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Jumping plant lice (Homoptera: Psylloidea) of the temperate neotropical region. Part 3: Calophyidae and Triozidae

DANIEL BURCKHARDT*

Department of Biology, Liverpool Polytechnic, Byrom Street, Liverpool L3 3AF

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Three families of Psylloidea are known to occur in temperate South America, two of which, the Calophyidae and the Triozidae, are revised here. The Calophyidae are represented in temperate South America by two congeneric species on *Schinus* spp. (Anacardiaceae). The Triozidae include five genera with 35 species on Berberidaceae, Compositae, Euphorbiaceae, Lauraceae, and perhaps also on Myrtaceae, Rutaceae and Ulmaceae. The two largest species groups of *Trioza* develop mainly on *Baccharis* spp. and *Berberis* spp. and form an important part of the temperate neotropical psyllid fauna. Both are taxonomically difficult groups as morphological differences between species are small and intraspecific variation is large. Twenty species are described as new. Four new generic and five new specific synonyms and ten new combinations are proposed. One name is considered to be a nomen dubium. The descriptions of adults are supplemented by information on larvae and host plants. Lectotypes are designated for nine species. Keys are provided for the identification to species.

KEY WORDS:—Psylloidea – temperate neotropical region – taxonomy – biogeography – host plant relationships.

CONTENTS

*Present address: Muséum d'Histoire naturelle, Case postale 434, CH-1211 Genève 6, Switzerland.

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INTRODUCTION

This paper is the last in a series of three dealing with jumping plant lice from the Southern Neotropics. Part 1 (Burckhardt, 1987a) gives a general introduction to the problems of psyllid classification and the aims of the present study, as well as keys to separate the three families occurring in temperate South America. The species of the family Psyllidae are reviewed in parts 1 and 2 (Burckhardt, 1987a, 1987b). The remaining two families, the Calophyidae and Triozidae, are revised in this paper.

The Calophyidae are represented by two species developing on *Schinus* spp. on which they produce leaf galls, whereas 35 species of Triozidae are recorded, belonging to five genera. Two of these genera are monotypic and two are represented by four and five species respectively, which feed on a variety of host plant families. Twenty-four species are referred to the polyphylectic genus *Trioza* and assigned to four probably monophyletic species-groups. Of these two are trophically linked to Compositae and one each to Lauraceae and Berberidaceae. In particular, a large number of species develop on *Baccharis* spp. and *Berberis* spp. where, as far as is known, they form galls. The *T. baccharidis*-group and the *T. berberidis*-group form an important part of the temperate neotropical pysllid fauna. Their genital morphology resembles that found in species from New Zealand, indicating a possible close relationship.

MATERIAL AND METHODS

Material deposited in the following museums and collections was examined. British Museum (Natural History) (BMNH); Instytut Zoologii, Polska Akademia Nauk, Warsaw (IZPAN); Instituto de la Patagonia, Punta Arenas (IPPA); Moravian Museum, Brno (MMB); Museo Argentino Ciencias Naturales, Bernardino Rivadavia, Buenos Aires (MACN); Museo National de Historia Natural, Santiago (MNHNS); Muséum d'Histoire naturelle, Geneva (MHNG); Muséum National d'Histoire Naturelle, Paris (MNHN); Museum für Naturkunde der Humbolt-Universität, Berlin (MNHU); Naturhistorisches Museum, Vienna (NHV); Termeszettudomanyi Muzeum, Budapest (TM); Uniwersytet Slaski, Katowice (USK); United States National Museum, Washington; psyllid collection in United States Department of Agriculture, Beltsville, MD. (USNM); Zoological Institute, Leningrad (ZI).

Morphological terminology mainly follows Vondráček (1957), Hodkinson & White (1979), Hollis (1976, 1984) and White & Hodkinson (1982, 1985) but that for the wing venation accords with Burckhardt (1983) while that for the female terminalia follows Burckhardt (1986a). Keys are given for adults only: for larvae the keys of White & Hodkinson (1985) should be consulted.

Abbreviations used in descriptions

Adults:

HW	= head width
AL	= antenna length (including scapus and pedicellus)
WL	= forewing length
MP	= male proctiger length
FP	= female proctiger length
PL	= paramere length
AEL	= length of distal segment of aedheagus
VLW	= vertex length : width ratio
GCV	= genal cone length : vertex length ratio
ALHW	= antenna length : head width ratio
LLHW	= length of apical 2 labial segments : head width ratio
TLHW	= metatibiae length : head width ratio
WLHW	= forewing length : head width ratio
WLW	= forewings length : width ratio
RMCU	= length of vein R : length ratio of vein M + Cula of forewings
CUR	= basal width : height ratio of cell cula of forewings
MPHW	= male proctiger length : head width ratio
FPHW	= female proctiger length : head width ratio
FPC	= female proctiger length : circumanal ring length ratio
FSP	= female proctiger length : subgenital plate length ratio
FAS	= relative length of flagellar segment of antennae from base to apex

Larva:

AL	= antenna length (including scapus and pedicellus)
WL	= forewing-pad length

BL = body length
CPB = caudal plate breadth

AWL = antenna length : forewing-pad length ratio
BBL = body breadth : length ratio
CPR = caudal plate breadth : length ratio
ACB = circumanal ring breadth : caudal breadth ratio

