< 3x length of setules). Hind femur with a row of setae anteroventral 2x length of setulae.

Abdomen: ground color brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum. Female: unknow.

Male: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–5. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 342) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with a row of 5 setulae at apex (Fig. 342), in lateral view with small dorsal lobe (Fig. 385). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta (Fig. 342); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.41 mm long (Fig. 469). Glans 0.30 mm long (Fig. 426); vesica very short or absent.

Distribution. *Neotropical.* Argentina (Jujuy). The holotype was collected at 2922 m altitude.
Biology. The holotype was reared from flowerheads of *Baccharis tola* Phil. subsp. *tola* (= *Baccharis incarum* (Wedd.) Perkins).
Type data. The holotype male is labeled "Emerged from: Baccharis incarum seed heads" / "ARGENTINA Jujuy Prov. 41.8 km N. Humahuaca 7 may 88" / "BAC50" / "USNMENT00105078" [plastic bar code label]. The holotype is double mounted (triangle paper) and is in fair condition (abdomen dissected), and is deposited in the USNM.

***Plaumannimyia* n. sp. 13**
Figs. 137, 343, 386, 427, 470

Diagnosis. This species differs from most other congeners in having dark brown stellate mark, solid, broad, dark brown band between the pterostigma and crossvein r-m, the base of which does not have an extension across the fork of vein Rs to vein R_1. From three others species with this combination of characters (*P. thomsoni*, *P. valdesiana* and *Plaumannimyia* n. sp. 11), it can be distinguished as follows: It differs from *P. thomsoni* in having hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m smaller, having larger (more than 3 times as long as the scutellar setulae), acuminate apical scutellar setae, the male fore tibia without apical erect dorsal setulae, and the dorsal setulae of the male fore tarsus not elongate. It differs from *P. valdesiana* in having a subapical ray in cell dm, having smaller hyaline marks in cell r_1 (lacking a subapical hyaline spot). It differs from *Plaumannimyia* n. sp. 11 in having the basal two-thirds of cell dm, the basal three-fourths of cell m_4, and the rest of the wing basad of these cells and the pterostigma hyaline.
Description. Body length 3.10 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally pale brown.
Head: Slightly higher (0.90 mm) than long (0.54 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally extend to border of eye. Parafacial and gena yellow. Frons, length (0.48 mm) less than width at vertex (0.54 mm), slightly narrowed to anterior margin (0.46 mm). Three frontal setae, anterior seta smaller, lanceolate, white and another acuminate, dark; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate pale brown, posterior seta smaller, white and lanceolate. Gena with small lanceolate and white setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long

diameter ratio (0.27). Eye ovoid, long diameter (0.64 mm), width (0.46 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.20 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 3.06 mm, width 1.15 mm. Wing pattern stellate (Fig. 137). Area between pterostigma and crossvein r-m with solid, broad, dark brown band, the base of which does not have an extension across the fork of vein Rs to vein R_1, and with distinct subapical stellate mark. Cell c hyaline. Pterostigma dark brown with tiny hyaline distal spot. Cell r_1 with 2 marginal hyaline spots: first largest, elongate, oblique, touching vein R_{2+3}; second small, rounded, and not extended almost to vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray); anterior spot small, posterior large extended to cell r_{4+5}. Apical rays in cell r_{4+5} narrow and complete; hyaline spot near anterior end of crossvein dm-m small, no more than half width of cell. Cell dm with basal half hyaline; apical half with subapical ray arising from basal area of crossvein r-m. Cell m_4 moslty hyaline, with a marginal dark spot apical. Cells bm and cu*a* and anal lobe hyaline. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow.

Abdomen: ground color brown to dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum. Female: unknow.

Male: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–5. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 343) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally (Fig. 386), in lateral view with dorsal lobe (Fig. 386). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensiseta with dorsal face convex (Fig. 343); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.35 mm long (Fig. 470). Glans 0.32 mm long (Fig. 427); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Chile (Coquimbo). The holotype was collected at 200 m altitude.

Biology. No host plant information is known for this species. The holotype was collected in December.

Type data. The holotype male is labeled “CHILE Limari Prov Fray Gorge N. P. 7.-9.XII.90” / “200m Bruckhardt & Agosti” / “Merz” / “USNMENT00677380” [plastic bar code label]. The holotype is double mounted (minuten) and is in fair condition (abdomen dissected), and is deposited in the MHNG.

***Plaumannimyia* n. sp. 14**

Figs. 105–106, 184, 223, 262, 301, 344, 387, 428, 471

Diagnosis. This species differs from most other congeners in having the area between the pterostigma and crossvein r-m reticulate, paler than the stellate mark, and with distinctly darker border on anterodistal margin. It differs from five others species with this combination of characters (*Plaumannimyia* n. sp. 1, *Plaumannimyia* n. sp. 2, *Plaumannimyia* n. sp. 3, *Plaumannimyia* n. sp. 12, and *Plaumannimyia* n. sp. 24), it can be distinguished as follows: It differs in having distinctly darker border on anterodistal margin of area between the pterostigma and crossvein r-m (Figs. 105, 106). It differs from (*P. flava*, *P. imitatrix* and *Plaumannimyia* n. sp. 23) in lacking distinctly solid yellow band between the pterostigma and crossvein r-m. Also is differs from all species with same combination of characters in having the characters of the terminalia: the male has elongate and curved surstyli, medial prensisetae greatly enlarged, more than three times as long as wide and the female has the ventral area of basal third of aculeus nonsclerotized, and aculeus tip serrate.

Description. Body length 2.07–3.18 mm, mostly brown in ground color, gray and yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.60–0.65 mm) than long (0.46–0.47 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown or brown to black, and with few setulae white, and occiput brown medially and with brown mark sublaterally extend to near of vertex. Parafacial and gena yellow. Frons, length (0.32–0.34 mm) less than width at vertex (0.39–0.48 mm), slightly narrowed to anterior margin (0.32–0.34 mm). Three frontal setae, anterior seta smaller, lanceolate, white or white to yellow; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate pale brown, posterior seta smaller, white and lanceolate. Gena with mixed of small setulae, lanceolate, white and acuminate, dark on basal margin. Genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.23–0.24). Eye ovoid,

long diameter (0.44–0.49 mm), width (0.39–0.40 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 0.99–1.05 mm, ground color of scutum brown to dark brown, of scutellum mostly yellow, with basal dorsal face dark. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white, about ⅓ as long as basal seta. Second anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 2.64–2.77 mm, width 0.95–1.02 mm. Wing pattern stellate (Figs. 105, 106). Area between pterostigma and crossvein r-m reticulate, paler than the stellate mark, and with distinctly darker border on anterodistal margin. Cell c mostly haline with faint basal and medial dark spot. Pterostigma mostly yellow with a dark spot crossing. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, oblique, extended into cell r_{2+3}; second triangular, usually not touching vein R_{2+3}; and small triangular or quadrate subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots, usually with medial dark ray complete (sometimes incomplete). Cell r_{4+5} with apical rays narrow and complete; hyaline spot near anterior end of crossvein dm-m large, more than half width of cell. with distinct medial dark spot touching vein R_{4+5} near base of apical rays. Cells br, bm, cu*a*, dm, m_1, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin; basal marginal hyaline spot not reaching vein M_1 (first and second rays connected). Halter yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color brown to dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6. Oviscape brown to black, length 0.80–0.87 mm, width 0.51–0.63 mm at base and 0.17–0.19 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 184) length 1.00 mm. Aculeus (Fig. 223) pale brown, length 0.90 mm, in dorsal view with basal area nonsclerotized; tip triangular, length 0.16 mm, with lateral margin serrate (Fig. 262). Spermathecae brown, elongated, length 0.14 mm, surface with papillae (Fig. 301).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 with strong indentation (inverted U-shape) (Fig. 535). Epandrium in posterior

view (Fig. 344) globose, with setulae and microtrichia distributed evenly. Lateral surstylus long, directed posteroventrally (Fig. 387). Medial surstylus with pair of prensisetae; lateral prensiseta minute, conical; medial prensiseta very large (3x the size of the lateral) (Fig. 344). Proctiger strong bilobed apically (Fig. 344). Phallapodeme Y-shaped, 0.35 mm long (Fig. 471). Glans 0.18 mm long (Fig. 428); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Brazil (Paraná, São Paulo). Elevational records range from 909-1213 m.

Biology. This species has been reared from flowerheads of *Baccharis oreophila* Malme (Savaris plant voucher number BOT-000124–000322) and *Baccharis* cf. *subdentata* DC. One male was collected on *Baccharis mesoneura.*

Type data. The holotype male is labeled "BRASIL: P[a]R[aná], Colombo, Bairro Canguiri, 02.iii.2014, 909m, 25°22'45.62"S,49°07'57.10"O, rede entomológica, M. Savaris" / "USNMENT00118570" [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the DZUP. Six paratypes same data as holotype, 2m 4f (USNM USNMENT00118564, USNMENT00118540–41, USNMENT00118549, USNMENT00118555, DZUP USNMENT00118566). Other paratypes are as follows: **BRAZIL: Paraná**: Colombo, Bairro Canguiri, 25°22'45.62"S 49°7'57.1"W, 909, 01 Mar 2013, M. Savaris, 3m 6f (DZUP USNMENT00118547–48, USNMENT00118550, USNM USNMENT00119340, USNMENT00118551–52, USNMENT00118554, USNMENT00118568, USNMENT00118571); same, 03 Mar 2013, M. Savaris, 1m (USNM USNMENT00119339); same, 10 Mar 2013, M. Savaris, 4m 1f (DZUP USNMENT00118559–60, USNM USNMENT00118556, USNMENT00118558, USNMENT00118569); same, 15 Mar 2013, M. Savaris, 1f (DZUP USNMENT00118553); same, 01 Mar 2014, M. Savaris, 2m (DZUP USNMENT00118563, USNMENT00118579); Santa Rita, 25°22'44.65"S 49°7'53.3"W, 909, 26 Mar 2012, M. Savaris, 1m (USNM USNMENT00118575). Santa Rita, 25°22'44.4"S 49°7'53.2"W, 909, 02 Feb 2013, M. Savaris, 2m 1f (DZUP USNMENT00118577–78, MZUSP USNMENT00118546). Palmas, Linha Alegria, Faz. Cerro Chato, 26°30'8.53"S 51°40'14.72"W, 1213 , 04 Mar 2015, M. Savaris, S. Lampert, 2f (DZUP USNMENT00119517, USNM USNMENT00119516). Ponta Grossa, Parque Estadual de Vila Velha, 25°13'59.74"S 49°59'56.91"W, 965 , 02 Mar 2013, S. Lampert, M. Savaris, 6m 1f (DZUP USNMENT00118572–74, USNMENT00118576, USNMENT00118567, USNM USNMENT00118562, USNMENT00118565); same, 03 Mar 2013, S. Lampert, M. Savaris, 4f (DZUP USNMENT00118543–44, USNM USNMENT00118542, USNMENT00118545); same, 11 Mar 2013, S. Lampert, M. Savaris,

1f (DZUP USNMENT00118537). Quatro Barras, Estrada da Graciosa, 25°20'13.3"S 48°54'44.74"W, 922 emerged 3 Mar 2015 collected 12 Jun 2014, M. Savaris, 3m 4f (DZUP USNMENT00118561, USNMENT00262520, USNMENT00262522, USNMENT00118538–39; USNM USNMENT00262519, USNMENT00262521). **São Paulo:** 22°15.96'S 47°47.81'W, reared ex female capitula of *Baccharis* cf. *subdentata* (G0601), 7 May 2000, Fonseca, Prado, Almeida Neto & Anseloni, 1m 1f (USNM USNMENT00214197–98). São Paulo, 23°32'S 46°37'W, on *Baccharis mesoneura*, Nov 1961, F. D. Bennett, 1m (USNM USNMENT00214196). São Paulo, 23°32'S 46°37'W, 18 Oct 1965, V. N. Alin, 1f (USNM USNMENT00119341).

***Plaumannimyia* n. sp. 15**

Figs. 149–150, 185, 224, 263, 302, 345, 388, 429, 472

Diagnosis. This species differs from most other congeners in having area between pterostigma and crossvein r-m with solid brown band except for small hyaline areas bordering crossvein r-m. It differs from six others species with this combination of characters (*P. delicatella*, *P. dolores*, *P. setulosa*, *Plaumannimyia* n. sp. 7, *Plaumannimyia* n. sp. 8, and *Plaumannimyia* n. sp. 25), it can be distinguished as follows: It differs from *P. delicatella* and *Plaumannimyia* n. sp. 7 in having cell r_{4+5} without hyaline spots in middle of dark area between crossvein dm-m and apex of vein R_{2+3} (Figs. 149, 150); male fore tibia with faint mediolateral concave area; male with apical surstyli distinct truncated and extended (Fig. 345). It differs from *P. dolores* in lacking hind femur with larger anteroventral setae (Fig. 526); male without surtyli long and directed posteroventrally (Fig. 535); aculeus tip serrate (Fig. 542). It differs from *Plaumannimyia* n. sp. 8 in lacking the apical scutellar seta paler than the basal seta; cell r_1 with basal marginal hyaline spot oblique (more long than wide); cells dm and m_4 with distinct reticulation extending in brown area of cell br; male without surtyli long and directed posteroventrally; aculeus tip serrate. It differs from *P. setulosa* in lacking apex of cell r_{2+3} usually with 2 hyaline spots, basal one large, extending almost to vein R_{4+5} or fusing with other apical spots; male fore tibia without concave area; male fore basitarsus with dorsal short setae (as long as lateral setae); in having male fore apical tarsomere brown; male sternite 3 with medial clusters of setulae; male with apical surstyli distinct truncated and extended (Fig. 345); spermathecae elongated. It differs from *Plaumannimyia* n. sp. 25 in lacking the apical scutellar seta paler than the basal setulae; most

of cell m_4 hyaline, at most with small subbasal brown spot, small brown mark near the apex of vein CuA+CuP, an apical brown area, and occasionally small, pale medial brown spot.

Description. Body length 3.66–3.80 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally dark brown.

Head: Slightly higher (0.82–0.83 mm) than long (0.56–0.58 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally extended nearly to vertical setae. Parafacial and gena yellow. Frons, length (0.37–0.44 mm) less than width at vertex (0.58–0.61 mm), slightly narrowed to anterior margin (0.42–0.44 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with small lanceolate, white to yellow setulae on ventral margin, genal seta acuminate, brown, gena height to eye long diameter ratio (0.23–0.24). Eye ovoid, long diameter (0.60–0.62 mm), width (0.48–0.50 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.24–1.32 mm, ground color of scutum and scutellum dark brown. Mesonotum covered by bright gray and yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, dark brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, dark brown.

Wing: Length 3.16–3.33 mm, width 1.18–1.35 mm. Wing pattern stellate (Figs. 149, 150). Area between pterostigma and crossvein r-m with solid brown band except for small hyaline areas bordering crossvein r-m. Cell c mostly hyaline, with basal and medial dark spot. Pterostigma usually enterily dark brown, sometimes with small hyaline distal spot. Cell r_1 with 3 marginal hyaline spots: first large, quadrate or oblique, touching vein R_{2+3}; second triangular or rounded usually touching vein R_{2+3}; and quadrate or rounded subapical spot touching vein R_{2+3}. Cell r_{2+3} with 1 marginal hyaline spot (i.e., without medial dark ray). Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m large, more ⅔ of width of cell; middle of dark area between crossvein dm-m and base of apical rays without hyaline spots. Cell br with apical hyaline spot in dark area near crovein r-m. Cells bm, cu*a*, dm, and m_4, and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin (sometimes first and second rays connected and basal marginal hyaline spot not reaching vein M_1). Halter yellow.

Legs: In both sexes femora usually with brown spots, tibia and tarsomeres entirely yellow except apical tarsus in male foreleg mostly dark. Anterior area of medial and posterior femora with setulae whitish to yellow and lanceolate. Male fore tibia in anterior view with mediolateral concave area, straight in female; basal half with elongated setae (distinctly longer than lateral setae), and apical third with small dorsal setae erect. Male tarsomeres with dorsal long setae (distinct longer than lateral setae) (Fig. 549); basitarsus dorsally flattened.
Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.
Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape blackish, length 1.04–1.11 mm, width 0.76–0.78 mm at base and 0.17–0.22 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 185) length 1.22 mm. Aculeus (Fig. 224) pale brown, length 1.20 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.17 mm, with lateral margin nonserrate (Fig. 263). Spermathecae brown, subspherical, length 0.14 mm, surface with papillae (Fig. 302).
Male: Setulae on tergites similar to female in size, density and distribution. Sternite 3 with paired medial clusters of setulae (Fig. 537). Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 345) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally, with apex truncate and expanded (Fig. 345), in lateral view with small dorsal lobe (Fig. 388). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensiseta with dorsal face convex (Fig. 345); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.32 mm long (Fig. 472). Glans 0.36 mm long (Fig. 429); vesica ca. ⅓ length of internal sclerites.
Distribution. *Neotropical.* Bolivia (Cochabamba, La Paz). Elevational records range from 3370-4300 m.
Biology. No host plant information is known for this species.
Type data. The holotype male is labeled “BOLIVIA. La Paz: La Paz (NE; 16°27.4'S 68°6'W; 3940m), 19 March 2001 Amnon Freidberg” / “USNMENT00216856” [plastic bar code label]. The holotype is double mounted (minuten) and is in excellent condition, and is deposited in the USNM. Paratypes: same data as holotype, 5f (ANCB USNMENT00216859-61; TAUI USNMENT00216862; USNM USNMENT00216857). **BOLIVIA: Cochabamba:**

Colomi, 5 km E, 17°17.9'S 65°52.2'W, 3370 m, 24 Mar 2001, A. Freidberg, 1m (ANCB USNMENT00056554). **La Paz:** La Paz, 15 km NE of, 16°24.6'S 68°2.9'W, 4300 m, 29 Mar 2001, A. Freidberg, 1m 1f (USNM USNMENT00216855, USNMENT00216858).

***Plaumannimyia* n. sp. 16**

Figs. 73–74, 186, 225, 264, 303, 346, 389, 430, 473

Diagnosis. This species differs from most other congeners in having the Area between pterostigma and crossvein r-m reticulate and without darker border on anterodistal margin, and with the hyaline marks in cell r_1 rounded and not extended into cell r_{2+3}. It differs from four others species with this combination of characters (*P. costaemaculata*, *P. pallens*, *Plaumannimyia* n. sp. 9, and *Plaumannimyia* n. sp.10), it can be distinguished as follows: It differs in having the hyaline marks in cell r_1 reaching vein R_{2+3}, the distal hyaline spot in cell m_1 extending at least to vein M_1, and the rays to the apices of veins R_{4+5} and M_1 narrower. Other useful diagnostic characters include: male terminalia with surtyli long and directed posteroventrally, lateral prensisetae very short and medial prensiseta large; ventral area of basal third of aculeus nonsclerotized, and aculeus tip serrate.

Description. Body length 2.83–3.50 mm, mostly yellow in ground color, gray and yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.68–0.73 mm) than long (0.41–0.49 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, with few setulae white, and occiput brown medially and with brown mark sublaterally extend to near vertical setae. Parafacial and gena yellow. Frons, length (0.36–0.41 mm) less or equal than width at vertex (0.41–0.48 mm), slightly narrowed to anterior margin (0.34–0.41 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate pale brown, posterior seta smaller, white and lanceolate. Gena with small lanceolate and white setulae on basal margin. Genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.24–0.25). Eye ovoid, long diameter (0.51–0.58 mm), width (0.34–0.44 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 0.95–1.22 mm, ground color of scutum brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia except anterior central area of scutum with pale gray microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior

notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 2.60–3.20 mm, width 1.05–1.28 mm. Wing pattern reticulate (Figs. 73, 74). Area between pterostigma and crossvein r-m reticulate. Cell c mostly haline with faint basal and medial dark spot. Pterostigma hyaline with medial dark spot. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, oblique, reaching vein R_{2+3}; second rounded not touching vein R_{2+3}; and rounded subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray); anterior marginal hyaline spot large, touching apex of vein R_{2+3}. Cell r_{4+5} with apical rays complete and narrow at base; hyaline spot near anterior end of crossvein dm-m large, usually touching veins R_{4+5} and M_1 or equal or more larger than width of apical hyaline spot; with a small medially dark spot touching vein R_{4+5} near base of apical rays. Cells br, bm, cu*a*, dm, m_1, and m_4 and anal lobe reticulate. Cell m_1 with apical marginal hyaline spot extended into cell r_{4+5}. Cell m_4 with apical marginal hyaline spot touching vein M_4. Halter yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color usually brown (sometimes syntergite 1+2 mostly yellow); posterior border of the tergites yellow, and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown, length 0.61–0.78 mm, width 0.49–0.63 mm at base and 0.14–0.19 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 186) length 0.80 mm. Aculeus (Fig. 225) pale brown, length 0.70 mm, in dorsal view with basal area nonsclerotized; tip triangular, length 0.15 mm, with lateral margin serrate (Fig. 264). Spermathecae brown, elongated, length 0.17 mm, surface with few papillae (Fig. 303).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 with strong indentation (inverted U-shape) (Fig. 535). Epandrium in posterior view globose, with setulae and microtrichia distributed evenly (Fig. 346). Lateral surstylus long, directed posteroventrally (Fig. 389). Medial surstylus with pair of prensisetae; lateral prensiseta minute, conical; medial prensiseta very large (3x the size of the lateral) (Fig. 346). Phallapodeme Y-shaped, 0.30 mm long (Fig. 473). Glans 0.25 mm long (Fig. 430); vesica ca. ⅓ length of internal sclerites and with two spines at base.

Distribution. *Neotropical.* Brazil (Paraná, Rio Grande do Sul). Elevational records range from 637-1400 m.

Biology. No host plant information is known for this species. Adults were swept on top of *Baccharis trimera* (Less.) DC.

Type data. The holotype male is labeled "BRASIL: P[a]R[aná], Colombo, Bairro Canguiri, 02.iii.2014, 909m, 25°22'45.62"S,49°07'57.10"O, rede entomológica, M. Savaris" / "USNMENT00262710" [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the DZUP. Paratypes: same data as holotype, 17m 43f (DZUP USNMENT00262814–20, USNMENT00262794–10, USNMENT00262542, USNMENT00262545; INPA USNMENT00262754–58; MZUSP USNMENT00262744–48; MASPC USNMENT00262749–51; USNM USNMENT00262759–73, USNMENT00262785–89, USNMENT00262544, USNMENT00262546, USNMENT00262700). **BRAZIL: Paraná**: Colombo, Bairro Canguiri, 25°22'45.4"S 49°7'53.12"W, 908 m, 04 Aug 2013, M. Savaris, 1f (DZUP USNMENT00262812); same, 28 Jan 2013, M. Savaris, 1m (USNM USNMENT00262792); same, Bairro Canguiri, 25°22'45.62"S 49°7'57.1"W, 909 m, 10 Nov 2013, M. Savaris, 1f (USNM USNMENT00262543); same, 10 Mar 2013, M. Savaris, 1f (DZUP USNMENT00262813); Santa Rita, 25°22'44.4"S 49°7'53.2"W, 909 m, 02 Feb 2013, M. Savaris, 1m 4f (DZUP USNMENT00262821; USNM USNMENT00262774–77); Santa Rita, 25°22'44.4"S 49°7'53.2"W, 908 m, 14 Apr 2012, M. Savaris, 1m (USNM USNMENT00262791), same, 909 m, 14 Apr 2012, M. Savaris, 1f (USNM USNMENT00262782); same, 02 Feb 2015, M. Savaris, 1m 1f (DZUP USNMENT00119518–19); same, 02 Mar 2014, M. Savaris, 1f (DZUP USNMENT00262811); Santa Rita, 25°22'44.65"S 49°7'53.3"W, 909 m, 26 Mar 2012, M. Savaris, 1f (USNM USNMENT00262783); Santa Rita, 25°22'45.4"S 49°7'53.12"W, 908 m, 04 Ago 2013, M. Savaris, 5m 2f (DZUP USNMENT00262822–23; MASPC USNMENT00262752–53; USNM USNMENT00262790, USNMENT00262778–79); Santa Rita, 25°22'45.62"S 49°7'57.1"W, 909 m, 01 Mar 2013, M. Savaris, 1m 2f (DZUP USNMENT00262824; USNM USNMENT00262780–81); same, 03 Mar 2013, M. Savaris, 1m (DZUP USNMENT00262825); same, 10 Mar 2013, M. Savaris, 1m (DZUP USNMENT00262826); Tijucas do Sul, Morro Araçatuba, 25°54'8.28"S 48°59'35.11"W, 1400 m, 12 Oct 2014, M. Savaris, 1m (USNM USNMENT00262793). **Rio Grande do Sul:** Passo Fundo, Reserva Particular do Patrimônio Natural Maragato, 28°14'31.97"S 52°27'38.44"W, 637 m, 13 Sep 2013, M. Savaris, 1f (DZUP USNMENT00262784).

***Plaumannimyia* n. sp. 17**

Figs. 126, 347, 390, 431, 474

Diagnosis. This species differs from most other congeners in having solid, broad, dark brown band between the pterostigma and crossvein r-m, cell dm hyaline except for a subapical ray, and in having one marginal apical hyaline spot in cell r_{2+3}. It differs from *Plaumannimyia* n. sp. 19 with same combination of characters in having the cell dm with subapical ray arising from subapical area of crossvein r-m; cell br without very strong bend in posterior margin of dark area, distance from bend to crossvein r-m at least twice length of crossvein r-m; male foreleg not modified. In wing pattern it resembles (*P. ameghinoi*, *P. plagiata*, *P. scutellata*, *P. suspecta*, *Plaumannimyia* n. sp. 11, and *Plaumannimyia* n. sp. 20) in having solid, broad, dark brown band between the pterostigma and crossvein r-m, but is differs in lacking a distinct reticulate or solid, usually paler brown mark bordering vein M_4 and usually extended to subapical ray in cell dm.

Description. Body length 2.51 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally pale brown to brown.

Head: Slightly higher (0.75 mm) than long (0.48 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally extended nearly to vertical setae. Parafacial and gena yellow. Frons, length (0.41 mm) less than width at vertex (0.49 mm), slightly narrowed to anterior margin (0.41 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate, pale brown, posterior seta smaller, white and lanceolate. Gena with small lanceolate and white setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.34). Eye ovoid, long diameter (0.56 mm), width (0.41 mm). Antenna testaceous missing, prolably yellow.

Thorax: Length 1.11 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical missing. Anepisternal, katepisternal, and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 2.64 mm, width 1.05 mm. Wing pattern stellate (Fig. 126). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with

distinct subapical stellate mark. Cell c hyaline. Pterostigma dark brown with small hyaline distal spot. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, triangular, extended to cell r_{2+3}; second triangular, extended to near of vein R_{2+3}; and small quadrate subapical spot touching vein R_{2+3}. Cell r_{2+3} with 1 marginal hyaline spot (i.e., without medial dark ray). Cell r_{4+5} with apical rays narrow and complete; hyaline spot near anterior end of crossvein dm-m large, ca. ⅔ of width of cell. Cell dm with subapical ray arising from basal area of crossvein r-m; cell br without very strong bend in posterior margin of dark area, distance from bend to crossvein r-m at least twice length of crossvein r-m. Cells bm and cu*a* hyaline. Cell m_4 and anal lobe with faint dark spots (reticulate). Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Enterely yellow, except hind femur with small brown spot anteroventral.

Abdomen: ground color brown to dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum. Female: unknow.

Male: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–5. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 347) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally (Fig. 347), in lateral view with dorsal lobe (Fig. 390). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ½ as long as medial prensiseta; medial prensiseta with dorsal face convex (Fig. 347); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.30 mm long (Fig. 474). Glans 0.22 mm long (Fig. 431); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (Jujuy). The holotype was collected at 3350 m altitude.

Biology. No host plant information is known for this species.

Type data. The holotype male is labeled “Argent. Jujuy 10 km W. Abra Pampa. 3350m. 30.X.68. Pena” / “CNC” [yellow circle] / “USNMENT00105062” [plastic bar code label]. It is mounted on a pin and is in fair condition (thorax laterally compressed, most of its right side and dorsum damaged by pin; abdomen dissected), and is deposited in the CNC.

***Plaumannimyia* n. sp. 18**

Figs. 115–116, 187, 226, 265, 304, 348, 391, 432, 475

Diagnosis. This species differs from most other congeners in having dark brown stellate mark, solid, broad, dark brown band between the pterostigma and crossvein r-m, and in having medial ray in cell r_{2+3} (i.e., cell with 2 marginal hyaline spots). From five others species with this combination of characters, it can be distinguished as follows: It differs from *Plaumannimyia* n. sp. 5 in lacking in having the posterior half of cell dm and most of cell m_4 solid, pale yellow, and the male fore basitarsus with elongate dorsal setae. It differs from *P. dolores* in lacking larger anteroventral setae on the hind femur (Fig. 526), lacking pale marks in cells br and r_{4+5} close to crossvein r-m, as well as differences in the male terminalia. It differs from *Plaumannimyia* n. sp. 6 in lacking the expanded apex of the male arista, the reticulation in cells dm and m_4 stronger and extending into cell br, hyaline area between crossvein bm-m and brown area in br measured along vein M_1 0.69-0.73 times (0.89-0.99 times in *Plaumannimyia* n. sp. 6), and in having the apical dorsal setae of the male fore tibia not erect. It differs from *P. eugenia* in having a larger apical scutellar seta (more than 3 times as long as the scutellar setulae), and *P. scutellata* in having extensive reticulation in cell dm, and in lacking the male, sternite 3 with medial clusters of setulae (Fig. 537).

Description. Body length 2.71–3.10 mm, mostly dark brown in ground color, yellow microtrichose. Setae generally brown to dark brown.

Head: Slightly higher (0.72–0.73 mm) than long (0.46–0.50 mm). Generally yellow, frons yellow, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.34–0.36 mm) less than width at vertex (0.48–0.49 mm), slightly narrowed to anterior margin (0.37–0.41 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown to dark brown. Anterior orbital seta acuminate brown to dark brown, posterior seta smaller, white and lanceolate. Gena with small lanceolate and white setulae on ventral margin, genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.24–0.27). Eye ovoid, long diameter (0.51–0.52 mm), width (0.41–0.42 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.18–1.20 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, dark brown, about ⅓ as long as basal seta. Second

anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, brown to dark brown.
Wing: Length 3.20–3.39 mm, width 1.22–1.28 mm. Wing pattern stellate (Figs. 115, 116). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with distinct subapical stellate mark. Cell c mostly hyaline with faint basal and medial dark spot. Pterostigma dark brown with small hyaline distal spot. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, triangular, extended into cell r_{2+3}; second small, triangular, not extended almost to vein R_{2+3}; and small quadrate or triangular subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Hyaline area between crossvein bm-m and brown area in br measured along vein M_1, 0.69-0.73 times lengt. Cell r_{4+5} with apical rays narrow and complete; hyaline spot near anterior end of crossvein dm-m smaller, no more than half width of cell; faint dark spot touching vein R_{4+5} near base of apical rays. Cell dm with 2 subapical rays. Cells bm, cu*a*, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.
Legs: mostly yellow (sometimes hind femur with very small anteroventral brown spot). Femora medial and posterior with ca. ⅔ of anterior area with setulae lanceolate, white to yellow.
Abdomen: In both sexes ground color brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.
Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6. Oviscape brown, length 0.78 mm, width 0.56 mm at base and 0.26 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 187) length 0.83 mm. Aculeus (Fig. 226) pale brown, length 0.85 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.18 mm, with lateral margin nonserrate (Fig. 265). Spermathecae brown, subspherical, length 0.14 mm, surface with few papillae (Fig. 304).
Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 348) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 348), in lateral view with dorsal lobe (Fig. 391). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensiseta with dorsal face convex (Fig. 348); Phallapodeme Y-shaped,

0.33 mm long (Fig. 475). Glans 0.29 mm long (Fig. 432); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Peru (Cusco). Elevational records range from 2280-4044 m.

Biology. This species has been reared from flowerheads of *Conyza floribunda* Kunth. Adults also were collected on *Baccharis boliviensis* (Wedd.) Cabrera on two occasions.

Type data. The holotype male is labeled "PERU: Cusco: Carretera Manu, near jct. with road to Caicay, WPB-32" / "13.58354°S 71.70835°W, 3099 m, emerged 4-28 Feb reared ex flowerheads of *Conyza floribunda* (13-PE-03) collected 28 Jan 2013, A. L. Norrbom, G. J. Steck & B. D. Sutton" / "USNMENT00875881" [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the MHNJP. Paratypes: **PERU:** [unspecified locality], 1914, H. A. Parish, 1f (USNM USNMENT00105032). **Cusco:** Carretera Manu, near jct. with road to Caicay, WPB-32, 13.58354°S 71.70835°W, 3099 m, emerged 3 Feb 2013 reared ex flowerheads of *Conyza floribunda* (13-PE-03) collected 28 Jan 2013, A. L. Norrbom, G. J. Steck & B. D. Sutton, 11m 10f (CEBIO) 1m (DZUP USNMENT00875880) 2m 3f (FSCA) 1f (MHNJP USNMENT00875870-71) 7m 5f (USNM USNMENT00875872-79, USNMENT00875882-84, USNMENT00875898); 53 km W of Pilcopata, Buenos Aires, 2280 m, lower montane wet, 3-6 Dec 1979, J. B. Heppner, 1m (FSCA USNMENT00104800); Cusco, 3600 m, 6 Apr 1905, [C. A. W. Schnuse expedition], 1m (SMT USNMENT00119391); Laristhal [Lares Valley], 3000-4000 m, 8 Aug 1903, [C. A. W. Schnuse expedition], 1m (SMT USNMENT00119390); Ollantaytambo, E of, WP 665, 13.26707°S 72.22823°W, 2849 m, on *Baccharis boliviensis* (12-PE-36), 8 Jun 2012, A. L. Norrbom & B. D. Sutton, 1m1f (USAA) 1m 1f (USNM USNMENT00744409-10); same, on *Baccharis boliviensis* (13-PE-20), 3 Feb 2013, A. L. Norrbom, G. J. Steck & B. D. Sutton, 1m (USNM USNMENT00875866); Paucartambo, Buenos Aires, km 132, 2400 m, 2 Sep 1988, A. Freidberg, 1f (USNM USNMENT00104799); Pto. Maldonado Hwy. (30C), above Cjunucunca, Km 11-12, WP 677, 13.66333°S 71.59669°W, 4044 m, 10 Jun 2012, A. L. Norrbom & B. D. Sutton, 1m (USNM USNMENT00744319).

***Plaumannimyia* n. sp. 19**

Figs. 135–136, 188, 227, 266, 305, 349, 392, 433, 476, 533

Trypanea eugenia: Hendel, 1914: 81 [in part, Peru: Arequipa record].

Diagnosis. This species differs from all other species of *Plaumannimyia* in having the male fore basitarsus strongly dorsally flattened (Fig. 533, indicated by white arrow). Also it differs from most other congeners in having solid, broad, dark brown band between the pterostigma and crossvein r-m, cell dm hyaline except for a subapical ray completely crossing it, and in having one marginal apical hyaline spot in cell r_{2+3}. It differs from *Plaumannimyia* n. sp. 17 with same combination of characters in having cell dm with subapical ray arising from anteroapical corner; cell br with very strong bend in posterior margin of dark area, distance from bend to crossvein r-m about equal to length of crossvein r-m; male fore tibia curved, on basal half with fine and elongated setae, and male fore tarsomeres with long setae. Both sexes resemble (*P. ameghinoi*, *P. plagiata*, *P. scutellata*, *P. suspecta*, *Plaumannimyia* n. sp. 11, and *Plaumannimyia* n. sp. 20) in having solid, broad, dark brown band between the pterostigma and crossvein r-m, but is differs in lacking a distinct reticulate or solid, usually paler brown mark bordering and usually extended to subapical ray in cell dm.

Description. Body length 2.97–3.73 mm, mostly brown in ground color, yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.66–0.90 mm) than long (0.37–0.49 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.37–0.44 mm) less than width at vertex (0.46–0.56 mm), slightly narrowed to anterior margin (0.34–0.36 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, dark brown, gena height to eye long diameter ratio (0.29–0.35). Eye ovoid, long diameter (0.49–0.51 mm), width (0.46–0.48 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.16–1.45 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ⅓ as long as basal seta. Anepisternal,

katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 3.05–3.87 mm, width 1.02–1.35 mm. Wing pattern stellate (Figs. 135, 136). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with distinct subapical stellate mark. Cell c hyaline. Pterostigma dark brown with small and narrow hyaline distal spot. Cell r_1 with 2-3 marginal hyaline spots: first largest, elongate, triangular, extended almost to vein R_{2+3} (sometimes reaching cell r_{2+3}); second very small, rounded, and not extended almost to vein R_{2+3} (sometimes absent); and small quadrate or triangular subapical spot touching vein R_{2+3}. Cell r_{2+3} with 1 marginal hyaline spot (i.e., without medial dark ray). Cell r_{4+5} with apical rays narrow and complete; hyaline spot near anterior end of crossvein dm-m smaller, no more than half width of cell; distinct dark spot touching vein R_{4+5} near base of apical rays. Cell dm mostly hyaline, with subapical ray arising from anteroapical corner and not reaching vein M_4. Cells bm, cu*a* and anal lobe hyaline. Cell m_4 with faint reticulation. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow. Male fore tibia with strong mediolateral concave area; basal half with elongated setae (distinctly longer than lateral setae); apical third over small apical lobe with dorsal setae erect. Male fore basitarsus dorsally flattened, with dorsal long setae (Fig. 533).

Abdomen: In both sexes ground color yellow to brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 0.78–0.85 mm, width 0.51–0.56 mm at base and 0.24–0.25 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 188) length 1.32 mm. Aculeus (Fig. 227) pale brown, length 1.10 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.21 mm, with lateral margin nonserrate (Fig. 266). Spermathecae brown, subspherical, length 0.18 mm, surface with papillae (Fig. 305).

Male: Setulae on tergites similar to female in size, density and distribution. Sternite 3 with clusters of setulae (Fig. 537). Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 349) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 349), in lateral view with dorsal lobe (Fig. 392). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensiseta with apex truncate

(Fig. 349); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.30 mm long (Fig. 476). Glans 0.25 mm long (Fig. 433); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Chile (Antofagasta, Arequipa, Tarapacá), Peru (Arequipa, Lima). Elevational records 2134-2500 m.

Biology. This species has been reared from flowerheads of *Baccharis medullosa* DC.

Type data. The holotype male is labeled "PERU: Lima: Rimac Canyon, Rt. 20, Fundo San Juan, side road to Río Rimac N of" / "Puente Habich, waypt. 4, 11°51'56"S 76°25'20"W, 2134 m, emerged 17-29 Apr 2010 reared ex flowerheads" / "of Baccharis medullosa DC. (10-PE-05) collected 16 Apr 2010, N. Nolazco & A.L. Norrbom" / "USNMENT00744205" [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the MHNJP.

Paratypes: **CHILE: Antofagasta:** Calama, 2500 m, 25 Feb 1964, N. Hichins O., 1f (USNM USNMENT00105061). **Tarapacá:** Iquique, Parca, 29 Sep 1951, L. E. Peña, 1f (IML USNMENT00119262); Iquique, Suca Alto, 27 Feb 1976, H. Vargas, 1f (Univ. del Norte, Chile USNMENT00119261). **PERU: Arequipa:** Arequipa, 13 Nov 1902, [C. A. W. Schnuse expedition], 1f (AMNH USNMENT00262566). **Lima:** Matucana, 28 Jul 1982, R. B. Miller & L. A. Stange, 1m 1f (FSCA USNMENT00119259-60), 1m (USNM USNMENT00262707); Rimac Canyon, Rt. 20, Fundo San Juan, side road to Río Rimac N of Puente Habich, 11°51'56"S 76°25'20"W, 2134 m, emerged 17-29 Apr 2010 reared ex flowerheads of *Baccharis medullosa* DC. (10-PE-05) collected 16 Apr 2010, N. Nolazco & A.L. Norrbom, 1m (MHNJP USNMENT00744206) 2m (USNM USNMENT00745353-54); Rio Lurín btw. Cieneguilla & Manchay, WP 574, 12.13739°S 76.83025°W, 240 m, on *Baccharis salicifolia* (11-PE-32), 15 Dec 2011, Norrbom, Steck, Sutton & Nolazco, 1m 1f (USNM USNMENT00744090-91).

***Plaumannimyia* n. sp. 20**

Figs. 127–128, 189, 228, 267, 306, 350, 393, 434, 477

Diagnosis. This species differs from all other species of *Plaumannimyia* in having hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m less than 2/3 width of cell r_{4+5}; apical hyaline spot slightly longer than wide (Figs. 127, 128). Is differs from most other congeners in having solid, broad, dark brown band between the pterostigma and crossvein r-m, cell dm hyaline except for a subapical ray completely crossing it, solid, usually paler brown mark

bordering and usually extended to subapical ray in cell dm. From five others species with this combination of characters (*P. ameghinoi*, *P. plagiata*, *P. scutellata*, *P. suspecta*, and some specimens of *Plaumannimyia* n. sp. 11), it can be distinguished as follows: It differs in having the basal marginal hyaline spot in cell r_1 not reaching vein R_{2+3}.

Description. Body length 2.38–2.70 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown to dark brown.

Head: Slightly higher (0.60–0.68 mm) than long (0.44–0.51 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.34–0.36 mm) less than width at vertex (0.48–0.49 mm), slightly narrowed to anterior margin (0.31–0.36 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, brown, gena height to eye long diameter ratio (0.23–0.24). Eye ovoid, long diameter (0.44–0.49 mm), width (0.41–0.43 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 0.88–0.99 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, brown, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 2.47–2.83 mm, width 0.92–1.15 mm. Wing pattern stellate (Figs. 127, 128). Area between pterostigma and crossvein r-m with solid, broad, dark brown band (fork shaped), and with a subapical stellate mark. Cell c mostly hyaline with basal and medial dark spot. Pterostigma entirely dark brown. Cell r_1 with 2-3 marginal hyaline spots: first small usually oblique not extended almost to vein R_{2+3}; second small, rounded, and not extended almost to vein R_{2+3} (sometimes absent); and small quadrate or triangular subapical spot usually not touching vein R_{2+3}. Cell r_{2+3} mostly dark, with two marginal hyaline spots (sometimes with basal hyaline spot). Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m less than 2/3 width of cell r_{4+5}; apical hyaline spot slightly longer than wide. Cell dm with half basal mostly hyaline; half apical with medial ray arising of vein M_4 and another subapical ray arising between the crossvein r-m and crossvein dm-m.

Cells bm, cu*a*, and m_4 and anal lobe reticulate. Cell m_1 with 2 dark rays crossing , and usually reaching faint the posterior wing margin. Halter yellow.

Legs: mostly yellow; hind femur with brown spot in anterior area. Medial and posterior femora with setulae lanceolate, white to yellow only in anterior area. Male fore tibia in anterior view slightly curved, and with elongated setae on basal half (distinctly longer than lateral setae), and apical third with dorsal setae erect. Male fore basitarsus dorsally flattened. Male fore tarsomeres with dorsal long setae (distinctly longer than lateral setae).

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 0.68–0.77 mm, width 0.54–0.56 mm at base and 0.19–0.20 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 189) length 0.94 mm. Aculeus (Fig. 228) pale brown, length 0.94 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.15 mm, with lateral margin nonserrate (Fig. 267). Spermathecae brown, subspherical, length 0.15 mm, surface with papillae (Fig. 306).

Male: Setulae on tergites similar to female in size, density and distribution. Sternite 3 with clusters of setulae (Fig. 537). Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 350) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 350), in lateral view with dorsal lobe (Fig. 393). Medial surstylus with pair of prensisetae; lateral prensiseta conical, more than ⅔ as long as medial prensiseta (Fig. 350); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.24 mm long (Fig. 477). Glans 0.26 mm long (Fig. 434); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Peru (Ayacucho). The type series was collected at 4088 m altitude.

Biology. This species has been reared from flowerheads of one species of Astereae, *Parastrephia quadrangularis* (Meyen) Cabrera.

Type data. The holotype male is labeled “PERU: Ayacucho: Rt. 26A, NE of Puquio, puna, WP 571, 4088 m, 14.64653°S74.05079°W” / “emerg. 20 Dec 2011 - 10 Jan 2012 reared ex flowerheads of Parastrephia” / “quadrangularis (11-PE-31) collected 14 Dec 2011, Norrbom, Steck, Sutton & Nolazco” / “USNMENT00677384” [plastic bar code label]. The holotype is

double mounted (minuten), is in excellent condition, and is deposited in the MHNJP. Paratypes: **PERU: Ayacucho:** Rt. 26A, NE of Puquio, puna, WP 571, 14.64653°S 74.05079°W, 4088 m, emerged 20 Dec 2011 - 10 Jan 2012 reared ex flowerheads of *Parastrephia quadrangularis* (11-PE-31) collected 14 Dec 2011, Norrbom, Steck, Sutton & Nolazco, 1m 1f (DZUP USNMENT00119398-99) 1m 1f (FSCA USNMENT00119397, USNMENT00119403) 4m 3f (MHNJP USNMENT00119400-02, USNMENT00744050-53) 3m 2f (SENASA) 9m 5f (USNM USNMENT00119392-96, USNMENT00262570, USNMENT00744054-61).