FAMILY CALOPHYIDAE

Genus *Calophya* Löw

Calophya Löw, 1879: 598. Type-species: *Psylla rhois* Löw by monotypy.
Holotrioza Brèthes, 1920: 133. Type-species *Psylla duvauae* Scott, by original designation. **Syn. nov.**
Paracalophya Tuthill, 1964: 15. Type-species *Paracalophya venusta* Tuthill, by original designation. **Syn. nov.**

Description. Head (Fig. 1C, D) slightly or distinctly narrower than thorax, in profile strongly inclined at about 90° to longitudinal axis of body. Vertex rectangular to trapezoidal and, apart from the indented foveae, flat; fore-margin broadly rounded towards genae. Genal processes varying from short and rounded to long and pointed, lying in a plane lower than the vertex; coronal suture distinct. Eyes hemispherical, adpressed to head. Antennae ten-segmented, 0.8–1.5 times as long as head width; terminal setae on segment 10 often very long; with one subapical rhinarium on each of segments 4, 6, 8 and 9; at base of rhinaria often with very long thick or bifid setae (Fig. 1F); flagellar segments sparsely covered in setae approximately as long as diameter of the segments. Clypeus short, rounded, adpressed to ventral surface of body; apical two labial segments 0.3–0.6 times as long as head width. Thoracic dorsum strongly arched. Propleurites (Fig. 2F) higher than wide, epimeron larger in surface area than episternum; median suture in the dorsal part not clearly developed. Metacoxae with well developed relatively short meracanthus, slightly inflated ventrally; metatibiae 0.5–1.0 times as long as head width, without basal spine, with an inner and an outer group of black apical spurs, the inner group composed of spurs of different length (Fig. 2E). Basal metatarsi without black spurs. Forewings (Fig. 1A, B) with costal break and pterostigma; anal break distant from apex of vein Cu1b; cell cu1a very high; vein M+Cu1 shorter than R; radular spinules forming narrow stripes in cells m1+2, m3+4 and cu1a. Hindwings membranous, vein R+M+Cu1 branching to give R+M and Cu1; costal setae more or less distinctly grouped. Male proctiger unipartite with bulged hind-margin, setose mainly in apical part and along hind-margin. Male subgenital plate short. Parameres short, lamellar, on inner surface often with sclerotized teeth. Proximal segment of aedeagus not curved at base (Fig. 1H, I), weakly sclerotized; distal segment with apical dilatation, about as long as basal segment. Circumanal ring of female (Fig. 2B) consisting of two unequal rows of pores.

Comments. Calophya comprises about 30 described holarctic and neotropical species, developing on plants of the families Anacardiaceae, Burseraceae and Rutaceae. White & Hodkinson (1985) include in the family Calophyidae, apart

from *Calophya*, *Holotrioza* and *Paracalophya*, the oriental genera *Apsylla* Crawford, *Microceropsylla* Boselli and *Pelmatobrachia* Enderlein.

The genus *Calophya* displays large variation in the size and shape of the genal processes but they do not seem to indicate phylogenetic relationship between species. The genera *Holotrioza* and *Paracalophya*, were based mainly on this character, and they are here synonymized with *Calophya*.

Key to species of Calophya

1 Head with long, subacute genal processes (Fig. 1C)
C. rubra (Blanchard)

— Head with short, broadly rounded genal processes (Fig. 1D) . . . . . *C. duvauae* (Scott)

Calophya rubra (Blanchard, 1852) **comb. nov.**
(Figs 1A, C, E, F, H, J, K, M, 2A, B, F)

Calinda rubra Blanchard, 1852: 312. Lectotype ♀, Chile: Coquimbo (MNHN), here designated (examined).

Trioza gallifex Kieffer & Jörgensen, 1910: 386, fig. 17. Syntypes larvae and galls, Argentina: Cordilleras of Mendoza, iv.–x., gallforming on *Schinus dependens* (destroyed). **Syn. nov.**

Trioza sp., Kieffer & Jörgensen, 1910: 387. (Attributed to *Calophya gallifex* by Lizer, 1943: 162.)

Calophya sp., Lima, 1942: 97, figs 114, 115. (Provisionally attributed to *C. schini* by Tuthill, 1959: 6.)

Calophya gallifex (Kieffer & Jörgensen); Lizer, 1943: 159.

Calophya schini Tuthill, 1959: 5. Holotype ♂, Peru: La Cantuta, 6.x.1958, *Schinus molle* (USNM). **Syn. nov.**

Description of adult

Coloration. Varying from ochreous or reddish brown to dark brown or almost black. Antennal segments 1, 2 and 5–7 brown, 3 and 4 ochreous to brown, 8–10 dark brown to almost black. Legs yellow to ochreous, femora often darker, apical metatarsi dark brown. Forewings transparent; veins yellow to brown. Hindwings transparent.

Structure. Head (Fig. 1C) with long subacute genal processes. Antennae with oval rhinaria in males, surrounded by long spines (Fig. 1F), in females circular; females with segments 4, 6, 8 and 9 bearing a thick seta longer than diameter of segments, no such setae present in males. Metatibiae with one or two exterior and four to six interior apical spurs. Forewings (Fig. 1A) with very variable venation, particularly the shape of cell cu1a; membrane usually without surface spinules, apart from a patch at the base of cell cu1b and the radular spinules. Surface spinules present in specimens from Argentina: Chubut (Cordon del Derrumbe) in the apical parts of cells. Costal setae of hindwings distinctly grouped. Terminalia as in Figs 1H, J, K, M, 2A, B. Parameres with an apical, inward directed tooth; inner surface covered in long setae. Distal segment of aedeagus slender with apical dilatation. Sclerotized end tube of ductus

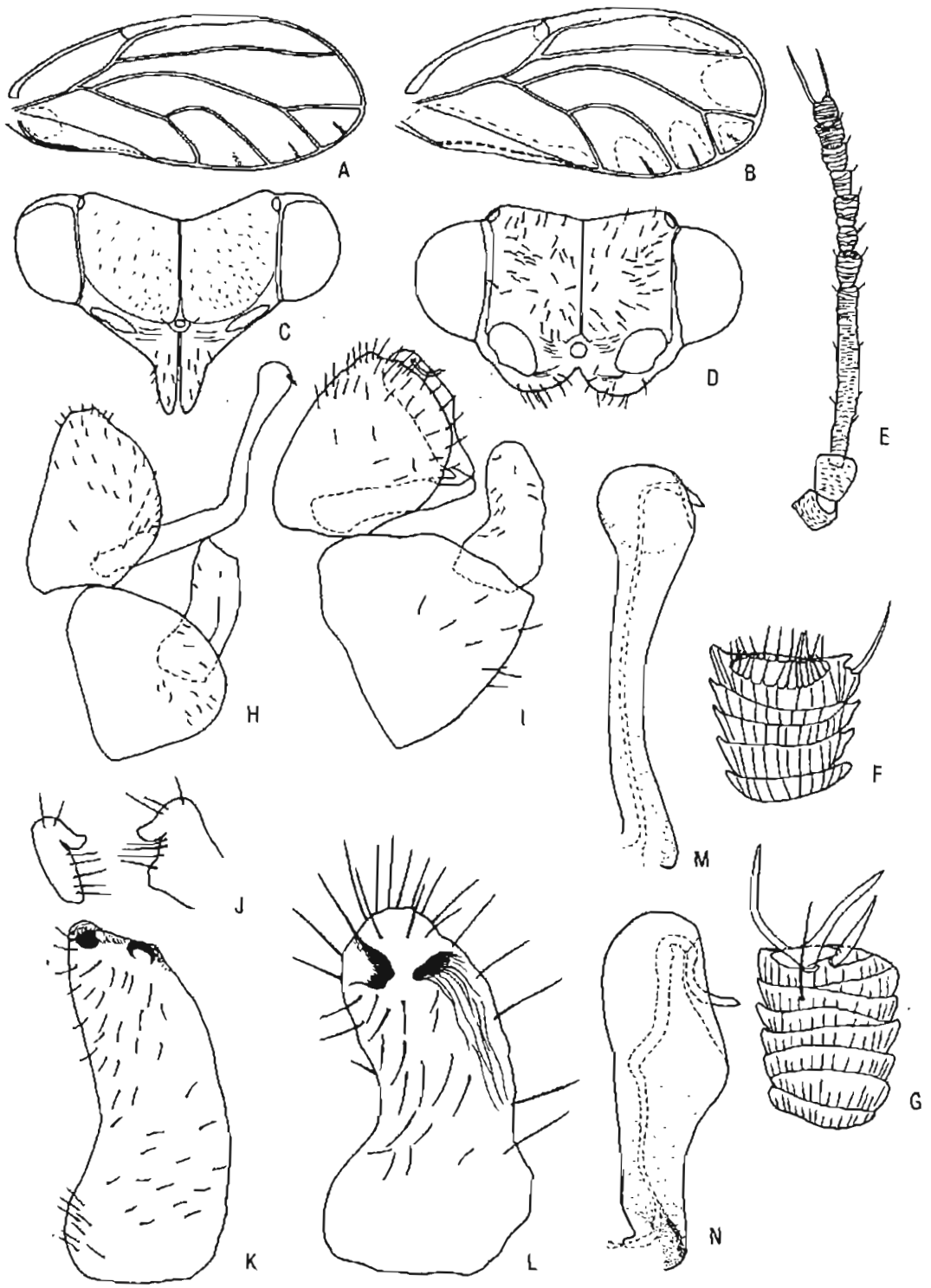

Figure 1. *Calophya* spp.: A, C, E, F, H, J, K, M, *C. rubra* (Blanchard); B, D, G, I, L, N, *C. duvauae* (Scott). A, B, Forewing; C, D, head, dorsal view; E, antenna; F, G, antennal segment 8; H, I, male terminalia; J, parameres, dorsal view; K, L, paramere, inner surface; M, N, distal segment of aedeagus.

ejaculatorius short, slightly sinuous. Female proctiger with narrow, straight, apical projection; dorsal margin, distal to the circumanal ring, strongly concave. Subgenital plate cuneate. Valvulae 1 straight, with ventral teeth; valvulae 2 cuneate; valvulae 3 narrowly rounded apically.