***Plaumannimyia* n. sp. 21**

Figs. 99–100, 190, 229, 268, 307, 351, 394, 435, 478

Diagnosis. This species differs from its by the following combination of characters: scutal ground color and oviscape yellow; area between the pterostigma and crossvein r-m with a yellow band, paler than the stellate mark; and most of the stellate mark pale brown, but with a distinct dark brown spot within it in cell r_{4+5}. It is very similar to *P. difficilis*, which differs in having the scutal ground color and oviscape brown, a less distinct brown spot in cell r_{4+5} within the stellate mark, the ray to the apex of vein r_{4+5} usually incomplete or absent, and hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m generally larger, reaching vein R_{4+5}. It is also similar to *P. flava*, *P. imitatrix*, *Plaumannimyia* n. sp. 14 and *Plaumannimyia* n. sp. 23, which differs in having distinct brown anterodistal margin on the yellow area between the pterostigma and crossvein r-m and most of the stellate mark dark brown.
Description. Body length 2.95–3.96 mm, yellow in ground color, yellow microtrichose. Setae generally pale brown.
Head: Slightly higher (0.75–0.90 mm) than long (0.56–0.65 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few small setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye V-shaped. Parafacial and gena yellow. Frons, length (0.41–0.46 mm) less than width at vertex (0.54–0.65 mm), slightly narrowed to anterior margin (0.43–0.48 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate, posterior seta smaller, white and lanceolate. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.22–0.25). Eye ovoid, long diameter (0.61–0.68 mm), width (0.51–0.56 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.20–1.62 mm, ground color of scutum yellow, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 3.63–4.30 mm, width 1.35–1.51 mm. Wing pattern stellate (Figs. 99, 100). Area between pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and without or with a faint darker border on anterodistal margin not touching the pterostigma; stellate mark pale brown. Cell c yellowish. Pterostigma entirely yellow. Cell r_1 with 3 marginal hyaline spots: first largest, elongate, oblique, extended to cell r_{2+3}; second triangular, usually not touching vein R_{2+3}; and small triangular or quadrate subapical spot touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell r_{4+5} with apical rays complete; hyaline spot near anterior end of crossvein dm-m large, more than ⅔ half the width of cell; with distinct medial dark spot touching vein R_{4+5} near base of apical rays. Cells bm and cu*a* yellowish. Cells dm and m_4 and anal lobe reticulate. Cell m_1 with 2 dark rays crossing reaching posterior wing margin. Halter yellow.

Legs: Enterely yellow.

Abdomen: In both sexes ground color yellow and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape yellow, with black border apical, length 0.64–0.88 mm, width 0.51–0.73 mm at base and 0.22–0.26 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 190) length 1.24 mm. Aculeus (Fig. 229) pale brown, length 0.94 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.23 mm, with lateral margin nonserrate (Fig. 268). Spermathecae brown, elongated, length 0.21 mm, surface with papillae (Fig. 307).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 351) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus indistinguishably fused to epandrium; short, straight or directed slightly anteroventrally (Fig. 351); in lateral view with dorsal lobe (Fig. 394). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. ⅔ as long as medial prensiseta; medial prensisetae with dorsal face convex (Fig. 351); with group of 2–

3 setulae (Fig. 544, indicated by arrows). Phallapodeme Y-shaped, 0.31 mm long (Fig. 478). Glans 0.26 mm long (Fig. 435); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Argentina (Chubut, Jujuy, Mendoza, Neuquén, San Luis, Tucumán), Bolivia (Cochabamba). In Bolivia this species was collected at 2610 m altitude.

Biology. This species was reared from flowerheads of *Baccharis salicifolia* (Ruiz & Pav.) Pers.

Type data. The holotype male is labeled "ARGENTINA, Chubut Rt 3, 6 km S Puerto Madryn 21-Dec-93 Col: Gandolfo" / "reared from capitula of Baccharis salicifolia 150224" / "USNMENT00105099" [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the USNM. Paratypes: **ARGENTINA: Chubut:** Rt. 3, 6 km S of Puerto Madryn, reared from capitula of *Baccharis salicifolia,* 21 Dec 1993, D. Gandolfo 150224, 1m 1f (USNM USNMENT00105097-98); Rt. 3, 6 km S of Puerto Madryn, from larvae in dry capitula of *Baccharis salicifolia*, 8 Sep 1994, D. Gandolfo 174728, 1m (USNM USNMENT00105100). **Jujuy:** Rt. 9, 2 km N of Volcán, sweeping *Baccharis salicifolia*, 6 Nov 1990, P. E. Boldt, 1f (USNM USNMENT00105096). **Mendoza:** Potrerillos, 8 Mar 1950, A. Willink, 1m 1f (IML USNMENT00119491-92); Uspallata, 24 Jan 1950, M. Aczél, 1m 2f (IML USNMENT00119493-95). **Neuquén:** Neuquén [38°57'S 68°14'W], 26 Nov 1946, K. J. Hayward & A. Willink, 1m (IML USNMENT00119490). **San Luis:** 32.1 km E of San Luis, R. Lobos, 7 Feb 1951, Ross & Michelbacher, 1f (CAS USNMENT00119497). **Tucumán:** Laguna de Quilmes, 6 Dec 1968, L. Stange & A. Willink Entomofauna Subandina, 1f (IML USNMENT00119496). **BOLIVIA: Cochabamba:** Cochabamba, 17°23.3'S 66°7'W, 2610 m, 25 Mar 2001, A. Freidberg, 4m 3f (ANCB USNMENT00104871-74, USNMENT00104878-80) 5m 4f (USNM USNMENT00104867-70, USNMENT00104875-77, USNMENT00104881-82); Cochabamba Experiment Station, 3.2 km W of, 29 Mar 1976, C. R. Ward, 1f (USNM USNMENT00105094-95).

***Plaumannimyia* n. sp. 22**

Figs. 62, 107–108, 191, 230, 269, 308, 352, 395, 436, 479, 524, 528, 531

Diagnosis. This species differs from all other species of *Plaumannimyia* in having the scutum with 2 strong dark brown dorsocentral vitae (Fig. 62). Other useful diagnostic characters include: Most setae dark brown to black; apical scutellar seta white; male foreleg unmodified; wing pattern stellate (Figs. 107–108) with hyaline to yellow spots in broad brown band from

pterostigma to crossvein r-m and in subapical brown area; cell R_{2+3} with apical ray; discal cell without subapical rays, ⅓ uniformly hyaline, ⅔ with hyaline spots; margin of cell m_4 with 2 or 3 hyaline spots. Hyaline band bordering the vein M_1 from the base until between crossveins r-m and crossvein dm-m.

Description. Body length 3.50–4.16 mm, yellow and brown in ground color, gray microtrichose. Setae generally dark brown to black.

Head: Slightly higher (0.88–0.94 mm) than long (0.54–0.60 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown, and occiput brown medially and with brown mark sublaterally near midheight of eye, sometimes connected to dark medial area. Parafacial and gena whitish. Frons, length (0.48–0.49 mm) less or equal than width at vertex (0.49–0.54 mm), slightly narrowed to anterior margin (0.43–0.44 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae black, acuminate. Anterior orbital seta acuminate, posterior seta smaller, whitish and lanceolate. Gena with only few small lanceolate and whitish setulae on middle and ventral margin, genal seta lanceolate, white, gena height to eye long diameter ratio (0.22–0.24). Eye ovoid, long diameter (0.68–0.70 mm), width (0.44–0.45 mm). Antenna testaceous whitish to yellow, first flagellomere as long as wide.

Thorax: Length 1.43–1.55 mm, ground color of scutum black, of scutellum yellow to pale brown (Fig. 62). Mesonotum mostly gray microtrichose, scutum with weak brown medial vitta not reaching the level of presutural dorsocentral setae, 2 complete strong dark brown dorsocentral vittae reaching the scutellum, and 2 weaker brown presutural lateral vittae reaching the transverse suture. Setulae lanceolate, white to yellow, more long near of base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white, about ⅓ as long as basal seta. Second anepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, dark brown.

Wing: Length 3.59–3.85 mm, width 1.45–1.48 mm. Wing pattern stellate (Figs. 107, 108). Pterostigma connected to stellate mark by broad band with hyaline to yellow spots; cell c mostly dark brown with subapical hyaline spot. Cell r_1 with 3 marginal hyaline spots: largest, immediately distad of pterostigma, oblique and not reaching cell r_{2+3}; one midway between pterostigma and apex of R_{2+3}, oblique and at most extended almost to vein R_{2+3}; and small triangular or quadrate subapical spot often touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete or incomplete medial dark ray). Cell r_{4+5} medial dark spot touching vein R_{4+5}, and apical rays complete. Cells bm and cu*a* hyaline. Basal third of cell dm hyaline and apical third mostly reticulate. Dark ray over crossvein dm-m and 2 dark

rays crossing cell m_1 all reaching posterior wing margin; basal marginal hyaline spot not reaching vein M_1. Anal lobe and cell m_4 mostly reticulate. Halter whitish to yellow.
Legs: Female entirely yellow. Male foreleg usually with gray area on basal half of femur (Fig. 62) and with long setae basal (Fig. 524); apical tarsomere mostly dark. Other legs entirely yellow.
Abdomen: In both sexes with microtrichia and setulae on abdominal terga concolorous with those on mesonotum.
Female: Syntergite 1+2 mostly yellow, dark basal, with small setulae on anterior margin, centrally bare and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 0.78 mm, width 0.49 mm at base and 0.19 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 191) length 0.88 mm. Aculeus (Fig. 230) pale brown, length 0.72 mm, in dorsal view with ventral area of basal third nonsclerotized; tip triangular, length 0.14 mm, with lateral margin serrate (Fig. 269). Spermathecae dark brown, elongated, length 0.18 mm, surface with few papillae (Fig. 308).
Male: Syntergite 1+2 with half basal usually brown, half apical yellow; tergites 3-4 entirely yellow; tergites 5 entirely brown. Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 with strong indentation (inverted U-shape) (Fig. 535). Epandrium in posterior view globose, dark brown with setulae distributed (Fig. 352). Lateral surstylus long, directed posteroventrally (Fig. 395). Medial surstylus with pair of prensisetae; lateral prensiseta minute, conical; medial prensiseta very large (3x the size of the lateral) (Fig. 543). Phallapodeme Y-shaped, 0.42 mm long (Fig. 479). Glans 0.30 mm long (Fig. 436); vesica ca. ⅓ length of internal sclerites.
Distribution. *Neotropical.* Brazil (Paraná, São Paulo). Elevational records range from 922-1400 m.
Biology. This species has been reared from flowerheads of *Baccharis oreophila* Malme (Savaris plant voucher number BOT-322). One adult female was collected on *Baccharis mesoneura* DC. in São Paulo.
Type data. The holotype male is labeled “BRASIL: P[a]R[aná], Quatro Barras, Estrada da Graciosa, 05.ii.2013, 922m, 25°20'13.3"S, 48°54'44.74"O, rede entomológica, M. Savaris, S. Lampert” / “USNMENT00262726” [plastic bar code label]. The holotype is double mounted (minuten), is in excellent condition, and is deposited in the DZUP. Paratypes: same data as holotype, 1f (DZUP USNMENT00262649). **BRAZIL: Paraná**: Quatro Barras, Estrada da Graciosa, 25°19'30.22"S, 48°55'28.95"W, 875 m, 2 Feb 2015, reared ex flowers of *Baccharis*

oreophila Malme, M. Savaris, S. Lampert, 1f (DZUP USNMENT00120039). Ponta Grossa, Parque Estadual de Vila Velha, 25°13'59.74"S 49°59'56.91"W, 965 m, 02 Mar 2013, S. Lampert, M. Savaris, 1m (USNM USNMENT00262725). Tijucas do Sul, Morro Araçatuba, 25°54'8.28"S 48°59'35.11"W, 1400 m, 12 Oct 2014, M. Savaris, S. Lampert, 2m (USNM USNMENT00262571 USNMENT00677354). **São Paulo**: São Paulo, 23°32'S 46°37'W, on *Baccharis mesoneura*, Nov 1961, C. I. E, 1f (USNM USNMENT00104995).

***Plaumannimyia* n. sp. 23**

Figs. 96, 192, 231, 270, 309

Diagnosis. Also it differs from most other congeners in having the area between the pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and with distinctly darker border on anterodistal margin. It differs from three others species with this combination of characters (*P. flava*, *P. imitatrix*, and *Plaumannimyia* n. sp. 14), it can be distinguished as follows: It differs in lacking the complete ray to the apex of vein $R_{4+5,}$ and apical hyaline spot in cell r_1 not reaching vein R_{2+3}. The female resembles (*P. coelestina*, *P. difficilis*, *P. miseta*, *P. subaster*, *Plaumannimyia* n. sp. 4, and *Plaumannimyia* n. sp. 21) in having the solid yellow band between the pterostigma and crossvein r-m, but is differs in having distinct darker border on anterodistal margin of the solid yellow band.

Description. Body length 3.94 mm, mostly brown in ground color, yellow microtrichose. Setae generally pale brown.

Head: Slightly higher (0.94 mm) than long (0.71 mm). Generally yellow, frons yellow to orange, ocellar tubercle dark brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.51 mm) less than width at vertex (0.61 mm), slightly narrowed to anterior margin (0.51 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown. Anterior orbital seta acuminate pale brow, posterior seta smaller, white and lanceolate. Gena with small lanceolate and white setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.25). Eye ovoid, long diameter (0.75 mm), width (0.60 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.58 mm, ground color of scutum brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 3 pairs of setae, apical seta

lanceolate, white to yellow, less than ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown.

Wing: Length 3.46 mm, width 1.25 mm. Wing pattern stellate (Fig. 96). Area between pterostigma and crossvein r-m with solid yellow band, paler than the stellate mark, and with distinctly darker border on anterodistal margin, not reaching the pterostigma. Cell c hyaline. Pterostigma entirely yellow. Cell r_1 with 3 marginal hyaline spots: first largest, oblique, elongate, extended to cell r_{2+3}; second triangular, touching vein R_{2+3} (sometimes not touching vein); and small triangular subapical spot not touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (i.e., cell with complete medial dark ray). Cell r_{4+5} with anterior apical ray absent or incomplete, posterior complete; hyaline spot near anterior end of crossvein dm-m large, more than ⅔ width of cell; faint medially dark spot touching vein R_{4+5} near base of apical rays. Cell br mostly hyaline with few dark spots. Cells bm and cu*a* hyaline. Cell dm with third basal hyaline and thir apical with faint subapical ray. Cell m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin. Halter yellow.

Legs: Entirely yellow.

Abdomen: ground color brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown, length 0.94 mm, width 0.68 mm at base and 0.24 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 192) length 1.28 mm. Aculeus (Fig. 231) pale brown, length 1.09 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.21 mm, with lateral margin nonserrate (Fig. 270). Spermathecae brown, elongated, length 0.16 mm, surface with few papillae (Fig. 309). Male: Unknow.

Distribution. *Neotropical.* Argentina (Santa Cruz). The type was collected at 360 m altitude.

Biology. No host plant information is known for this species.

Type data. The holotype female is labeled “ARGENTINA, SANTA CRUZ PROV. 5.6 km E. Los Antiguos 360m; XI-23-66 E. I. Schlinger & M. Irwin” / “UCR” [white circle] / “USNMENT00262576” [plastic bar code label]. The holotype is double mounted (triangle paper), is in moderate condition (abdomen dissected), and is deposited in the UCR.

***Plaumannimyia* n. sp. 24**

Figs. 77–79, 193, 232, 271, 310, 353, 396, 437, 480, 523, 529

Diagnosis. This species differs from most other congeners in having distinct subapical stellate mark, but lacking darker border on anterodistal margin of reticulate area between the pterostigma and crossvein r-m. Of the other species with this combination of characters, it can be distinguished as follows: It differs from *Plaumannimyia* n. sp. 1 in having smaller hyaline spots in cells r_{2+3} and r_{4+5} within the subapical stellate mark and from that species and *Plaumannimyia* n. sp. 2 in having the apical hyaline spot in cell r_1 smaller, not reaching vein R_{2+3}. It differs from *Plaumannimyia* n. sp. 3 in the size of the basal marginal hyaline area in cell r_1 which extends at most slightly into cell r_{2+3}, and also in the more triangular shape of second marginal hyaline area in cell r_1. It differs from *Plaumannimyia* n. sp. 12 in having larger marginal hyaline marks in cells r_{2+3} and r_{4+5}, and it differs from *Plaumannimyia* n. sp. 2 in lacking or having less distinct dark spot in cell r_{4+5} within the subapical stellate mark, lacking a row of slightly enlarged anteroventral setulae on the hind femur, and usually having multiple spots in cell r_{4+5} within the subapical stellate mark. It differs from *Plaumannimyia* n. sp. 22 in lacking brown vittae on the scutum, having the pale spots within the area between the pterostigma and crossvein r-m hyaline rather than yellow, and having more extensive brown markings in the basal half of cell dm. It differs from *Plaumannimyia* n. sp. 16 in having the hyaline marks in cell r_1 less rounded, fewer hyaline spots within the stellate mark, and the darker spot in cell r_{4+5} within the subapical stellate mark usually lacking, or if present larger than in *Plaumannimyia* n. sp. 16.

Description. Body length 4.20 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown to dark brown.

Head: Slightly higher (0.92 mm) than long (0.54 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.46 mm) less than width at vertex (0.56 mm), slightly narrowed to anterior margin (0.49 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown to brown. Anterior orbital seta acuminate, pale brown to brown, posterior seta smaller, lanceolate, white. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, brown, gena height to eye long diameter ratio (0.26). Eye ovoid, long diameter (0.71 mm), width (0.49 mm). Antenna testaceous yellow

(sometimes yellow to brown), first flagellomere as long as wide. Maxillary palpus and labella mostly yellow, sometimes distal area yellow to brown.

Thorax: Length 1.58 mm, ground color of scutum dark brown, of scutellum in dorsal view mustly brown, lateral yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta acuminate, pale brown, about ⅓ as long as basal seta. Katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 3.49 mm, width 1.28 mm. Wing pattern stellate (Figs. 77–79). Area between pterostigma and crossvein r-m reticulate and without darker border on anterodistal margin, and with distinct subapical brown mark. Cell c with basal and medial brown spots. Pterostigma brown with two small hyaline spots. Cell r_1 with 3-5 hyaline marginal spots: first small, rounded, usually connected with second spot and not extended into cell r_{2+3}; second largest, oblique, usually reaching vein R_{2+3}; third triangular, extended almost to vein $R_{2+3,}$ but not touching vein; and one or two small triangular or rounded subapical spots, never touching vein R_{2+3}. Cell r_{2+3} with 2 marginal hyaline spots (sometimes medial dark ray incomplete); basal marginal hyaline spot not touch vein R_{4+5}; fewer tiny hyaline spots within the subapical stellate mark. Cell r_{4+5} with apical rays complete (sometimes interrupted); hyaline spot near anterior end of crossvein dm-m large, ca. ½ of width of cell; width of marginal apical spot equal or less than the width of hyaline spot near anterior end of crossvein dm-m; ray to apex of R_{4+5} often interrupted or connected to dark spot in middle of apex of cell r_{2+3}. Cells br, bm, cu*a*, dm, and m_4 and anal lobe reticulate. Dark ray over crossvein dm-m and 2 dark rays crossing cell m_1 all reaching posterior wing margin; basal marginal hyaline spot not reaching vein M_1. Halter yellow.

Legs: mostly yellow (sometimes hind femur with a small and faint brown spot in anteroventral margin).

Abdomen: In both sexes ground color dark brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, posterior margin of tergites with row of setae large (2-3 times more long than setulae). Oviscape brown to black, length 1.34 mm, width 0.73 mm at base and 0.26 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 193) length 1.00 mm. Aculeus (Fig. 232) pale brown, length 0.93 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.23 mm, with lateral

margin nonserrate (Fig. 271). Spermathecae brown, subspherical, length 0.21 mm, surface with papillae (Fig. 310).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 353) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 353), in lateral view with dorsal lobe (Fig. 396). Medial surstylus with pair of prensisetae; lateral prensiseta conical, ca. of ⅔ as long as medial prensiseta (Fig. 353); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.43 mm long (Fig. 480). Glans 0.39 mm long (Fig. 437); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Chile (Aconcagua, Coquimbo, Región Metropolitana de Santiago, Valparaíso). Elevational records range from 100-200 m.

Biology. No host plant information is known for this species. Adults were swept on top of *Baccharis* spp.

Type data. The holotype male is labeled "Chile, Región Metropolitana de Santiago: near Guayacán & jct. Rios Colorado & Maipo, km 0-0.5 road to Los Maitenes, 33°36'S 70°22'W, sweeping *Baccharis* sp., 17 Nov 1996, A. L. Norrbom & G. J. Steck" / "USNMENT00049347" [plastic bar code label]. It is in good condition (forelegs in microvial, some head and thoracic setae missing), double mounted (minuten), and is deposited in the USNM. Paratypes: **CHILE: Aconcagua:** Zapallar, 27 Nov 1950, Ross & Michelbacher, 1m (CAS USNMENT00262622) 1m (UCR USNMENT00104257). **Coquimbo:** Parque Nacional Fray Jorge, 15 km SW of Pachingo, 100-200 m, 20 Oct 1966, E. I. Schlinger & M. E. Irwin, 1f (UCR USNMENT00262553). **Región Metropolitana de Santiago:** Las Condes, Puente Nilhue, 1 Mar 1981, Cerdon, 1f (USNM USNMENT00105082). La Obra on Rio Maipo SE Santiago, Jan 1977, L. E. Peña (AMNH USNM00119504). **Valparaíso:** Llay-Llay, 4 Feb 1951, Ross & Michelbacher, 1f (CAS USNMENT00262648).

***Plaumannimyia* n. sp. 25**

Figs. 143–144, 194, 233, 272, 311, 354, 397, 438, 481

Diagnosis. This species differs from most other congeners in having area between pterostigma and crossvein r-m with solid brown band except for small hyaline areas bordering crossvein r-m. It differs from six others species with this combination of characters

(*P. delicatella*, *P. dolores*, *P. setulosa*, *Plaumannimyia* n. sp. 7, *Plaumannimyia* n. sp. 8, and *Plaumannimyia* n. sp. 15), it can be distinguished as follows: It differs in having most of cell m_4 hyaline, at most with small subbasal brown spot, small brown mark near the apex of vein CuA+CuP, an apical brown area, and occasionally small, pale medial brown spot. It further differs from all of those species except *Plaumannimyia* n. sp. 8 in having the apical scutellar seta paler than the basal seta. Males differ from those of *P. delicatella*, *Plaumannimyia* n. sp. 7, *Plaumannimyia* n. sp. 15 in having unmodified forelegs.

Description. Body length 3.14–3.86 mm, mostly dark brown in ground color, gray and yellow microtrichose. Setae generally brown.

Head: Slightly higher (0.94–1.04 mm) than long (0.68–0.70 mm). Generally yellow, frons yellow to orange, ocellar tubercle brown and with few setulae white, and occiput brown medially and with brown mark sublaterally near midheight of eye. Parafacial and gena yellow. Frons, length (0.46–0.56 mm) equal or more than width at vertex (0.49–0.53 mm), slightly narrowed to anterior margin (0.43–0.48 mm). Three frontal setae, anterior seta smaller, lanceolate, white; posterior 2 setae acuminate, pale brown to brown. Anterior orbital seta acuminate, posterior seta smaller, lanceolate and white. Gena with few small lanceolate and white setulae on ventral margin, genal seta acuminate, pale brown, gena height to eye long diameter ratio (0.23–0.29). Eye ovoid, long diameter (0.70–0.78 mm), width (0.58–0.60 mm). Antenna testaceous yellow, first flagellomere as long as wide.

Thorax: Length 1.21–1.48 mm, ground color of scutum brown to dark brown, of scutellum yellow. Mesonotum covered by bright yellow microtrichia. Setulae lanceolate, white to yellow, slightly increasing in size to apical area, near base of scutellum. Scutellum with 2 pairs of setae, apical seta lanceolate, white to yellow, about ⅓ as long as basal seta. Anepisternal, katepisternal, anepimeral and posterior notopleural setae lanceolate, white to yellow (concolorous with setulae), other thoracic setae acuminate, pale brown to brown.

Wing: Length 2.90–3.30 mm, width 1.08–1.28 mm. Wing pattern stellate (Figs. 143, 144). Area between pterostigma and crossvein r-m with solid brown band except for small hyaline areas bordering crossvein r-m. Cell c mostly hyaline, with faint basal and medial dark spot. Pterostigma dark brown (rarely with small hyaline distal spot). Cell r_1 with 2-3 marginal hyaline spots: first largest, quadrate, usually extended into cell r_{2+3}; second average, quadrate or rounded, extended almost to vein R_{2+3} (sometimes connected with first hyaline spot); and small quadrate or rounded subapical spot usually touching vein R_{2+3} (sometimes absent). Cell r_{2+3} with 1-2 marginal hyaline spots. Cell r_{4+5} with apical rays usually incomplete; hyaline spot in cell r_{4+5} near anterior end of crossvein dm-m large, more than ⅔ half the width of cell.

Cell m_4 most hyaline, at most with small subbasal brown spot, small brown mark near the apex of vein CuA+CuP, an apical brown area, and occasionally small, pale medial brown spot. Cells bm, cu*a* and dm, and anal lobe mostly reticulate. Cell m_1 with 3 marginal hyaline spots, usually the most basal spots merged. Halter yellow.

Legs: Entirely yellow.

Abdomen: In both sexes ground color brown and microtrichia and setulae on abdominal terga concolorous with those on mesonotum.

Female: Syntergite 1+2 with small setulae on anterior margin, centrally bare, and with sparse setulae on posterior half; setulae uniformly dense on tergites 3–6, and posterior margin of tergites with row of setae large (2-3 times more long than setulae). Posterior border of the tergites yellow. Oviscape brown to black, length 0.83–0.84 mm, width 056–0.82 mm at base and 0.24–0.26 mm at apex; with evenly distributed white setulae. Eversible membrane (Fig. 156) length 1.12 mm. Aculeus (Fig. 194) pale brown, length 1.02 mm, in dorsal view with basal area sclerotized; tip triangular, length 0.18 mm, with lateral margin nonserrate (Fig. 233). Spermathecae brown, elongated, length 0.21 mm, surface with papillae (Fig. 272).

Male: Setulae on tergites similar to female in size, density and distribution. Posterior margin of sternite 5 concave. Epandrium in posterior view (Fig. 311) as an inverted U, with setulae and microtrichia distributed evenly. Lateral surstylus short, straight or directed slightly anteroventrally and with apex truncate (Fig. 311), in lateral view with dorsal lobe (Fig. 397). Medial surstylus with pair of prensisetae; lateral prensiseta conical, more than ⅔ as long as medial prensiseta (Fig. 311); with group of 2–3 setulae between prensisetae and also group of 3 setulae near base of medial prensiseta (Fig. 544 indicated by arrows). Phallapodeme Y-shaped, 0.36 mm long (Fig. 481). Glans 0.36 mm long (Fig. 438); vesica ca. ⅓ length of internal sclerites.

Distribution. *Neotropical.* Chile (Araucaína, Biobío). Elevational records range from 20-1250 m.

Biology. Most of the type series was swept from *Baccharis linearis* (Ruiz & Pav.) Pers. (= *B. rosmarinifolia* Hook. & Arn.) or undetermined *Baccharis* species.

Type data. The holotype male is labeled “CHILE: Reg.IX (Araucanía): 6 km E Pucón, 1 km W Rio Turbio,” / “≈ 39°16'S 71°55'W, 12-16 Nov 1996 A.L. Norrbom, G.J. Steck” / “sweeping *Baccharis rosmarinifolia* Hook & Arn. (96CH28)” / “USNMENT00049435” [plastic bar code label]. The holotype is double mounted (minuten) and is in excellent condition, and is deposited in the USNM. Paratypes: **CHILE: Araucanía:** Pucón, 10 km E, 1 km W of Río Turbio, 39°17'S 71°54'W, 500 m, *Baccharis* scrub, sweeping vegetation, 26

Dec 1990, D. H. Burckhardt & D. Agosti, 3m (MHNG USNMENT00119406–07, USNMENT00118557); 1m 1f (USNM USNMENT00105136, USNMENT00119411); Pucón, 3 km SW, S shore of Lago Villarrica, Puente Carmilito, 39°17'S 72°W, sweeping *Baccharis* spp., 12-15 Nov 1996, A. L. Norrbom & G. J. Steck, 2f (USNM USNMENT00049812–13); Pucón, 6 km E, 1 km W of Río Turbio, 39°16'S 71°55'W, sweeping *Baccharis rosmarinifolia* (96CH28), 12-16 Nov 1996, A. L. Norrbom & G. J. Steck, 1m 1f (DZUP USNMENT00049455–56); 1m 1f (FSCA USNMENT00049453–54) 9m 9f (USNM USNMENT00049434, USNMENT00049436–41, USNMENT00049442–52); Pucón, 9 km SW, S shore of Lago Villarrica, Puente Correntoso, 39°18'S 72°5'W, sweeping *Baccharis* spp., 11-14 Nov 1996, A. L. Norrbom & G. J. Steck, 1f (USNM USNMENT00049790). **Biobío:** Concepción, Salto del Laja, 20 m, 18 Dec 1966, E. I. Schlinger M. E. Irwin, 1f (UCR USNMENT00119412); Ñuble, Termas de Chillán, 10 km W of, 1250 m, mixed *Nothofagus* forest, 12-13 Dec 1990, D. H. Burckhardt & D. Agosti, 1m 2f (MHNG USNMENT00119408–10).

Other taxonomic changes

***Dyseuaresta hestiae* (Hendel), n. comb.**
Figs. 498–501

Trypanea hestiae Hendel, 1914: 76 [key], 82 [description; Argentina].
Trypanaresta hestiae: Hering, 1941: 157 [N. Comb.; key]; Aczél, 1950: 294 [catalog]; Foote, 1967: 53 [catalog]; Norrbom *et al.*, 1999: 237 [catalog].
Plaumannimyia hestiae: Norrbom *et al.*, 2010: 42 [N. Comb.].

Distribution. *Neotropical.* Argentina (Tucumán).
Biology. No host plant information is known for this species.
Type data. This species was described from a single female (holotype by monotypy) in the "Ung. Nat.-Mus." (HNHM) from "Argentinien, Lules" [Argentina: Tucumán: Quebrada de Lules], collected in October. It has the following labels: "Trypanea Hestiae H. typus det . Hendel", "Argentinia Vezényi", "Lules 1905.X.", and "typus" [red border] (Fig. 501). We examined images of the holotype (Figs. 498–501) kindly taken by Dr. Zoltán Soltész.
Remarks. Hering (1941) placed this species in *Trypanaresta*, now considered a synonym of *Plaumannimyia* (Norrbom *et al.*, 2010), but it is here transferred to *Dyseuaresta*, based on the

number of scutellar setae (one pair), the presence of a pair of subapical dorsal setae on the hind femur, the radiate wing pattern, the present of a bulla in cell r_{4+5}, and the length of the female terminalia.

***Dyseuaresta titschacki* (Hering), n. comb.**

Figs. 502 –505

Trypanaresta titschacki Hering, 1941: 157 [description; key; Peru]; Aczél, 1950: 295 [catalog]; Foote, 1967: 53 [catalog]; Norrbom *et al.,* 1999: 238 [catalog].
Plaumannimyia titschacki: Norrbom *et al.,* 2010: 42 [N. Comb.].

Distribution. *Neotropical.* Peru (Ayacucho, Junín).
Biology. No host plant information is known for this species.
Type data. This species was described from a "♂-Type" collected on the "Hamb. Südperu-Exped." from Peru: Ayacucho: Sivia, 520m, 26 May 1936, "gestreift am Hause, Rodung, an niederem Gestrüpp" [swept at house, clearing, on a low shrub] and deposited in the "Museum Hamburg". The collection of the ZSZMH was destroyed in World War II, thus the holotype is lost.
Remarks. Hering (1941) described this species in *Trypanaresta*, now considered a synonym of *Plaumannimyia*, but it is here transferred to *Dyseuaresta*, based on two specimens from Peru: Junín: Valle Chanchamayo, 800 m, 10 Jul 1939, leg. Weyrauch in the IML that closely match Hering's description and wing photo (Taf. 1, fig. 16). One is a female (Figs. 502–505), the other lacks the abdomen. These specimens belong in *Dyseuaresta* based on the number of scutellar setae (one pair), the presence of a pair of subapical dorsal setae on the hind femur, the radiate wing pattern, the present of a bulla in cell r_{4+5}, and the relatively long female terminalia.

Phylogeny of the species of *Plaumannimyia* Hering (Diptera: Tephritidae) based on morphology

The cladistic analysis of a matrix comprising 53 terminals and 56 morphological characters (Table 1) resulted in 210 trees, each with a length of 131 steps and consistency and retention indices of 0.61 and 0.89 respectfully. The strict consensus tree has a length of 140 steps and consistency and retention indices of 0.57 and 0.87 (Fig. 551). We present and discuss herein the topology of the consensus tree.

In the current analysis, the species *D. adelphica* (Hendel) was used as an outgroup and along with *P. hestiae* (Hendel) and *P. titschacki* (Hering) formed a monophyletic clade that is based on five synapomorphies: anterior frontal setae absent (1:2) (Fig. 500); postocular setae mixed (lanceolate and acuminate) (5:1) (Fig. 500); wing pattern radiate (26:1); cell r_{4+5} with a bulla (34:1) and oviscape length long (> 2x the width of the base) (49: 1) (Fig. 498). Although the presence of a bulla in cell r_{4+5} appears as a synapomorphy for *Dyseuaresta*, this structure is not unique to species of this genus. Species of other genera of the subfamily Tephritinae and not that were included in this analysis also have a bulla (i.e., representatives of the genus *Paracantha*).

The use of different host plants by immatures of Tephritinae can be a source of characters to further separate and classify the groups being analyzed. According to Prado *et al.,* (2002), species of *Dyseuaresta* mainly utilize host plants of the tribe Heliantheae, especially the genus *Aspilia* Thouars. *Euarestoides* primarily uses species of the tribes Eupatorieae, Gochnatieae and Astereae, but there are a few host plant records from the tribe Heliantheae (Foote *et al.,* 1993; Prado *et al.,* 2002). *Plaumannimya* mostly uses plants of the tribe Astereae, especially the genus *Baccharis* L. (Foote *et al.,* 1993; Prado *et al.,* 2002; Norrbom *et al.,* 2010, 2013; Savaris *et al.,* 2015).

Euarestoides and *Plaumannimyia* are sister-groups based on two synapomorphies: ocellar tubercle with setulae (3:1) (Fig. 517, indicated by black arrow); oviscape, dorsal setae mixed (basal and medial third lanceolate and apical third acuminate) (50:1). Norrbom *et al.,* (1999) defined the group *Euarestoides* containing the taxa *Euarestoides, Plaumannimyia* and *Trypanaresta*. Norrbom *et al.,* (2010) transferred the 18 species of *Trypanaresta* to *Plaumannimyia*, considering the former as the junior synonym of *Plaumannimyia*. This transfer seems justified as species of both genera lack pre-apical dorsal setae on the hind femur (Fig. 521), and this characteristic was considered by Norrbom *et al.,* (2010) as a synapomorphy for species of *Plaumannimyia*.

Euarestoides is represented in this analysis by all known congeners (Fig. 551) and its monophyly is based on the following synapomorphy: wing, area between pterostigma and crossvein r-m with narrow solid band (anterior margin from pterostigma to anterior end of crossvein r-m) (28:1) (Figs. 2–13). There are also two homoplasies that distinguish this genus: wing, area between pterostigma and crossvein r-m pale brown with anterodistal margin darker (27:3) (Figs. 2, 3); and wing, area between pterostigma and crossvein r-m with narrow mark (anterior margin from pterostigma to anterior end of crossveinr-m) (29:1) (Figs. 2, 3).

Within *Euarestoides*, two monophyletic groups are apparent. One group includes two species, *Euarestoides* n. sp. 1 and *Euarestoides* n. sp. 2, and is supported by one synapomorphy: lateral surstylus with apex strongly sclerotized (as sclerotized as prensisetae) (39:1) (Figs. 37, 38); and one homoplasy: wing, cell r_{4+5} with darker spot near vein R_{4+5} (33:1) (Figs. 9–11). The second group is formed by the species *E. dreisbachi*, *Euarestoides* n. sp. 3, *E. abstersus* and *E. acutangulus*, and is supported by two synapomorphies: facial/frontal junction in lateral view angulate between 110-120° (2:0) (Fig. 517, indicated by yellow arrow); glans, acrophallus with apical lobe curved medially (42:2) (Figs. 48, 51); and two homoplasies: lateral prensisetae with size equal to medial prensiseta (43:2) (Fig. 34) and medial prensiseta with shape of the dorsal face straight (46:2) (Fig. 34). In the latter group, the species *E. abstersus* and *E. acutangulus* form a clade that is supported by three synapomorphies: glans, acrophallus with apical lobe straight (42:1) (Figs. 46, 47); aculeus tip with lateral margin serrate basally (54:2) (Figs. 16, 20); aculeus lateral margin at cloaca level serrate (55:1) (Figs. 16, 20); and one homoplasy: oviscape, dorsal setae mixed (basal half lanceolate and apical half acuminate) (50:2).

Foote (1980) studied the genus *Euarestoides* and described, as one of the main diagnostic characteristics for the genus, the angle of contact between the face and frons of approximately 120°. This feature is used in this analysis as one character state of character 2. However, with the description of two new species in *Euarestoides* herein, this character was not borne out as a synapomorphy for the genus but of an sublineage included comprising *E. dreisbachi*, *Euarestoides* n. sp. 3, *E. abstersus*, and *E. acutangulus* (Fig. 551). According to this analysis, the monophyly of *Euarestoides* is supported by character states: 27:3, 28:1 and 29:1.

Plaumannimyia does not constitute a monophyletic clade given the position of *P. hestiae* and *P. titschacki* (Fig. 551). Thus, we propose the transfer of these two species to the genus *Dyseuaresta*, and by so doing recover the monophyly of *Plaumannimyia*, which now

includes 43 species. The monophyly of *Plaumannimyia* is corroborated by three synapomorphies: head, anterior frontal setae lanceolate (1:1) (Fig. 518, indicated by black arrow); antenna with first flagellomere as long as wide (4:1); hind femur without anterodorsal pre-apical setulae (24:1) (Fig. 522, indicated by white arrow). Norrbom *et al.*, (2010) proposed character 24: (24:1) as a specific characteristic for the genera *Trypanaresta* and *Plaumannimyia*, emphasizing that it is a synapomorphy for the group. In this study, the character is confirmed as synapomorphy for *Plaumannimyia*.

The first lineage at the base of the *Plaumannimyia* clade is *Plaumannimyia* n. sp. 13 . The other 42 species are weakly grouped based on the following homoplasy: wing, cell r_{4+5} with darker spot near vein R_{4+5} (33:1) (Fig. 62). Within this latter group, *Plaumannimyia* n. sp. 17 and four other clades form an unresolved polytomy (Fig. 551).

The clade I (Fig. 551) is formed by five species: *Plaumannimyia* n. sp. 23, *P. difficilis*, *Plaumannimyia* n. sp. 21, *P. flava* and *P. imitatrix*. The clade is supported by a synapomorphy from the wing: area between pterostigma and crossvein r-m yellow with anterodistal margin darker (27:2) (Figs. 103, 104); and one homoplasy: scutellum with marginal apical seta lanceolate (8:1) (Figs. 61, 62). The species *P. flava* and *P. imitatrix* are morphologically very similar, and in this analysis, they were recovered as a weak clade supported by the following homoplasies: wing, area between pterostigma and crossvein r-m with narrow mark (anterior margin from pterostigma to anterior end of crossvein r-m) (29:1) (Figs. 103, 104) and eversible membrane in dorsal view with taenia reaching the lateral margin (52:1) (Fig. 163). Character state (29:1) is also present in *Plaumannimyia* n. sp. 3 and in all species of the genus *Euarestoides*.

Clade II (Fig. 551) only includes new species and is supported by one homoplasy: lateral susrtylus with apex truncated (40:0) (Figs. 312, 536). Within this group, there is a monophyletic clade (Fig. 551) comprising four species (*Plaumannimyia* n. sp. 2, *Plaumannimyia* n. sp. 12, *Plaumannimyia* n. sp. 1 and *Plaumannimyia* n. sp. 24) that is supported by the synapomorphy: wing, cell r_1 with four or more marginal hyaline spots (30:1) (Fig. 80).

Clade III (Fig. 551) includes 14 species and is supported by one homoplasy: spermathecae elongated (basal third as wide as preapical region) (56:1) (Figs. 29, 285, 298, 308). Within this clade is a group that has the best support within *Plaumannimyia* with eight synapomorphies and that includes the following 10 species *Plaumannimyia* n. sp. 4, *P. dolores*, *Plaumannimyia* n. sp. 8, *Plaumannimyia* n. sp. 14, *Plaumannimyia* n. sp. 22, *Plaumannimyia* n. sp. 10, *Plaumannimyia* n. sp. 16, *P. costaemaculata*, *Plaumannimyia* n. sp.

9, and *P. pallens*. Although this group is strongly supported, the internal relationships among species are unresolved as a polytomy (Fig. 551). The eight synapomorphies are mostly from the male and female terminalia: posterior margin of male abdominal sternite 5 with strong indentation (inverted U-shape) (37:1) (Fig. 535, indicated by white arrow); lateral susrtylus with apex triangular or subtriangular (without dorsal subapical lobe) (40:2) (Figs. 322, 352); lateral prensisetae reduced (distinctly smaller than medial prensiseta) (43:1) (Fig. 543, indicated by white arrow); medial prensiseta long (44:1) (Fig. 543, indicated by black arrow); medial prensiseta not crossing, parallel (47:2) (Figs. 314, 346, 535); female sternite 8, apical third wide and short (51:1) (Fig. 539, indicated by white arrow); aculeus, basal third, ventral area weakly sclerotized (53:1) (Figs. 197, 200, 205); aculeus tip with lateral margin serrate apically (54:1) (Fig. 542); and four homoplasy: surstyli long, directed posteroventrally (38:1) (Figs. 357, 382, 387); lateral surstylus without dorsal lobe (41:1) (Figs. 357, 377, 381); medial prensiseta with dorsal face straight (46:2) (Figs. 377, 387, 395); proctiger with margin posteroapical bilobed (48:1) (Fig. 339).

With the exception of *Plaumannimyia* n. sp. 9, which occurs in Bolivia, Colombia and Ecuador, all other species of this group occur in southern and southeastern of Brazil.

The species *Plaumannimyia* n. sp. 10, *Plaumannimyia* n. sp. 16, *P. costaemaculata*, *Plaumannimyia* n. sp. 9 and *P. pallens* form a clade supported by the following synapomorphies: wing pattern reticulate (26:2) (Figs. 65–74) and wing, cell r_{4+5} with posteroapical ray broad (as long as wide) (32:1) (Figs. 65–72); and the homoplasies: wing, area between pterostigma and crossvein r-m pale brown and hyaline (27:4) (Figs. 65–72); wing, area between pterostigma and crossvein r-m without solid band, all reticulate (28:2) (Figs. 65–85); wing, cell r_1 with basal marginal hyaline spot rounded (reduced spots) (31:2) (Figs. 65–70). The species *P. costaemaculata*, *P. pallens* and *Plaumannimyia* n. sp. 9 form a clade supported by the homoplasy: wing, cell r_{4+5} without darker spot near vein R_{4+5} (33:0) (Figs. 65–70). Still, the species *P. pallens* and *Plaumannimyia* n. sp. 9 form a clade supported by the synapomorphy: medial prensiseta with medial lobe at ventral margin (45:1) (Figs. 365, 382), and the homoplasy: male fore femur, ventral setae on basal third long (longer than the length of the medial setae) (10:1) (Fig. 524).

Clade IV (Fig. 551) comprises 15 species and is supported by five synapomorphies from the male foreleg: male fore tibia, basal half with dorsal setae elongated (distinctly longer than lateral setae) (14:1) (Figs. 513, 516, 532); male fore tibia, basal half with dorsal setae laterally directed (15:1) (Figs. 516, 532); male fore tibia, apical third with dorsal setae long and erect (16:2) (Fig. 511); male fore basitarsus with dorsal setae elongated (longer than

lateral setae) (19:1) (Figs. 510, 549); male fore pulvillus and claw reduced (23:1) (Fig. 527, indicated by black arrow); and two homoplasies: scutellum with marginal apical seta lanceolate (8:1) (Figs. 61, 62); lateral susrtylus with apex truncated (40:0) (Figs. 312, 536). The internal relationships among sublineages within this group are not well resolved (Fig. 551).

A relationship between the species *P. eugenia* and *P. thomsoni* in the strict consensus tree was not recovered; however, according to the majority consensus in 57% of 210 trees the relationship of sister-group these two species was demonstrated. Although these species' relationship were not recovered as a monophyletic clade due to homoplasious characters, taxonomically they have characters that facilitate the easy recognition of their representatives, such as: scutellum with marginal apical seta minute (< 2x length of setulae), changes in the male foreleg, wing pattern and form of the terminalia.

Another clade formed by the species *Plaumannimyia* n. sp. 5, and *P. coelestina* + *P. miseta*, is supported by synapomorphies: male fore tibia in dorsal view trapezoid (base distincly narrower than apex) (11:1); male fore tibia, basal half with dorsal setae straigth and apically oriented (15:2); and the homoplasies: lateral susrtylus with apex rounded (40:1) (Fig. 316) and proctiger with margin posteroapical bilobed (48:1) (Fig. 339). Still, *P. coelestina* and *P. miseta* form a clade supported by four synapomorphies: male fore basitarsus with posterior surface flattened (18:2) (Fig. 530); wing, cell dm with two darker medial spots (35:1) (Figs. 86–90); medial prensiseta with dorsal face convex (46:1) (Figs. 313, 321); medial prensiseta, direction of crossing convergent concave (47:1) (Figs. 313, 321); and two homoplasies: wing, area between pterostigma and crossvein r-m all yellow (27:1) (Figs. 86–92) and lateral prensisetae equal to medial prensiseta (43:2) (Figs. 313, 321).