Measurements and ratios (7♂, 7♀). HW 0.55–0.72; AL 0.54–0.73; WL 2.03–2.45; MP 0.19–0.26; FP 0.39–0.60; PL 0.14–0.22; AEL 0.18–0.25.

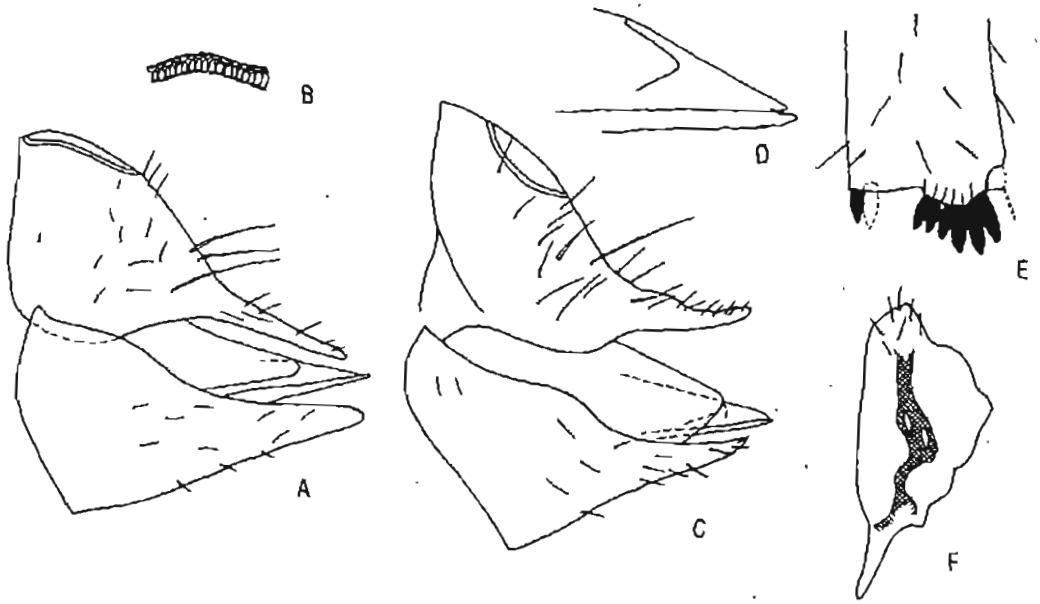

Figure 2. *Calophya* spp.: A, B, F, *C. rubra* (Blanchard); C–E, *C. duvauae* (Scott). A, C, Female terminalia; B, section of female circumanal ring, outer pores above; D, valvulae 1 and 2; E, apex of metatibiae; F, propleurites.

GVC 0.70–1.13; ALHW 0.85–1.15; LLHW 0.38–0.48; TLHW 0.62–0.79; WLHW 3.21–4.04; WLW 2.05–2.37; CUR 1.00–1.37; MPHW 0.34–0.40; FPHW 0.66–0.90; FPC 2.50–3.93; FSP 0.64–0.91; FAS 1.0:0.3:0.2:0.3:0.1:0.2:0.2:0.2.

Larva

Rübsaamen (1899, 1908) described a larva off *Shinus molle* from Bolivia which probably refers to *C. rubra*.

Host plants

Forming conical galls on the leaves of *Schinus dependens* Ortega, *S. molle* L., and perhaps *S. latifolius* Engl. and *S. terebinthifolius* Raddi (Anacardiaceae).

Distribution

Recorded from Chile as *rubra* (Blanchard, 1852), from Argentina and Bolivia as *gallifex* (Kieffer & Jörgensen, 1910; Tavares, 1915; Jörgensen, 1917; Wille, 1926; Houard, 1933; Lizer, 1943; Lizer & Molle, 1945) and from Chile, Peru and probably Brazil as *schini* (Tuthill, 1959). According to Lizer (1943), the records of a *Trioza* sp. forming galls on *Schinus dependens* in Argentina (Kieffer& Jörgensen, 1910; Tavares, 1915; Jörgensen, 1917; Houard, 1933) refer to *Calophya gallifex*. Rübsaamen (1899, 1908) described galls and a larva from Bolivia off *Schinus molle* which possibly refer to *C. rubra*.

Material examined

Argentina: 1♂, 2♀, Rio Negro, El Bolson, Mt. Piltriquitron, 480 m, 21.iii.1961, beaten from various trees and bushes, mainly *Lomatia*, no. 342 (G. Topal); 129♂, 141♀, same, 930 m, 23.iii.1961, beaten from various trees, mainly *Lomatia*, no. 350; 21♂, 40♀, same, 700 m, 1.iv.1961, beaten from various bushes except for *Lomatia*; near creek, no. 369; 58♂, 59♀, same, beaten from

Lomatia obliqua bushes, no. 370; 11♂, 7♀, same, without indication of altitude and plant, 19.iv.1961, no. 397; 64♂, 82♀, same, 1170 m, 19.iv.1961, beaten from various trees and bushes near edge of *Nothofagus pumilio* forest, no. 402; 106♂, 110♀, one adult without abdomen, same, 680 m, 22.iv. 1961, beaten from *Colletia, Fabiana imbricata, Aristotelia maqui, Maytenus boaria, Beberis buxifolia, Baccharis magellanica* and *Lomatia obliqua*, no. 410; 1♂, same, 880 m, 26.iv.1961, beaten from various trees and bushes, no. 421; 2♂, 1♀, same, 820 m, 24.x.1961, beaten from *Nothofagus antarctica* trees, no. 654; 1♀, same, 720–730 m, 25.x.1961, beaten from *Berberis darwini* bushes coming into bloom, no. 656; 2♂, same, 1000 m, 26.x.1961, beaten from *Nothofagus antarctica* trees, near brook, no. 658; 2♂, same, 1000 m, 27.x.1961, beaten from *Nothofagus antarctica*, no. 662; 3♂, same, 820 m, 29.x.1961, beaten from *Nothofagus antarctica* trees, no. 672; 1♀, same, 650 m, 13.xi.1961, netted material; 7♂, 17♀, same, Mt. Piltriquitron, SW slope, 520 m, 20.iii.1961, beaten from *Libocedrus, Lomatia, Aristotelia* trees and bushes after dusk, no. 339; 1♂, same, Mt. Piltriquitron NW valley, 480 m, 6.iv.1961, beaten from various trees in *Libocedrus–Lomatia* forest, no. 376; 1♂, Chubut, El Puelo, 230 m, 25.iii.1961, beaten from various trees in forest near Lago Puelo, no. 354 (G. Topal); 2♀, Chubut, El Hoyo, Lago Espejo, 1000 m, 8.x.1961, beaten from budding *Berberis buxifolia* bushes on clearing of *Nothofagus antarctica* forest near lake, no. 603–604, same: 1♀, same, 760–100 m, beaten from various bushes along path to Lago Espejo, no. 606; 1♀, Rio Negro, El Bolson, valley of Rio Azul, 300 m, 7.xi.1961, beaten from coihue-trees in *N. dombeyi–Myrceugenia* forest, no. 711, same; 2♂, 2♀, Chubut, Cordon del Derrumbe W slope, 450–500 m, 18.xi.1961, beaten from various trees in diverse habitats, no. 736, same; 2♂, 8♀, Rio Negro, Bariloche, 5.–1.xi.1926, B.M. 1927–63 (F. & M. Edwards); 1♀, ii.1929 (Lizer), det. *Calophya gallifex* (Kieffer & Jörgensen); 1♂, one adult, Corboba, iv.1941 (J. B. Daguerre); 2♂, 1♀, Rio Negro, Bariloche, xi.1926 (R. & E. Shannon).

Chile: 1♀, Coquimbo (lectotype of *Calindra rubra*); 3♂, 13♀, Prov. Santiago, Tiltil, Cuesta La Dormida, 5.xi.1965, Hungarian soil-zool. exp. nr P–B. 104 (Balough); 1♂, same, Prov. Valparaiso, between Concon and Quintero, 14.xii.1965, nr P–B. 300 (Mahunka); 4♂, 2♀, Atacama, Copiopo, 540 m, Nantoco, 19.ix.1952 (P. G. Kuschel); 1♂, Las Cruces (N. L. H. Krauss); 5♂, 3♀, Arica, 29.i.1968, *Schinus molle* (Aguilera & Lopez); 1♂, 1♀, Las Cruces, nr San Antonio, 17.v.1961, *Schinus latifolius* (N. L. H. Krauss); 2♂, 1♀, Antofagasta, 25.ii.1947, *Schinus molle* (G. Olaquiaga).

Peru: 1♀, La Cantuta, 6.x.1958, *Schinus molle* (L. D. Tuthill) (paratype of *Calophya schini*); 1♂, 1♀, Monterrey Banos, 21.xi.1958 (L. D. Tuthill) (paratypes of *C. schini*); 2♂, 1♀, Valle del Rimac, 2300 m, 19.xii.1958, same; 1♂, V. Lurin, 21.x.1958 (L. D. Tuthill) (labelled paratype of *C. schini*, but not listed in the original description); 34♂, 30♀, Cuzco, Lucre, 30 km S of Cuzco, 3500 m, 4.viii.1971, BM 1971–533 (C. & M. Vardy) (BMNH, MHNG, MNHN, TM, USNM, ZI).

Comments

The synonymy of *C. schini* with *rubra* is based on the study of type-material. As type-material of *Trioza gallifex* is probably destroyed and the original description is sparse, it is not possible to establish conclusively the identity of this species. However, the interpretation of *gallifex* by Lizer (1943) seems to be

correct. According to Kieffer & Jörgensen (1910) the galls of the two temperate neotropical *Calophya* spp. are distinct. *Calophya gallifex sensu* Lizer (1943) shows no morphological differences from the type of *rubra* and is, therefore synonymized. Morphological differences in the head, genal processes and pronotum of *gallifex* and *schini*, stated by Tuthill (1959) seem to represent geographical variation. The male terminalia are, contrary to Tuthill's description, alike and the species are synonymized.

Calophya duvauae (Scott, 1882) **comb. nov.**
(Figs 1B, D, G, I, L, N, 2C–E)

Psylla duvauae Scott, 1882: 443, plate 18 figs 1–1g. Lectotype ♂, Chile: Buenos Aires, *Psylla duvauae* Scott, type Scott coll. 1888.11 (BMNH), here designated (examined).