Within clade IV, there is another group formed by the species *Plaumannimyia* n. sp. 20, *P. scutellata*, *P. suspecta*, *P. plagiata*, *Plaumannimyia* n. sp. 19, *P. ameghinoi*, *Plaumannimyia* n. sp. 6, *Plaumannimyia* n. sp. 7, *P. delicatella* and *Plaumannimyia* n. sp. 15, and supported by five synapomorphies: male fore tibia curved (11:2) (Figs. 509, 532); male fore tibia, apical third with dorsal setae short and erect (16:1) (Fig. 532, indicated by black arrow); male fore tibia with dorsoapical margin flatted (17:1); male fore basitarsus dorsoventrally flattened (18:1) (Fig. 533); male abdominal sternite 3 with clusters of setulae (36:1) (Fig. 537, indicated by black arrow); and two homoplasies: scutellum with marginal apical seta acuminate (8:0) (Fig. 64) and male fore tarsomeres 2-3 with dorsal setae elongated (longer than lateral setae) (21:1) (Fig. 549). Within this group, six lineages form a polytomy (Fig. 551). However, three clades were formed. One of them, the species *P. plagiata* and

Plaumannimyia n. sp. 19, and is supported by the synapomorphy: male fore tibia with dorsoapical lobe (13:1); and the homoplasies: male fore tibia with dorsoapical margin rounded (17:0) and oviscape with dorsal setae entirely lanceolate (50:3). Another group of species, *P. ameghinoi* and *Plaumannimyia* n. sp. 6, is supported by the synapomorphy: male fore tibia with dorsal preapical lobe (12:1) (Fig. 508); and the homoplasy: male fore tibia with dorsoapical margin rounded (17:0). Finally, a clade is formed by the species *Plaumannimyia* n. sp. 7, *P. delicatella* and *Plaumannimyia* n. sp. 15, and supported by five homoplasies: thorax, scutellum entirely dark brown (6:1); wing, area between pterostigma and crossvein r-m brown and hyaline (27:5) (Figs. 145–155); wing, area between pterostigma and crossvein r-m with broad basal solid band and apical reticulate (28:3) (Figs. 145–155); wing, cell r_1 with basal marginal hyaline spot quadrate (31:1) (Figs. 143, 144); wing, cell r_{4+5} without darker spot near vein R_{4+5} (33:0) (Figs. 151–155). In the latter, the species *P. delicatella* and *Plaumannimyia* n. sp. 15 form a clade supported by the synapomorphy: male fore tarsomere 5 brown (22:1).

The different modifications in the foreleg of males in clade IV are probably related to sexual behavior of the species (sexual selection). The function of each modified structure is not known. Males of species with structural modification may use these features during courtship behavior, perhaps to stimulate or induce the female to accept them for copulation or even to hold the female during copulation. For example, Headrick & Goeden (1999) reported that some males in the subfamily Tephritinae, tribe Cecidocharini use the forelegs and claws to hold the female near the base of the wings in the pre-copulation period. For the appropriate species of *Plaumannimyia*, however, these are only speculations, awaiting confirmation through observational studies of behavior and biology.

In *Plaumannimyia*, the wing pattern varies from reticulate to stellate (Figs. 65–155). The reticulate wing pattern (character 26:2) groups five species (*Plaumannimyia* n. sp. 10, *Plaumannimyia* n. sp. 16, *P. costaemaculata*, *Plaumannimyia* n. sp. 9 and *P. pallens*), which were allocated to a clade that is strongly supported by characters of the terminalia. The stellate wing pattern (character 26:0) was highly homoplastic in this topology, occurring in all groups within *Plaumannimyia*, as well as in representatives of the genera *Euarestoides* and *Trupanea*.

In Tephritidae, wing spots form distinct patterns that are generally used for the recognition of genera. Thus, the species of the same genus often share the same pattern of spots on the wings. Furthermore, some groups of genera exhibit similar wing pattern

(Headrick & Goeden, 1994, 1999), such as the stellate pattern (character 26:0) present in *Euarestoides*, *Plaumannimyia* and *Trupanea*.

The different shapes of spots on the wings of *Plaumannimyia* may have arisen independently during evolution of the group. The reticulated wing pattern (character 26:2) is present only in species with long surstyli that are directed posteroventrally (38:1) (Figs. 357, 382, 387, 535). The stellate pattern does not seem to form a pattern consistent with the shape of the terminalia, being present in the form of the terminalia with long surstyli that are directed posteroventrally, as well as with short surstyli that are straight or directed slightly anteroventrally (38:0) (Figs. 312, 313, 536). Taxonomically the spots that form the reticulate and stellate wing patterns may be used for recognizing groups of species in *Plaumannimyia*, although these groups have not been recovered in this topology.

The different forms of spots on the wings in the groups may be the evolutionary reflection of species recognition, reproductive isolation, sexual behavior, defense, or even varying combinations of all these factors. According to Headrick & Goeden (1994, 1999), the movement behavior and display of spots or bands of wing are common at the time of courtship and copulation. They can also be used for the defense of territory in the relationship between males of the same species or different species and to scare away predators. Headrick & Goeden (1999) report the courtship behavior of male of *P. flava*, wherein the male followed and oriented towards the female moving and displaying the spots of the wings. In all male/female interactions observed by Headrick & Goeden (1999), the female tends to turn toward the male wing drive and displays are immediately mounted from behind.

The stellate wing pattern in *Plaumannimyia* (Figs. 75–155) may have a mimetic effect against predators. Mather & Roitberg (1987) demonstrated that the species *Rhagoletis zephryria* Snow have wing stripes that resemble the legs of jumping spiders (Salticidae). Laboratory tests have shown that *R. zephryria* can avoid predation by jumping spiders by the mimicry of the spider on the wing. Greene *et al.*, (1987) demonstrated that the species *Zonosemata vittigera* (Coquillett), when faced with predatory spider, began wing movements displaying the spots and that the spider retreated.

List of characters used in phylogenetic analysis of relationships among the species of *Plaumannimyia* Hering

1. Head, anterior frontal setae: (0) acuminate (Fig. 517, indicated by white arrow); (1) lanceolate (Fig. 518, indicated by black arrow); (2) absent. L = 2; CI = 100; RI = 100
2. Face and frons junction, lateral view, angle: (0) 110-120° (Fig. 517, indicated by yellow arrow); (1) 90-100° (Fig. 519, indicated by yellow arrow). L = 1; CI = 100; RI = 100
3. Ocellar tubercle, setulae (Fig. 517, indicated by black arrow): (0) absent; (1) present. L = 1; CI = 100; RI = 100
4. Antenna, first flagellomere, length: (0) longer than wide; (1) as long as wide. L = 1; CI = 100; RI = 100
5. Postocular setae, shape: (0) all lanceolate; (1) mixed (lanceolate and acuminate). L = 1; CI = 100; RI = 100.
6. Thorax, scutellum, color: (0) yellow or grayish (Figs. 59–61); (1) entirely dark brown (Fig. 64). L = 3; CI = 33; RI = 50
7. Scutellum, marginal apical seta, lenght: (0) short (less than half as long as basal seta, at least 3x length of setules) (Figs. 59–64); (1) long (more than half length of basal seta) (Fig. 1); (2) minute (< 2x length of setulae); (3) absent. L = 4; CI = 75; RI = 88
8. Scutellum, marginal apical seta, shape: (0) acuminate (Fig. 64); (1) lanceolate (Fig. 62). L = 5; CI = 20; RI = 80
9. Katepisternal seta, shape: (0) acuminate; (1) lanceolate. L = 3; CI = 33; RI = 0
10. Male fore femur, ventral setae on basal third, length: (0) short (shorter than the length of the medial setae) (Fig. 523); (1) long (longer than the length of the medial setae) (Fig. 524). L = 2; CI = 50; RI = 50
11. Male fore tibia, dorsal view, shape: (0) rectangular (base and apex equal in width) (Fig. 531); (1) trapezoid (base distincly narrower than apex); (2) curved (Fig. 532). L = 2; CI = 100; RI = 100
12. Male fore tibia, dorsal preapical lobe (Fig. 508): (0) absent; (1) present. L = 1; CI = 100; RI = 100
13. Male fore tibia, dorsoapical lobe: (0) absent; (1) present. L = 1; CI = 100; RI = 100
14. Male fore tibia, basal half, dorsal setae, length: (0) short (as long as lateral setae) (Fig. 531, indicated by black arrow); (1) elongated (distinctly longer than lateral setae) (Fig. 532, indicated by yellow arrow). L = 1; CI = 100; RI = 100
15. Male fore tibia, basal half, dorsal setae, direction: (0) oblique and apically oriented (Fig. 531, indicated by black arrow); (1) laterally directed (Fig. 532, indicated by yellow arrow); (2) straigth apically oriented. L = 2; CI = 100; RI = 100
16. Male fore tibia, apical third, dorsal setae, length and direction: (0) short and oblique (Fig. 531, indicated by white arrow); (1) short and erect (Fig. 532, indicated by black arrow); (2) long and erect (Fig. 511). L = 2; CI = 100; RI = 100
17. Male fore tibia, dorsoapical margin: (0) rounded; (1) flatted. L = 3; CI = 33; RI = 60

18. Male fore basitarsus, shape: (0) cylindrical (Fig. 528); (1) dorsoventrally flattened (Fig. 533, indicated by white arrow); (2) posterior surface flattened (Fig. 530, indicated by white arrow). L = 2; CI = 100; RI = 100
19. Male fore basitarsus, dorsal setae length: (0) short (same size as lateral setae) (Fig. 550, indicated by arrows); (1) elongated (longer than lateral setae) (Fig. 549, indicated by arrows). L = 1; CI = 100; RI = 100
20. Male fore basitarsus, ventral face, long setae (Fig. 528, indicated by arrow): (0) absent; (1) present. L = 2; CI = 50; RI = 0
21. Male fore tarsomeres 2-3, dorsal setae length: (0) short (same size as lateral setae) (Fig. 550, indicated by arrows); (1) elongated (longer than lateral setae) (Fig. 549, indicated by arrows). L = 2; CI = 50; RI = 90
22. Male fore tarsomere 5, color: (0) yellow; (1) brown. L = 1; CI = 100; RI = 100
23. Male fore pulvillus and claw: (0) developed (Fig. 529, indicated by arrows); (1) reduced (Fig. 527, indicated by black arrow). L = 1; CI = 100; RI = 100
24. Hind femur, anterodorsal pre-apical setulae: (0) present (Fig. 521); (1) absent (Fig. 522). L = 1; CI = 100; RI = 100
25. Hind femur, posterodorsal pre-apical setulae: (0) present (Fig. 521); (1) absent (Fig. 522). L = 2; CI = 50; RI = 87
26. Wing pattern: (0) stellate (Fig. 75–155); (1) radiate (Fig. 499); (2) reticulate (Figs. 65–74). L = 2; CI = 100; RI = 100
27. Wing, area between pterostigma and crossvein r-m: (0) all brown/dark (Figs. 111–142); (1) all yellow (Figs. 86–92); (2) yellow with anterodistal margin darker (Figs. 101–104); (3) pale brown with anterodistal margin darker (Figs. 2, 3); (4) pale brown and hyaline (Figs. 65–85); (5) brown and hyaline (Figs. 143–155). L = 11; CI = 45; RI = 78
28. Wing, area between pterostigma and cross vein r-m: (0) with broad solid band (Figs. 86–104, 111–142); (1) with narrow solid band (Figs. 2–13); (2) without solid band, all reticulate (Figs. 65–85); (3) with broad basal solid band and apical reticulate (Figs. 143–155). L = 7; CI = 42; RI = 80
29. Wing, area between pterostigma and crossvein r-m: (0) with broad mark (anterior margin anterior to anterior end of r-m) (Figs. 111–142); (1) with narrow mark (anterior margin from pterostigma to anterior end of r-m) (Figs. 2–13, 84, 85, 103, 104). L = 3; CI = 33; RI = 75
30. Wing, cell r_1, marginal hyaline spots, number: (0) two or three (Figs. 65–74, 84–155); (1) four or more (Figs. 75–83). L = 1; CI = 100; RI = 100
31. Wing, cell r_1, basal marginal hyaline spot: (0) oblique (Figs. 84–142); (1) quadrate (Figs. 143, 144, 151, 152); (2) rounded (reduced spots) (Figs. 65–70). L = 4; CI = 50; RI = 83
32. Wing, cell r_{4+5}, posteroapical ray, width: (0) narrow (more long than wide) (Figs. 84–142); (1) broad (as long as wide) (Figs. 65–72). L = 1; CI = 100; RI = 100
33. Wing, cell r_{4+5}, darker spot near vein R_{4+5}: (0) absent (Figs. 65–70); (1) present (Figs. 62, 99–108). L = 6; CI = 16; RI = 73
34. Wing, cell r_{4+5}, bulla: (0) absent; (1) present. L = 1; CI = 100; RI = 100
35. Wing, cell dm, darker medial spots: (0) absent (Figs. 65–85, 91–155); (1) present (two spots) (Figs. 86–90). L = 1; CI = 100; RI = 100
36. Male abdominal sternite 3, clusters of setulae (Fig. 537, indicated by black arrow): (0) absent; (1) present. L = 2; CI = 50; RI = 87
37. Male abdominal sternite 5, posterior margin, strong indentation (inverted U-shape) (Fig. 535, indicated by white arrow): (0) absent; (1) present. L = 1; CI = 100; RI = 100

38. Surstyli, length and direction: (0) short, straight or directed slightly anteroventrally (Fig. 536); (1) long, posteroventrally (Fig. 535). L = 2; CI = 50; RI = 90
39. Lateral susrtylus, apex: (0) sclerotized (distinctly less sclerotized than prensisetae) (Figs. 34–36, 39); (1) strongly sclerotized (as sclerotized as prensisetae) (Figs. 37, 38). L = 1; CI = 100; RI = 100
40. Lateral susrtylus, apex shape: (0) truncated (Figs. 312, 536); (1) rounded (Fig. 316); (2) triangular or subtriangular (without dorsal subapical lobe) (Figs. 317, 322, 535); (3) triangular (with dorsal subapical lobe). L = 7; CI = 42; RI = 84
41. Lateral surstylus, dorsal lobe (Figs. 40, indicated or 536, indicated by white arrow): (0) present; (1) absent. L = 2; CI = 50; RI = 90
42. Glans, acrophallus, apical lobe: (0) absent (Figs. 49, 50); (1) present and straight (Figs. 46, 47); (2) present and curved medially (Figs. 48, 51). L = 2; CI = 100; RI = 100
43. Lateral prensisetae, size: (0) subequal to medial prensiseta (about 2/3 than medial prensiseta) (Figs. 312, 316, 544, indicated by white arrow); (1) reduced (distinctly smaller than medial prensiseta) (Figs. 338, 339, 543, indicated by white arrow); (2) equal to medial prensiseta (Figs. 34–36, 313). L = 4; CI = 50; RI = 86
44. Medial prensiseta length: (0) short (Fig. 544, indicated by black arrow); (1) long (Fig. 543, indicated by black arrow). L = 1; CI = 100; RI = 100
45. Medial prensiseta, ventral margin medially, lobe (Figs. 365, 382): (0) absent; (1) present. L = 1; CI = 100; RI = 100
46. Medial prensiseta, dorsal face, shape: (0) convex (Fig. 312); (1) concave (Fig. 313); (2) straight (Fig. 34). L = 3; CI = 66; RI = 92
47. Medial prensiseta, direction of crossing: (0) convergent convex (Figs. 312, 544); (1) convergent concave (Figs. 313, 321); (2) not crossing parallel (Figs. 314, 543). L = 2; CI = 100; RI =100
48. Proctiger, margin posteroapical, shape: (0) nonlobed (Fig. 338); (1) bilobed (Fig. 339). L = 5; CI = 20; RI = 55
49. Oviscape, lenght: (0) short (< 2x the width of the base) (Figs. 60, 61, 63, 64); (1) long (> 2x the width of the base) (Figs. 498, 502). L = 1; CI = 100; RI = 100
50. Oviscape, dorsal view, setae: (0) entirely acuminate; (1) mixed (basal and medial third lanceolate and apical third acuminate); (2) mixed (basal half lanceolate and apical half acuminate); (3) entirely lanceolate. L = 11; CI = 27; RI = 46
51. Female sternite 8, apical third, width and lenght: (0) narrow and elongated (Fig. 540, indicated by white arrow); (1) wide and short (Fig. 539, indicated by white arrow). L = 1; CI = 100; RI = 100
52. Eversible membrane, dorsal view, taenia: (0) not reaching the lateral margin (Fig. 178); (1) reaching the lateral margin (Fig. 177). L = 3; CI = 33; RI = 84
53. Aculeus, basal third, ventral area: (0) strongly sclerotized (Fig. 195); (1) weakly sclerotized (Fig. 197). L = 1; CI = 100; RI= 100
54. Aculeus tip, lateral margin: (0) nonserrate (Fig. 541); (1) serrate apically (Fig. 542); (2) serrate basally (Fig. 20). L = 2; CI = 100; RI= 100
55. Aculeus lateral margin at cloaca level: (0) nonserrate (Fig. 24); (1) serrate (Fig. 20). L = 1; CI = 100; RI = 100
56. Spermathecae, shape: (0) subspherical (basal third distinctly narrower than preapical region) (Figs. 33, 273, 291); (1) elongated (basal third as wide as preapical region) (Figs. 29, 285, 298). L = 3; CI = 33; RI= 86

Table 1. Matrix of characters and taxa used in phylogenetic analysis of relationships among the species of *Plaumannimyia* Hering (character numbers 1-30)

Taxa \ Characters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Trupanea bonariensis (Brèthes)	0	1	0	0	0	0	3	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Dyseuaresta adelphica (Hendel)	2	1	0	0	1	0	3	-	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Euarestoides abstersus (Loew)	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0
Euarestoides acutangulus (Thomson)	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0
Euarestoides dreisbachi Foote	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0
Euarestoides n. sp. 1	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0
Euarestoides n. sp. 2	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0
Euarestoides n. sp. 3	0	0	1	0	0	0	1	0	1	0	0	?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0
Plaumannimyia ameghinoi (Brèthes)	1	1	1	1	0	0	0	0	1	0	2	1	0	1	1	1	0	1	1	0	1	0	1	1	1	0	0	0	0	0
Plaumannimyia coelestina (Hering)	1	1	1	1	0	0	0	1	1	0	1	0	0	1	2	2	0	2	1	0	0	0	1	1	1	0	1	0	0	0
Plaumannimyia costaemaculata Hering	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2	4	2	0	0
Plaumannimyia delicatella (Blanchard)	1	1	1	1	0	1	0	0	1	0	2	0	0	1	1	1	1	1	1	0	1	1	1	1	1	0	5	3	0	0
Plaumannimyia difficilis (Malloch)	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0
Plaumannimyia dolores (Hering)	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Plaumannimyia eugenia (Wulp)	1	1	1	1	0	0	2	1	1	0	0	0	0	1	1	2	0	0	1	0	0	0	1	1	1	0	0	0	0	0
Plaumannimyia flava (Adams)	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	1	0
Plaumannimyia hestiae (Hendel)	2	1	0	0	1	0	3	-	1	?	?	?	?	?	?	?	?	?	?	?	?	?	?	0	0	1	0	0	0	0
Plaumannimyia imitatrix (Hering)	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	1	0
Plaumannimyia miseta (Hering)	1	1	1	1	0	0	0	1	1	0	1	0	0	1	2	2	0	2	1	0	0	0	1	1	1	0	1	0	0	0
Plaumannimyia pallens Hering	1	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	4	2	0	0
Plaumannimyia plagiata (Blanchard)	1	1	1	1	0	0	0	0	1	0	2	0	1	1	1	1	0	1	1	0	1	0	1	1	1	0	0	0	0	0
Plaumannimyia scutellata (Séguy)	1	1	1	1	0	0	0	0	1	0	2	0	0	1	1	1	1	1	1	0	1	0	1	1	1	0	0	0	0	0
Plaumannimyia setulosa (Malloch)	1	1	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	5	3	0	0

Table 1. (Continued)

Taxa \ Characters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Plaumannimyia subaster (Malloch)	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0
Plaumannimyia suspecta (Malloch)	1	1	1	1	0	0	0	0	1	0	2	0	0	1	1	1	1	1	1	0	1	0	1	1	1	0	0	0	0	0
Plaumannimyia thomsoni (Hendel)	1	1	1	1	0	0	2	1	1	0	0	0	0	1	1	2	0	0	1	0	1	0	1	1	1	0	0	0	0	0
Plaumannimyia titschacki (Hering)	2	1	0	0	1	0	3	-	1	?	?	?	?	?	?	?	?	?	?	?	?	?	?	0	0	1	0	0	0	0
Plaumannimyia valdesiana (Gandolfo & Norrbom)	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Plaumannimyia n. sp. 1	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	4	2	0	1
Plaumannimyia n. sp. 2	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	4	2	0	1
Plaumannimyia n. sp. 3	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	4	2	1	0
Plaumannimyia n. sp. 4	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0
Plaumannimyia n. sp. 5	1	1	1	1	0	0	0	1	1	0	1	0	0	1	2	2	0	0	1	0	0	0	1	1	1	0	0	0	0	0
Plaumannimyia n. sp. 6	1	1	1	1	0	0	0	0	1	0	2	1	0	1	1	1	0	1	1	0	1	0	1	1	1	0	0	0	0	0
Plaumannimyia n. sp. 7	1	1	1	1	0	1	0	0	1	0	2	0	0	1	1	1	1	1	1	0	1	0	1	1	1	0	5	3	0	0
Plaumannimyia n. sp. 8	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	5	3	0	0
Plaumannimyia n. sp. 9	1	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	4	2	0	0
Plaumannimyia n. sp. 10	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	4	2	0	0
Plaumannimyia n. sp. 11	1	1	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Plaumannimyia n. sp. 12	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	4	2	0	1
Plaumannimyia n. sp. 13	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Plaumannimyia n. sp. 14	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	3	0	0
Plaumannimyia n. sp. 15	1	1	1	1	0	1	0	0	1	0	2	0	0	1	1	1	1	1	1	0	1	1	1	1	1	0	5	3	0	0
Plaumannimyia n. sp. 16	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	4	2	0	0
Plaumannimyia n. sp. 17	1	1	1	1	0	0	0	?	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Plaumannimyia n. sp. 18	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0

Table 1. (Continued)

Taxa \ Characters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Plaumannimyia n. sp. 19	1	1	1	1	0	0	0	0	1	0	2	0	1	1	1	1	0	1	1	0	1	0	1	1	1	0	0	0	0	0
Plaumannimyia n. sp. 20	1	1	1	1	0	0	0	0	1	0	2	0	0	1	1	1	1	1	1	0	1	0	1	1	1	0	0	0	0	0
Plaumannimyia n. sp. 21	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0
Plaumannimyia n. sp. 22	1	1	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	5	3	0	0
Plaumannimyia n. sp. 23	1	1	1	1	0	0	0	1	1	?	?	0	?	?	?	?	?	?	?	?	?	?	?	1	1	0	2	0	0	0
Plaumannimyia n. sp. 24	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	4	2	0	1
Plaumannimyia n. sp. 25	1	1	1	1	?	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	5	3	-	0

Table 1. (Continued) character numbers 31-56

Taxa \ Characters	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
Trupanea bonariensis (Brèthes)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Dyseuaresta adelphica (Hendel)	0	0	0	1	0	0	0	1	0	3	1	0	2	0	0	0	0	0	1	0	0	0	0	0	0	1
Euarestoides abstersus (Loew)	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2	0	0	0	2	0	0	0	2	1	0
Euarestoides acutangulus (Thomson)	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2	0	0	0	2	0	0	0	2	1	0
Euarestoides dreisbachi Foote	0	0	0	0	0	0	0	0	0	1	0	2	2	0	0	2	0	0	0	1	0	0	0	0	0	0
Euarestoides n. sp. 1	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Euarestoides n. sp. 2	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Euarestoides n. sp. 3	0	0	0	0	0	0	0	0	0	1	0	2	2	0	0	2	0	0	?	?	?	?	?	?	?	?
Plaumannimyia ameghinoi (Brèthes)	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia coelestina (Hering)	0	0	1	0	1	0	0	0	0	1	0	0	2	0	0	1	1	1	0	1	0	0	0	0	0	0
Plaumannimyia costaemaculata Hering	2	1	0	0	0	0	1	1	0	2	1	0	1	1	0	2	2	1	0	1	1	1	1	1	0	1
Plaumannimyia delicatella (Blanchard)	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia difficilis (Malloch)	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0

Table 1. (Continued)

Taxa \ Characters	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
Plaumannimyia dolores (Hering)	0	0	1	0	0	0	1	1	0	2	1	0	1	1	0	2	2	1	0	1	1	1	1	1	0	1
Plaumannimyia eugenia (Wulp)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia flava (Adams)	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0
Plaumannimyia hestiae (Hendel)	0	0	0	1	0	?	?	?	?	?	?	?	?	?	?	?	0	?	1	2	0	0	?	0	0	?
Plaumannimyia imitatrix (Hering)	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0
Plaumannimyia miseta (Hering)	0	0	1	0	1	0	0	0	0	1	0	0	2	0	0	1	1	1	0	1	0	0	0	0	0	0
Plaumannimyia pallens Hering	2	1	0	0	0	0	1	1	0	2	1	0	1	1	1	2	2	1	0	3	1	1	1	1	0	1
Plaumannimyia plagiata (Blanchard)	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Plaumannimyia scutellata (Séguy)	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Plaumannimyia setulosa (Malloch)	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Plaumannimyia subaster (Malloch)	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Plaumannimyia suspecta (Malloch)	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia thomsoni (Hendel)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia titschacki (Hering)	0	0	0	1	0	?	?	?	?	?	?	?	?	?	?	?	0	?	1	2	0	0	?	0	0	?
Plaumannimyia valdesiana (Gandolfo & Norrbom)	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1
Plaumannimyia n. sp. 1	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia n. sp. 2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia n. sp. 3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia n. sp. 4	0	0	1	0	0	0	1	1	0	2	1	0	1	1	0	2	2	1	0	1	1	1	1	1	0	1
Plaumannimyia n. sp. 5	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	?	?	?	?	?	?	?	?
Plaumannimyia n. sp. 6	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia n. sp. 7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia n. sp. 8	0	0	1	0	0	0	1	1	0	2	1	0	1	1	0	2	2	0	0	1	1	1	1	1	0	1
Plaumannimyia n. sp. 9	2	1	0	0	0	0	1	1	0	2	1	0	1	1	1	2	2	1	0	1	1	1	1	1	0	1

Table 1. (Continued)

Taxa \ Characters	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
Plaumannimyia n. sp. 10	2	1	1	0	0	0	1	1	0	2	1	0	1	1	0	2	2	0	0	1	1	1	1	1	0	1
Plaumannimyia n. sp. 11	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia n. sp. 12	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	?	?	?	?	?	?	?	?
Plaumannimyia n. sp. 13	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	?	?	?	?	?	?	?	?
Plaumannimyia n. sp. 14	0	0	1	0	0	0	1	1	0	2	1	0	1	1	0	2	2	1	0	1	1	1	1	1	0	1
Plaumannimyia n. sp. 15	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Plaumannimyia n. sp. 16	2	1	1	0	0	0	1	1	0	2	1	0	1	1	0	2	2	1	0	3	1	1	1	1	0	1
Plaumannimyia n. sp. 17	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	?	?	?	0	?	?	0	0
Plaumannimyia n. sp. 18	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Plaumannimyia n. sp. 19	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Plaumannimyia n. sp. 20	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Plaumannimyia n. sp. 21	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Plaumannimyia n. sp. 22	0	0	1	0	0	0	1	1	0	2	1	0	1	1	0	2	2	0	0	1	1	1	1	1	0	1
Plaumannimyia n. sp. 23	0	0	1	0	0	?	?	?	?	?	?	?	?	?	?	?	?	?	0	1	0	0	0	0	0	0
Plaumannimyia n. sp. 24	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Plaumannimyia n. sp. 25	1	0	0	0	0	0	0	0	0	?	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1

Conclusions

Based on the proposed research objectives, the following conclusions are warranted.

Species of the genera *Euarestoides* Benjamin and *Plaumannimyia* Hering are revised. *Euarestoides* has six species, including three new species. *Plaumannimyia* has 43 species, of which 25 are new and are described in this paper. For each genus and its species the taxonomic history, diagnosis and description, updating of the distribution and biology, type data information, material examined, etymology and comments when appropriate are presented. An identification key to the species of the both genera is also provided. In addition, illustrations and photographs that facilitate the recognition of each taxon are also provided.

Lectotypes are designated for six species: *Plaumannimyia ameghinoi*, *P. delicatella*, *P. dolores*, *P. imitatrix*, *P. pallens* and *P. plagiata*.

Based on the taxonomic study the species *Plaumannimyia hestiae* and *P. titschacki* exhibit morphological differences that relate more to the genus *Dyseuaresta* than the genus *Plaumannimyia*. The phylogenetic results corroborate the taxonomic study in which *P. hestiae* and *P. titschacki* form a clade with the species *Dyseuaresta adelphica* (Fig. 551). Thus, it is proposed to transfer *P. hestiae* and *P. titschacki* to the genus *Dyseuaresta*. With the transfer of the two species, *Plaumannimyia* has 43 species and it is a monophyletic group based on three synapomorphies (1:1, 4:1 and 24:1). The genus *Euarestoides* with six species is also monophyletic, based on a synapomorphy (28:1) and two homoplasies (27:3 and 29:1).

Plaumannimyia and *Euarestoides* are sister groups based on the synapomorphies 3:1 and 50:1. This grouping corroborates the classification of Norrbom *et al.*, (1999), which suggested the *Euarestoides* group contains the genera *Euarestoides*, *Plaumannimyia* and *Trypanaresta*.

The following relationships within *Plaumannimyia* are likely to remain even with the addition of new characters or new taxa:

- In clade III: The species *Plaumannimyia* n. sp. 4, *P. dolores*, *Plaumannimyia* n. sp. 8, *Plaumannimyia* n. sp. 14, *Plaumannimyia* n. sp. 22, *Plaumannimyia* n. sp. 10, *Plaumannimyia* n. sp. 16, *P. costaemaculata*, *Plaumannimyia* n. sp. 9 and *P. pallens* than forming a clade supported by eight synapomorphies (37:1, 40:2, 43:1, 44:1, 47:2,

51:1, 53:1 and 54:1). Within this, the clade formed by species *Plaumannimyia* n. sp. 10, *Plaumannimyia* n. sp. 16, *P. costaemaculata*, *Plaumannimyia* n. sp. 9 and *P. pallens* supported by synapomorphies (26:2 and 31:1).

- In clade IV: The species *P. eugenia*, *P. thomsoni*, *Plaumannimyia* n. sp. 5, *P. coelestina*, *P. miseta*, *Plaumannimyia* n. sp. 20, *P. scutellata*, *P. suspecta*, *P. plagiata*, *Plaumannimyia* n. sp. 19, *P. ameghinoi*, *Plaumannimyia* n. sp. 6, *Plaumannimyia* n. sp. 7, *P. delicatella* and *Plaumannimyia* n. sp. 15) than forming a clade supported for five synapomorphies (14:1, 15:1, 16:2, 19:1 and 23:1). In this, the species *Plaumannimyia* n. sp. 5, *P. coelestina* and *P. miseta* are supported by two synapomorphies (11:1 and 15:2); and the clade formed by species *Plaumannimyia* n. sp. 20, *P. scutellata*, *P. suspecta*, *P. plagiata*, *Plaumannimyia* n. sp. 19, *P. ameghinoi*, *Plaumannimyia* n. sp. 6, *Plaumannimyia* n. sp. 7, *P. delicatella* and *Plaumannimyia* n. sp. 15 is supported by five synapomorphies (11:2, 16:1, 17:1, 18:1 and 36:1).

A study with larger number of characters and the use of other tools such as biological and molecular data may help resolve relationships between species *Plaumannimyia*.

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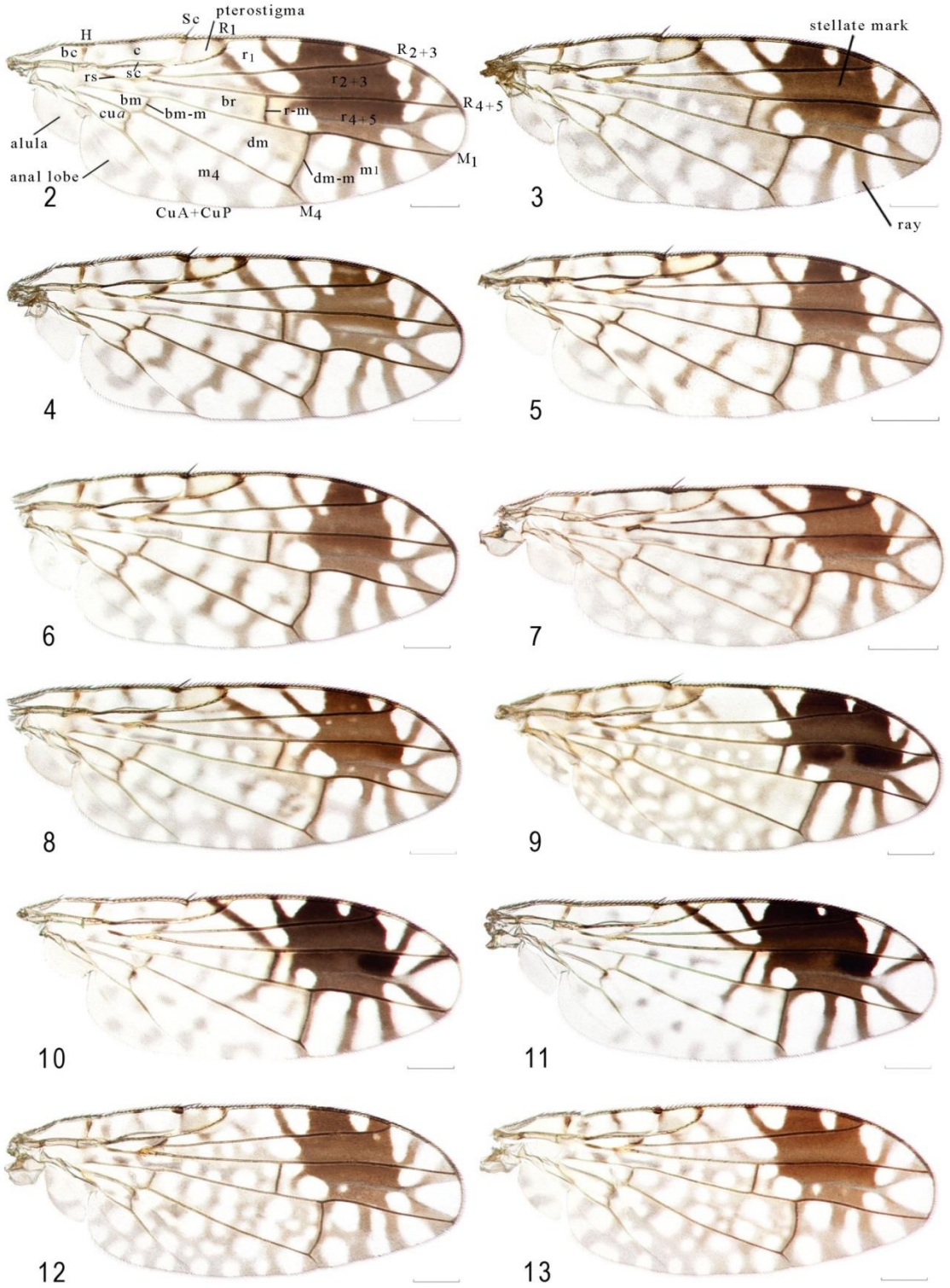
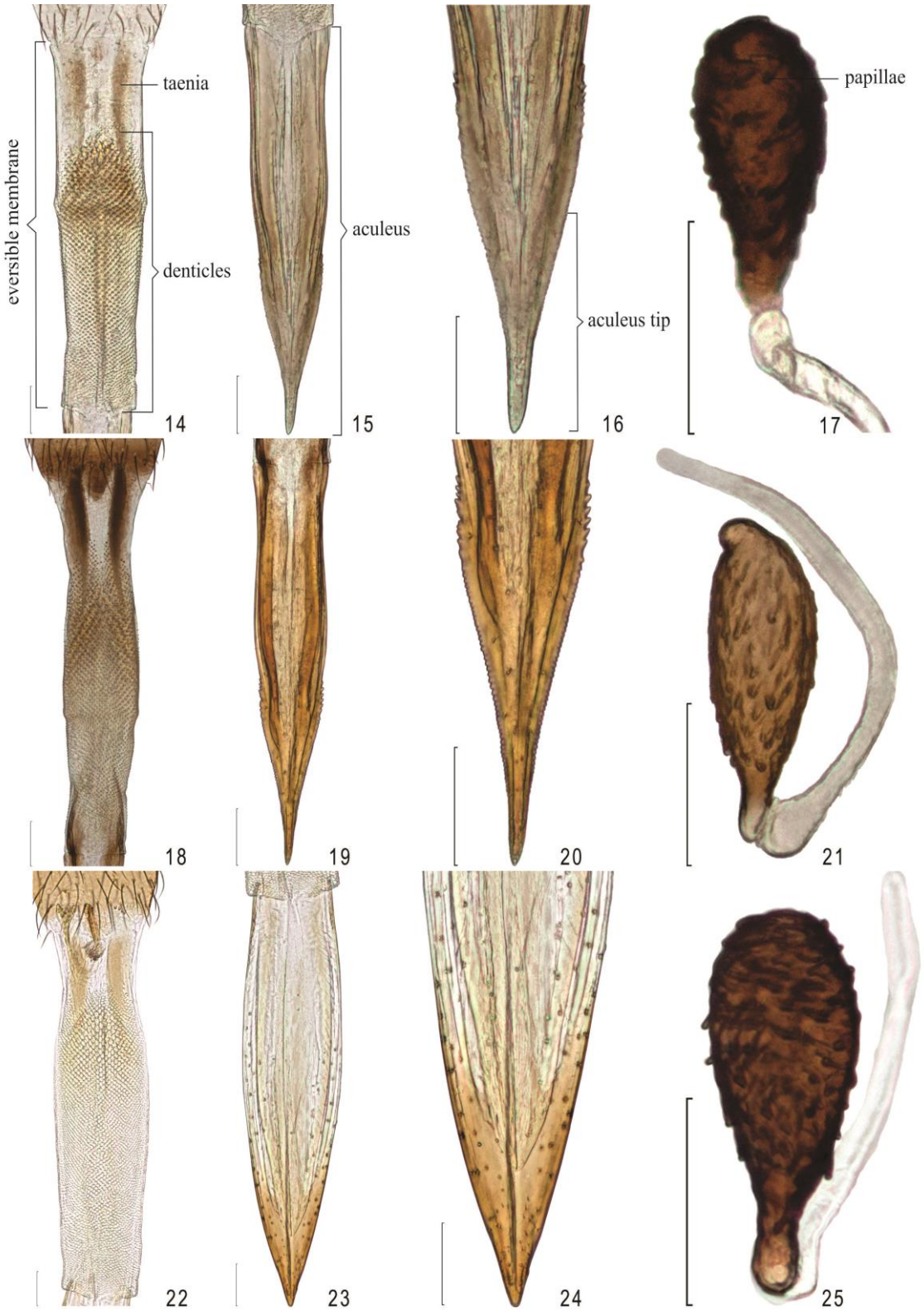
FIGURES

FIGURE 1. Habitus, dorsal: 1 (♂), *Euarestoides* n. sp. 2 (Brazil: São Paulo, Votorantim, USNMENT00118527). Scale bar = 0.5 mm.

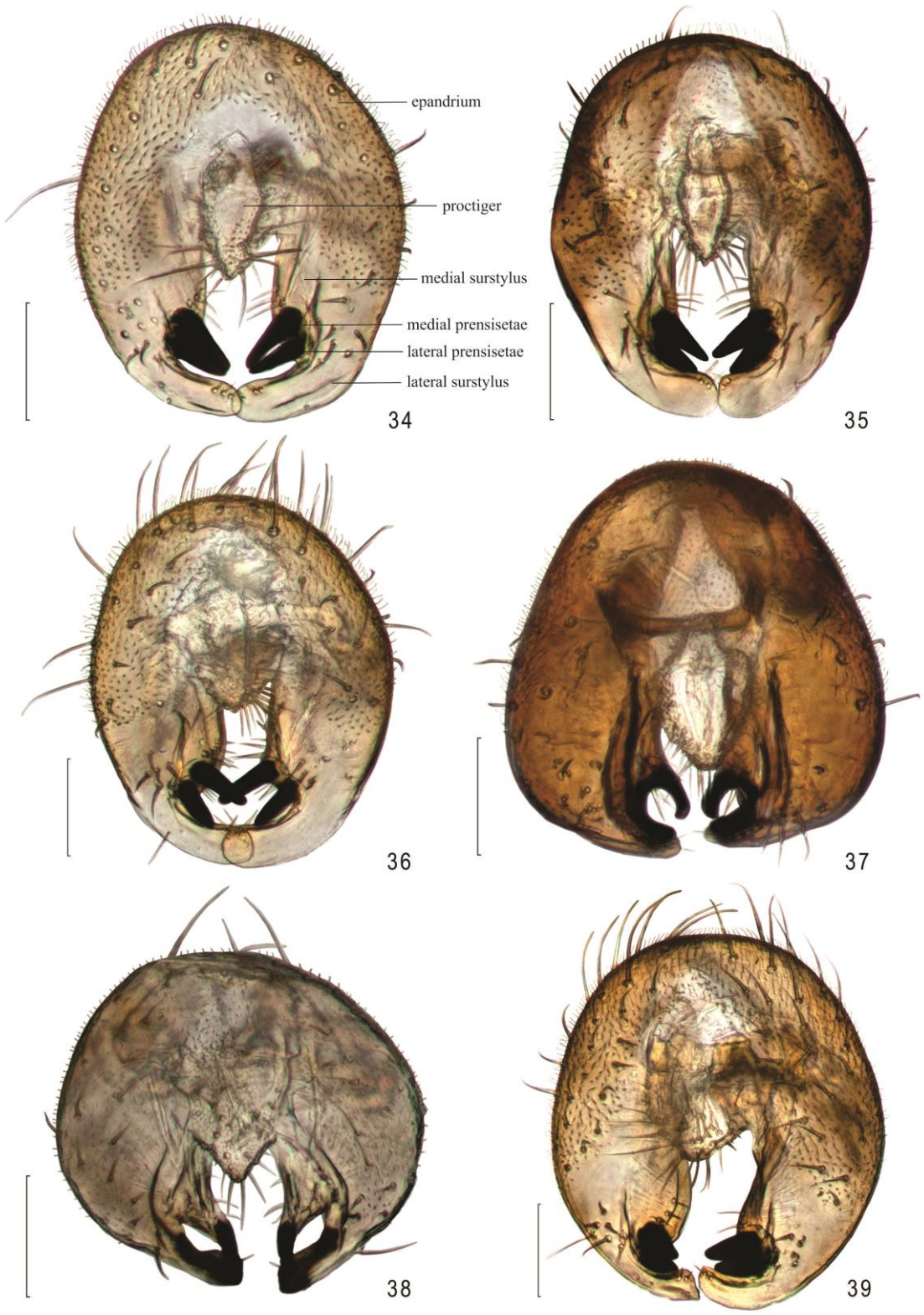


FIGURES 2–13. Wings: 2–3 (♂♀), *E. abstersus* (USA: New Jersey, Atlantic City, USNMENT00262501; Delaware, Rehoboth, USNMENT00262502); 4–6 (♂♀♂), *E. acutangulus* (USA: California, Riverside, USNMENT00262498; Palm Springs USNMENT00262499; PERU: Cusco, Urcos, USNMENT00262500); 7–8 (♂♀), *E. dreisbachi* (Guatemala: Huehuetenango, San Idelfonso Ixtahuacan, USNMENT00671472; USNMENT00671474); 9 (♀), *Euarestoides* n. sp. 1 (Peru: Cusco, Ollantaytambo, USNMENT00744411); 10–11 (♂♀), *Euarestoides* n. sp. 2 (Brazil: São Paulo, Votorantim, USNMENT00262496–97); 12–13 (♂♂), *Euarestoides* n. sp. 3 (Colombia: Antioquia, Rionegro, USNMENT00262577–78). Scale bar = 0.5 mm.

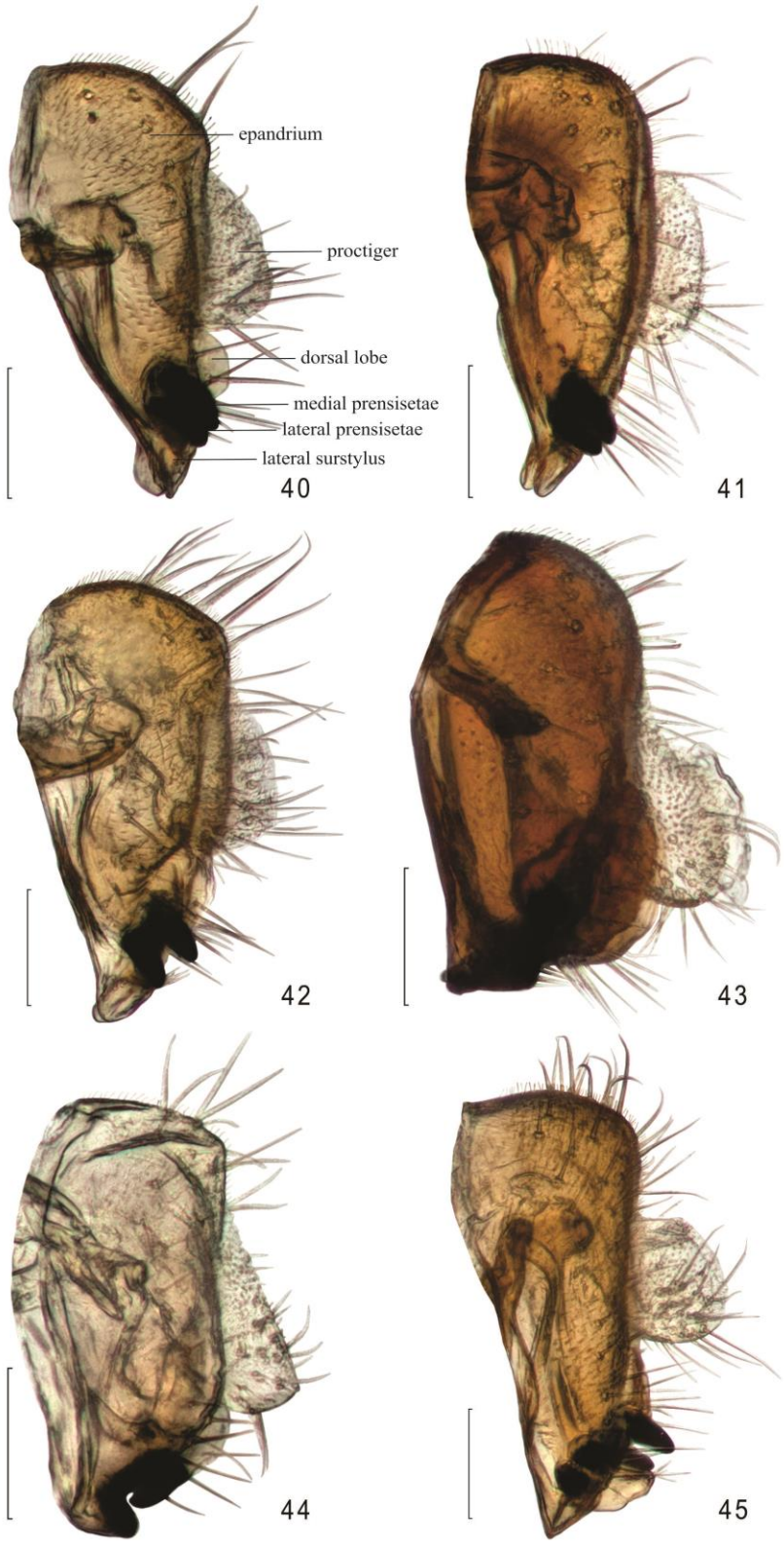


FIGURES 14–25. Female terminalia (eversible membrane, aculeus, aculeus tip, and spermatheca): 14–17, *E. abstersus* (USA: North Carolina, Raleigh, USNMENT00104332); 18–21, *E. acutangulus* (USA: California, Palm Springs, USNMENT00262499); 22–25, *E. dreisbachi* (Guatemala: Huehuetenango, San Idelfonso Ixtahuacan, USNMENT00671605). Scale bar = 0.10 mm.