Holotrioza duvauae (Scott); Brèthes, 1920: 133.

Calophya williamsoni Lizer, 1943: 163. Holotype ♂, Argentina: La Pampa, General Pico, x.1941, *Schinus polygamus* f. *arrenicola* (J. Williamson) (not traced). **Syn. nov.**

Description of adult

Coloration. Very variable, similar to *rubra*. In specimens from Argentina and Uruguay the membrane of forewings is colourless, whereas in specimens from Brazil the forewings are infuscate along the outer margin and along a transverse stripe in the middle.

Structure. Head and thorax covered in long hairs dorsally. Head (Fig. 1D) with short, broadly rounded genal processes. Antennal segments 4, 6, 8 and 9 bearing a bifid seta proximal to rhinarium (Fig. 1G). Metatibiae with one to three outer and four to eight inner apical spurs. Forewings (Fig. 1B) in specimens from Argentina and Uruguay with surface spinules confined to apical parts of cells, in specimens from Brazil covering the whole surface. Costal setae of hindwings indistinctly grouped. Terminalia as in Figs 1I, L, N, 2C, D. Parameres with inward directed subapical hook on the inner surface; covered in long setae. Distal segment of aedeagus short, thick; apical half dilated. Sclerotized end tube of ductus ejaculatorius long, strongly curved. Female proctiger with narrow terminal projection; dorsal margin concave medially, bulged in apical third, apex slightly upturned. Subgenital plate cuneate. Valvulae 1, 2 and 3 as in *rubra*.

Measurements and ratios (5♂, 3♀). HW 0.54–0.66; AL 0.75–0.95; WL 1.71–2.26; MP 0.20–0.23; FP 0.37–0.42; PL 0.15–0.18; AEL 0.15–0.16.

GCV 0.26–0.43; ALHW 1.15–1.52; LLHW 0.42–0.55; TLHW 0.88–1.02; WLHW 3.00–3.53; WLW 2.13–2.33; CUR 0.88–1.24; MPHW 0.33–0.39; FPHW 0.63–0.72; FPC 3.80–4.30; FSP 0.60–0.65; FAS 1.0 : 0.3 : 0.2 : 0.2 : 0.2 : 0.2 : 0.1 : 0.1.

Larva

Not available.

Host plants

Forming hemispherical galls on the leaves of *Schinus dependens* Ortega, *S. polygamus* (Cav.) Cabr. and *S. polygamus* f. *arrenicola* (Haum.) Cabr. (Anacardiaceae).

Distribution

Recorded from Argentina and Brazil as *duvauae* (Scott, 1882; Jhering, 1885; Frank, 1896; Brèthes, 1920; Wille, 1926; Houard, 1933; Lima, 1942; Lizer & Molle, 1945) and from Argentina as *C. williamsoni* (Lizer, 1943).

Material examined

Argentina: 1♂, Buenos Aires, *Schinus* galls, Scott coll., BM 1888–11 (paralectotype of *Pyslla duvauae*); 3♂, 11♀, Buenos Aires; 1♂, 4♀, galls, same, *Schinus* sp. (Signoret); 3♂, 1 adult without terminalia, Buenos Aires, 10.xi.1919 (J. Brèthes); 1♀, x.1941 (Lizer) (probably paratype of *C. williamsoni*); 1♀, Vicente Lopez (Lizer). The following material has no locality labels but is part of the syntype-series, which was collected in Buenos Aires: 4♂, 1♀, Scott coll. 1888–11 (lecto- and paralectotypes of *Psylla duvauae*); 1♂, same, written in Scott's hand-writing "*Psylla Duvauae* m., Berg's *Psylla*. S. America." Brazil: 3♂, Rio Grande do Sul, S. Leopoldo, cecidogenous species on *Schinus* sp. Chile: 2♂, Banda Oriente, *Schinus dependens*. Uraguay: 13♂, 15♀, one adult without terminalia, galls, *Schinus dependens*. (BMNH, MACN, MHNG, NHMV, TM, USNM.)

Comments

Comparison of type-material of *C. williamsoni* and of *P. duvauae* showed them to be conspecific and they are synonymized.

FAMILY TRIOZIDAE

The family was defined by Hollis (1984) and White & Hodkinson (1985). It is represented in temperate and subantarctic South America by five genera.

Key to genera of the Triozidae

1 Pronotum with forward directed point or blunt hump in the middle, and lateral tubercles. Male anus (Fig. 4A–E) displaced anterio-dorsally. Female proctiger (Fig. 5F–H, J, K) distal to circumanal ring with transverse groove or sclerotization
Leuronota Crawford

— Pronotum evenly rounded in the middle or curved downwards anteriorly. Male anus in strict terminal position or, at most a little slanting anteriorly. Female proctiger without transverse groove or sclerotization . . . 2

2 Vertex, genal processes and thoracic dorsum lying in the same horizontal plane. Cell cu1a of forewings (Fig. 6A) rectangular
Rhegmoza Enderlein

— Genal processes usually deflexed from plane of vertex and/or thorax strongly arched dorsally 3