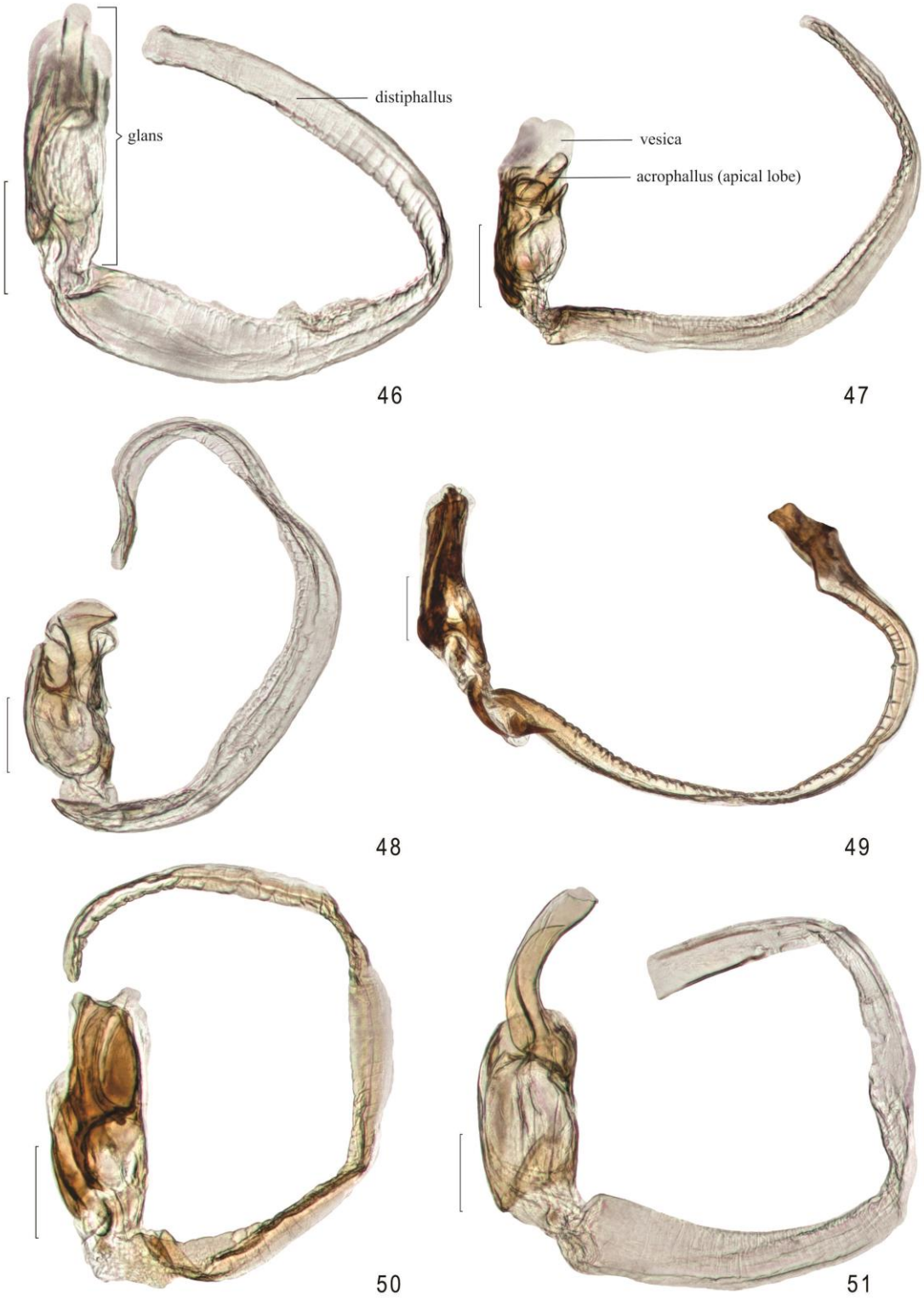
FIGURES 26–33. Female terminalia (eversible membrane, aculeus, aculeus tip, and spermatheca): 26–29, *Euarestoides* n. sp. 1 (Peru: Cusco, Ollantaytambo, USNMENT00744411); 30–33, *Euarestoides* n. sp. 2 (Brazil: São Paulo, Votorantim, USNMENT00262601). Scale bar = 0.10 mm.



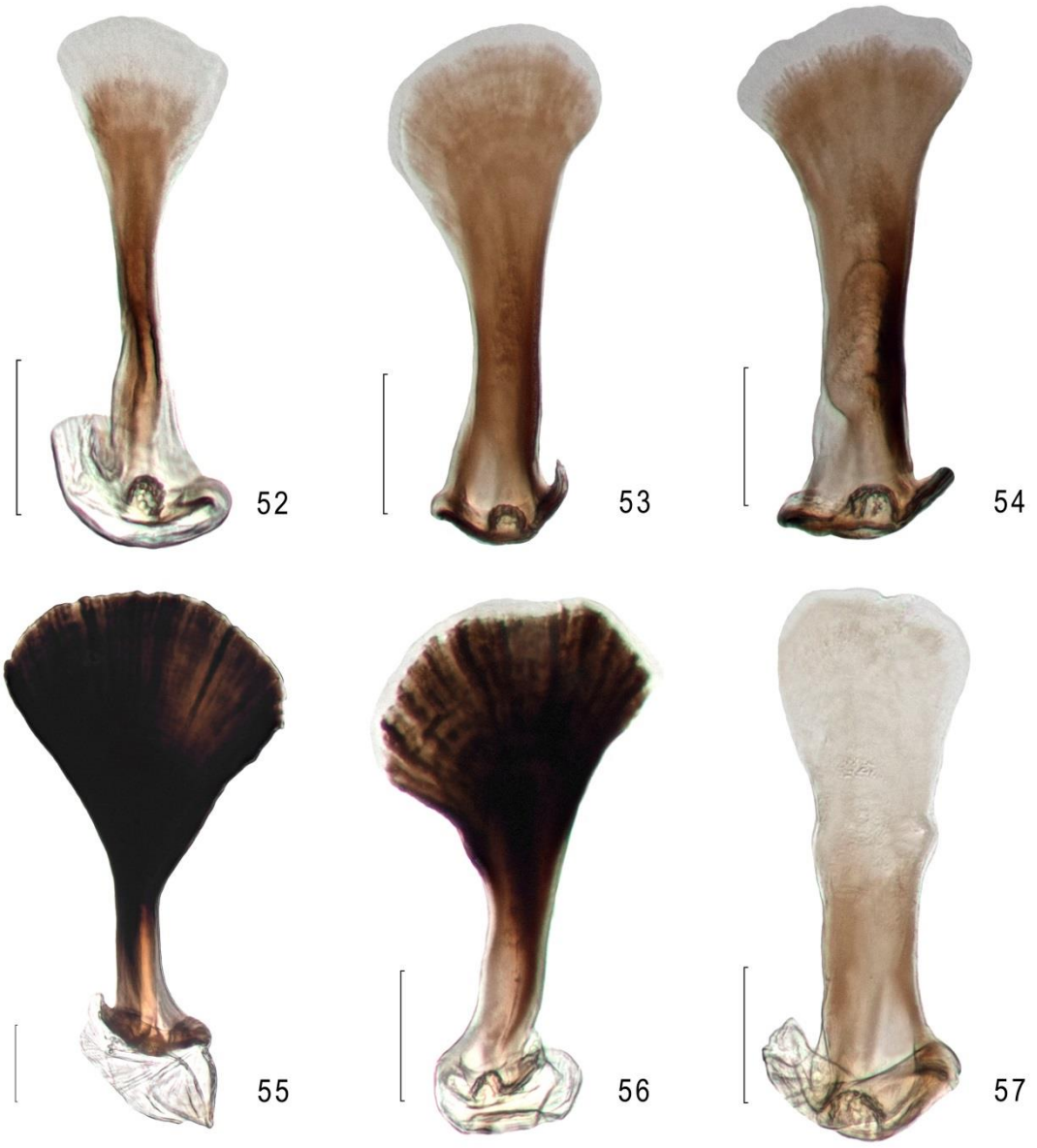
FIGURES 34–39. Male terminalia (epandrium, surstyli and proctiger, posterior): 34, *E. abstersus* (USA: New Jersey, Atlantic City, USNMENT00262604); 35, *E. acutangulus* (Mexico: Baja California, USNMENT00262606); 36, *E. dreisbachi* (Guatemala: Huehuetenango, San Idelfonso Ixtahuacan, USNMENT00671469); 37, *Euarestoides* n. sp. 1 (Peru: Cusco, Carretera Manu, USNMENT00875891); 38, *Euarestoides* n. sp. 2 (Brazil: Bahia, Palmeiras, USNMENT00262504); 39, *Euarestoides* n. sp. 3 (Colombia: Antioquia, Rionegro, USNMENT00262578). Scale bar = 0.10 mm.



FIGURES 40–45. Male terminalia (epandrium, surstyli and proctiger, lateral): 40, *E. abstersus* (USA: New Jersey, Atlantic City, USNMENT00262604); 41, *E. acutangulus* (Mexico: Baja California, USNMENT00262606); 42, *E. dreisbachi* (Guatemala: Huehuetenango, San Idelfonso Ixtahuacan, USNMENT00671469); 43, *Euarestoides* n. sp. 1 (Peru: Cusco, Carretera Manu, USNMENT00875891); 44, *Euarestoides* n. sp. 2 (Brazil: Bahia, Palmeiras, USNMENT00262504); 45, *Euarestoides* n. sp. 3 (Colombia: Antioquia, Rionegro, USNMENT00262578). Scale bar = 0.10 mm.



FIGURES 46–51. Male terminalia (glandes and phallus, lateral): 46, *E. abstersus* (USA: New Jersey, Atlantic City, USNMENT00262604); 47, *E. acutangulus* (Mexico: Baja California, USNMENT00262606); 48, *E. dreisbachi* (Guatemala: Huehuetenango, San Idelfonso Ixtahuacan, USNMENT00671469); 49, *Euarestoides* n. sp. 1 (Peru: Cusco, Carretera Manu, USNMENT00875891); 50, *Euarestoides* n. sp. 2 (Brazil: Bahia, Palmeiras, USNMENT00262504); 51, *Euarestoides* n. sp. 3 (Colombia: Antioquia, Rionegro, USNMENT00262578). Scale bar = 0.10 mm.



FIGURES 52–57. Male terminalia (phallapodeme): 52, *E. abstersus* (USA: New Jersey, Atlantic City, USNMENT00262604); 53, *E. acutangulus* (Mexico: Baja California, USNMENT00262606); 54, *E. dreisbachi* (Guatemala: Huehuetenango, San Idelfonso Ixtahuacan, USNMENT00671469); 55, *Euarestoides* n. sp. 1 (Peru: Cusco, Carretera Manu, USNMENT00875891); 56, *Euarestoides* n. sp. 2 (Brazil: Bahia, Palmeiras, USNMENT00262504); 57, *Euarestoides* n. sp. 3 (Colombia: Antioquia, Rionegro, USNMENT00262578). Scale bar = 0.10 mm.

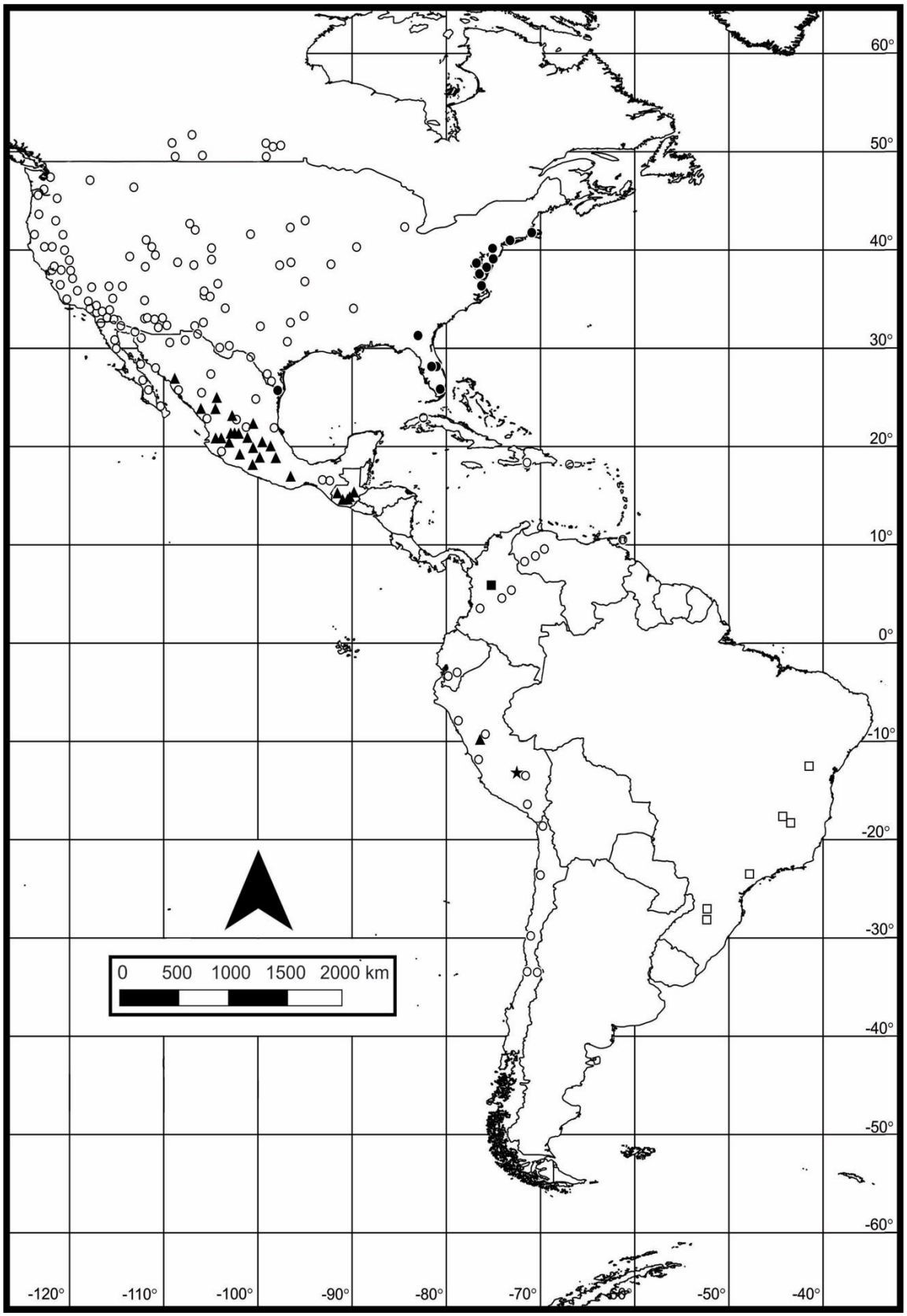


FIGURE 58. Distribution map for *Euarestoides*. (●) *E. abstersus* (Loew). (○) *E. acutangulus* (Thomson). (▲) *E. dreisbachi* Foote. (★) *Euarestoides* n. sp. 1 (□) *Euarestoides* n. sp. 2 (■) *Euarestoides* n. sp. 3

59

60

FIGURES 59–60. Habitus, dorsal: 59 (♂), *Plaumannimyia* n. sp. 9 (Bolivia: La Paz, USNMENT00055810); 60 (♀), *Plaumannimyia* n. sp. 10 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00262561). Scale bar = 0.5 mm.

61

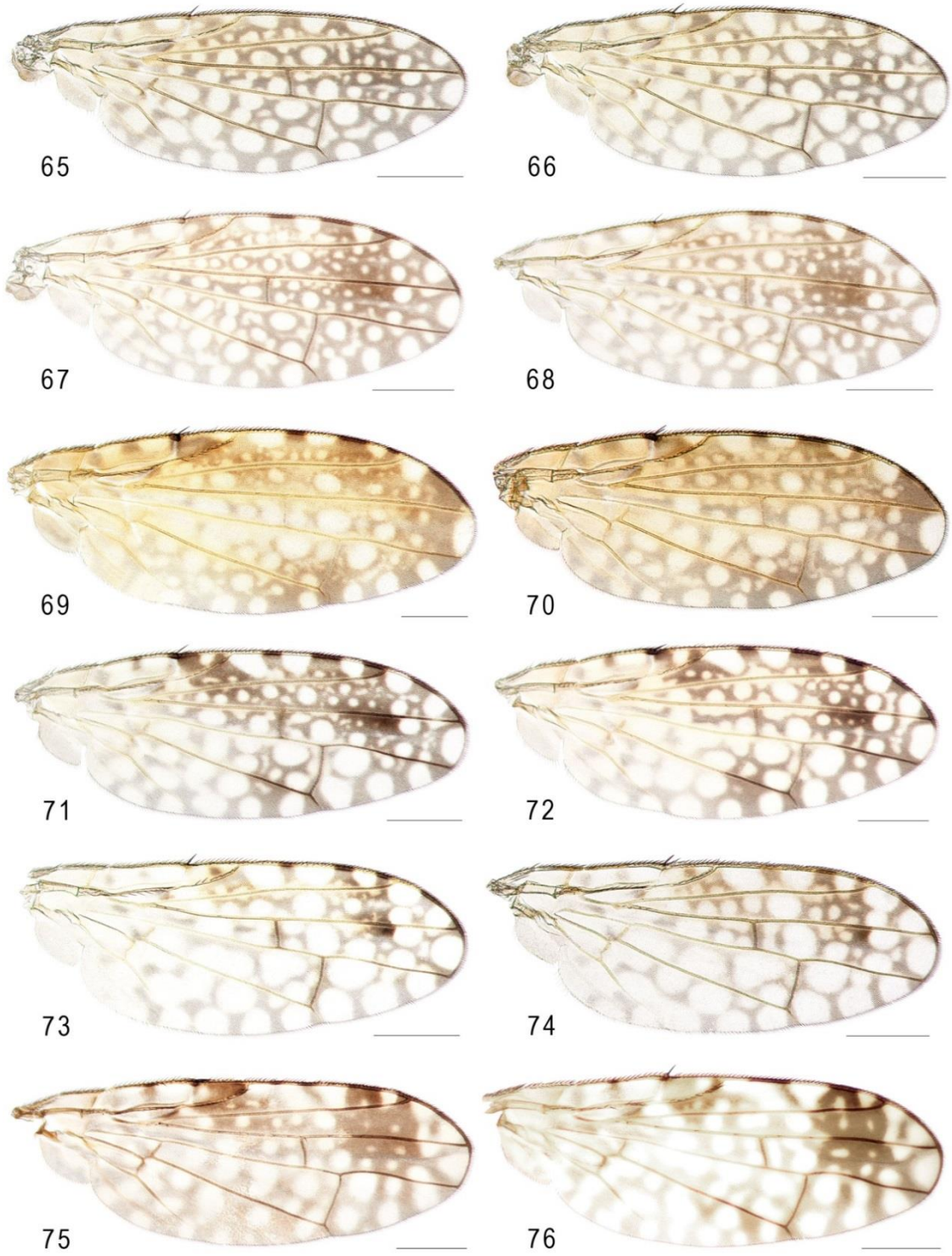
62

FIGURES 61–62. Habitus, dorsal: 61 (♀), *Plaumannimyia costaemaculata* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262738); 62 (♂), *Plaumannimyia* n. sp. 22 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00262725). Scale bar = 0.5 mm.

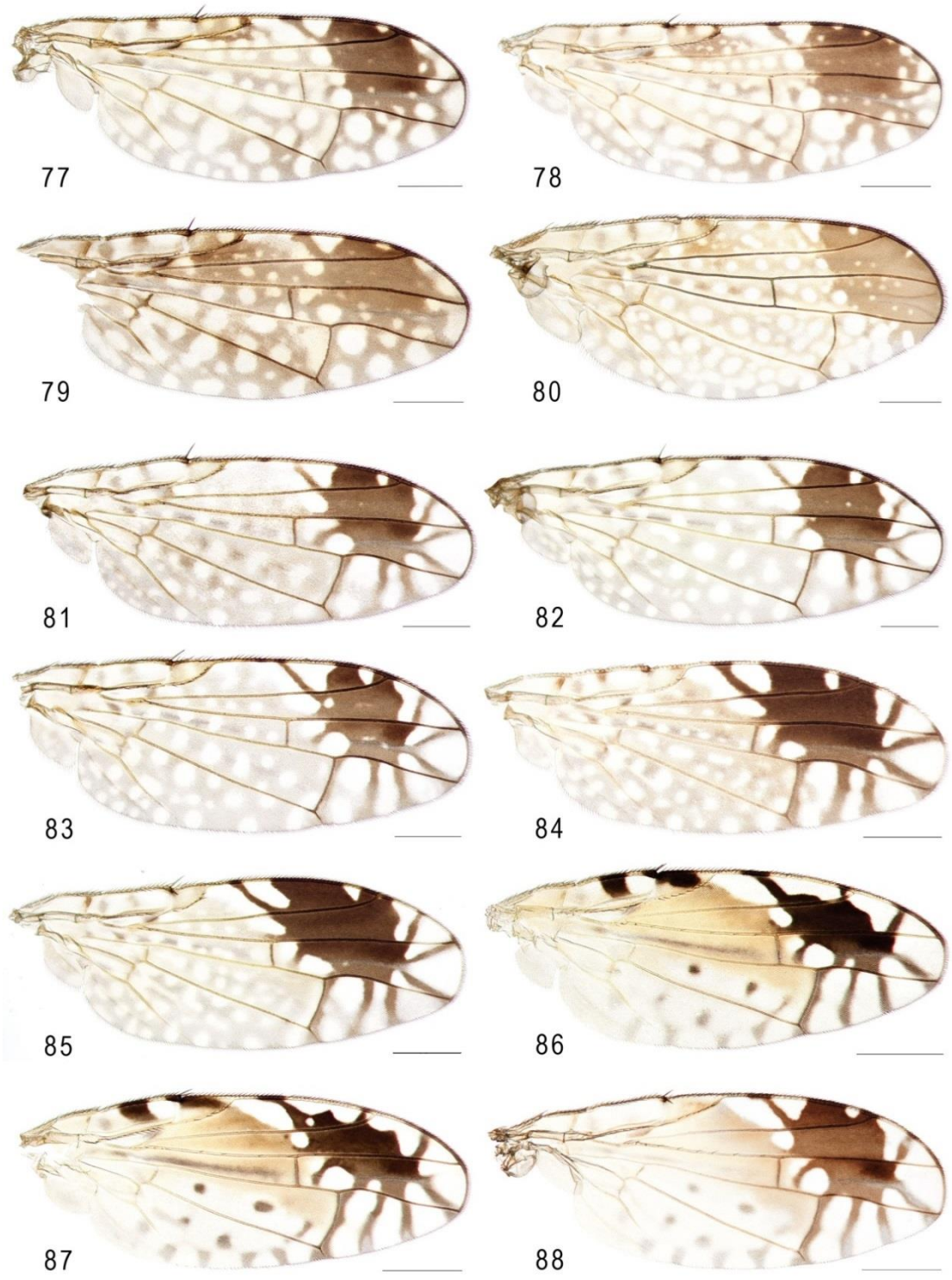
63

64

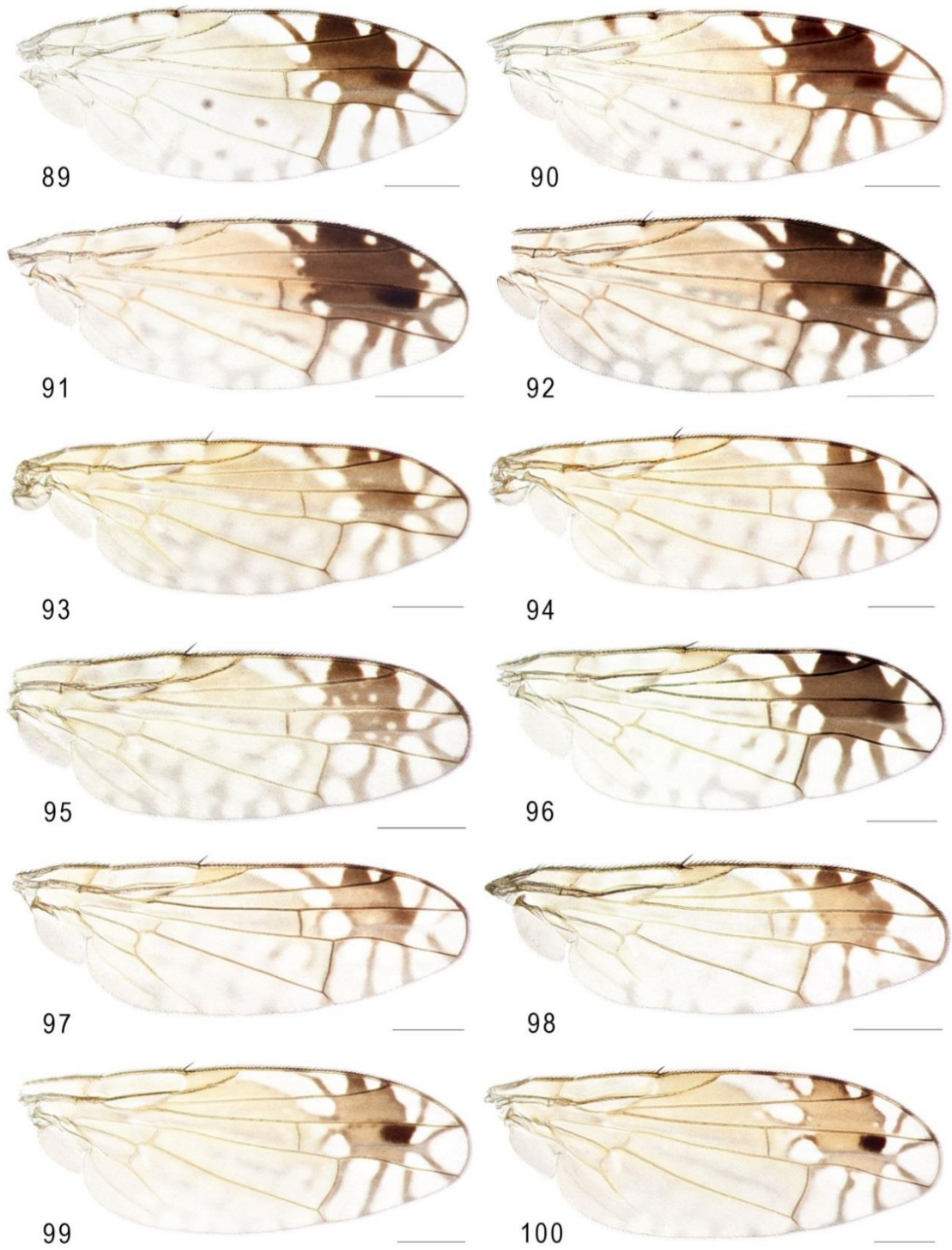
FIGURES 63–64. Habitus, dorsal: 63 (♀), *Plaumannimyia miseta* (Brazil: Paraná, Colombo, Santa, Rita, USNMENT00119342); 64 (♀), *P. scutellata* (Peru: Cusco, USNMENT00744766). Scale bar = 0.5 mm.



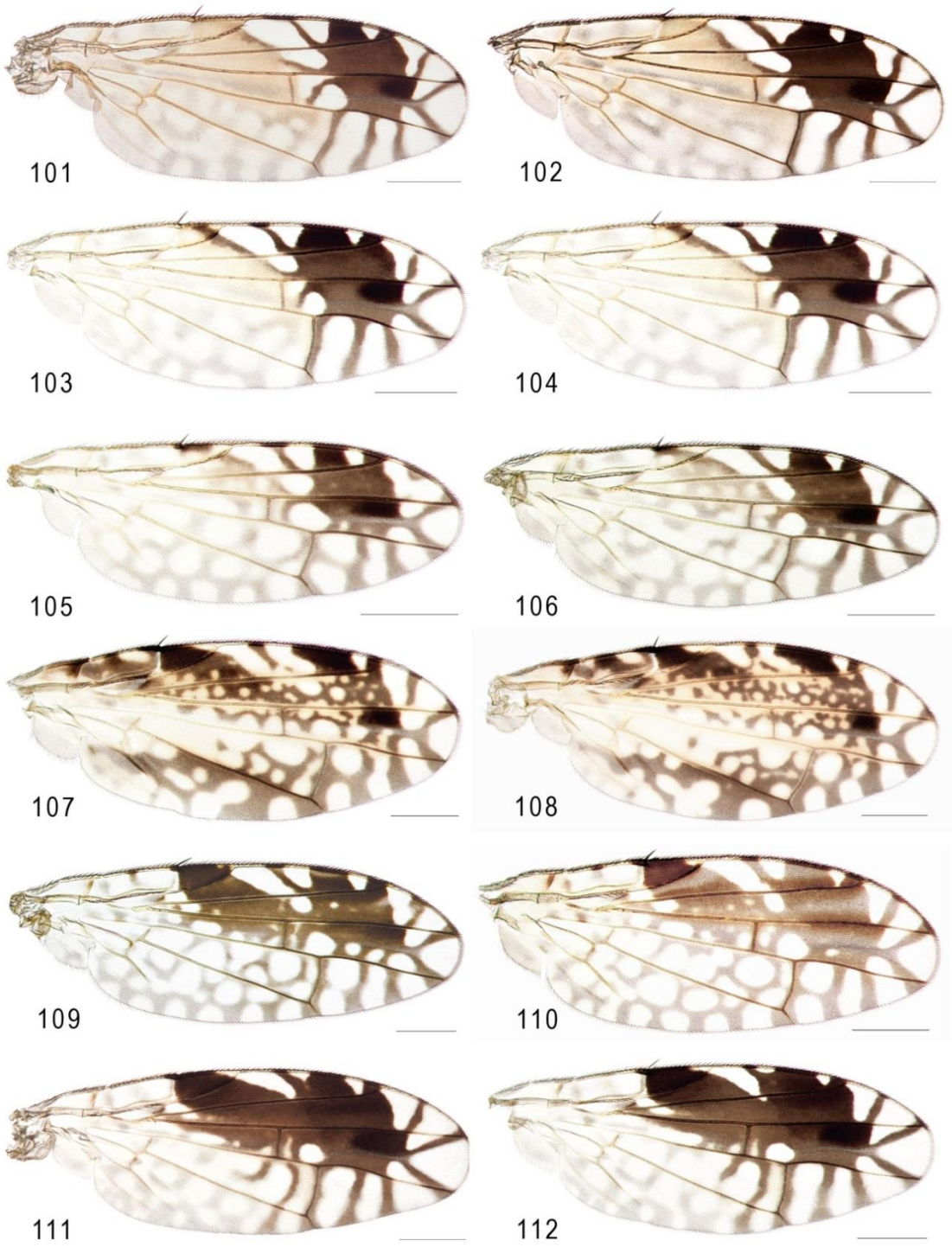
FIGURES 65–76. Wings: 65–66 (♂♀), *P. pallens* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262537–38); 67–68 (♂♀), *Plaumannimyia* n. sp. 9 (Bolivia: La Paz, USNMENT00055810; USNMENT00055817); 69–70 (♂♀), *P. costaemaculata* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262568; USNMENT00262475); 71–72 (♂♀), *Plaumannimyia* n. sp. 10 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00262560–61); 73–74 (♂♀), *Plaumannimyia* n. sp. 16 (Brazil: Paraná, Colombo, Bairro Canguiri, USNMENT00262544; USNMENT00262542); 75–76 (♂♀), *Plaumannimyia* n. sp. 1 (Chile: Valparaiso, Algarrobo, USNMENT00105079; Coquimbo, USNMENT00262555). Scale bar = 0.5 mm.



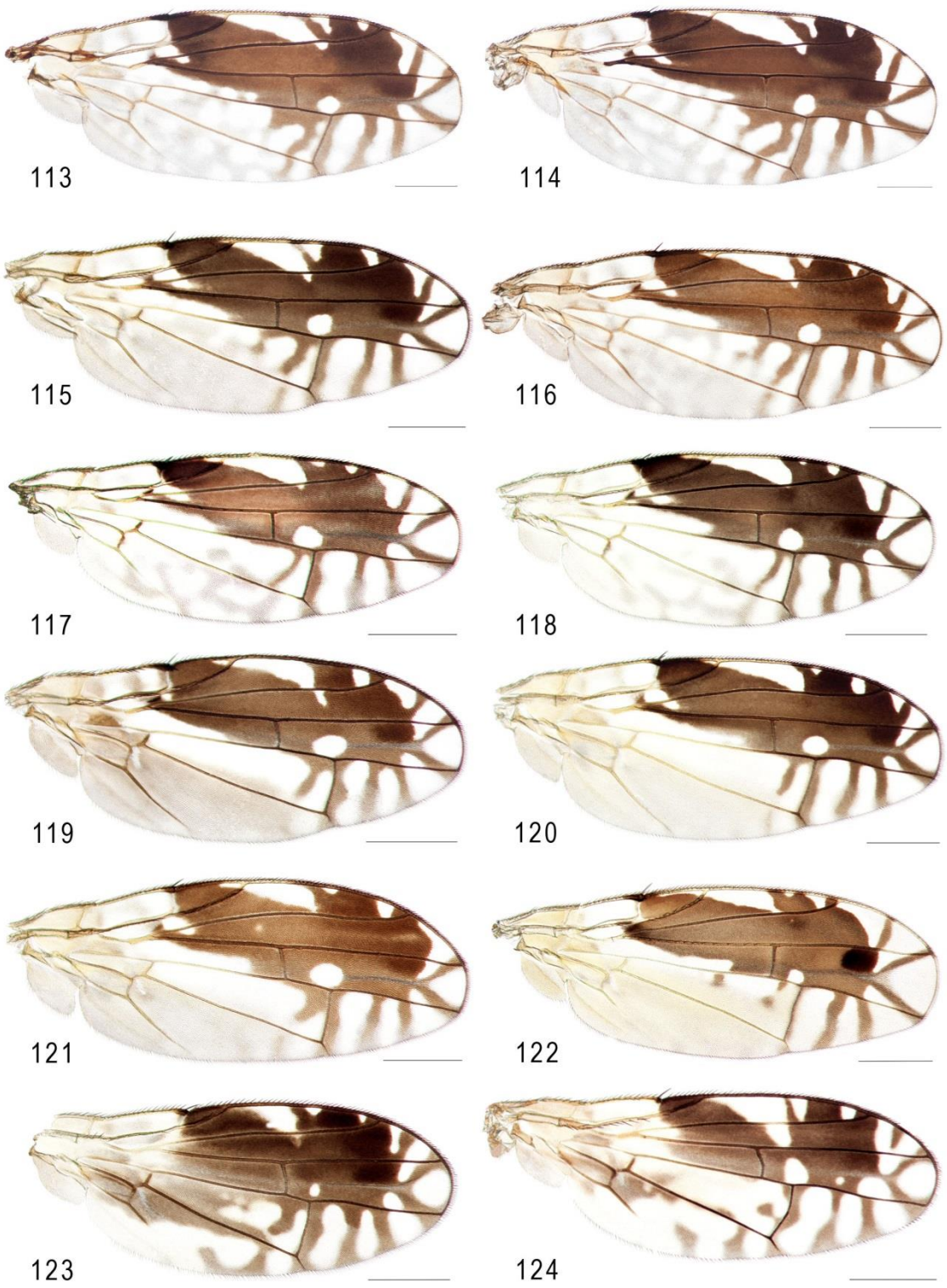
FIGURES 77–88. Wings: 77–79 (♂♀♀), *Plaumannimyia* n. sp. 24 (Chile: Reg. Metropolitana, USNMENT00049347; Valparaiso, USNMENT00262648; Coquimbo, USNMENT00262553); 80 (♂), *Plaumannimyia* n. sp. 12 (Argentina: Jujuy, USNMENT00105078); 81–83 (♂♀♂), *Plaumannimyia* n. sp. 2 (Ecuador: Latacunga, USNMENT00262556; Chimborazo, USNMENT00262557; Peru: Cajamarca, USNMENT00262551); 84–85 (♂♀), *Plaumannimyia* n. sp. 3 (Ecuador: Prov. Napo, El Chaco, USNMENT00105093; Bolivia: La Paz, USNMENT00055821); 86–88 (♂♂♀), *P. coelestina* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262515; USNMENT00262517; Curitiba, USNMENT00052070). Scale bar = 0.5 mm.



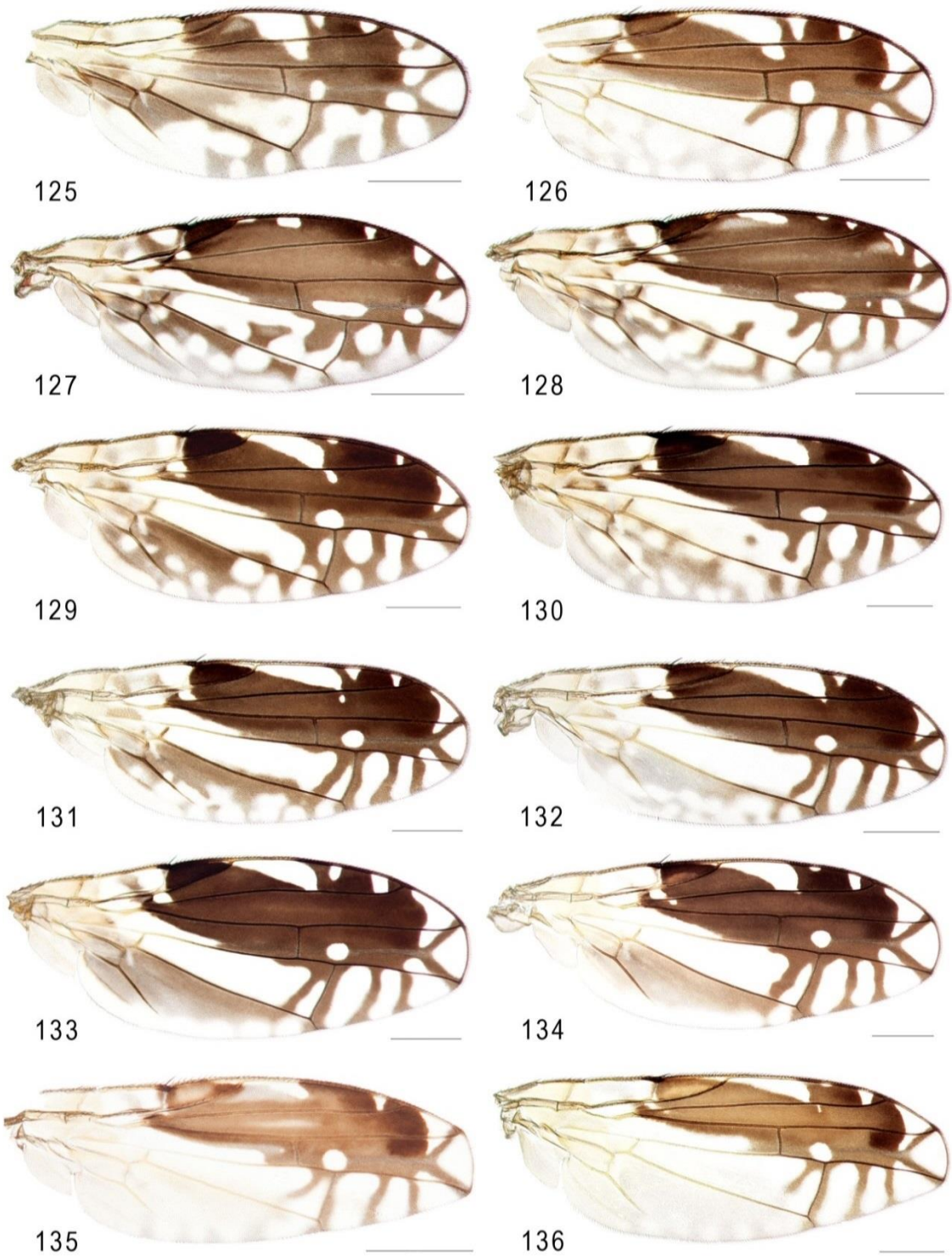
FIGURES 89–100. Wings: 89–90 (♂♀), *P. miseta* (Brazil, Paraná, Colombo, USNMENT00262534; São José dos Pinhais, USNMENT00262532); 91–92 (♂♀), *Plaumannimyia* n. sp. 4 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00119336; Minas Gerais, Belo Horizonte, USNMENT00119335); 93–95 (♂♀♂), *P. subaster* (Chile: Reg. IX, Araucaína, USNMENT00049306; Reg. Metropolitana, USNMENT00049106; Atacama, USNMENT00262548); 96 (♀), *Plaumannimyia* n. sp. 23 (Argentina: Santa Cruz, USNMENT00262576); 97–98 (♂♀), *P. difficilis* (Argentina: Rio Negro, USNMENT00104866; Prov. La Rioja, Miranda, USNMENT00262654); 99–100 (♂♀), *Plaumannimyia* n. sp. 21 (Bolivia: Cochabamba, USNMENT00104818; USNMENT00104846). Scale bar = 0.5 mm.



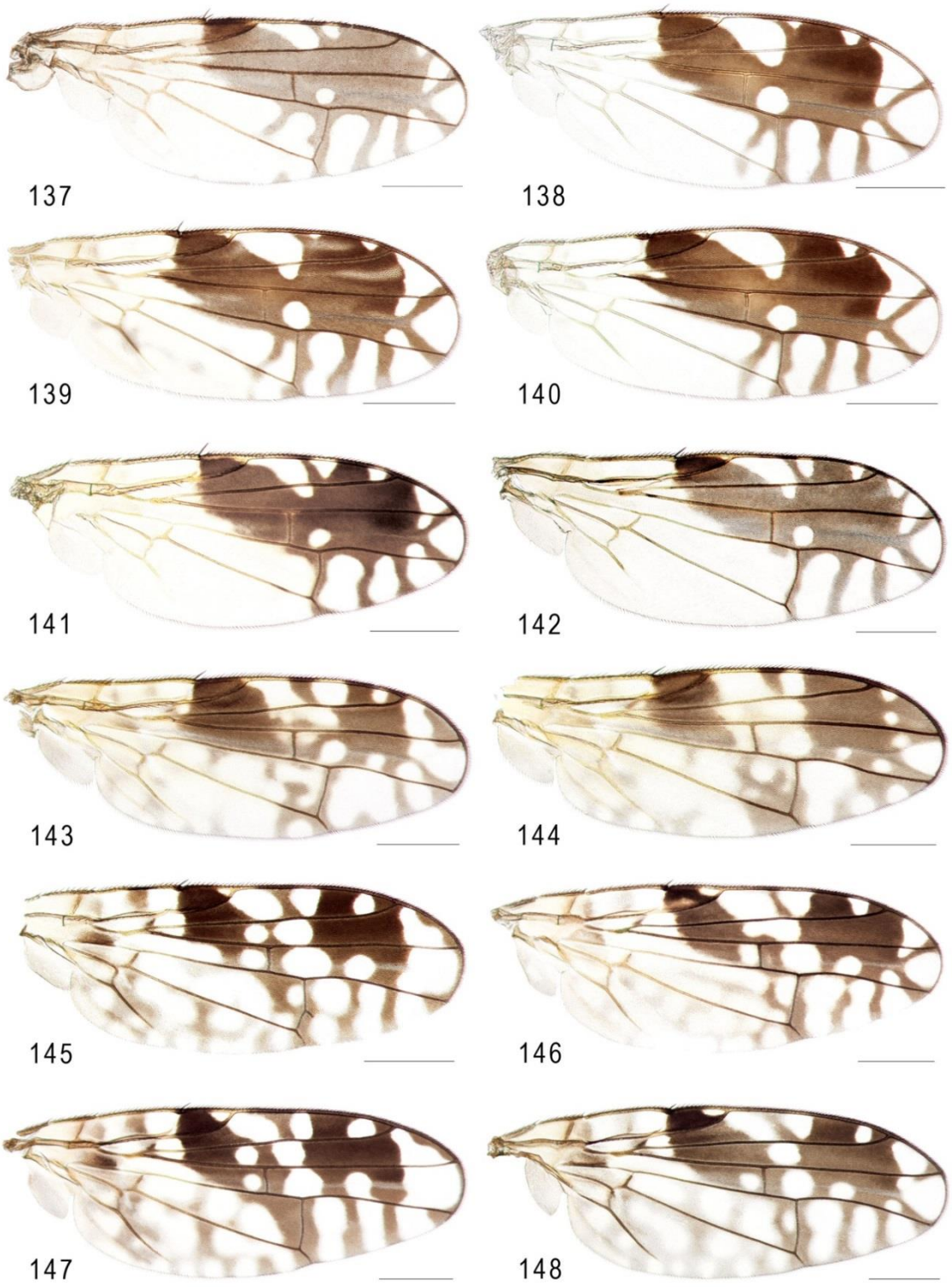
FIGURES 101–112. Wings: 101–102 (♂♀), *P. flava* (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00119344; Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119345); 103–104 (♂♀), *P. imitatrix* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262524; USNMENT00262526); 105–106 (♀♂), *Plaumannimyia* n. sp. 14 (Brazil: Paraná, Quatro Barras, Estrada da Graciosa, USNMENT00262520–21); 107–108 (♂♀), *Plaumannimyia* n. sp. 22 (Brazil: Paraná, Tijucas do Sul, Morro Araçatuba, USNMENT00262571; USNMENT00262649); 109–110 (♂♀), *Plaumannimyia* n. sp. 8 (Brazil: Paraná, Campina Grande do Sul, Morro Camapuã, USNMENT00262562; São José dos Pinhais, USNMENT00262652); 111–112 (♂♀), *P. dolores* (Brazil: Paraná, Colombo, Canguiri, USNMENT00119337; Santa Rita, USNMENT00262569). Scale bar = 0.5 mm.



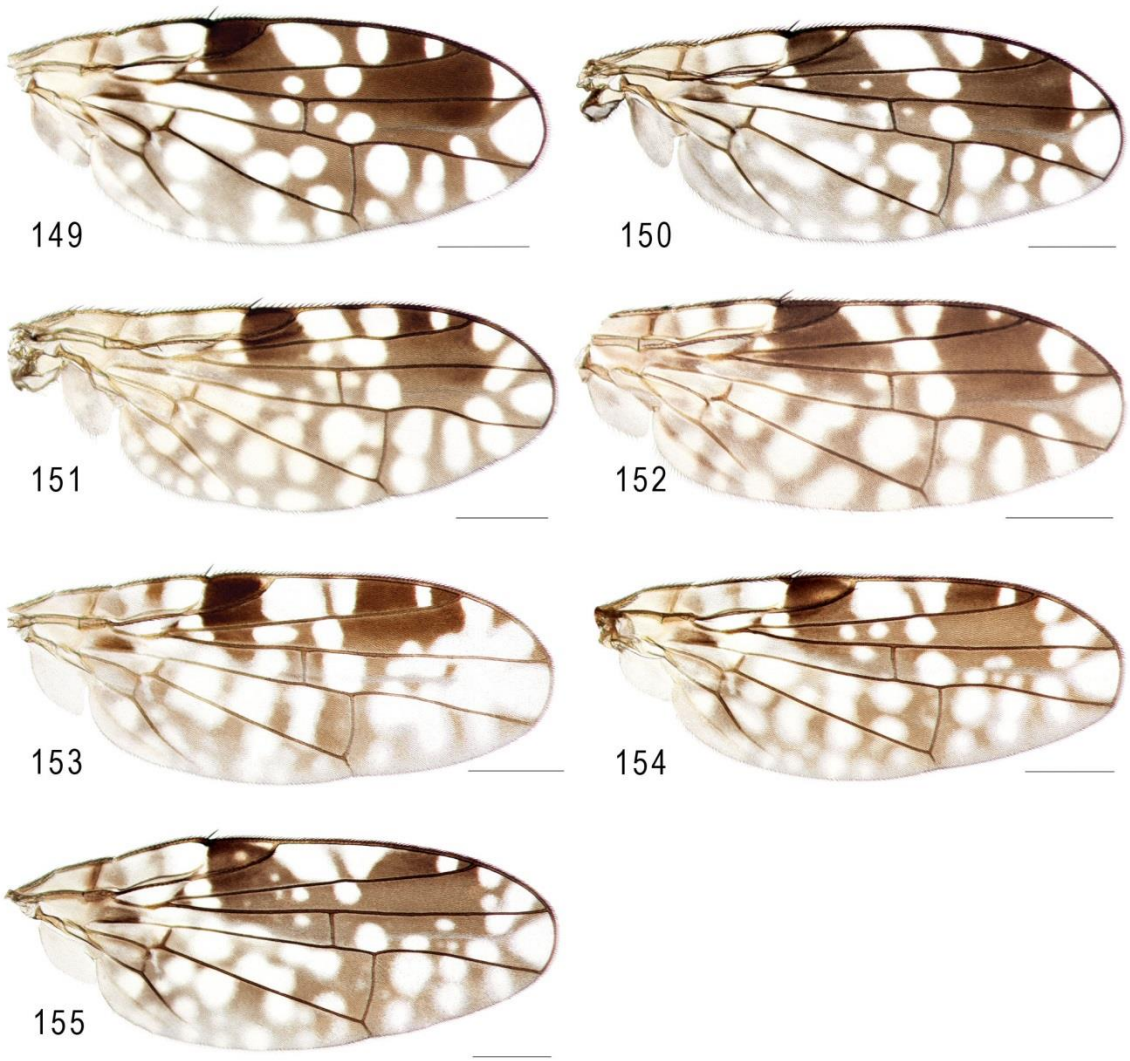
FIGURES 113–124. Wings: 113–114 (♂♀), *Plaumannimyia* n. sp. 6 (Bolivia: Santa Cruz, Ichilo, USNMENT00105031; Peru: Cusco, Paucartambo, USNMENT00104798); 115–116 (♂♀), *Plaumannimyia* n. sp. 18 (Peru: Cusco, USNMENT00875876; USNMENT00875872); 117–118 (♂♀), *P. eugenia* (Mexico: Guerrero, USNMENT00212649–50); 119–121 (♂♀♂), *P. scutellata* (Peru: Cusco, USNMENT00744767; USNMENT00262565; Bolivia: La Paz, USNMENT00216816); 122 (♂), *Plaumannimyia* n. sp. 5 (Peru: Lambayeque, USNMENT00105033); 123–124 (♂♀), *Plaumannimyia* n. sp. 11 (Bolivia: Challapata, USNMENT00055074; La Paz, Huaraco-Aroma, USNMENT00215209). Scale bar = 0.5 mm.



FIGURES 125–136. Wings: 125 (♂), *Plaumannimyia* n. sp. 11 (Argentina: Jujuy, USNMENT00105030); 126 (♂), *Plaumannimyia* n. sp. 17 (Argentina: Jujuy, USNMENT00105062); 127–128 (♂♀), *Plaumannimyia* n. sp. 20 (Peru: Ayacucho, USNMENT00262570; USNMENT00744056); 129–130 (♂♀), *P. suspecta* (Chile: Reg. Metropolitana, Las Vertientes, USNMENT00049900; USNMENT00049672); 131–132 (♂♀), *P. plagiata* (Chile: Prov. Limari, USNMENT00262563–64); 133–134 (♂♀), *P. ameghinoi* (Bolivia: La Paz, USNMENT00056349; USNMENT00215199); 135–136 (♂♀), *Plaumannimyia* n. sp. 19 (Peru: Lima, Rimac Canyon, USNMENT00744206; Arequipa, USNMENT00262566). Scale bar = 0.5 mm.



FIGURES 137–148. Wings: 137 (♂), *Plaumannimyia* n. sp. 13 (Chile: Prov. Limari, USNMENT00677380); 138–140 (♂♂♀), *P. thomsoni* (Brazil: Paraná, Colombo, USNMENT00262572–73; Santa Catarina, Seara, Nova Teutônia, USNMENT00105088); 141–142 (♂♀), *P. valdesiana* (Argentina: Rio Negro, USNMENT00105054; Chubut, USNMENT00105056); 143–144 (♂♀), *Plaumannimyia* n. sp. 25 (Chile: Reg. IX, Araucaína, USNMENT00049456; USNMENT0004947); 145–148 (♂♀♂♀), *P. delicatella* (Chile: Metropolitana, Curva 18, USNMENT00262552; USNMENT00262650; Reg. IX, Araucaína, USNMENT00050039; USNMENT00050032). Scale bar = 0.5 mm.



FIGURES 149–155. Wings: 149–150 (♂♀), *Plaumannimyia* n. sp. 15 (Bolivia: La Paz, USNMENT00216856; USNMENT00216858); 151–152 (♂♀), *P. setulosa* (Argentina: Neuquén, USNMENT00262567; Chile: Arauco, Caramavide, USNMENT00262653); 153–155 (♂♀♀), *Plaumannimyia* n. sp. 7 (Argentina: Rio Negro, USNMENT00262559; USNMENT00105130; Chile: Reg. X, USNMENT00262558). Scale bar = 0.5 mm.

FIGURES 156–165. Eversible membranes: 156, *P. ameghinoi* (Bolivia: La Paz, USNMENT00215199); 157, *P. coelestina* (Brazil: Paraná, Curitiba, USNMENT00052070); 158, *P. costaemaculata* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262739); 159, *P. delicatella* (Chile: Santiago, Quebrada de La Plata,USNMENT00262618); 160, *P. difficilis* (Argentina: Prov. La Rioja, Miranda, USNMENT00262627); 161, *P. dolores* (Brazil: Paraná, Colombo, Santa Rita, USNMENT262569); 162, *P. eugenia* (Mexico: Guerrero, USNMENT00212650); 163, *P. flava* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119345); 164, *P. imitatrix* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119348); 165, *P. miseta* (Brazil, Paraná, São José dos Pinhais, Estrada dos Castelhanos, USNMENT00262614). Scale bar = 0.20 mm.

FIGURES 166–175. Eversible membranes: 166, *P. pallens* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119343); 167, *P. plagiata* (Chile: Coquimbo, USNMENT00262626); 168, *P. scutellata* (Bolivia: La Paz, USNMENT00216810); 169, *P. setulosa* (Argentina: Rio Negro, USNMENT00262623); 170, *P. subaster* (Chile: Reg. Metropolitana, USNMENT00049610); 171, *P. suspecta* (Chile: Reg. Metropolitana, Las Vertientes, USNMENT00049672); 172, *P. thomsoni* (Argentina: R.N. Gral. Fernandez Oro, USNMENT00104997); 173, *P. valdesiana* (Argentina: Chubut, Puerto Piramides, USNMENT00105060); 174, *Plaumannimyia* n. sp. 1 (Chile: Valparaiso, Algarrobo, USNMENT00105079); 175, *Plaumannimyia* n. sp. 2 (Peru: Cusco, Maldonado, USNMENT00744851). Scale bar = 0.20 mm.

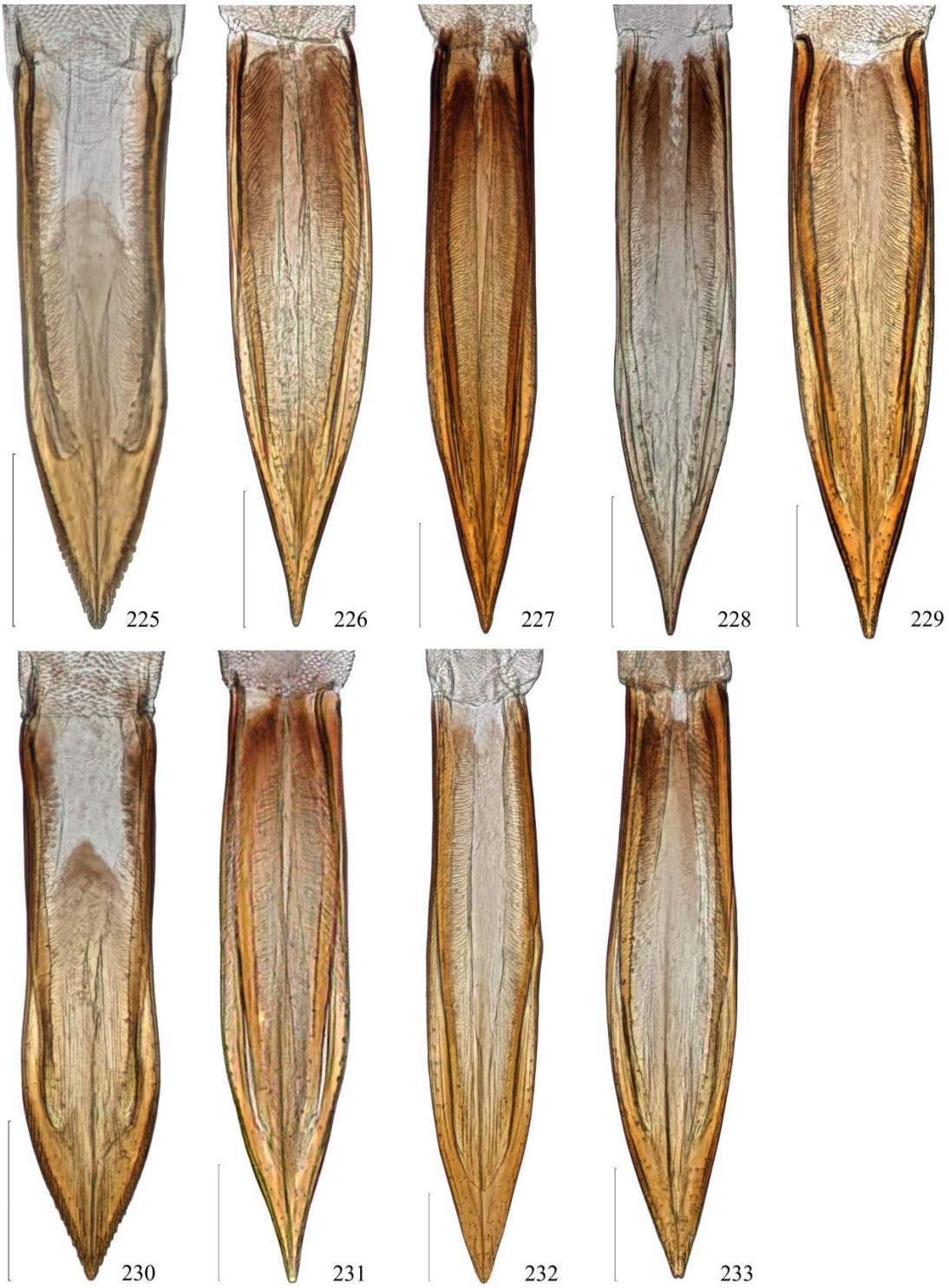
FIGURES 176–185. Eversible membranes: 176, *Plaumannimyia* n. sp. 3 (Bolivia: La Paz, Santa Fé, USNMENT00055821); 177, *Plaumannimyia* n. sp. 4 (Brazil: Minas Gerais, Belo Horizonte, USNMENT00119335); 178, *Plaumannimyia* n. sp. 6 (Peru: Cusco, Paucartambo, USNMENT00104798); 179, *Plaumannimyia* n. sp. 7 (Chile: Reg. IX, Araucaína, USNMENT00049479); 180, *Plaumannimyia* n. sp. 8 (Brazil: Paraná, São José dos Pinhais, USNMENT00262652); 181, *Plaumannimyia* n. sp. 9 (Bolivia: La Paz, USNMENT00055809); 182, *Plaumannimyia* n. sp. 10 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00262713); 183, *Plaumannimyia* n. sp. 11 (Bolivia: La Paz, Huaraco-Aroma, USNMENT00215211); 184, *Plaumannimyia* n. sp. 14 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT0011854); 185, *Plaumannimyia* n. sp. 15 (Bolivia: La Paz, USNMENT00216857). Scale bar = 0.20 mm.

FIGURES 186–194. Eversible membranes: 186, *Plaumannimyia* n. sp. 16 (Brazil: Paraná, Colombo, Bairro Canguiri, USNMENT00262805); 187, *Plaumannimyia* n. sp. 18 (Peru: Cusco, USNMENT00875872); 188, *Plaumannimyia* n. sp. 19 (Chile: Antofagasta, Calama, USNMENT00105061); 189, *Plaumannimyia* n. sp. 20 (Peru: Ayacucho, USNMENT00744056); 190, *Plaumannimyia* n. sp. 21 (Bolivia: Cochabamba, USNMENT00104876); 191, *Plaumannimyia* n. sp. 22 (Brazil: Paraná, Quatro Barras, USNMENT00262649); 192, *Plaumannimyia* n. sp. 23 (Argentina: Santa Cruz, USNMENT00262576); 193, *Plaumannimyia* n. sp. 24 (Chile: Prov. Aconcagua, Zapallar, USNMENT00105082); 194, *Plaumannimyia* n. sp. 25 (Chile: Reg. IX, Araucaína, USNMENT00049443). Scale bar = 0.20 mm.

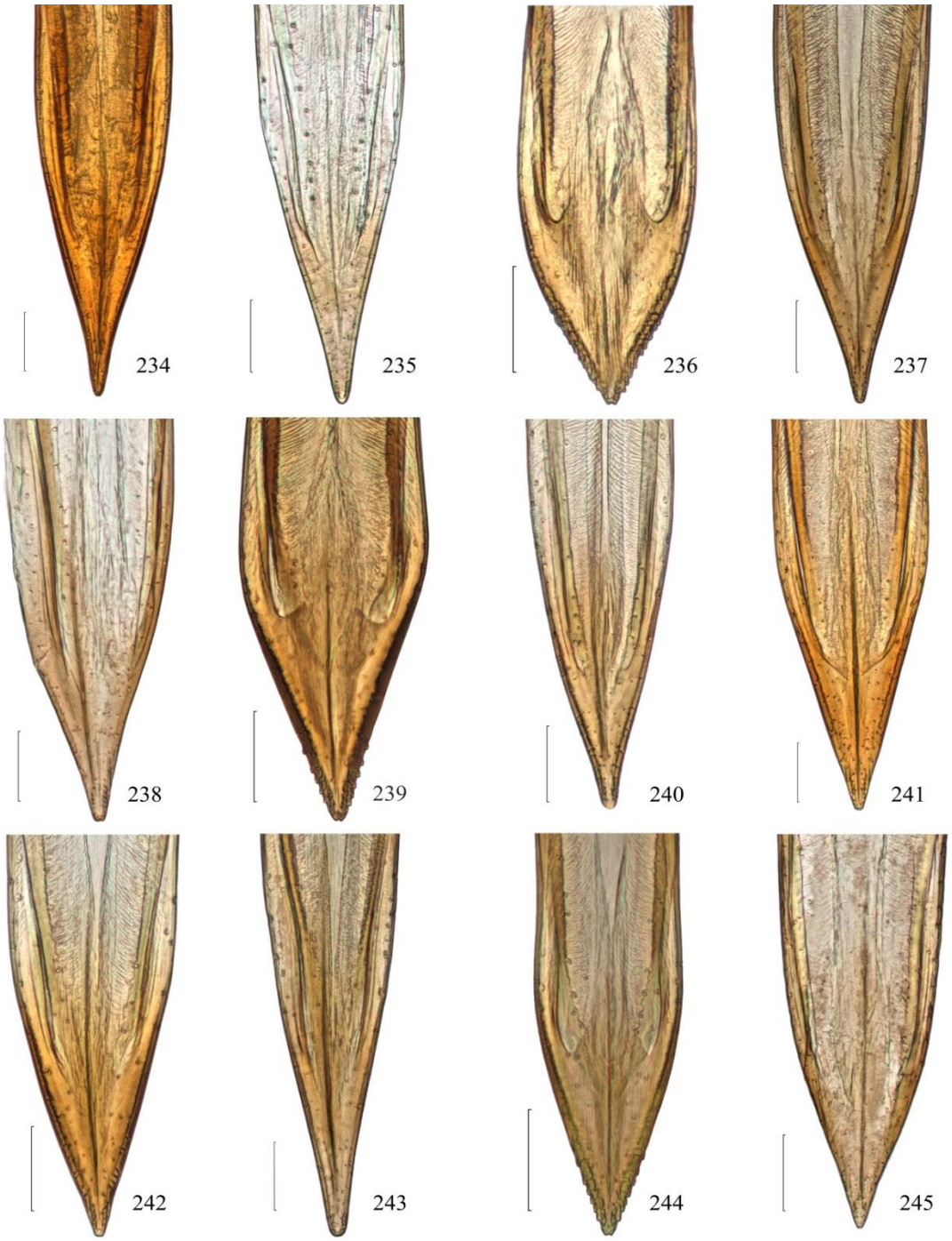
FIGURES 195–204. Aculei: 195, *P. ameghinoi* (Bolivia: La Paz, USNMENT00215199); 196, *P. coelestina* (Brazil: Paraná, Curitiba, USNMENT00052070); 197, *P. costaemaculata* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262739); 198, *P. delicatella* (Chile: Santiago, Quebrada de La Plata, USNMENT00262618); 199, *P. difficilis* (Argentina: Prov. La Rioja, Miranda, USNMENT00262627); 200, *P. dolores* (Brazil: Paraná, Colombo, Santa Rita, USNMENT262569); 201, *P. eugenia* (Mexico: Guerrero, USNMENT00212650); 202, *P. flava* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119345); 203, *P. imitatrix* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119348); 204, *P. miseta* (Brazil, Paraná, São José dos Pinhais, Estrada dos Castelhanos, USNMENT00262614). Scale bar = 0.20 mm.

FIGURES 205–214. Aculei: 205, *P. pallens* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119343); 206, *P. plagiata* (Chile: Coquimbo, USNMENT00262626); 207, *P. scutellata* (Bolivia: La Paz, USNMENT00216810); 208, *P. setulosa* (Argentina: Rio Negro, USNMENT00262623); 209, *P. subaster* (Chile: Reg. Metropolitana, USNMENT00049610); 210, *P. suspecta* (Chile: Reg. Metropolitana, Las Vertientes, USNMENT00049672); 211, *P. thomsoni* (Argentina: R.N. Gral. Fernandez Oro, USNMENT00104997); 212, *P. valdesiana* (Argentina: Chubut, Puerto Piramides, USNMENT00105060); 213, *Plaumannimyia* n. sp. 1 (Chile: Valparaiso, Algarrobo, USNMENT00105079); 214, *Plaumannimyia* n. sp. 2 (Peru: Cusco, Maldonado, USNMENT00744851). Scale bar = 0.20 mm.

FIGURES 215–224. Aculei: 215, *Plaumannimyia* n. sp. 3 (Bolivia: La Paz, Santa Fé, USNMENT00055821); 216, *Plaumannimyia* n. sp. 4 (Brazil: Minas Gerais, Belo Horizonte, USNMENT00119335); 217, *Plaumannimyia* n. sp. 6 (Peru: Cusco, Paucartambo, USNMENT00104798); 218, *Plaumannimyia* n. sp. 7 (Chile: Reg. IX, Araucaína, USNMENT00049479); 219, *Plaumannimyia* n. sp. 8 (Brazil: Paraná, São José dos Pinhais, USNMENT00262652); 220, *Plaumannimyia* n. sp. 9 (Bolivia: La Paz, USNMENT00055809); 221, *Plaumannimyia* n. sp. 10 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00262713); 222, *Plaumannimyia* n. sp. 11 (Bolivia: La Paz, Huaraco-Aroma, USNMENT00215211); 223, *Plaumannimyia* n. sp. 14 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT0011854); 224, *Plaumannimyia* n. sp. 15 (Bolivia: La Paz, USNMENT00216857). Scale bar = 0.20 mm.

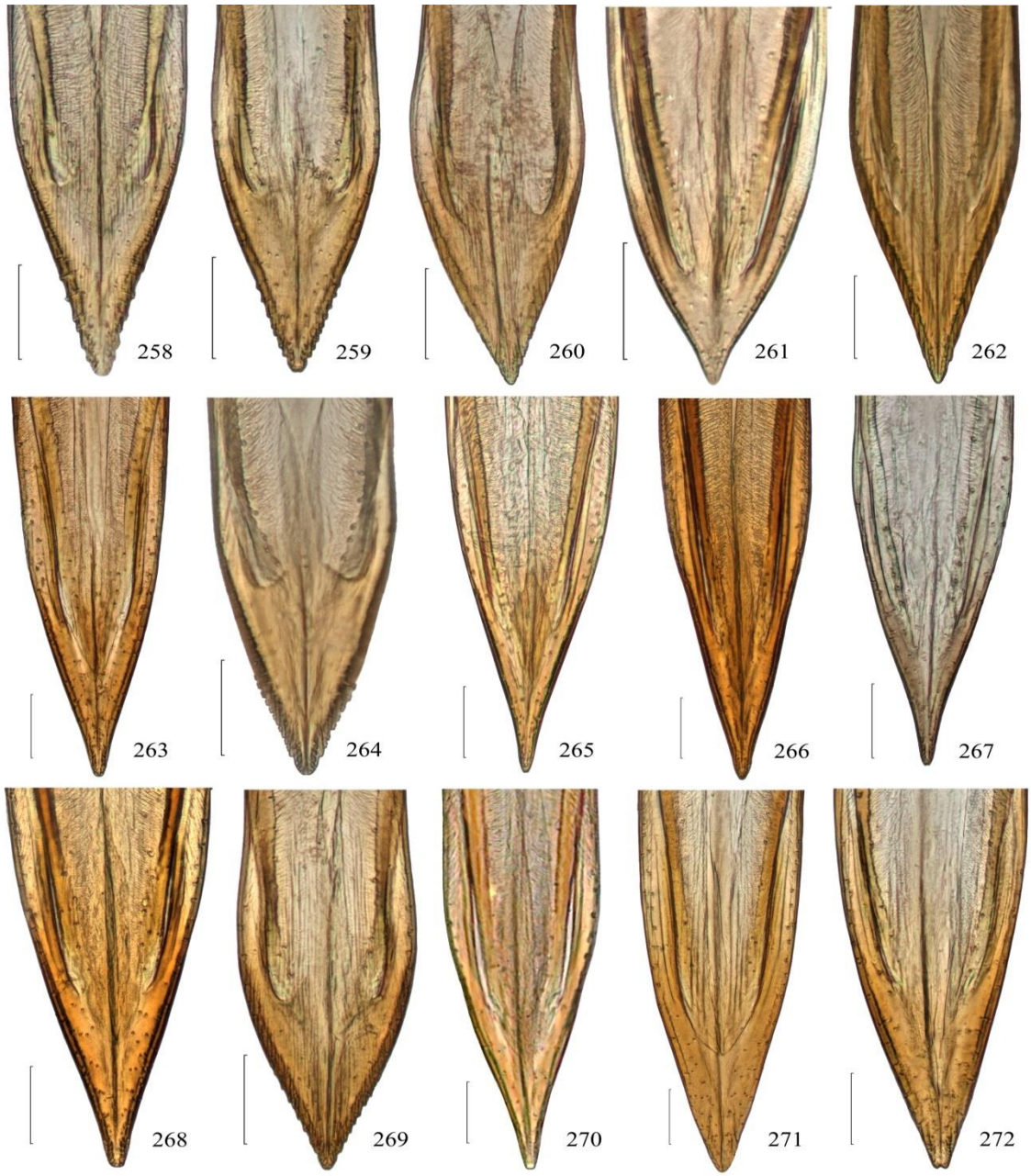


FIGURES 225–233. Aculei: 225, *Plaumannimyia* n. sp. 16 (Brazil: Paraná, Colombo, Bairro Canguiri, USNMENT00262805); 226, *Plaumannimyia* n. sp. 18 (Peru: Cusco, USNMENT00875872); 227, *Plaumannimyia* n. sp. 19 (Chile: Antofagasta, Calama, USNMENT00105061); 228, *Plaumannimyia* n. sp. 20 (Peru: Ayacucho, USNMENT00744056); 229, *Plaumannimyia* n. sp. 21 (Bolivia: Cochabamba, USNMENT00104876); 230, *Plaumannimyia* n. sp. 22 (Brazil: Paraná, Quatro Barras, USNMENT00262649); 231, *Plaumannimyia* n. sp. 23 (Argentina: Santa Cruz, USNMENT00262576); 232, *Plaumannimyia* n. sp. 24 (Chile: Prov. Aconcagua, Zapallar, USNMENT00105082); 233, *Plaumannimyia* n. sp. 25 (Chile: Reg. IX, Araucaína, USNMENT00049443). Scale bar = 0.20 mm.



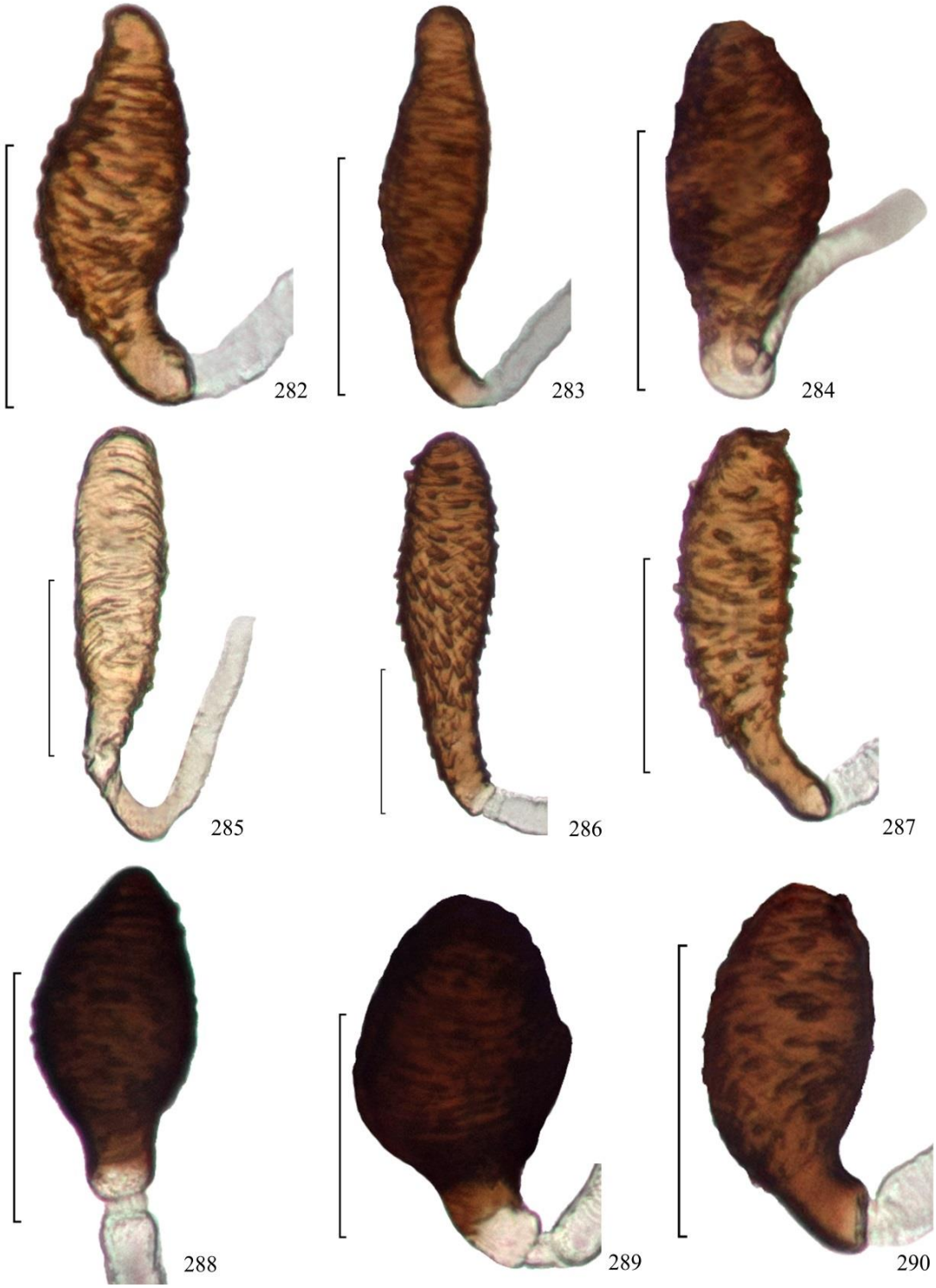
FIGURES 234–245. Aculeus tips: 234, *P. ameghinoi* (Bolivia: La Paz, USNMENT00215199); 235, *P. coelestina* (Brazil: Paraná, Curitiba, USNMENT00052070); 236, *P. costaemaculata* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262739); 237, *P. delicatella* (Chile: Santiago, Quebrada de La Plata, USNMENT00262618); 238, *P. difficilis* (Argentina: Prov. La Rioja, Miranda, USNMENT00262627); 239, *P. dolores* (Brazil: Paraná, Colombo, Santa Rita, USNMENT262569); 240, *P. eugenia* (Mexico: Guerrero, USNMENT00212650); 241, *P. flava* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119345); 242, *P. imitatrix* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119348); 243, *P. miseta* (Brazil, Paraná, São José dos Pinhais, Estrada dos Castelhanos, USNMENT00262614); 244, *P. pallens* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119343); 245, *P. plagiata* (Chile: Coquimbo, USNMENT00262626). Scale bar = 0.10 mm.

FIGURES 246–257. Aculeus tips: 246, *P. scutellata* (Bolivia: La Paz, USNMENT00216810); 247, *P. setulosa* (Argentina: Rio Negro, USNMENT00262623); 248, *P. subaster* (Chile: Reg. Metropolitana, USNMENT00049610); 249, *P. suspecta* (Chile: Reg. Metropolitana, Las Vertientes, USNMENT00049672); 250, *P. thomsoni* (Argentina: R.N. Gral. Fernandez Oro, USNMENT00104997); 251, *P. valdesiana* (Argentina: Chubut, Puerto Piramides, USNMENT00105060); 252, *Plaumannimyia* n. sp. 1 (Chile: Valparaiso, Algarrobo, USNMENT00105079); 253, *Plaumannimyia* n. sp. 2 (Peru: Cusco, Maldonado, USNMENT00744851); 254, *Plaumannimyia* n. sp. 3 (Bolivia: La Paz, Santa Fé, USNMENT00055821); 255, *Plaumannimyia* n. sp. 4 (Brazil: Minas Gerais, Belo Horizonte, USNMENT00119335); 256, *Plaumannimyia* n. sp. 6 (Peru: Cusco, Paucartambo, USNMENT00104798); 257, *Plaumannimyia* n. sp. 7 (Chile: Reg. IX, Araucaína, USNMENT00049479). Scale bar = 0.10 mm.

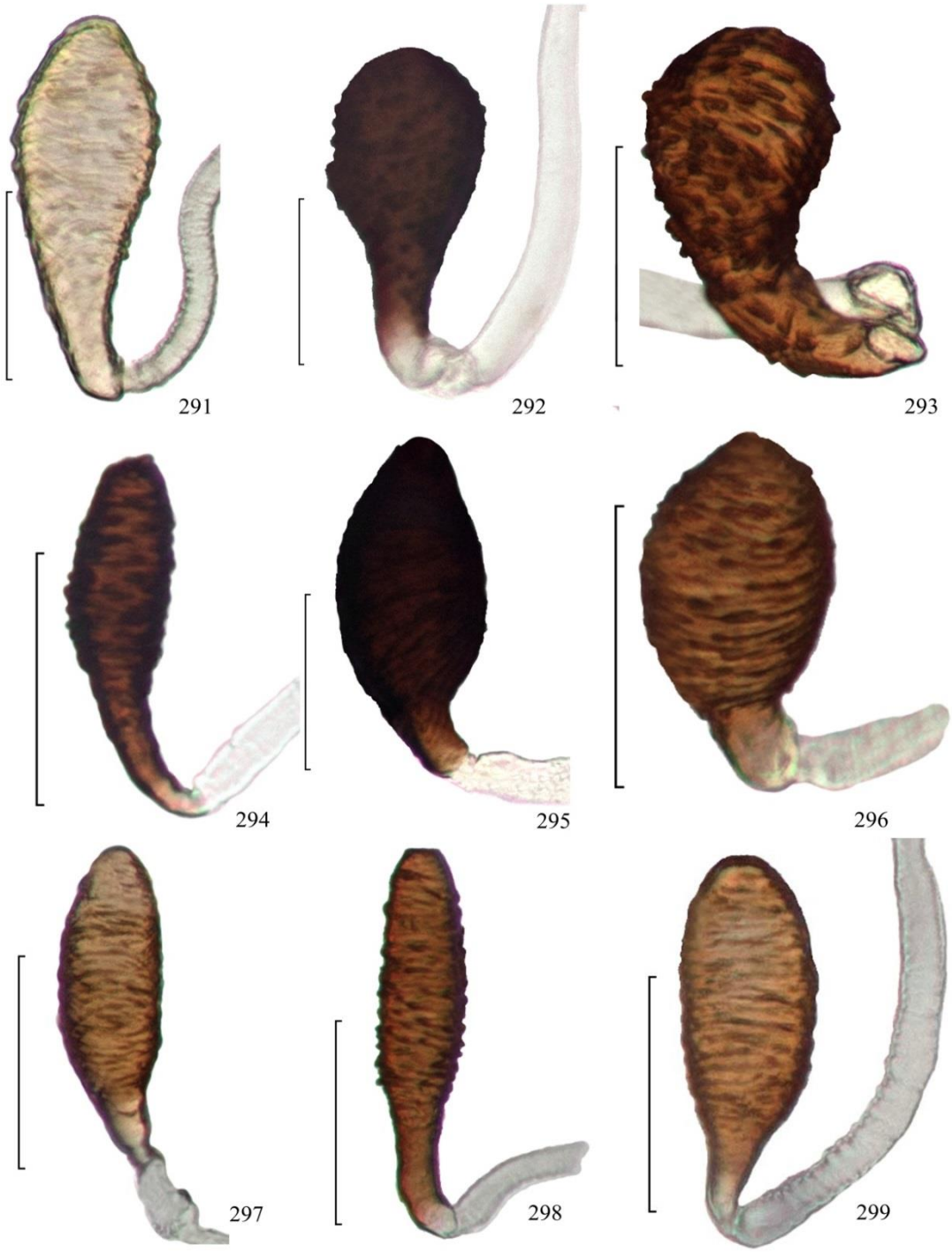


FIGURES 258–272. Aculeus tips: 258, *Plaumannimyia* n. sp. 8 (Brazil: Paraná, São José dos Pinhais, USNMENT00262652); 259, *Plaumannimyia* n. sp. 9 (Bolivia: La Paz, USNMENT00055809); 260, *Plaumannimyia* n. sp. 10 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00262713); 261, *Plaumannimyia* n. sp. 11 (Bolivia: La Paz, Huaraco-Aroma, USNMENT00215211); 262, *Plaumannimyia* n. sp. 14 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT0011854); 263, *Plaumannimyia* n. sp. 15 (Bolivia: La Paz, USNMENT00216857); 264, *Plaumannimyia* n. sp. 16 (Brazil: Paraná, Colombo, Bairro Canguiri, USNMENT00262805); 265, *Plaumannimyia* n. sp. 18 (Peru: Cusco, USNMENT00875872); 266, *Plaumannimyia* n. sp. 19 (Chile: Antofagasta, Calama, USNMENT00105061); 267, *Plaumannimyia* n. sp. 20 (Peru: Ayacucho, USNMENT00744056); 268, *Plaumannimyia* n. sp. 21 (Bolivia: Cochabamba, USNMENT00104876); 269, *Plaumannimyia* n. sp. 22 (Brazil: Paraná, Quatro Barras, USNMENT00262649); 270, *Plaumannimyia* n. sp. 23 (Argentina: Santa Cruz, USNMENT00262576); 271, *Plaumannimyia* n. sp. 24 (Chile: Prov. Aconcagua, Zapallar, USNMENT00105082); 272, *Plaumannimyia* n. sp. 25 (Chile: Reg. IX, Araucaína, USNMENT00049443). Scale bar = 0.10 mm.

FIGURES 273–281. Spermathecae: 273, *P. ameghinoi* (Bolivia: La Paz, USNMENT00215199); 274, *P. coelestina* (Brazil: Paraná, Curitiba, USNMENT00052070); 275, *P. costaemaculata* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262739); 276, *P. delicatella* (Chile: Santiago, Quebrada de La Plata, USNMENT00262618); 277, *P. difficilis* (Argentina: Prov. La Rioja, Miranda, USNMENT00262627); 278, *P. dolores* (Brazil: Paraná, Colombo, Santa Rita, USNMENT262569); 279, *P. eugenia* (Mexico: Guerrero, USNMENT00212650); 280, *P. flava* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119345); 281, *P. imitatrix* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119348). Scale bar = 0.10 mm.

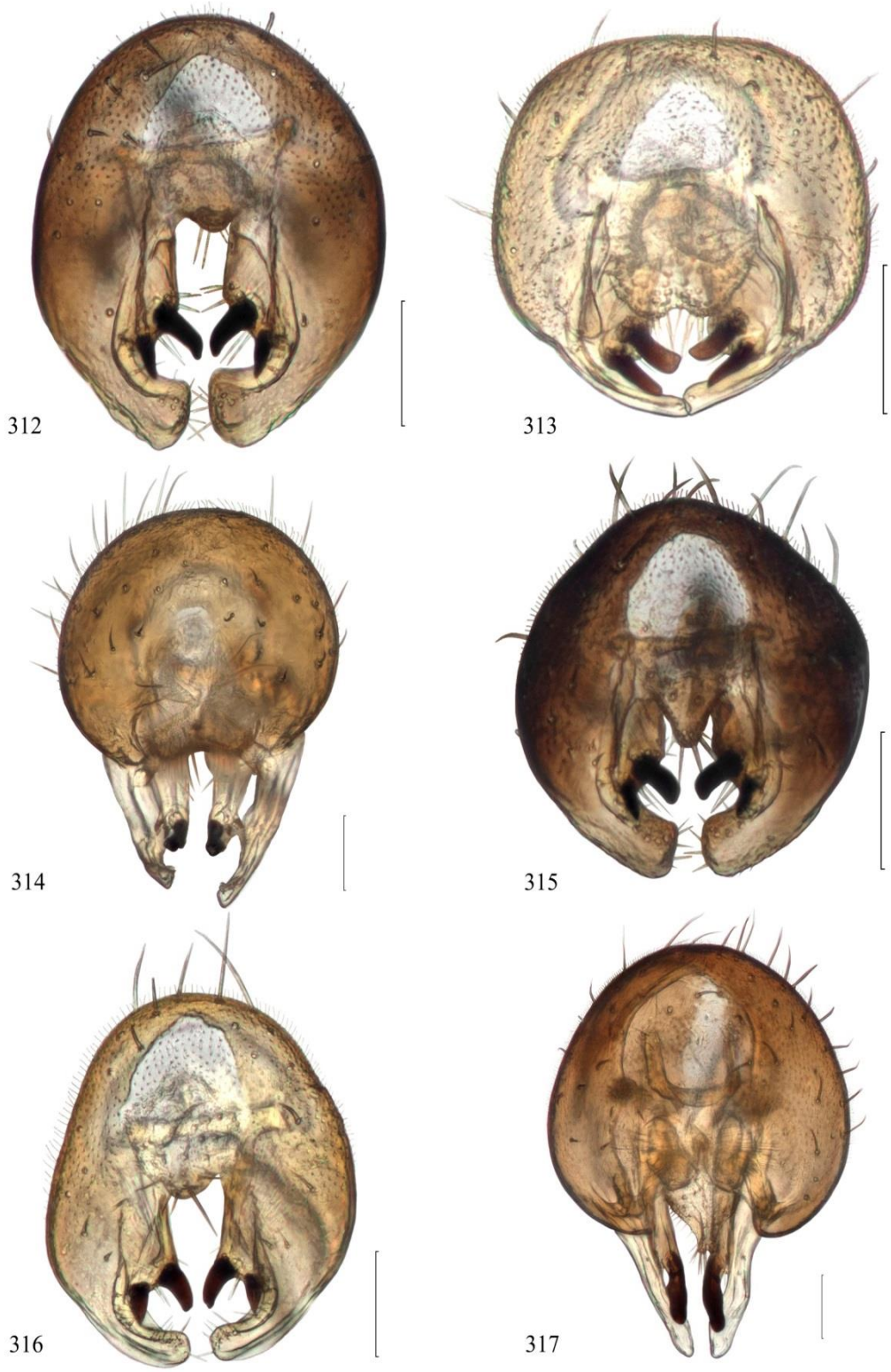


FIGURES 282–290. Spermathecae: 282, *P. miseta* (Brazil, Paraná, São José dos Pinhais, Estrada dos Castelhanos, USNMENT00262614); 283, *P. pallens* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119343); 284, *P. plagiata* (Chile: Coquimbo, USNMENT00262626); 285, *P. scutellata* (Bolivia: La Paz, USNMENT00216810); 286, *P. setulosa* (Argentina: Rio Negro, USNMENT00262623); 287, *P. subaster* (Chile: Reg. Metropolitana, USNMENT00049610); 288, *P. suspecta* (Chile: Reg. Metropolitana, Las Vertientes, USNMENT00049672); 289, *P. thomsoni* (Argentina: R.N. Gral. Fernandez Oro, USNMENT00104997); 290, *P. valdesiana* (Argentina: Chubut, Puerto Piramides, USNMENT00105060). Scale bar = 0.10 mm.