3 Forewings (Fig. 7A) oval with rounded apex and transverse brown pattern. Vein R+M+Cu1 not strictly trifurcating. Head strongly deflexed from longitudinal axis of body, with genae produced only a little (Fig. 7B) . . . . . *Neolithus* Scott

— Forewings with subacute apex, or without transverse brown pattern, or with strict trifurcation of R+M+Cu1. Head either little deflexed from longitudinal axis of body and/or with well-developed genal processes 4

4 Forewings (Fig. 8A–D) with subacute apex and often with characteristic brown or black streak along veins R+M+Cu1, R and R1; vein R+M+Cu1 usually not strictly trifurcating. Head (Fig. 8E–H) with globular eyes and broadly separated, blunt genal processes. Metatibiae often with more than 1 outer apical spur. . . . . *Triozoida* Crawford

— Forewings usually with strict trifurcation. Head either with strongly adpressed eyes or with subacute conical genal processes. Metatibiae with only one outer apical spur *Trioza* Förster

Genus *Leuronota* Crawford

Leuronota Crawford, 1914: 67. Type-species: *Trioza maculata* Crawford, by original designation.

Paracomeca Laing, 1923: 703. Type-species: *Paracomeca fuscata* Laing, by original designation. **Syn. nov.**

Description. Head (Fig. 3F–J) from above wider than pronotum but narrower than mesonotum; in profile only little deflexed from longitudinal axis of body. Vertex rectangular to trapezoidal, flat except for the depressed foveae. Hind-margin weakly concave. Fore-margin of vertex passing smoothly into genae lying in a lower and more inclined plane than vertex. Genae with conical processes covered in long setae in particular at apex. Eyes large, adpressed to head. Antennae ten-segmented, with rhinaria on segments 4, 6, 8 and 9. Segment 10 with a short truncate and a long pointed terminal seta. Clypeus pyriform, flattened; with a field of apical setae. Pronotum relatively flat; easily visible from above, with forward pointing or blunt tubercles medially and laterally, and two pits on each side; sides only slightly curved backwards. Mesonotum flattened, praescutum about as long as scutum with anterio-medium tubercle. Metacoxae with horn-shaped, pointed meracanthus. Metatibiae with prominent basal spine and 1+3 short apical spurs. Basal metatarsi without black spurs. Forewings (Fig. 3A–E) long, often very narrow usually with strict trifurcation of vein R+M+Cu1; apex subacute. Hindwings about three-quarters of forewing length, very narrow, with grouped costal setae. Vein R+M+Cu1 trifurcating, vein Cu1 indistinctly basally. Lateral setae present on abdominal tergites 3 in male and 4 in females; in *L. fuscata* on

segment 3 and 4 in males and 4 and 5 in females. Male proctiger (Fig. 4A–E) tubular with anus directed anterio-dorsally, evenly setose. Parameres (Fig. 4F–J) often with posterior lobe and dorsal projection with sclerotized apex. Distal segment of aedeagus (Fig. 5A–E) with beak-shaped apical dilatation. Female terminalia (Fig. 5F–H, J, K) short, blunt or truncate apically. Proctiger with transverse groove or sclerotization distal to circumunal ring. Circumanal ring consisting of two unequal rows of pores (Fig. 5I). Valvulae 1 pointed apically with subapical teeth; valvulae 2 cuneate or lamellar; valvulae 3 broadly rounded or flattened apically.

Comments. Eight species from the New World and five from the Old World have been referred to *Leuronota* (Hollis, 1984). Excluding Old World species and the Panamanian *L. magna* Laing, *Leuronata* forms a monophyletic group. The superficial morphological similarity between true *Leuronota* spp. and the other species previously referred to it, is based mainly on the primitive shape of head and thorax and the elongate body form. Laing (1923) erected *Paracomeca* for *fuscata* with a peculiar venation of the forewings. However, *P. fuscata* has terminalia similar to *L. leguminocola* Crawford and *L. michoacana* Ferris indicating a close relationship and *Paracomeca* is synonymized with *Leuronota*.

Leuronota as defined here is mainly tropical and subtropical and contains eight described species (including *Paracomeca*) from a variety of hosts (Ehretiaceae, Leguminosae, Meliaceae, Rutaceae, Ulmaceae). Four new species are added here. Another three new species are represented in the material by single, partially damaged specimens and are not described. This suggests that *Leuronota* might contain a large number of species. Each species is characterized mainly by the parameres, the basal and apical segment of the aedeagus and the forewings; to a lesser extent also by the head. The female terminalia are very homogenous.

Key to species of Leuronota

1 Forewings (Fig. 3A) with vein Rs and M partially fused; radular spinules forming broad areas. Vertex (Fig. 3F) smooth without sculpture. Terminalia as in Figs 4A, F, 5A, F . . *L. fuscata* (Laing)

— Forewings (Fig. 3B–E) without fused veins Rs and M; radular spinules forming narrow stripes. Surface of vertex at least partially sculptured 2

2 Forewings (Fig. 3B, C) without pattern or with light infuscation. Cell rs without surface spinules. 3

— Forewings (Fig. 3D, E) with well developed brown pattern; cell rs with surface spinules 4

3 Forewings (Fig. 3B) without pattern. Terminalia as in Figs 4B, G, 5B, G. Parameres styliform . . . ***L. styliforceps* sp. nov.**