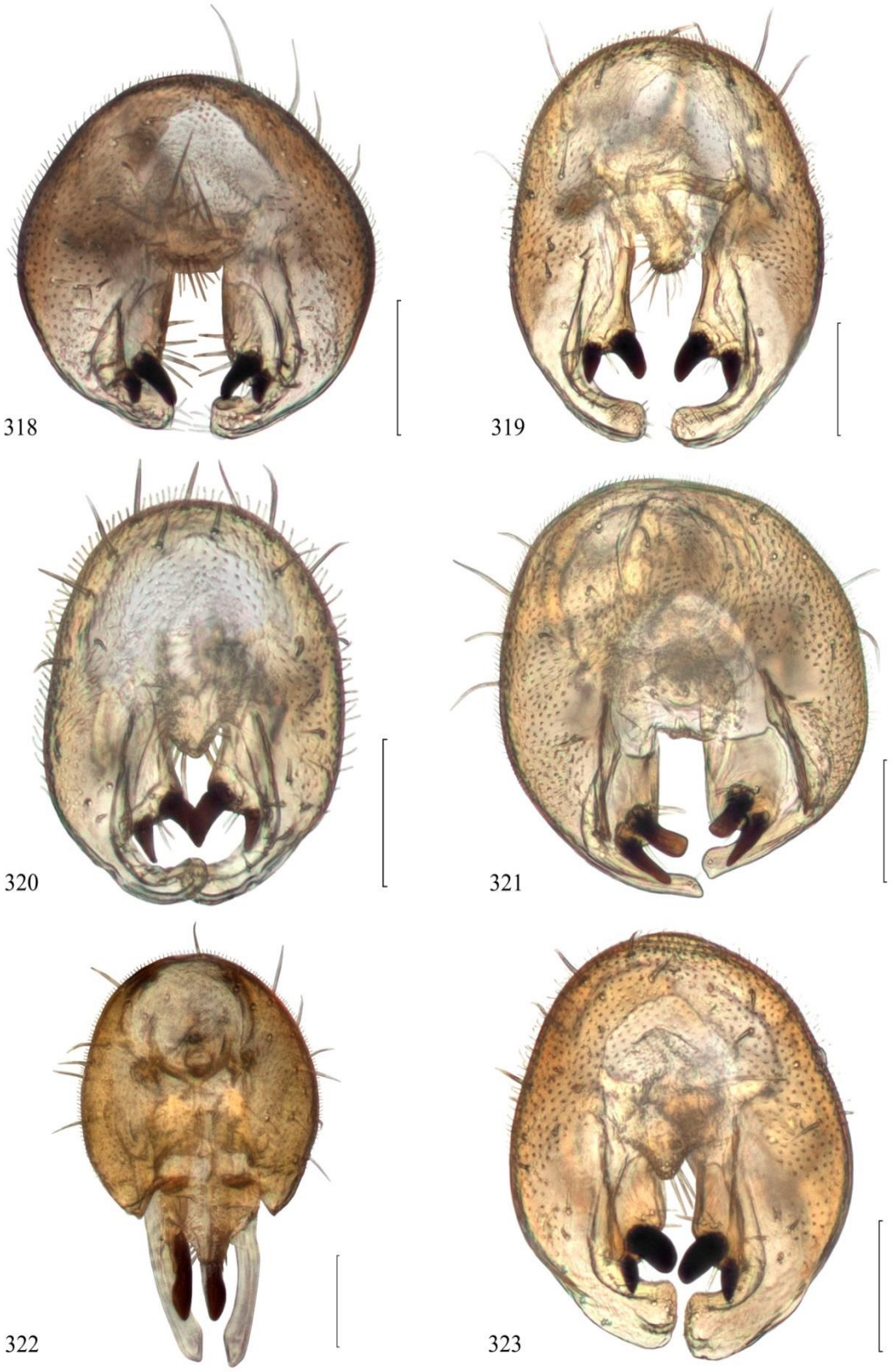


FIGURES 291–299. Spermathecae: 291, *Plaumannimyia* n. sp. 1 (Chile: Valparaiso, Algarrobo, USNMENT00105079); 292, *Plaumannimyia* n. sp. 2 (Peru: Cusco, Maldonado, USNMENT00744851); 293, *Plaumannimyia* n. sp. 3 (Bolivia: La Paz, Santa Fé, USNMENT00055821); 294, *Plaumannimyia* n. sp. 4 (Brazil: Minas Gerais, Belo Horizonte, USNMENT00119335); 295, *Plaumannimyia* n. sp. 6 (Peru: Cusco, Paucartambo, USNMENT00104798); 296, *Plaumannimyia* n. sp. 7 (Chile: Reg. IX, Araucaína, USNMENT00049479); 297, *Plaumannimyia* n. sp. 8 (Brazil: Paraná, São José dos Pinhais, USNMENT00262652); 298, *Plaumannimyia* n. sp. 9 (Bolivia: La Paz, USNMENT00055809); 299, *Plaumannimyia* n. sp. 10 (Brazil: Paraná, Ponta Grossa, USNMENT00262713). Scale bar = 0.10 mm.

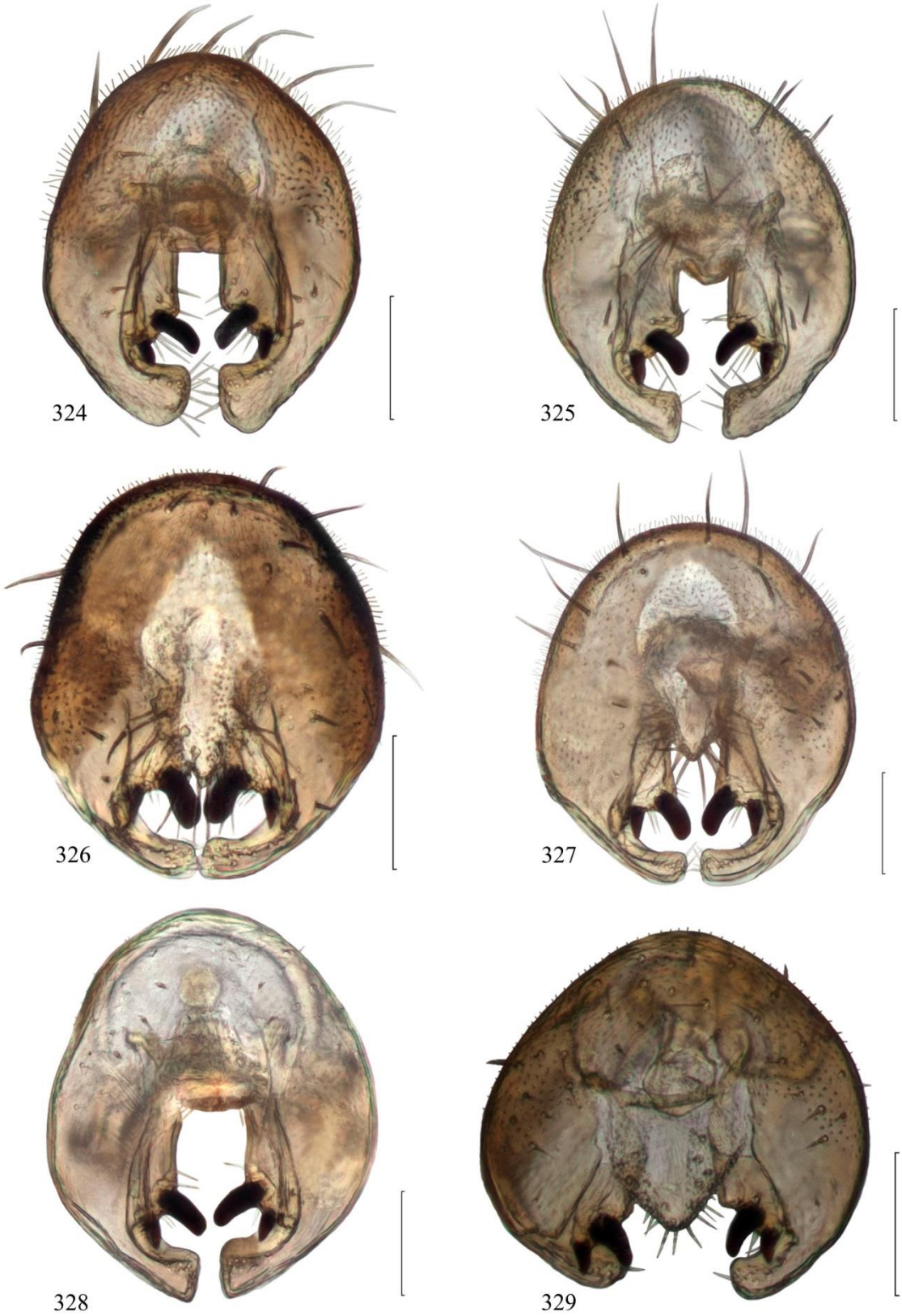
FIGURES 300–307. Spermathecae: 300, *Plaumannimyia* n. sp. 11 (Bolivia: La Paz, Huaraco-Aroma, USNMENT00215211); 301, *Plaumannimyia* n. sp. 14 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT0011854); 302, *Plaumannimyia* n. sp. 15 (Bolivia: La Paz, USNMENT00216857); 303, *Plaumannimyia* n. sp. 16 (Brazil: Paraná, Colombo, Bairro Canguiri, USNMENT00262805); 304, *Plaumannimyia* n. sp. 18 (Peru: Cusco, USNMENT00875872); 305, *Plaumannimyia* n. sp. 19 (Chile: Antofagasta, Calama, USNMENT00105061); 306, *Plaumannimyia* n. sp. 20 (Peru: Ayacucho, USNMENT00744056); 307, *Plaumannimyia* n. sp. 21 (Bolivia: Cochabamba, USNMENT00104876); 308, *Plaumannimyia* n. sp. 22 (Brazil: Paraná, Quatro Barras, USNMENT00262649); 309, *Plaumannimyia* n. sp. 23 (Argentina: Santa Cruz, USNMENT00262576); 310, *Plaumannimyia* n. sp. 24 (Chile: Prov. Aconcagua, Zapallar, USNMENT00105082); 311, *Plaumannimyia* n. sp. 25 (Chile: Reg. IX, Araucaína, USNMENT00049443). Scale bar = 0.10 mm.



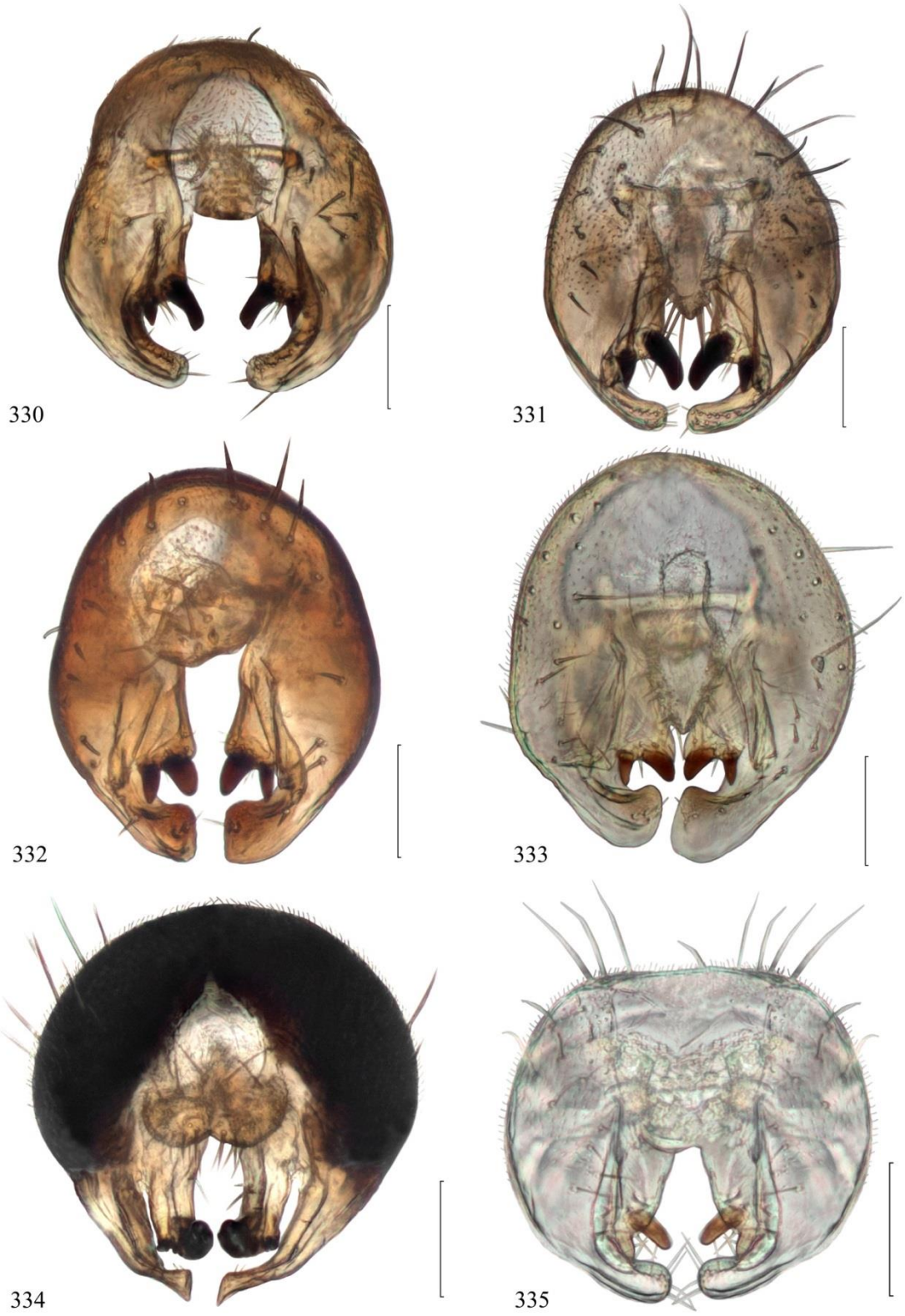
FIGURES 312–317. Male terminalia (epandrium, surstyli and proctiger, posterior): 312, *P. ameghinoi* (Bolivia: La Paz, El Alto, USNMENT00056349); 313, *P. coelestina* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262514); 314, *P. costaemaculata* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262739); 315, *P. delicatella* (Chile: Prov. Santiago, Las Condes, USNMENT00262619); 316, *P. difficilis* (Argentina: Prov. La Rioja, Miranda, USNMENT00262702); 317, *P. dolores* (Brazil: Paraná, Colombo, Santa Rita, USNMENT00262635). Scale bar = 0.10 mm.



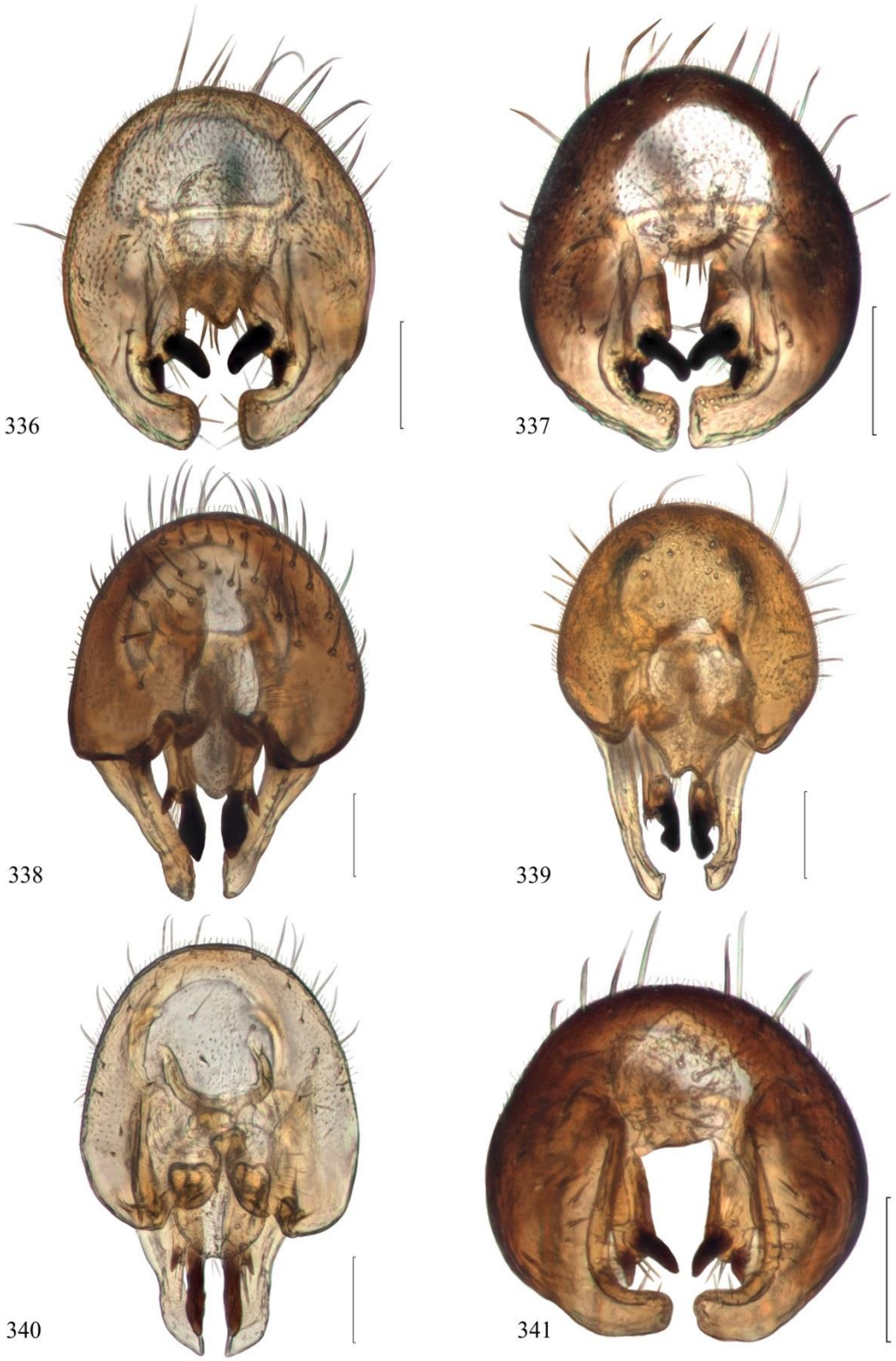
FIGURES 318–323. Male terminalia (epandrium, surstyli and proctiger, posterior): 318, *P. eugenia* (Mexico: Tejeria, USNMENT00056513); 319, *P. flava* (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00119344); 320, *P. imitatrix* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119346); 321, *P. miseta* (Brazil, Paraná, São José dos Pinhais, Estrada dos Castelhanos, USNMENT00262613); 322, *P. pallens* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00119347); 323, *P. plagiata* (Chile: La Serena, USNMENT00262706). Scale bar = 0.10 mm.



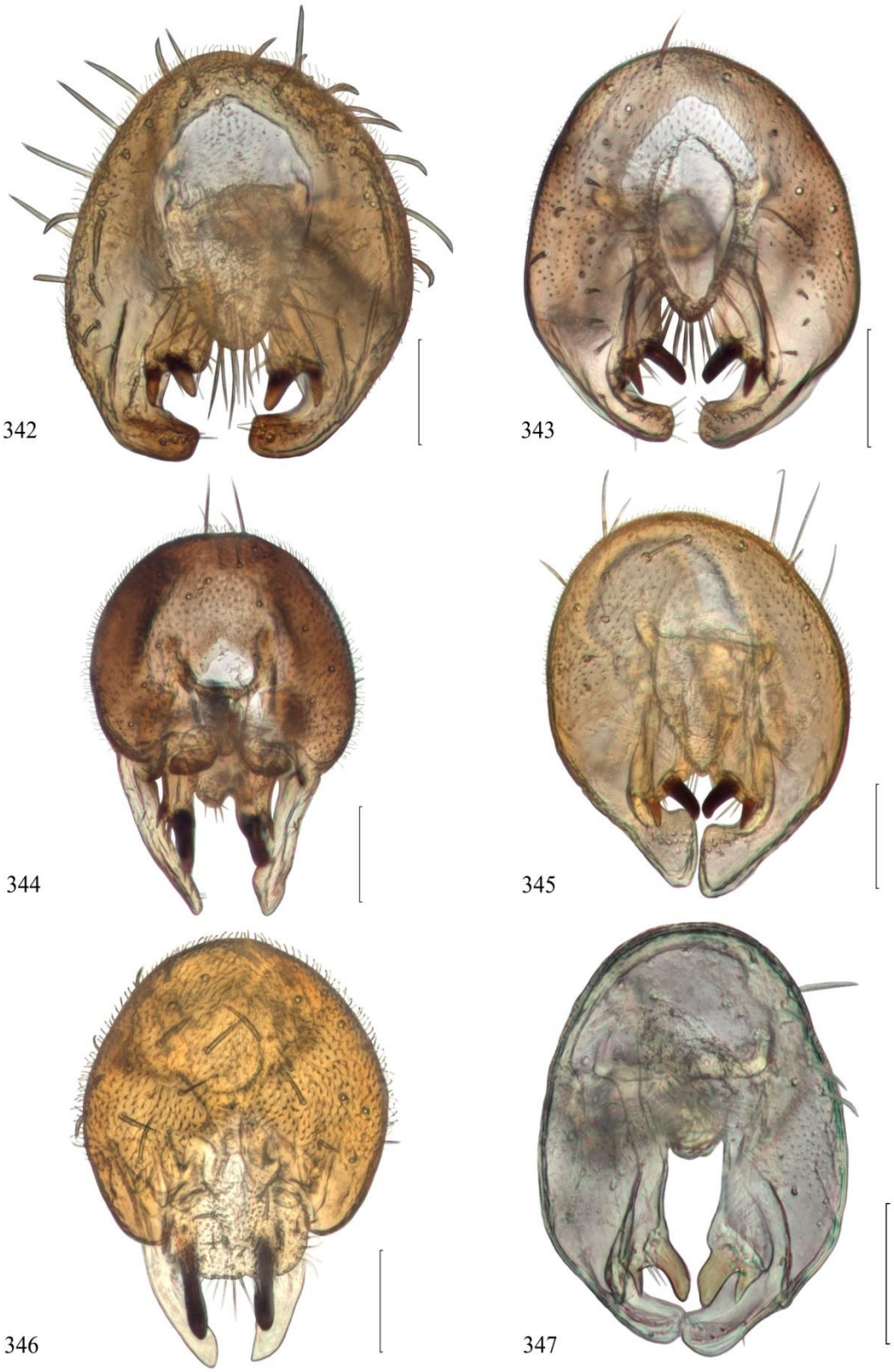
FIGURES 324–329. Male terminalia (epandrium, surstyli and proctiger, posterior): 324–325, *P. scutellata* (Bolivia: La Paz, USNMENT00216817; Peru: Cusco, USNMENT00262565); 326, *P. setulosa* (Chile: Malleco, USNMENT00262708); 327, *P. subaster* (Chile: Reg. IX, Araucaína, USNMENT00049117); 328, *P. suspecta* (Chile: Reg. Metropolitana, Las Vertientes, USNMENT00049668); 329, *P. thomsoni* (Brazil: Santa Catarina, Praia Grande, USNMENT00119349). Scale bar = 0.10 mm.



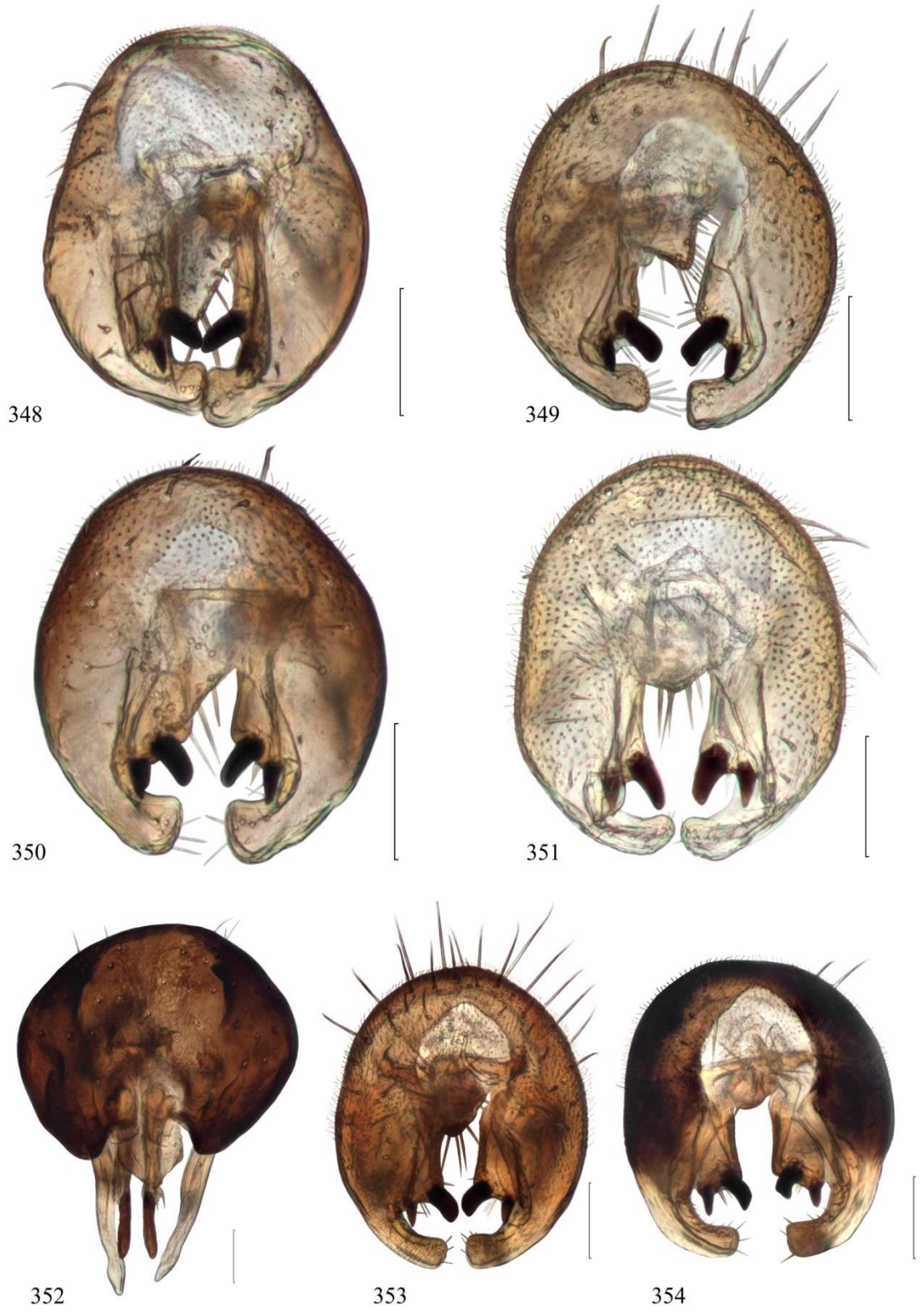
FIGURES 330–335. Male terminalia (epandrium, surstyli and proctiger, posterior): 330, *P. valdesiana* (Argentina: Chubut, Puerto Piramides, USNMENT00105057); 331, *Plaumannimyia* n. sp. 1 (Chile: Valparaiso, Algarrobo, USNMENT00105079); 332, *Plaumannimyia* n. sp. 2 (Ecuador: Latacunga, USNMENT00262556); 333, *Plaumannimyia* n. sp. 3 (Ecuador: Prov. Napo, El Chaco, USNMENT00105093); 334, *Plaumannimyia* n. sp. 4 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00119336); 335, *Plaumannimyia* n. sp. 5 (Peru: Dept. Lambayeque, USNMENT00105033). Scale bar = 0.10 mm.



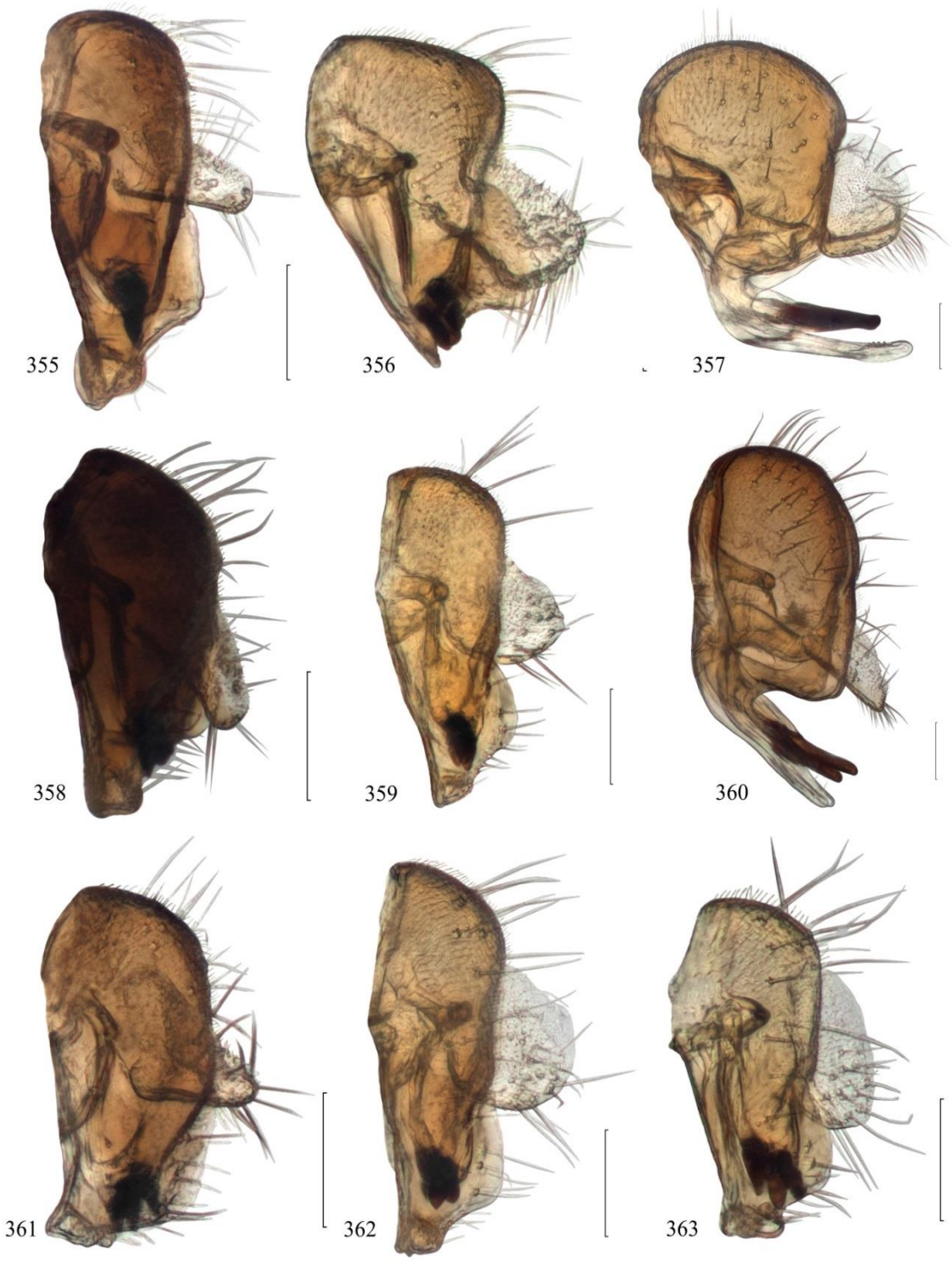
FIGURES 336–341. Male terminalia (epandrium, surstyli and proctiger, posterior): 336, *Plaumannimyia* n. sp. 6 (Bolivia: Santa Cruz, Ichilo, USNMENT00105031); 337, *Plaumannimyia* n. sp. 7 (Chile: Puerto Ibanez, Lag. Buenos Aires Aysen, USNMENT00105133); 338, *Plaumannimyia* n. sp. 8 (Brazil: Paraná, Campina Grande do Sul, Morro Camapuã, USNMENT00262562); 339, *Plaumannimyia* n. sp. 9 (Bolivia: La Paz, Santa Fé, USNMENT00055831); 340, *Plaumannimyia* n. sp. 10 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00262716); 341, *Plaumannimyia* n. sp. 11 (Argentina: Jujuy, USNMENT00105030). Scale bar = 0.10 mm.



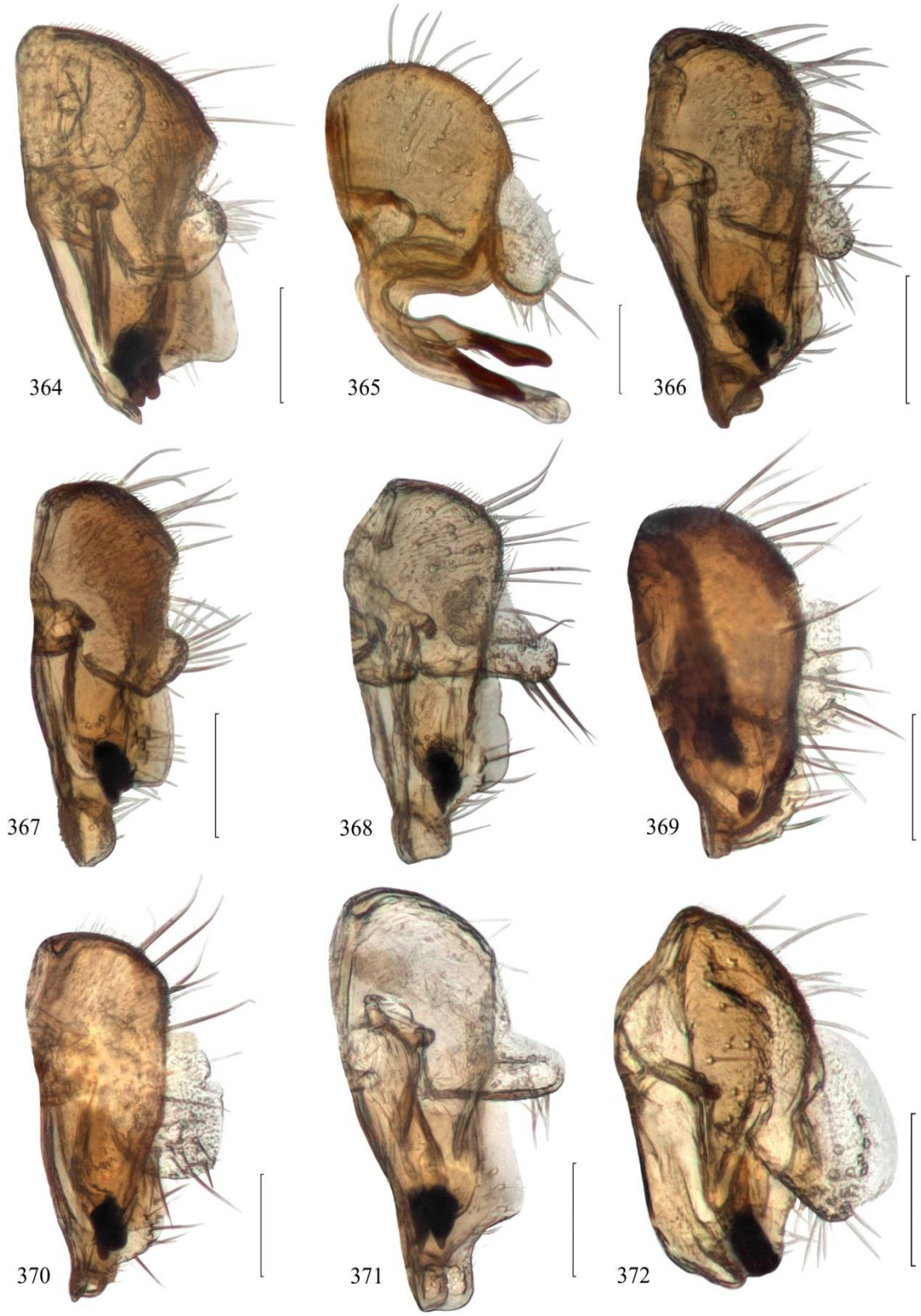
FIGURES 342–347. Male terminalia (epandrium, surstyli and proctiger, posterior): 342, *Plaumannimyia* n. sp. 12 (Argentina: Jujuy, Humahuaca, USNMENT00105078); 343, *Plaumannimyia* n. sp. 13 (Chile: Prov. Limari, USNMENT00677380); 344, *Plaumannimyia* n. sp. 14 (Brazil: Paraná, Quatro Barras, Estrada da Graciosa, USNMENT00262519); 345, *Plaumannimyia* n. sp. 15 (Bolivia: La Paz, USNMENT00216855); 346, *Plaumannimyia* n. sp. 16 (Brazil: Paraná, Colombo, Bairro Canguiri, USNMENT00262700); 347, *Plaumannimyia* n. sp. 17 (Argentina: Jujuy, USNMENT00105062). Scale bar = 0.10 mm



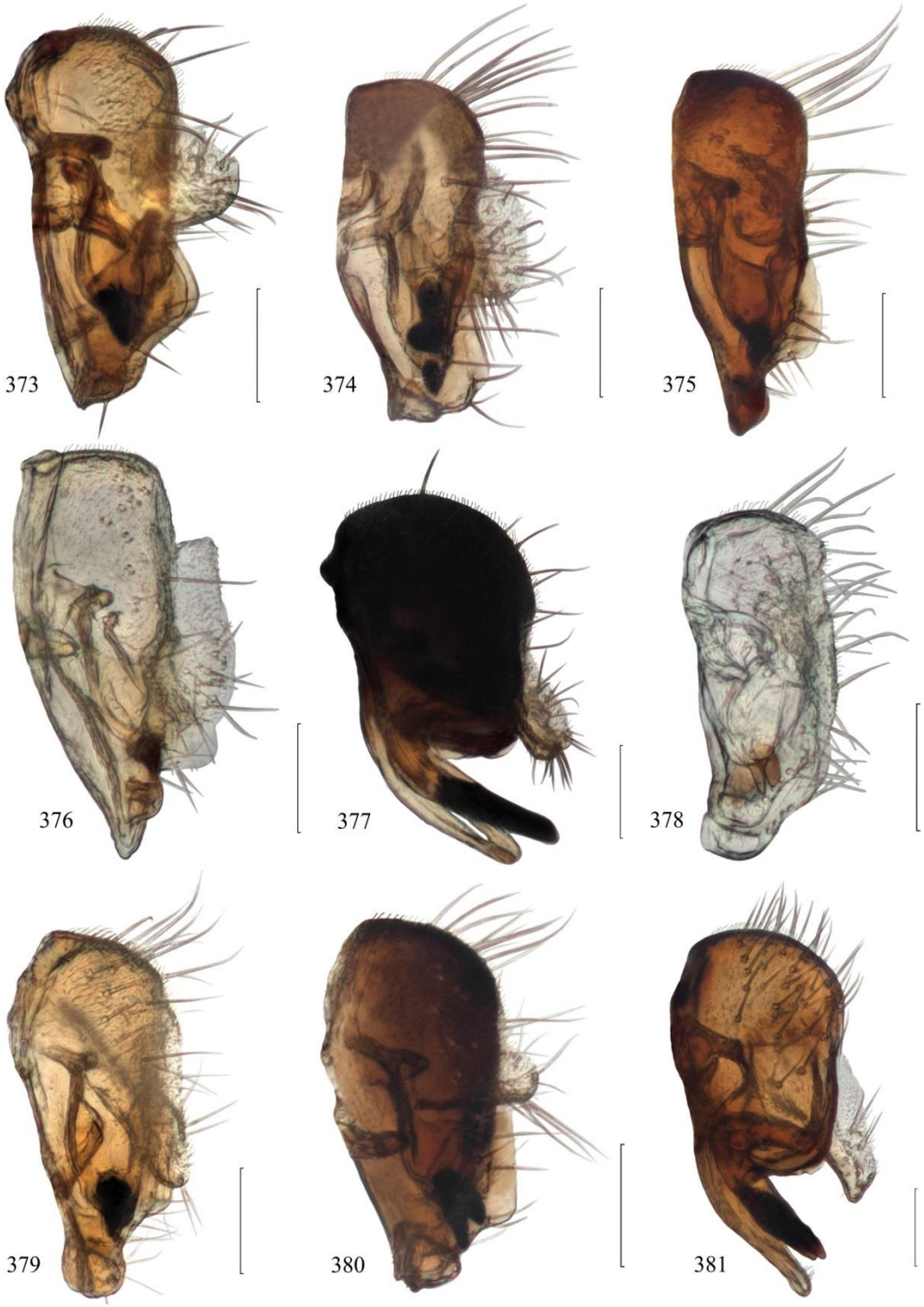
FIGURES 348–354. Male terminalia (epandrium, surstyli and proctiger, posterior): 348, *Plaumannimyia* n. sp. 18 (Peru: Cusco, Buenos Aires, USNMENT00104800); 349, *Plaumannimyia* n. sp. 19 (Peru: Dept. Lima, Matucana, USNMENT00262707); 350, *Plaumannimyia* n. sp. 20 (Peru: Ayacucho, USNMENT00262570); 351, *Plaumannimyia* n. sp. 21 (Bolivia: Cochabamba, USNMENT00104868); 352, *Plaumannimyia* n. sp. 22 (Brazil: Paraná, Tijucas do Sul, Morro Araçatuba, USNMENT00262632); 353, *Plaumannimyia* n. sp. 24 (Chile: Reg. Metropolitana, Guayacán, USNMENT00049347); 354, *Plaumannimyia* n. sp. 25 (Chile: Reg. IX Araucaína, USNMENT00049445). Scale bar = 0.10 mm.



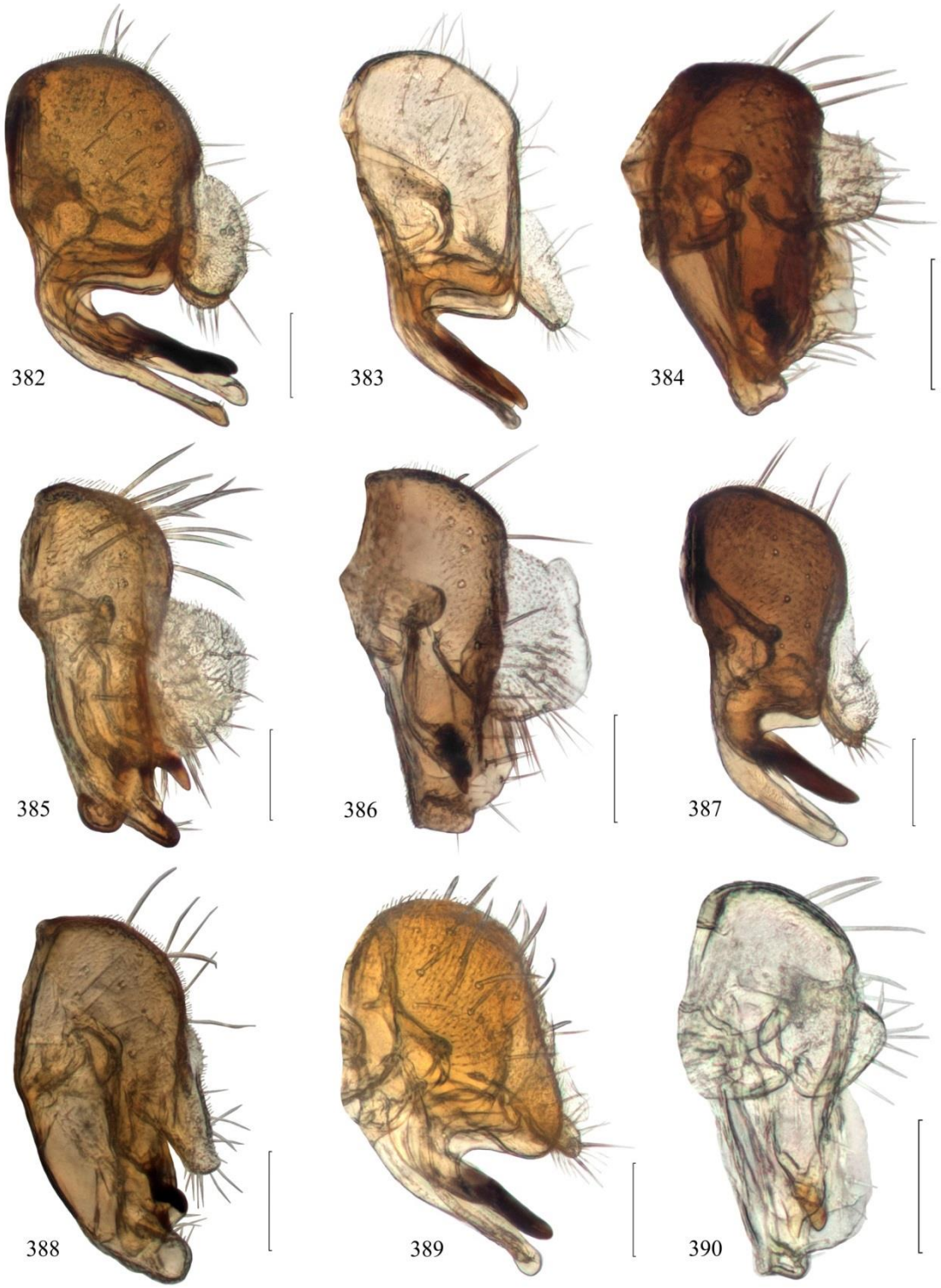
FIGURES 355–363. Male terminalia (epandrium, surstyli and proctiger, lateral): 355, *P. ameghinoi* (Bolivia: La Paz, El Alto, USNMENT00056349); 356, *P. coelestina* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262514); 357, *P. costaemaculata* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262739); 358, *P. delicatella* (Chile: Prov. Santiago, Las Condes, USNMENT00262619); 359, *P. difficilis* (Argentina: Prov. La Rioja, Miranda, USNMENT00262702); 360, *P. dolores* (Brazil: Paraná, Colombo, Santa Rita, USNMENT00262635); 361, *P. eugenia* (Mexico: Tejeria, USNMENT00056513); 362, *P. flava* (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00119344); 363, *P. imitatrix* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119346). Scale bar = 0.10 mm.



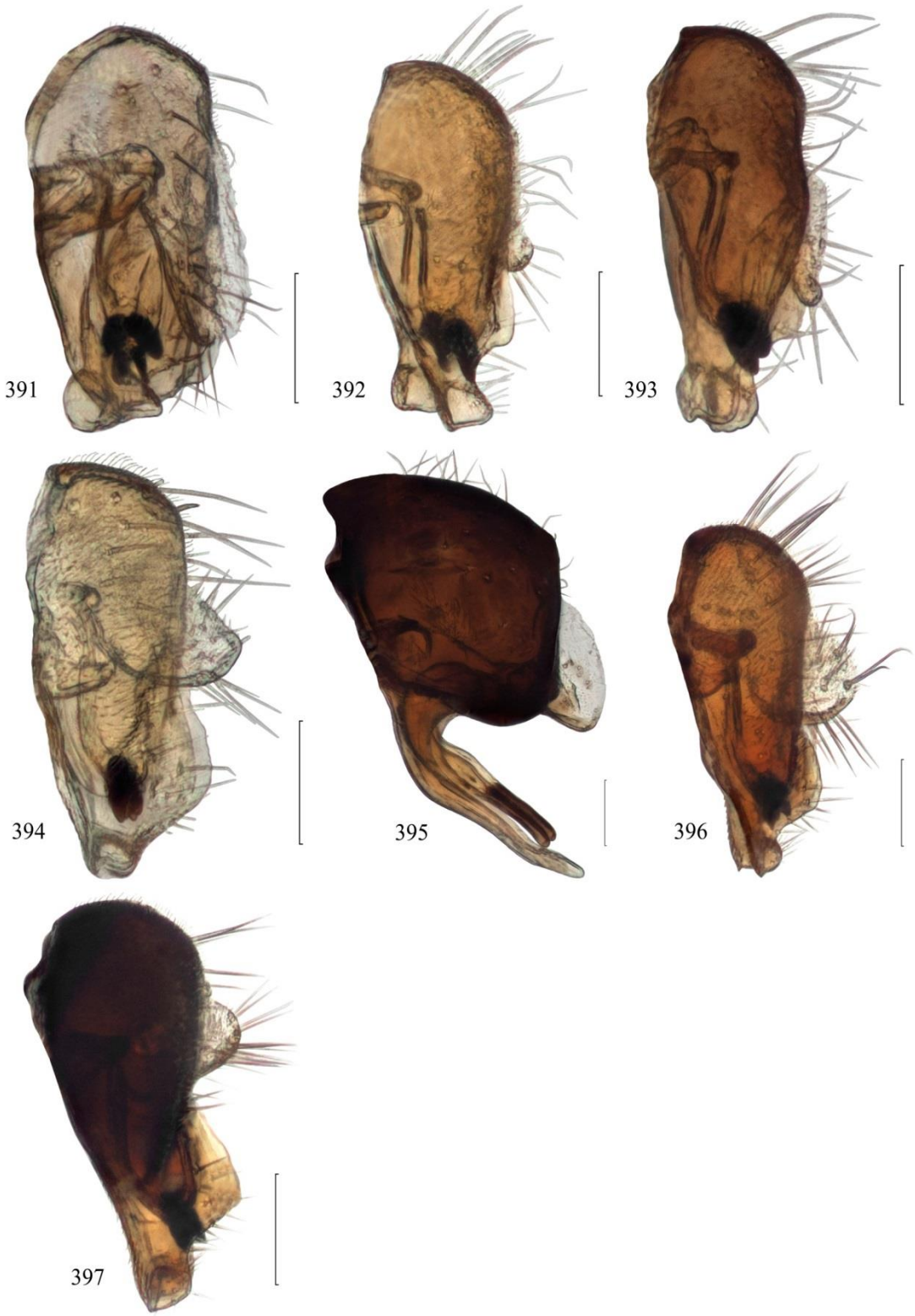
FIGURES 364–372. Male terminalia (epandrium, surstyli and proctiger, lateral): 364, *P. miseta* (Brazil, Paraná, São José dos Pinhais, Estrada dos Castelhanos, USNMENT00262613); 365, *P. pallens* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00119347); 366, *P. plagiata* (Chile: La Serena, USNMENT00262706); 367–368, *P. scutellata* (Bolivia: La Paz, USNMENT00216817; Peru: Cusco, USNMENT00262565); 369, *P. setulosa* (Chile: Malleco, USNMENT00262708); 370, *P. subaster* (Chile: Reg. IX, Araucaína, USNMENT00049117); 371, *P. suspecta* (Chile: Reg. Metropolitana, Las Vertientes, USNMENT00049668); 372, *P. thomsoni* (Brazil: Santa Catarina, Praia Grande, USNMENT00119349). Scale bar = 0.10 mm.



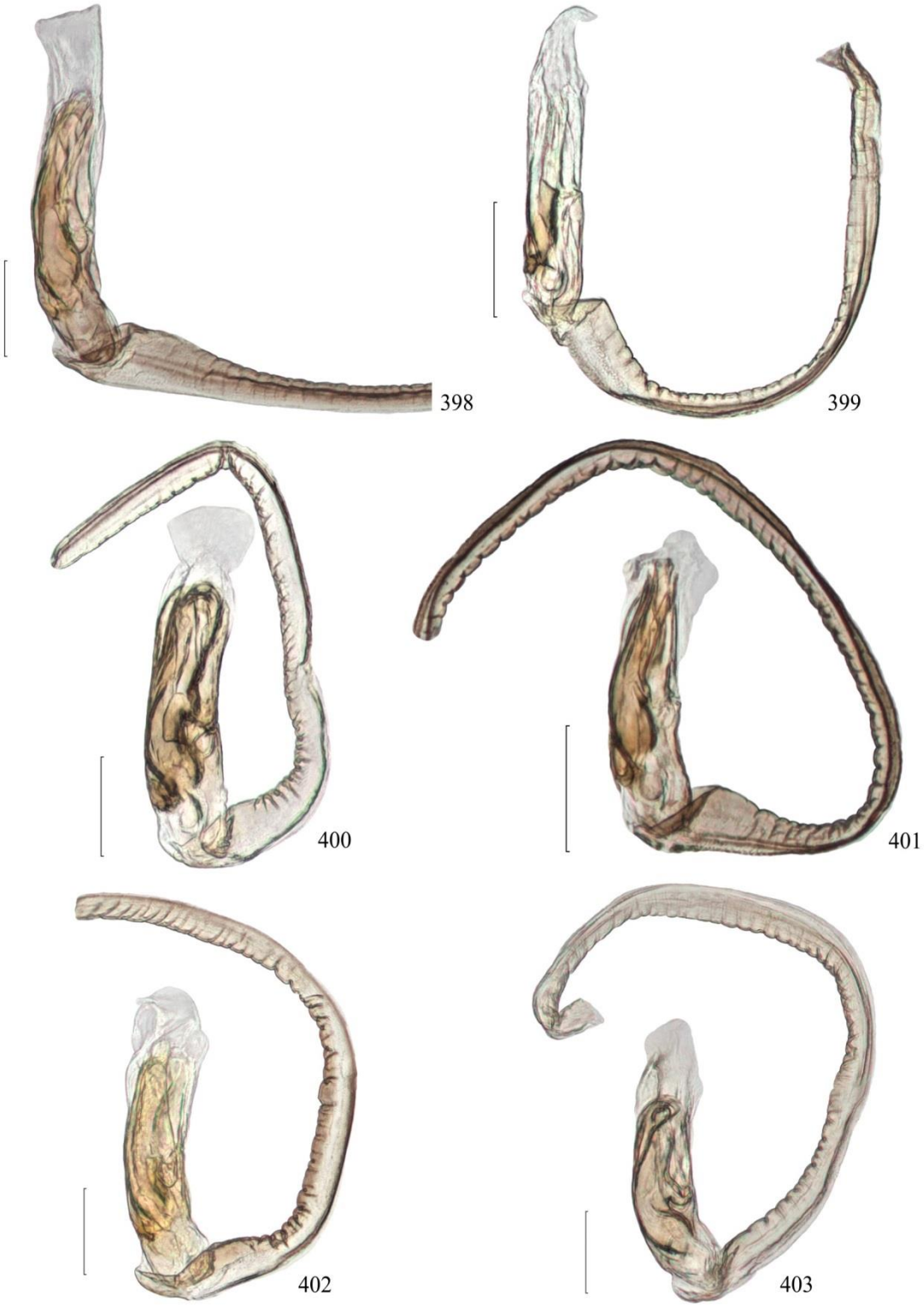
FIGURES 373–381. Male terminalia (epandrium, surstyli and proctiger, lateral): 373, *P. valdesiana* (Argentina: Chubut, Puerto Piramides, USNMENT00105057); 374, *Plaumannimyia* n. sp. 1 (Chile: Valparaiso, Algarrobo, USNMENT00105079); 375, *Plaumannimyia* n. sp. 2 (Ecuador: Latacunga, USNMENT00262556); 376, *Plaumannimyia* n. sp. 3 (Ecuador: Prov. Napo, El Chaco, USNMENT00105093); 377, *Plaumannimyia* n. sp. 4 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00119336); 378, *Plaumannimyia* n. sp. 5 (Peru: Dept. Lambayeque, USNMENT00105033); 379, *Plaumannimyia* n. sp. 6 (Bolivia: Santa Cruz, Ichilo, USNMENT00105031); 380, *Plaumannimyia* n. sp. 7 (Chile: Puerto Ibanez, Lag. Buenos Aires Aysen, USNMENT00105133); 381, *Plaumannimyia* n. sp. 8 (Brazil: Paraná, Campina Grande do Sul, Morro Camapuã, USNMENT00262562). Scale bar = 0.10 mm.



FIGURES 382–390. Male terminalia (epandrium, surstyli and proctiger, lateral): 382, *Plaumannimyia* n. sp. 9 (Bolivia: La Paz, Santa Fé, USNMENT00055831); 383, *Plaumannimyia* n. sp. 10 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00262716); 384, *Plaumannimyia* n. sp. 11 (Argentina: Jujuy, USNMENT00105030); 385, *Plaumannimyia* n. sp. 12 (Argentina: Jujuy, Humahuaca, USNMENT00105078); 386, *Plaumannimyia* n. sp. 13 (Chile: Prov. Limari, USNMENT00677380); 387, *Plaumannimyia* n. sp. 14 (Brazil: Paraná, Quatro Barras, Estrada da Graciosa, USNMENT00262519); 388, *Plaumannimyia* n. sp. 15 (Bolivia: La Paz, USNMENT00216855); 389, *Plaumannimyia* n. sp. 16 (Brazil: Paraná, Colombo, Bairro Canguiri, USNMENT00262700); 390, *Plaumannimyia* n. sp. 17 (Argentina: Jujuy, USNMENT00105062). Scale bar = 0.10 mm.

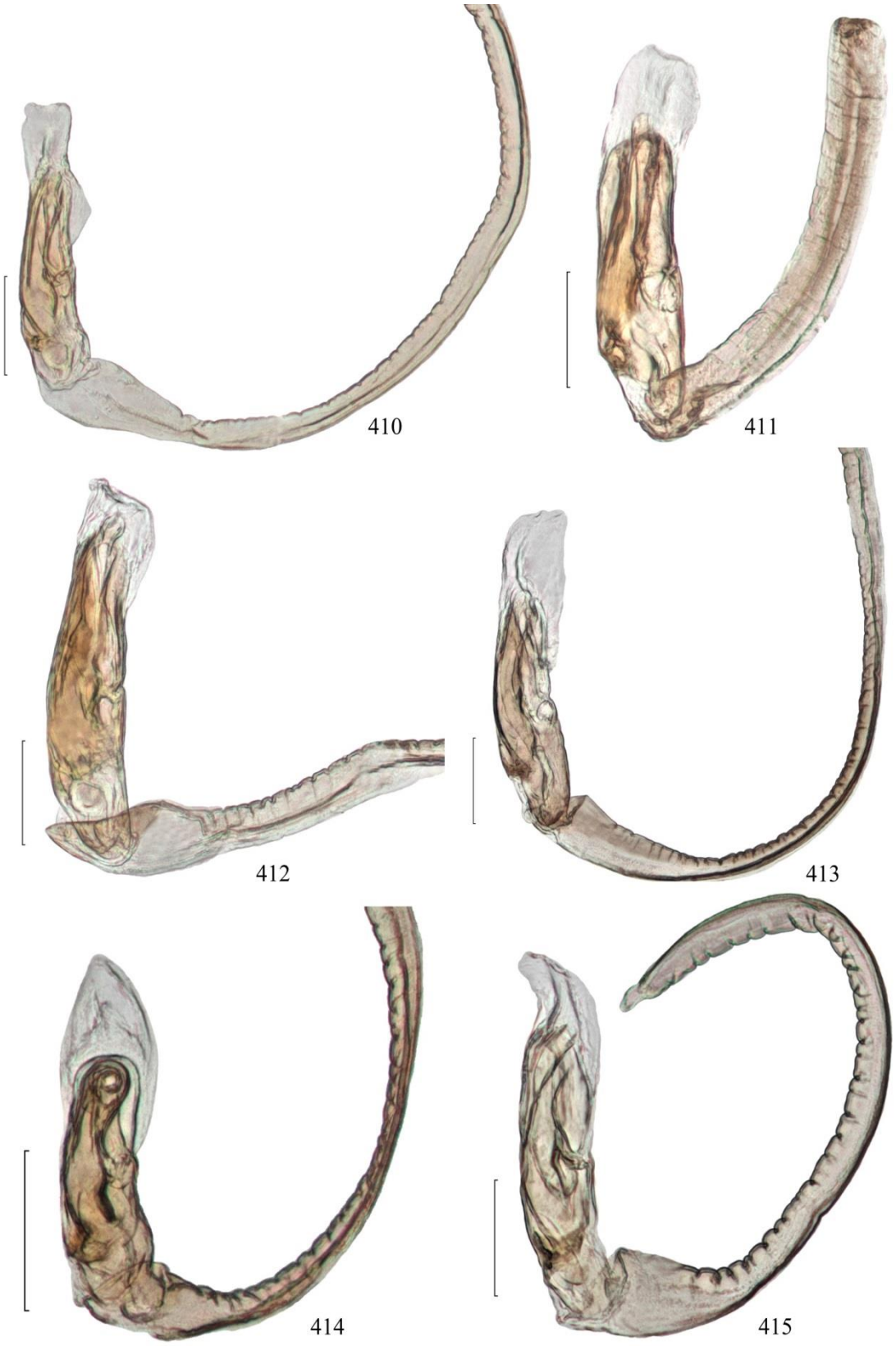


FIGURES 391–397. Male terminalia (epandrium, surstyli and proctiger, lateral): 391, *Plaumannimyia* n. sp. 18 (Peru: Cusco, Buenos Aires, USNMENT00104800); 392, *Plaumannimyia* n. sp. 19 (Peru: Dept. Lima, Matucana, USNMENT00262707); 393, *Plaumannimyia* n. sp. 20 (Peru: Ayacucho, USNMENT00262570); 394, *Plaumannimyia* n. sp. 21 (Bolivia: Cochabamba, USNMENT00104868); 395, *Plaumannimyia* n. sp. 22 (Brazil: Paraná, Tijucas do Sul, Morro Araçatuba, USNMENT00262632); 396, *Plaumannimyia* n. sp. 24 (Chile: Reg. Metropolitana, Guayacán, USNMENT00049347); 397, *Plaumannimyia* n. sp. 25 (Chile: Reg. IX Araucaína, USNMENT00049445). Scale bar = 0.10 mm.

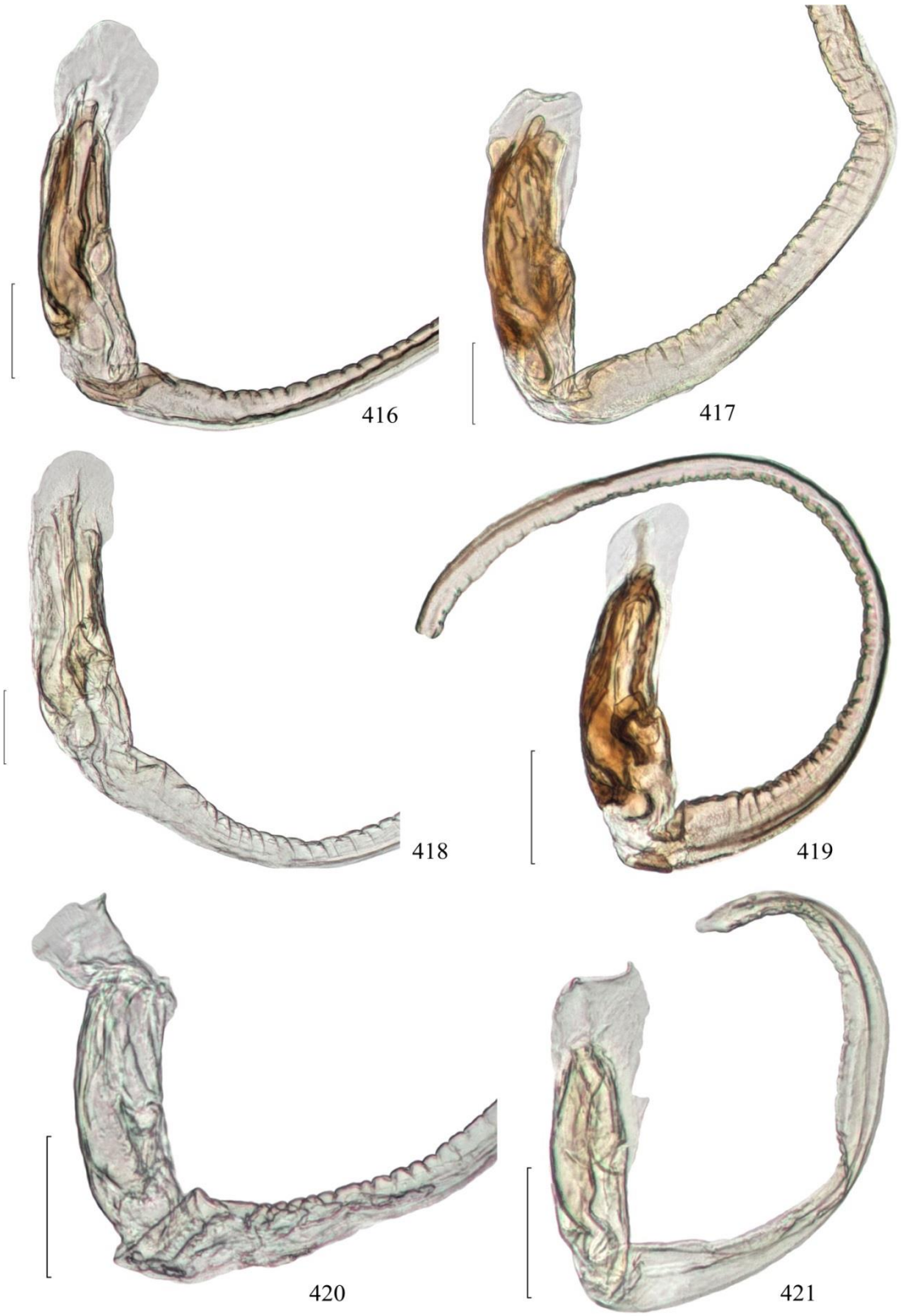


FIGURES 398–403. Male terminalia (glandes, lateral): 398, *P. ameghinoi* (Bolivia: La Paz, El Alto, USNMENT00056349); 399, *P. coelestina* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262514); 400, *P. costaemaculata* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262739); 401, *P. delicatella* (Chile: Prov. Santiago, Las Condes, USNMENT00262619); 402, *P. difficilis* (Argentina: Prov. La Rioja, Miranda, USNMENT00262702); 403, *P. dolores* (Brazil: Paraná, Colombo, Santa Rita, USNMENT00262635). Scale bar = 0.10 mm.

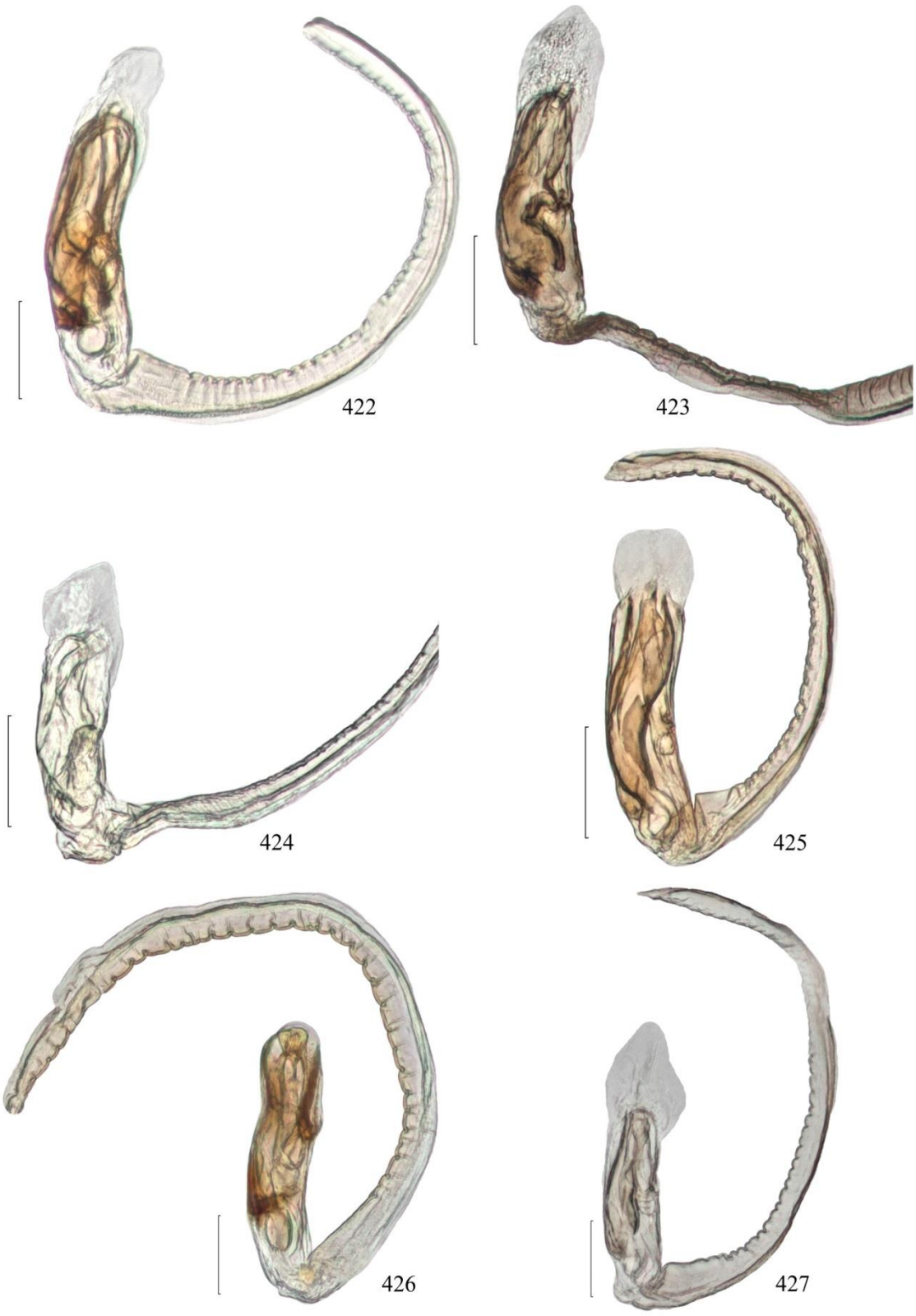
FIGURES 404–409. Male terminalia (glandes, lateral): 404, *P. eugenia* (Mexico: Tejeria, USNMENT00056513); 405, *P. flava* (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00119344); 406, *P. imitatrix* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119346); 407, *P. miseta* (Brazil, Paraná, São José dos Pinhais, Estrada dos Castelhanos, USNMENT00262613); 408, *P. pallens* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00119347); 409, *P. plagiata* (Chile: La Serena, USNMENT00262706). Scale bar = 0.10 mm.



FIGURES 410–415. Male terminalia (glandes, lateral): 410, *P. scutellata* (Bolivia: La Paz, USNMENT00216817); 411, *P. setulosa* (Chile: Malleco, USNMENT00262708); 412, *P. subaster* (Chile: Reg. IX, Araucaína, USNMENT00049117); 413, *P. suspecta* (Chile: Reg. Metropolitana, Las Vertientes, USNMENT00049668); 414, *P. thomsoni* (Brazil: Santa Catarina, Praia Grande, USNMENT00119349); 415, *P. valdesiana* (Argentina: Chubut, Puerto Piramides, USNMENT00105057). Scale bar = 0.10 mm.

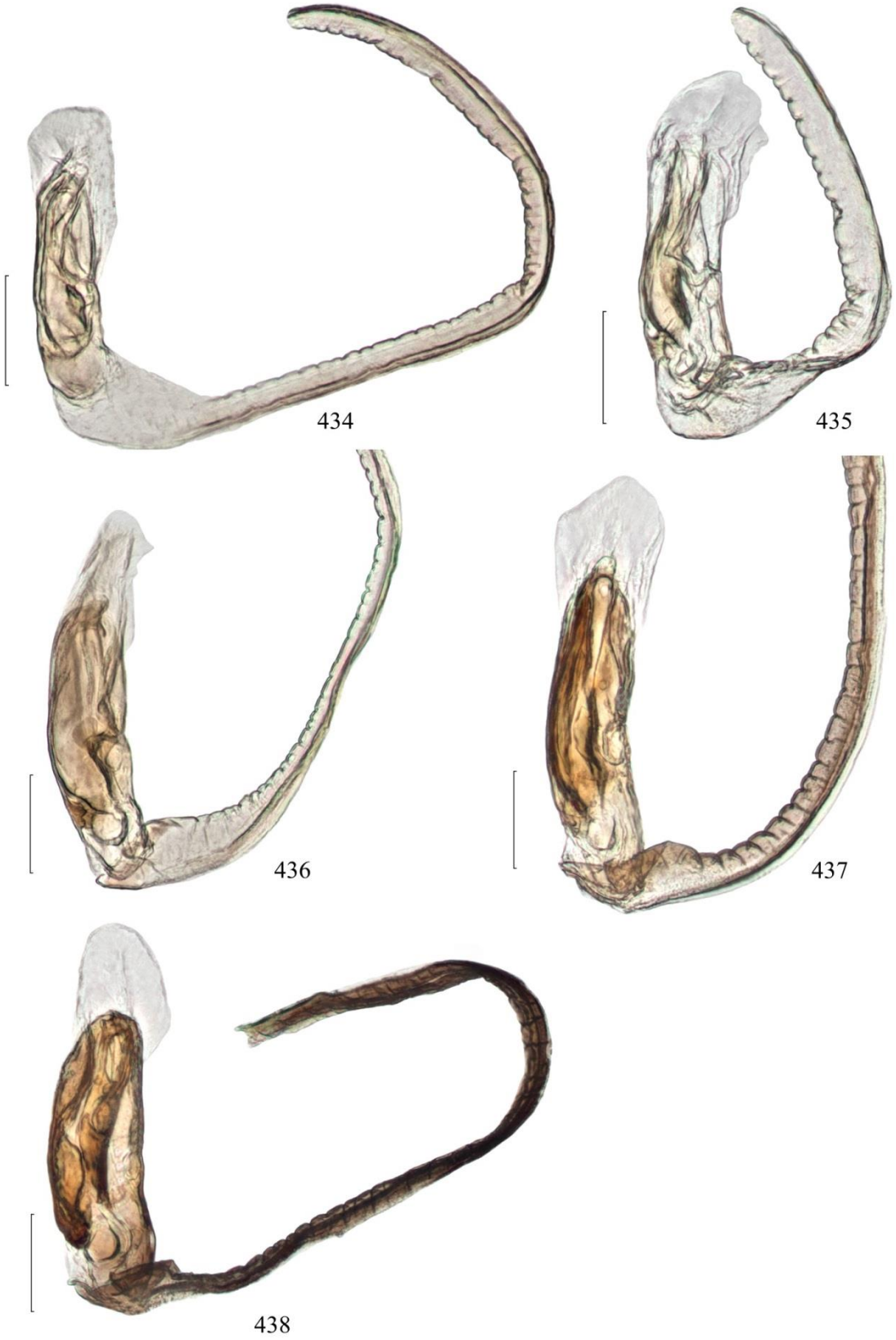


FIGURES 416–421. Male terminalia (glandes, lateral): 416, *Plaumannimyia* n. sp. 1 (Chile: Valparaiso, Algarrobo, USNMENT00105079); 417, *Plaumannimyia* n. sp. 2 (Ecuador: Latacunga, USNMENT00262556); 418, *Plaumannimyia* n. sp. 3 (Ecuador: Prov. Napo, El Chaco, USNMENT00105093); 419, *Plaumannimyia* n. sp. 4 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00119336); 420, *Plaumannimyia* n. sp. 5 (Peru: Dept. Lambayeque, USNMENT00105033); 421, *Plaumannimyia* n. sp. 7 (Chile: Puerto Ibanez, Lag. Buenos Aires Aysen, USNMENT00105133). Scale bar = 0.10 mm.

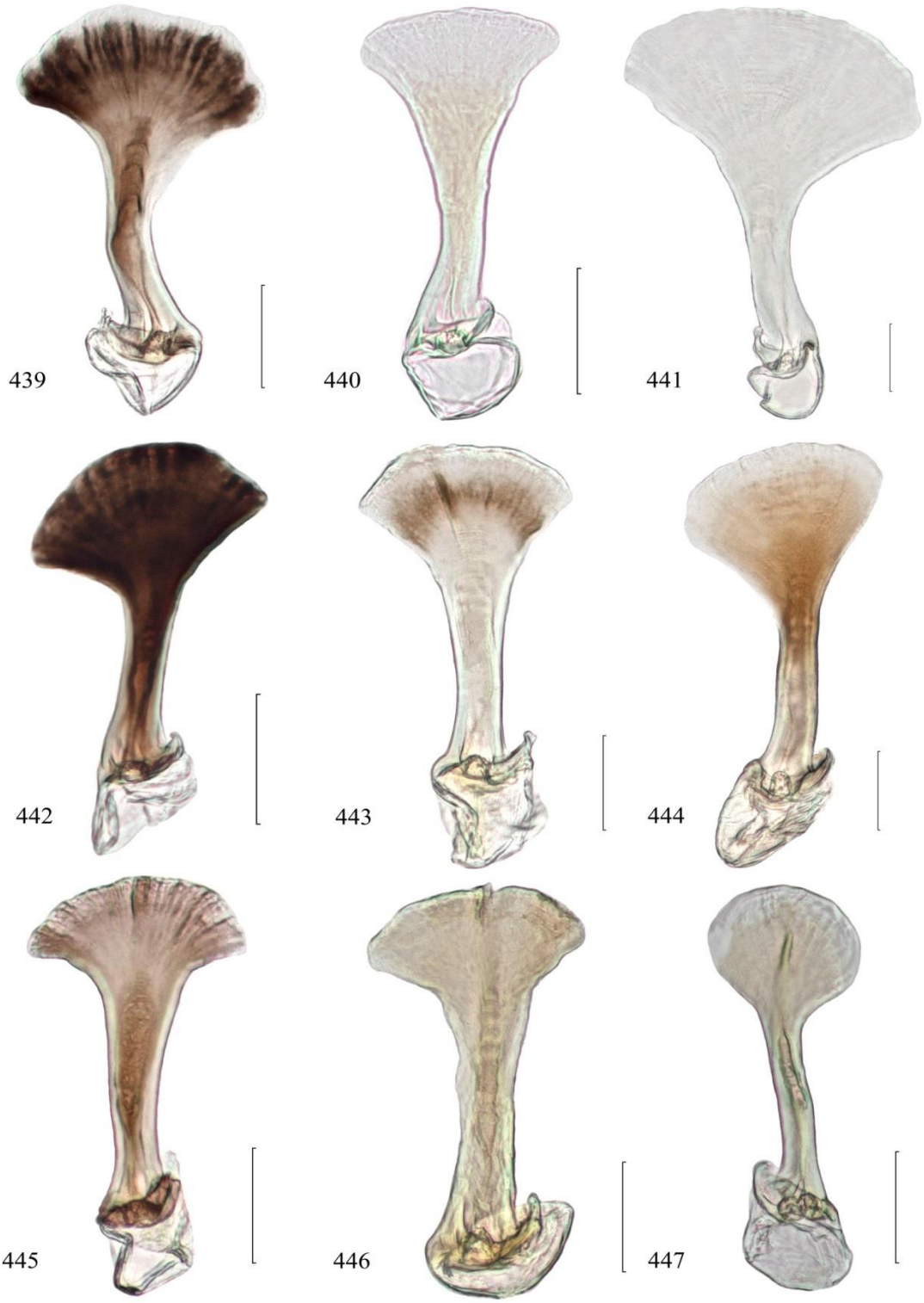


FIGURES 422–427. Male terminalia (glandes, lateral): 422, *Plaumannimyia* n. sp. 8 (Brazil: Paraná, Campina Grande do Sul, Morro Camapuã, USNMENT00262562); 423, *Plaumannimyia* n. sp. 9 (Bolivia: La Paz, Santa Fé, USNMENT00055831); 424, *Plaumannimyia* n. sp. 10 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00262716); 425, *Plaumannimyia* n. sp. 11 (Argentina: Jujuy, USNMENT00105030); 426, *Plaumannimyia* n. sp. 12 (Argentina: Jujuy, Humahuaca, USNMENT00105078); 427, *Plaumannimyia* n. sp. 13 (Chile: Prov. Limari, USNMENT00677380). Scale bar = 0.10 mm.

FIGURES 428–433. Male terminalia (glandes, lateral): 428, *Plaumannimyia* n. sp. 14 (Brazil: Paraná, Quatro Barras, Estrada da Graciosa, USNMENT00262519); 429, *Plaumannimyia* n. sp. 15 (Bolivia: La Paz, USNMENT00216855); 430, *Plaumannimyia* n. sp. 16 (Brazil: Paraná, Colombo, Bairro Canguiri, USNMENT00262700); 431, *Plaumannimyia* n. sp. 17 (Argentina: Jujuy, USNMENT00105062); 432, *Plaumannimyia* n. sp. 18 (Peru: Cusco, Buenos Aires, USNMENT00104800); 433, *Plaumannimyia* n. sp. 19 (Peru: Dept. Lima, Matucana, USNMENT00262707). Scale bar = 0.10 mm.

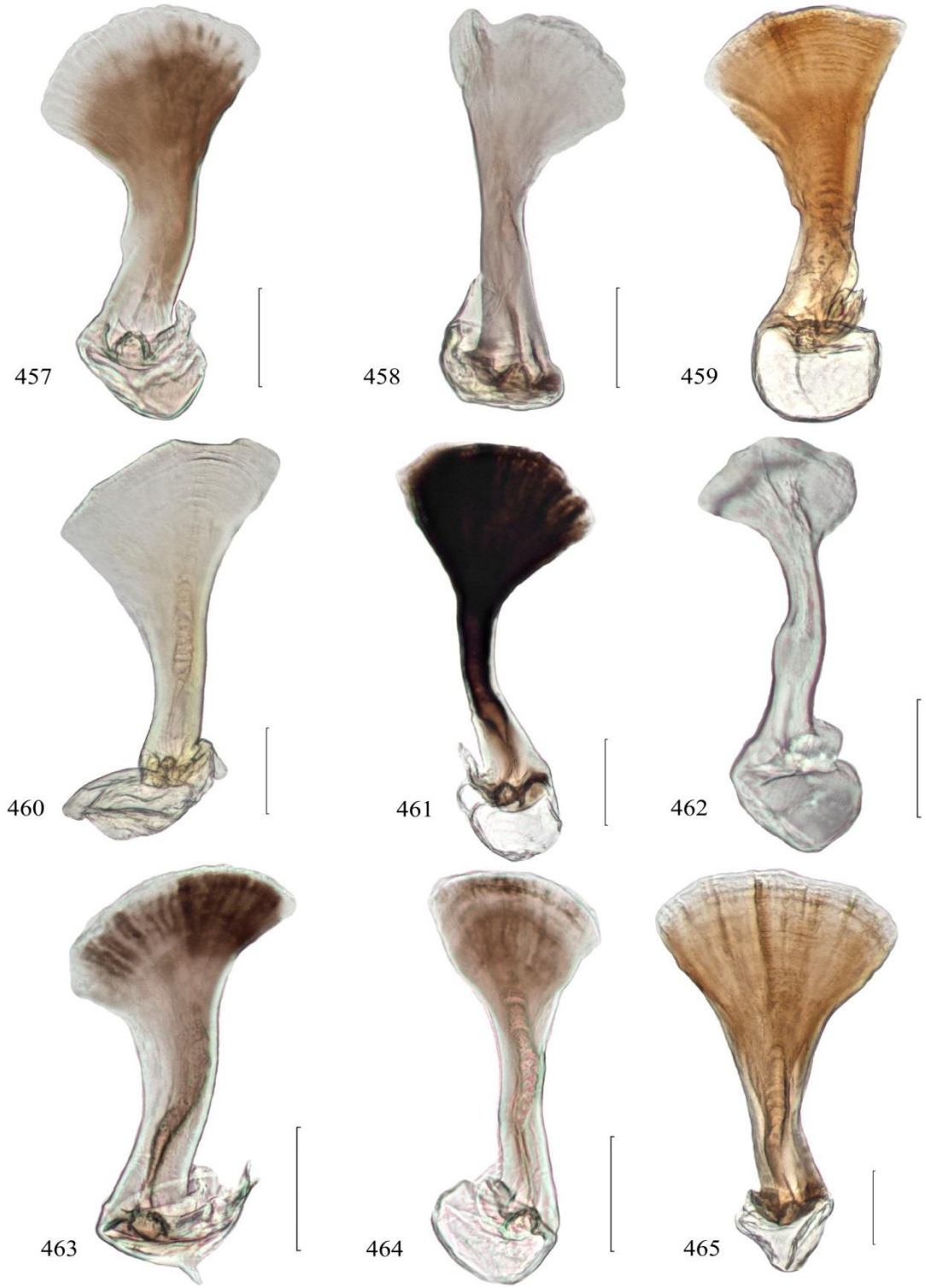


FIGURES 434–438. Male terminalia (glandes, lateral): 434, *Plaumannimyia* n. sp. 20 (Peru: Ayacucho, USNMENT00262570); 435, *Plaumannimyia* n. sp. 21 (Bolivia: Cochabamba, USNMENT00104868); 436, *Plaumannimyia* n. sp. 22 (Brazil: Paraná, Tijucas do Sul, Morro Araçatuba, USNMENT00262632); 437, *Plaumannimyia* n. sp. 24 (Chile: Reg. Metropolitana, Guayacán, USNMENT00049347); 438, *Plaumannimyia* n. sp. 25 (Chile: Reg. IX Araucaína, USNMENT00049445). Scale bar = 0.10 mm.

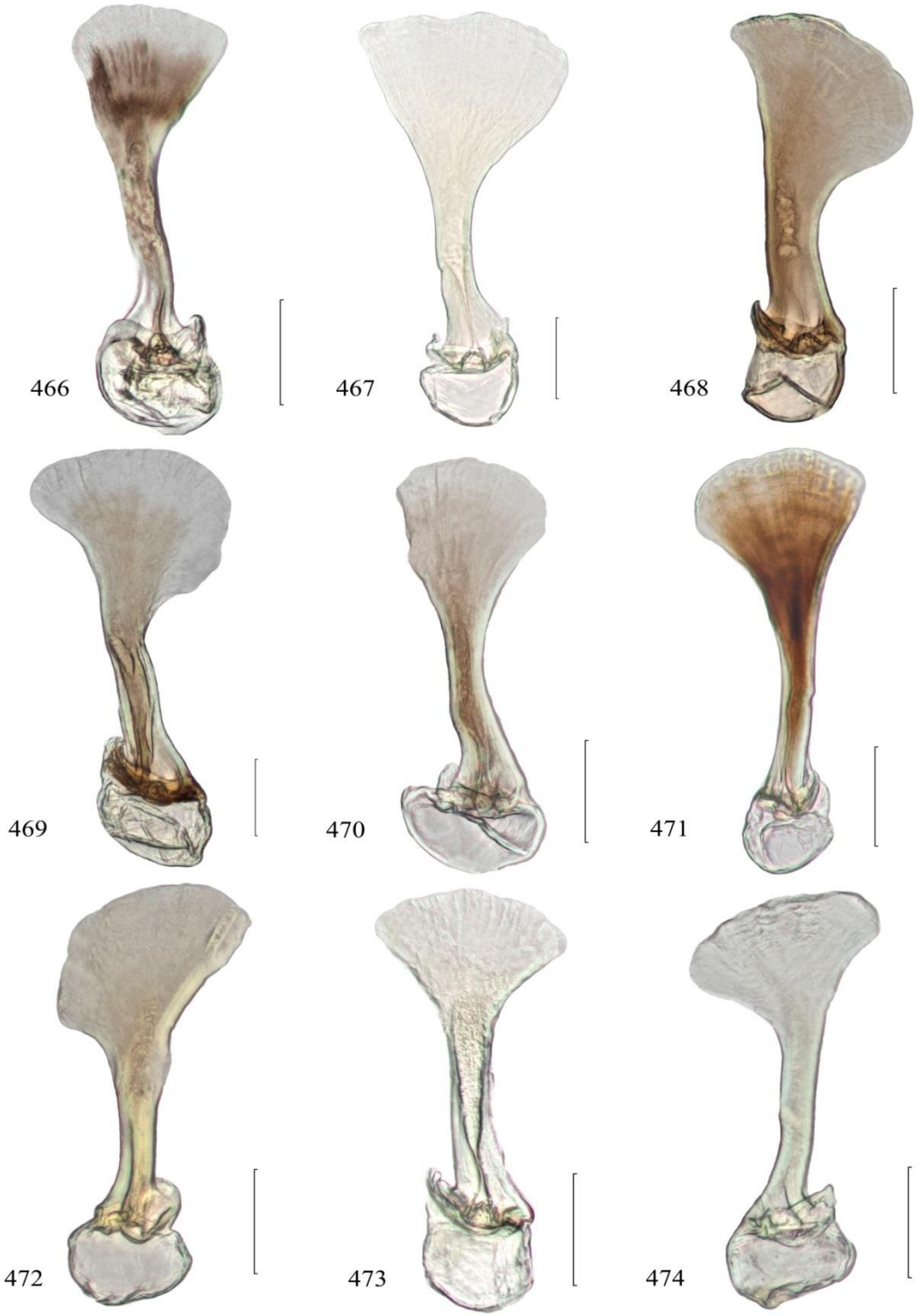


FIGURES 439–447. Male terminalia (phallapodeme): 439, *P. ameghinoi* (Bolivia: La Paz, El Alto, USNMENT00056349); 440, *P. coelestina* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262514); 441, *P. costaemaculata* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00262739); 442, *P. delicatella* (Chile: Prov. Santiago, Las Condes, USNMENT00262619); 443, *P. difficilis* (Argentina: Prov. La Rioja, Miranda, USNMENT00262702); 444, *P. dolores* (Brazil: Paraná, Colombo, Santa Rita, USNMENT00262635); 445, *P. eugenia* (Mexico: Tejeria, USNMENT00056513); 446, *P. flava* (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00119344); 447, *P. imitatrix* (Brazil: Rio Grande do Sul, Passo Fundo, RPPN Maragato, USNMENT00119346). Scale bar = 0.10 mm.

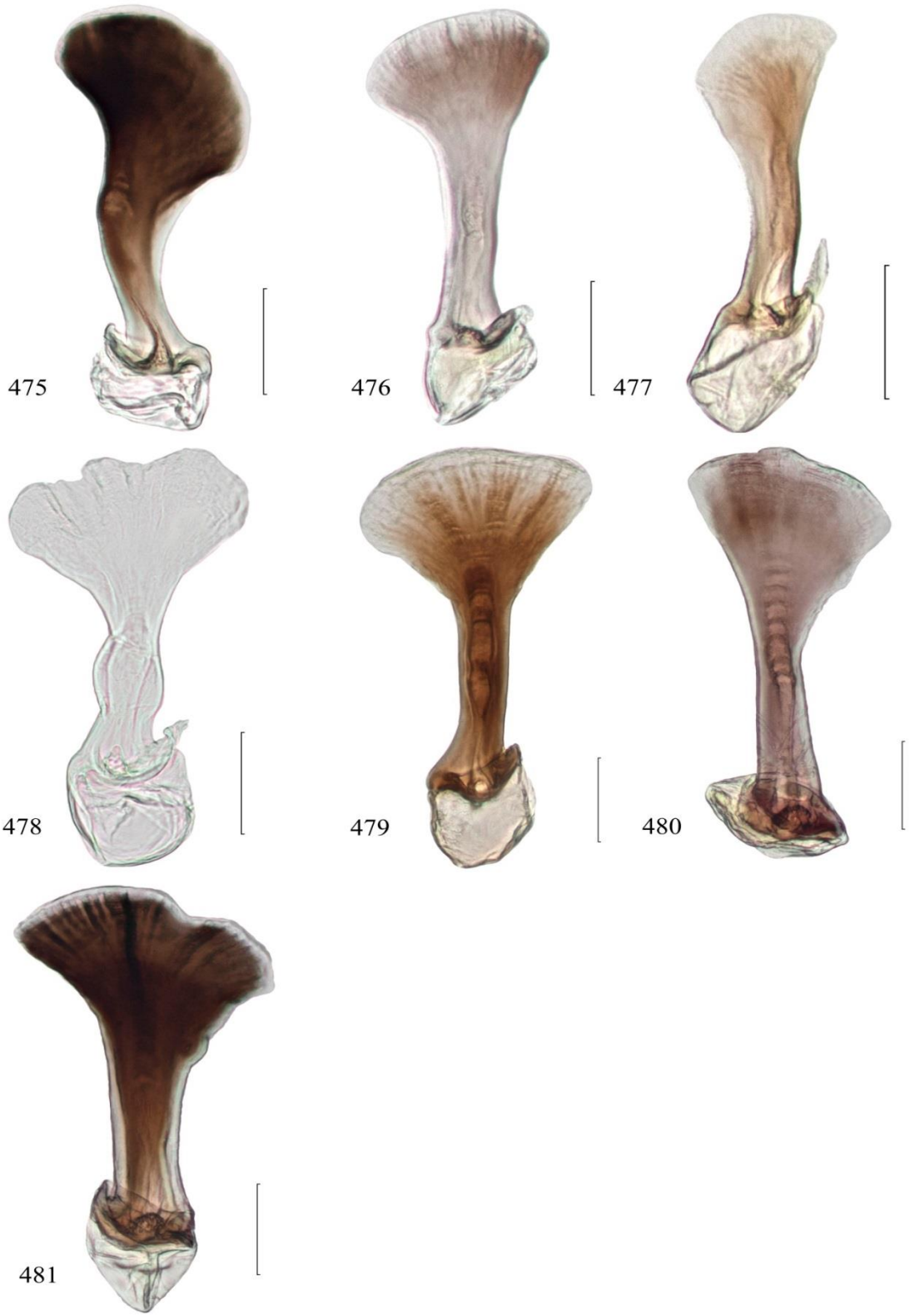
FIGURES 448–456. Male terminalia (phallapodeme): 448, *P. miseta* (Brazil, Paraná, São José dos Pinhais, Estrada dos Castelhanos, USNMENT00262613); 449, *P. pallens* (Brazil: Paraná, Palmas, Linha Alegria, USNMENT00119347); 450, *P. plagiata* (Chile: La Serena, USNMENT00262706); 451–452, *P. scutellata* (Bolivia: La Paz, USNMENT00216817; Peru: Cusco, USNMENT00262565); 453, *P. setulosa* (Chile: Malleco, USNMENT00262708); 454, *P. subaster* (Chile: Reg. IX, Araucaína, USNMENT00049117); 455, *P. suspecta* (Chile: Reg. Metropolitana, Las Vertientes, USNMENT00049668); 456, *P. thomsoni* (Brazil: Santa Catarina, Praia Grande, USNMENT00119349). Scale bar = 0.10 mm.



FIGURES 457–465. Male terminalia (phallapodeme): 457, *P. valdesiana* (Argentina: Chubut, Puerto Piramides, USNMENT00105057); 458, *Plaumannimyia* n. sp. 1 (Chile: Valparaiso, Quintay, USNMENT00262554); 459, *Plaumannimyia* n. sp. 2 (Ecuador: Latacunga, USNMENT00262556); 460, *Plaumannimyia* n. sp. 3 (Ecuador: Prov. Napo, El Chaco, USNMENT00105093); 461, *Plaumannimyia* n. sp. 4 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00119336); 462, *Plaumannimyia* n. sp. 5 (Peru: Dept. Lambayeque, USNMENT00105033); 463, *Plaumannimyia* n. sp. 6 (Bolivia: Santa Cruz, Ichilo, USNMENT00105031); 464, *Plaumannimyia* n. sp. 7 (Chile: Puerto Ibanez, Lag. Buenos Aires Aysen, USNMENT00105133); 465, *Plaumannimyia* n. sp. 8 (Brazil: Paraná, Campina Grande do Sul, Morro Camapuã, USNMENT00262562). Scale bar = 0.10 mm.



FIGURES 466–474. Male terminalia (phallapodeme): 466, *Plaumannimyia* n. sp. 9 (Bolivia: La Paz, Santa Fé, USNMENT00055831); 467, *Plaumannimyia* n. sp. 10 (Brazil: Paraná, Ponta Grossa, Parque Estadual de Vila Velha, USNMENT00262716); 468, *Plaumannimyia* n. sp. 11 (Argentina: Jujuy, USNMENT00105030); 469, *Plaumannimyia* n. sp. 12 (Argentina: Jujuy, Humahuaca, USNMENT00105078); 470, *Plaumannimyia* n. sp. 13 (Chile: Prov. Limari, USNMENT00677380); 471, *Plaumannimyia* n. sp. 14 (Brazil: Paraná, Quatro Barras, Estrada da Graciosa, USNMENT00262519); 472, *Plaumannimyia* n. sp. 15 (Bolivia: La Paz, USNMENT00216855); 473, *Plaumannimyia* n. sp. 16 (Brazil: Paraná, Colombo, Bairro Canguiri, USNMENT00262700); 474, *Plaumannimyia* n. sp. 17 (Argentina: Jujuy, USNMENT00105062). Scale bar = 0.10 mm.



FIGURES 475–481. Male terminalia (phallapodeme): 475, *Plaumannimyia* n. sp. 18 (Peru: Cusco, Buenos Aires, USNMENT00104800); 476, *Plaumannimyia* n. sp. 19 (Peru: Dept. Lima, Matucana, USNMENT00262707); 477, *Plaumannimyia* n. sp. 20 (Peru: Ayacucho, USNMENT00262570); 478, *Plaumannimyia* n. sp. 21 (Bolivia: Cochabamba, USNMENT00104868); 479, *Plaumannimyia* n. sp. 22 (Brazil: Paraná, Tijucas do Sul, Morro Araçatuba, USNMENT00262632); 480, *Plaumannimyia* n. sp. 24 (Chile: Reg. Metropolitana, Guayacán, USNMENT00049347); 481, *Plaumannimyia* n. sp. 25 (Chile: Reg. IX Araucaína, USNMENT00049445). Scale bar = 0.10 mm.

FIGURES 482–487. *Plaumannimyia ameghinoi* (Brèthes) (Holotype): 482, lateral view; 483, labels. Photos by Dr. Pablo Ricardo Mulieri. *Plaumannimyia delicatella* (Blanchard) (Lectotype): 484, dorsal view, 485, labels. Photos by Lucrecia Rodriguez. *Plaumannimyia dolores* (Hering) (Lectotype) 486, lateral view, 487, labels. Photos by Dr. Daniel Whitmore.

FIGURES 488–493. *Plaumannimyia imitatrix* (Hering) (Lectotype): 488, lateral view; 489, labels. *Plaumannimyia pallens* (Hering) (Lectotype): 490, lateral view; 491, labels. Photos by Dr. Daniel Whitmore. *Plaumannimyia plagiata* (Blanchard) (Lectotype): 492, dorsal view; 493, labels. Photos by Lucrecia Rodriguez.

FIGURES 494–495. *Plaumannimyia scutellata* (Séguy) (Cotype): 494, lateral view; 495, dorsal view, 496, frontal view, 497, labels. Photos by Dr. Christophe Daugeron.

FIGURES 498–501. *Dyseuaresta hestiae* (Hendel) (Holotype): 498, dorsal view; 499, lateral view; 500, head frontal; 501, labels. Photos by Dr. Zoltán Soltész.

FIGURES 502–505. *Dyseuaresta titschacki* (Hering): 502, dorsal view; 503, lateral view; 504, head frontal; 505, labels. Photos by Dra. Lisiane Dilli Wendt.

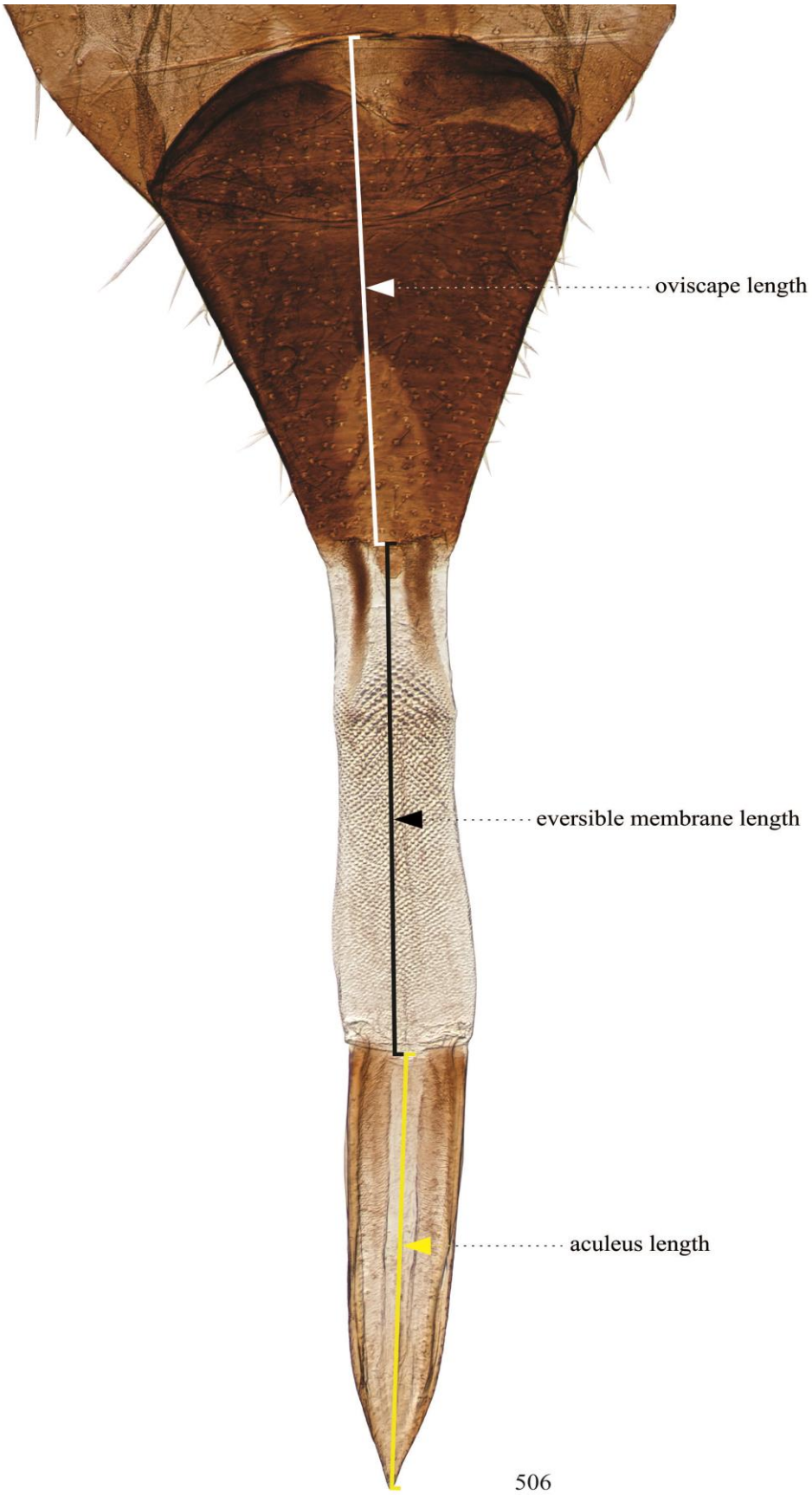
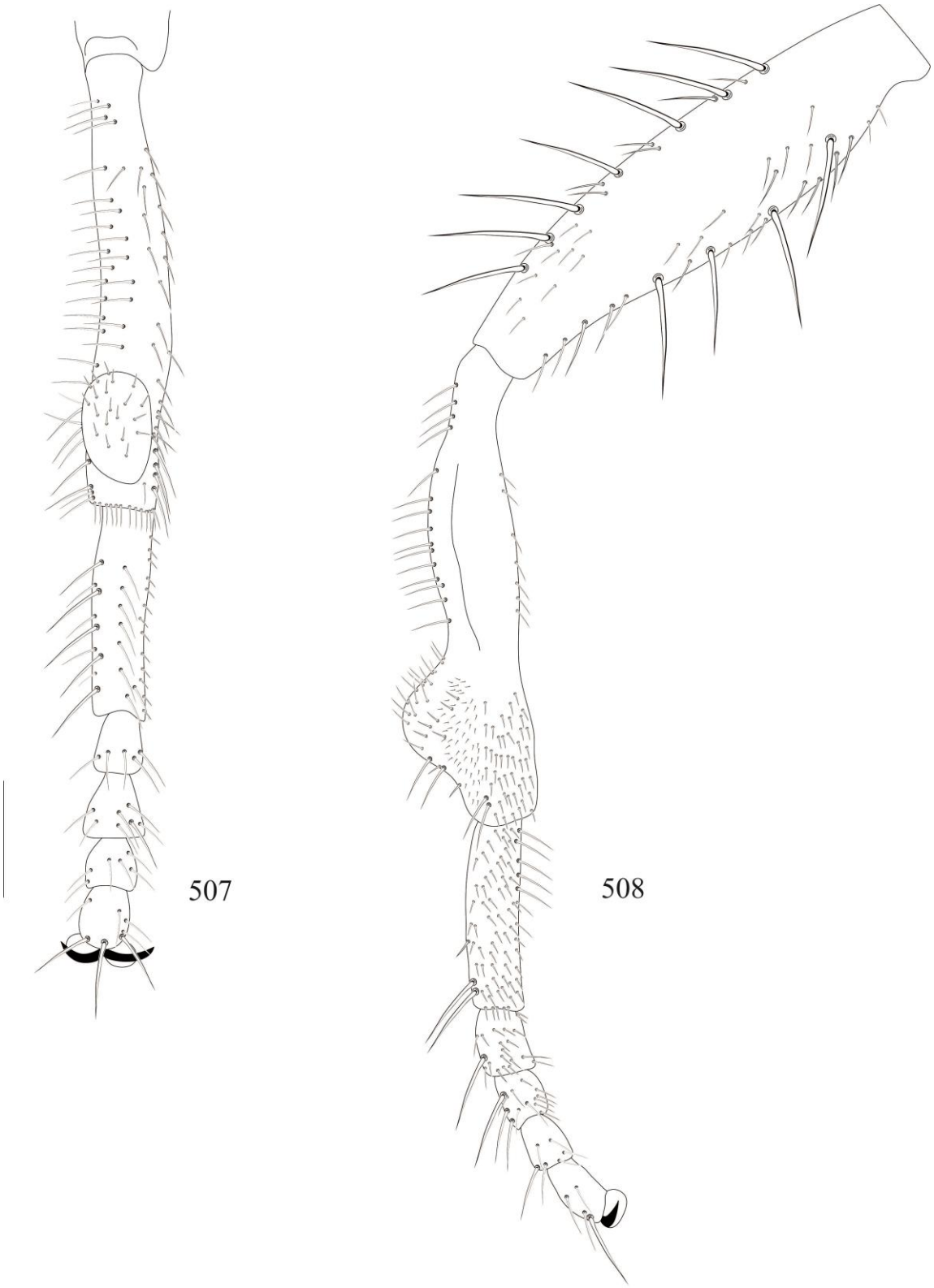
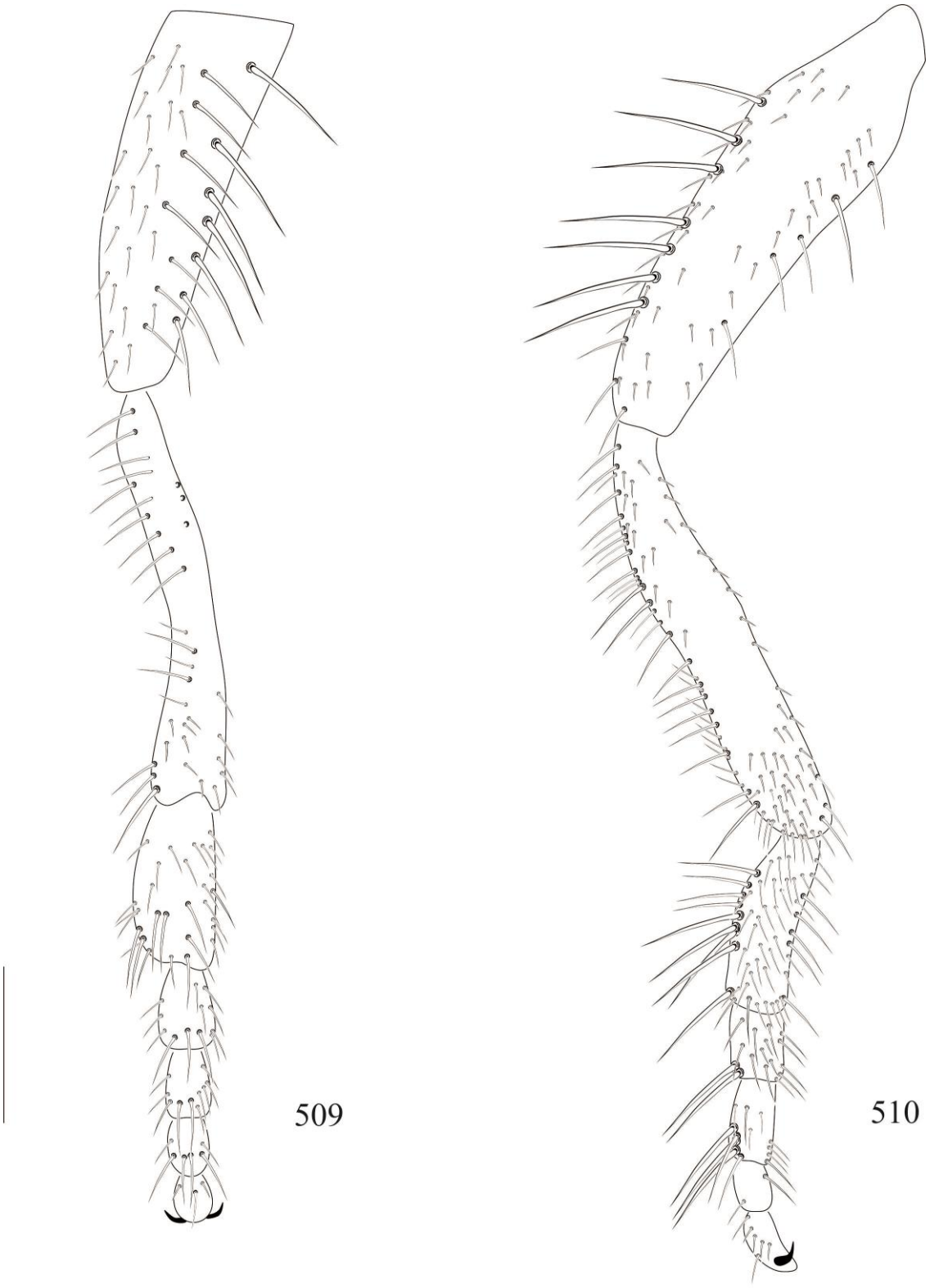


FIGURE 506. Female terminalia of *Plaumannimyia plagiata* (Blanchard): Oviscape length (indicated by white arrow); eversible membrane (indicated by black arrow); aculeus length (indicated by yellow arrow).

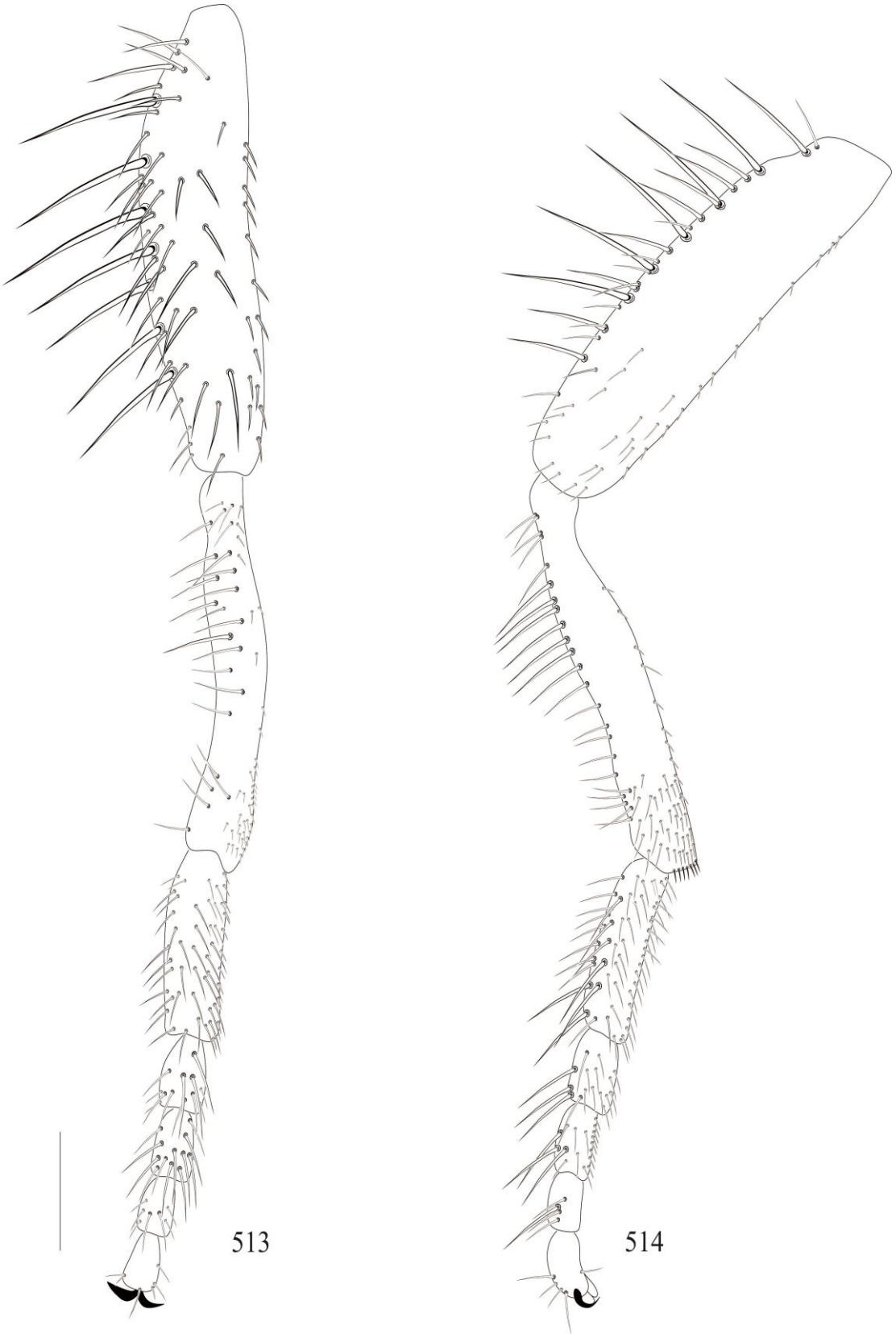


FIGURES 507–508. Right fore of male of *Plaumannimyia ameghinoi* (Brèthes): 507, dorsal view; 508, lateral view. Scale bar = 2 mm.



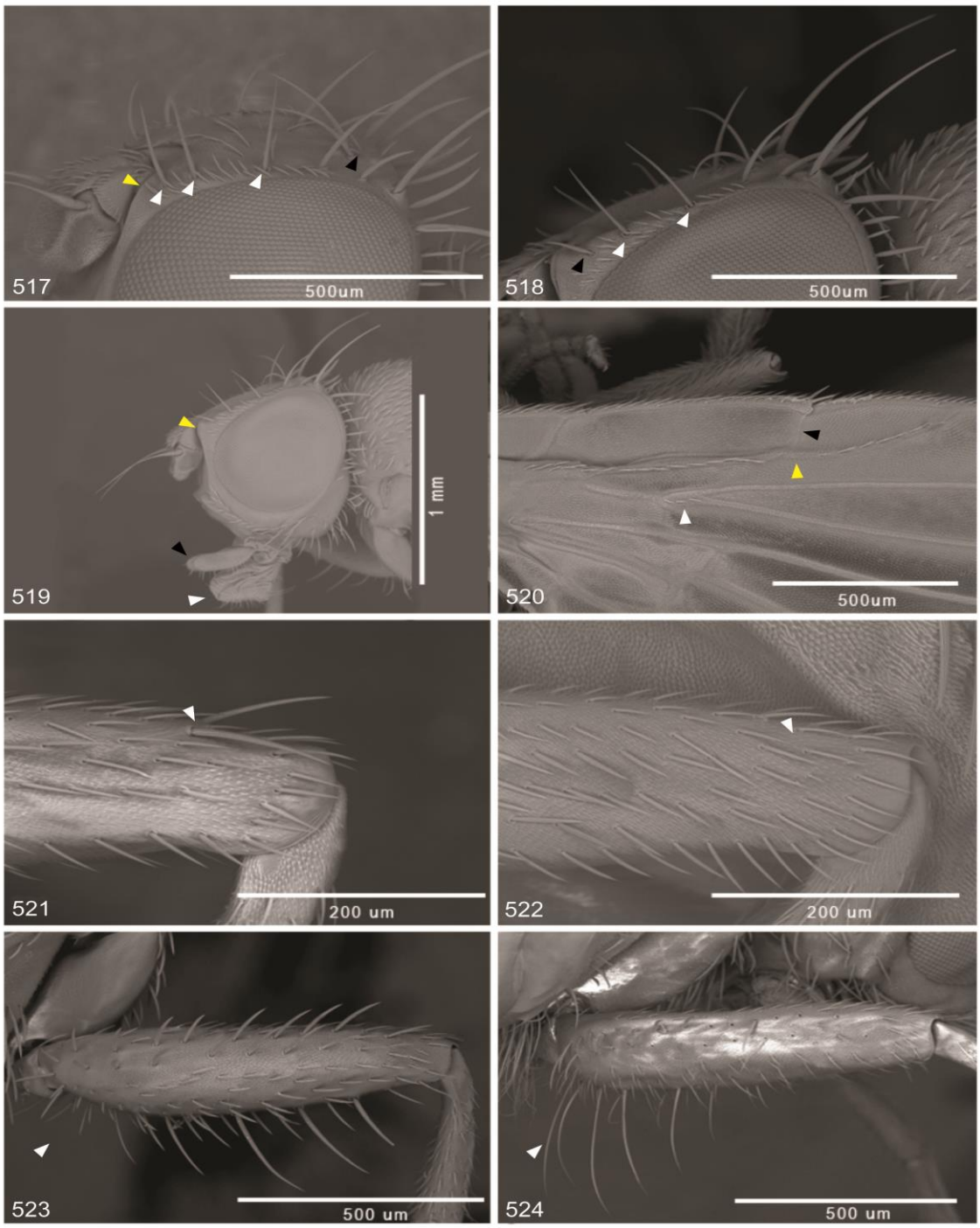
FIGURES 509–510. Right fore of male of *Plaumannimyia delicatella* (Blanchard): 509, dorsal view; 510, lateral view. Scale bar = 2 mm.

FIGURES 511–512. Right fore of male *Plaumannimyia eugenia* (Wulp): 511, dorsal view; 512, lateral view. Scale bar = 2 mm.

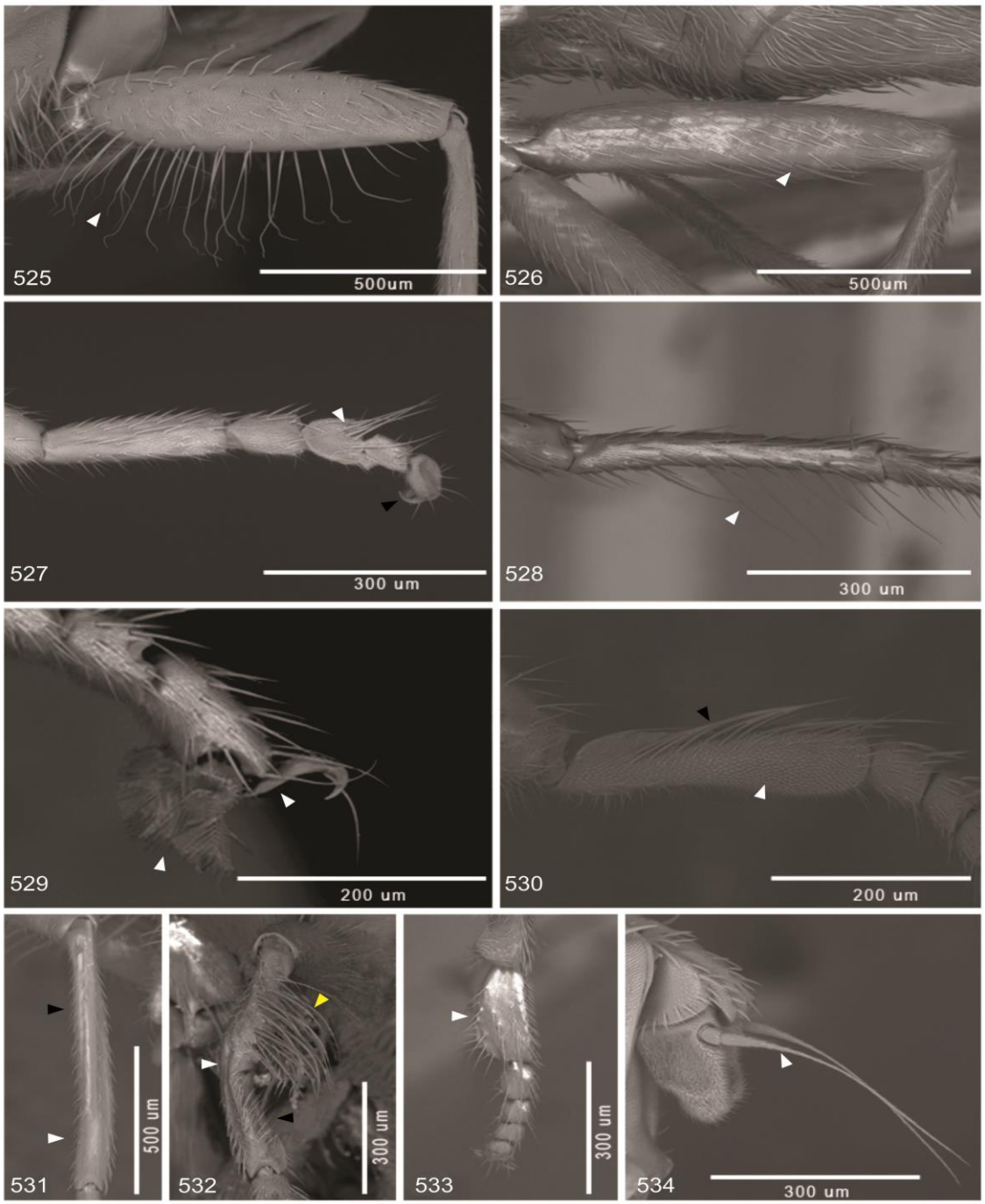


FIGURES 513–514. Right fore of male of *Plaumannimyia scutellata* (Séguy): 513, dorsal view; 514, lateral view. Scale bar = 2 mm.

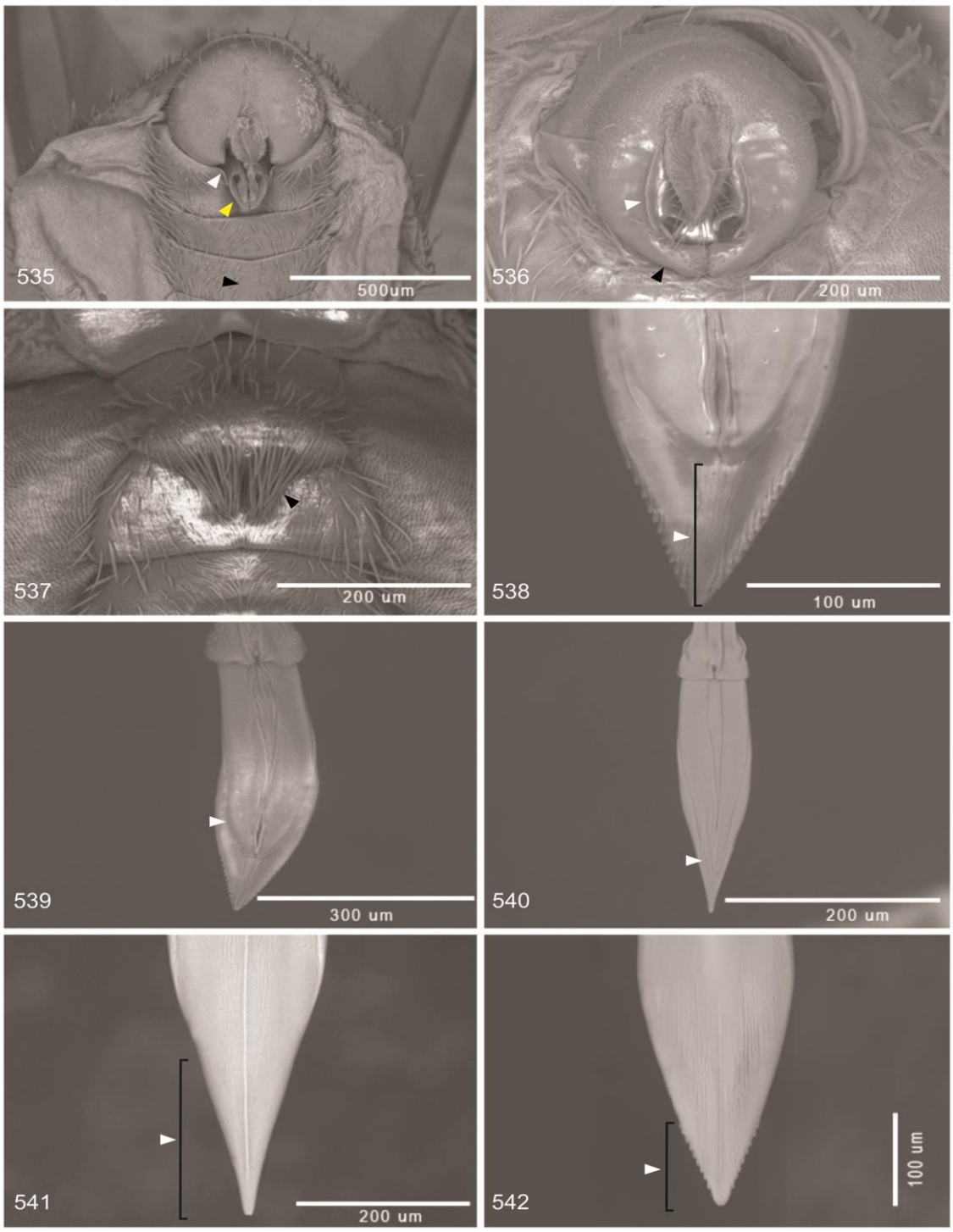
FIGURES 515–516. Right fore of male of *Plaumannimyia* n. sp. 7: 515, dorsal view; 516, lateral view. Scale bar = 2 mm.



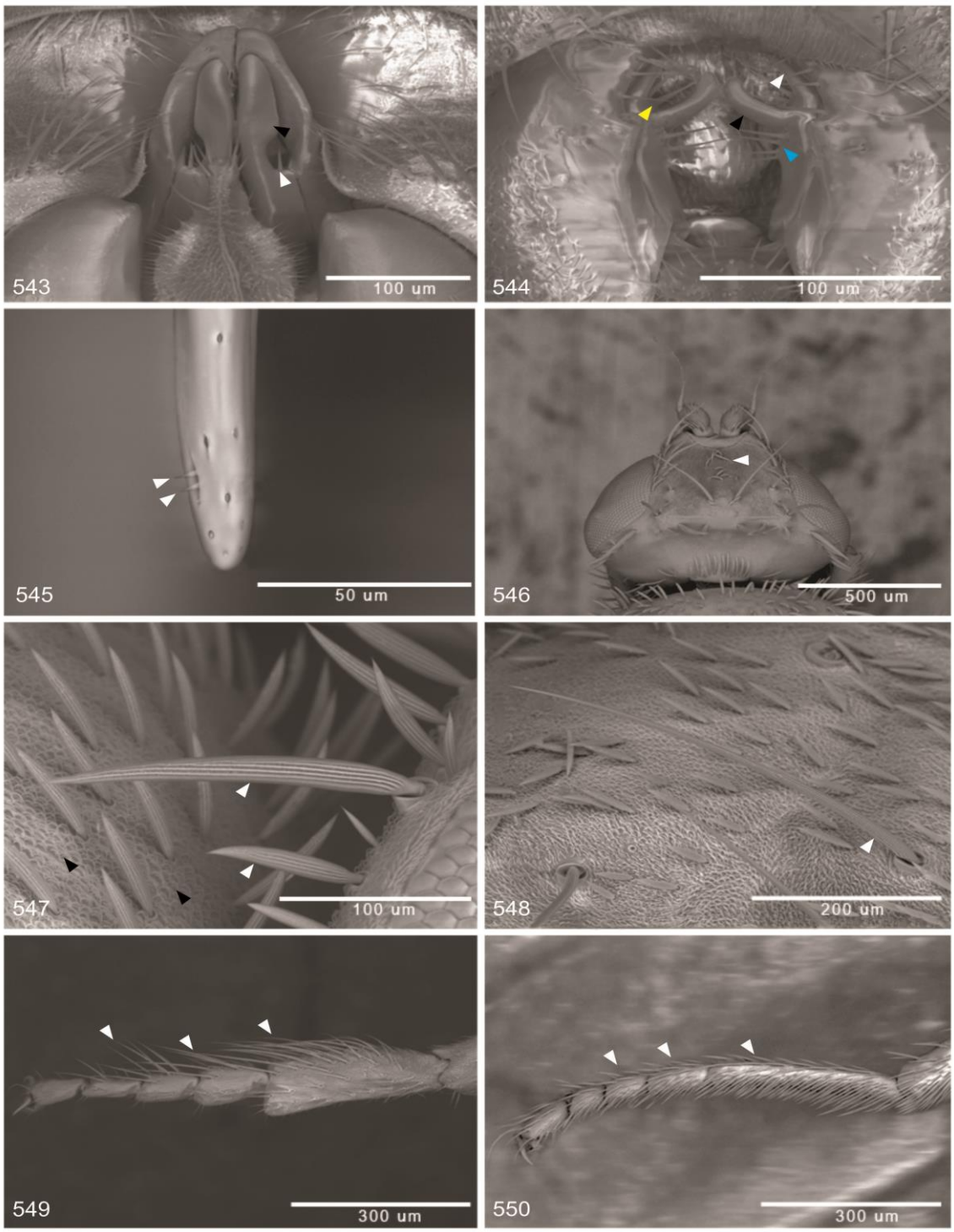
FIGURES 517–524. Scanning electron micrographs of *Euarestoides* and *Plaumannimyia*. 517, *Euarestoides dreisbachi* Foote, frontal setae acuminate (indicated by white arrow) face and frons meeting at distinct angle of 120° (indicated by yellow arrow). 518, *Plaumannimyia* n. sp. 10, frontal setae acuminate (indicated by white arrow), frontal seta lanceolante (indicated by black arrow). 519, Head, face and frons meeting at distinct angle of 90° (indicated by yellow arrow); maxillary palpus spatulate (indicated by black arrow); labella not elongated (indicated by white arrow). 520, *P. coelestina*, wing, vein Sc subapically turned anteriorly at 80–90° angle (indicated by black arrow); vein R_1 setulose dorsally and gap of setulae at level of Sc bend (indicated by yellow arrow), vein R_{4+5} with few setae at base (indicated by white arrow). 521, *E. dreisbachi*, hind femur, pre-apical setae (indicated by white arrow). 522, *P. miseta*, hind femur without pre-apical setae (indicated by white arrow). 523, *Plaumannimyia* n. sp. 24, foreleg, smaller setae at base (indicated by white arrow). 524, *Plaumannimyia* n. sp. 22, foreleg, long setae at base (indicated by white arrow).



FIGURES 525–534. Scanning electron micrographs of *Plaumannimyia*. 525, *P. costaemaculata*, male fore femur, anteroventral setae long thin and wavy (indicated by white arrow). 526, *P. dolores*, hind femur, enlarged anteroventral seta (indicated by white arrow). 527, *P. thomsoni*, fore leg, third tarsomere, cluster of longer dorsal setae (indicated by white arrow). 528, *Plaumannimyia* n. sp. 22, male fore basitarsomere, elongate ventral setae (indicated by white arrow). 529, *Plaumannimyia* n. sp. 24, fore leg, pulvillus and claw developed (indicated by white arrows). 530, *P. miseta*, fore first tarsomere, narrower basally than apically, without setulae on the posterior apical half (indicated by white arrow), with a posterodorsal row of elongate setae (indicated by black arrow). 531, *Plaumannimyia* n. sp. 22, tibia straight, basal haft with short setae, as long as lateral setae (indicated by black arrow), and apical third with setae oblique (indicated by white arrow). 532, *P. suspecta*, tibia curved, basal haft with elongated setae, distincly longer than lateral setae (indicated by yellow arrow), apical third with setae erect (indicated by black arrow). 533, *Plaumannimyia* n. sp. 19, fore first tarsomere dorsally flattened, with long setae. 534, *Plaumannimyia* n. sp. 10, arista entirely pubescente.



FIGURES 535–542. Scanning electron micrographs of *Plaumannimyia*. 535, *P. dolores*, male terminalia, surstyli long directed posteroventrally (indicated by yellow arrow); sternite 5, posterior margin with strong indentation, inverted U-shape (indicated by white arrow); sternite 3 without cluster of setae medial (indicated by black arrow). 536, *P. scutellata*, male terminalia, surstyli short, straight or directed slightly anteroventrally (indicated by black arrow); dorsal lobe (indicated by white arrow). 537, *P. scutellata*, male, sternite 3, medial clusters of setulae (indicated by black arrow). 538, *P. costaemaculata*, length of the aculeus tip (indicated by white arrow and bracket). 539, *P. costaemaculata*, sternite 8, apical third, wide and short (indicated by white arrow). 540, *P. thomsoni*, sternite 8, apical third, narrow and elongated (indicated by white arrow). 541, *P. thomsoni*, aculeus, tip, lateral margin non serrate (indicated by white arrow and bracket). 542, *Plaumannimyia* n. sp. 10, aculeus tip, lateral margin serrate (indicated by white arrow and bracket).



FIGURES 543–550. Scanning electron micrographs of *Plaumannimyia*. 543, *P. dolores*, male terminalia, lateral presisetae minute (indicated by white arrow), medial prensisetae greatly enlarged (indicated by black arrow); 544, *Plaumannimyia* n. sp. 1, male terminalia, presisetae subequal lateral (indicated by white arrow) and medial (indicated by black arrow); group of setulae between prensisetae (indicated by yellow arrow); group of setulae near base of medial prensisetae (indicated by blue arrow). 545, *P. miseta*, female, aculeus tip lateral view with 2 pairs of hairlike sensilla (indicated by white arrow). 546, *P. coelestina*, head, frons with a few whitish setulae smaller (indicated by white arrow). 547, *Plaumannimyia* n. sp. 10, head, setae lanceolate (indicated by white arrow); thorax, microtrichia (indicated by black arrow). 548, *Plaumannimyia* n. sp. 10, thorax, seta acuminate (indicated by white arrow). 549, *P. scutellata*, tarsomeres with dorsal setae long (indicated by white arrow). 550, *Plaumannimyia* n. sp. 1, tarsomeres with dorsal setae short (indicated by white arrow).

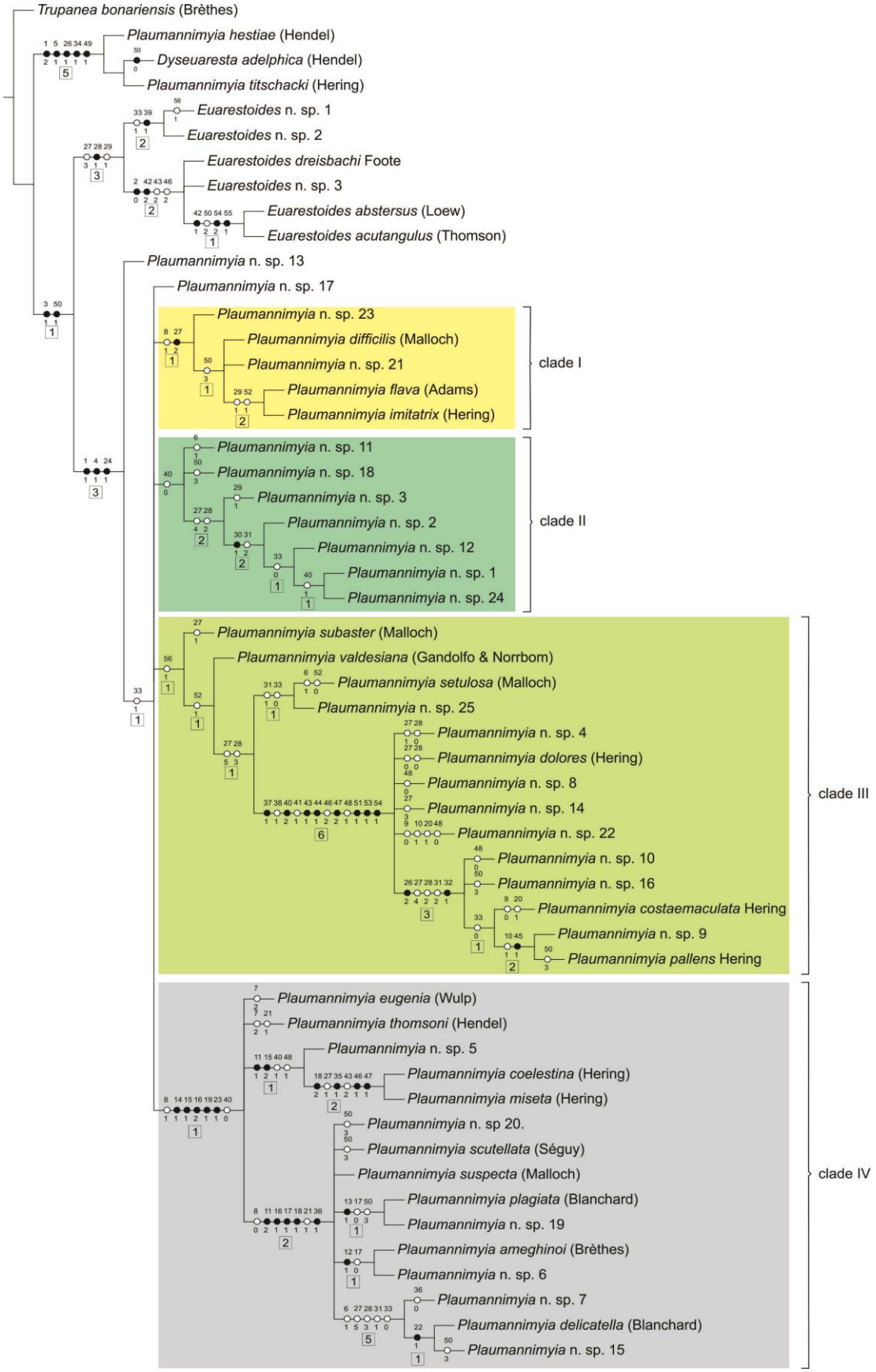


FIGURE 551. Consensus cladogram of hypothetical relationships among species of *Plaumannimyia*. Consistency index = 57; retention index = 87; 140 steps. Empty circles represent homoplasious synapomophies; filled circles non-homoplasious synapomophies. Squares Bremer values.