— Forewings (Fig. 3C) with light infuscation in cells m3+4 and cu1a. Terminalia as in Figs 4C, H, 5C, H. Parameres with large posterior lobe . . . ***L. esenbeckiae* sp. nov.**

4 Genal processes (Fig. 3I) longer than vertex. Terminalia as in Figs 4D, I, 5D, I, J. Parameres with long apical finger-like processes and posterior lobe . . . ***L. digitulata* sp. nov.**

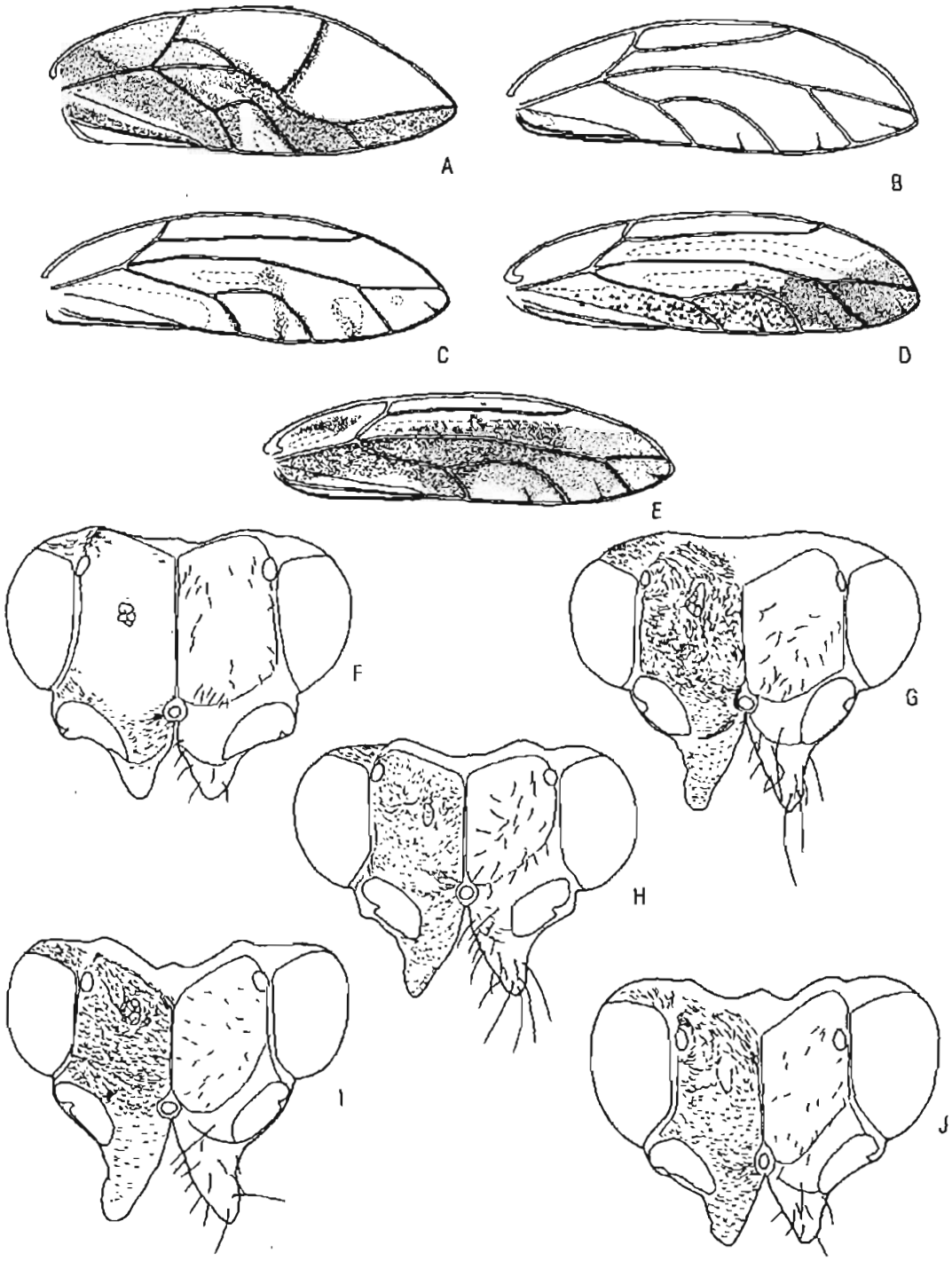

Figure 3. *Leuronota* spp.: A, F, *L. fuscata* (Laing); B, G, ***L. styliforceps* sp. nov.**; C, H, ***L. esenbeckiae* sp. nov.**; D, I, ***L. digitulata* sp. nov.**; E, J, ***L. fagarae* sp. nov.** A–E, Forewing; F–J, head, dorsal view.

— Genal processes (Fig. 3J) shorter than vertex. Terminalia as in Figs 4E, J, 5E, K. Parameres lamellar . ***L. fagarae* sp. nov.**

Leuronota fuscata (Laing, 1923) **comb. nov.**
(Figs 3A, F, 4A, F, 5A, F)

Paracomeca fuscata Laing, 1923: 703. Lectotype ♂, Paraguay: San Bernardino, *Celtis* sp. (K. Fiebrig) (BMNH), here designated (examined).

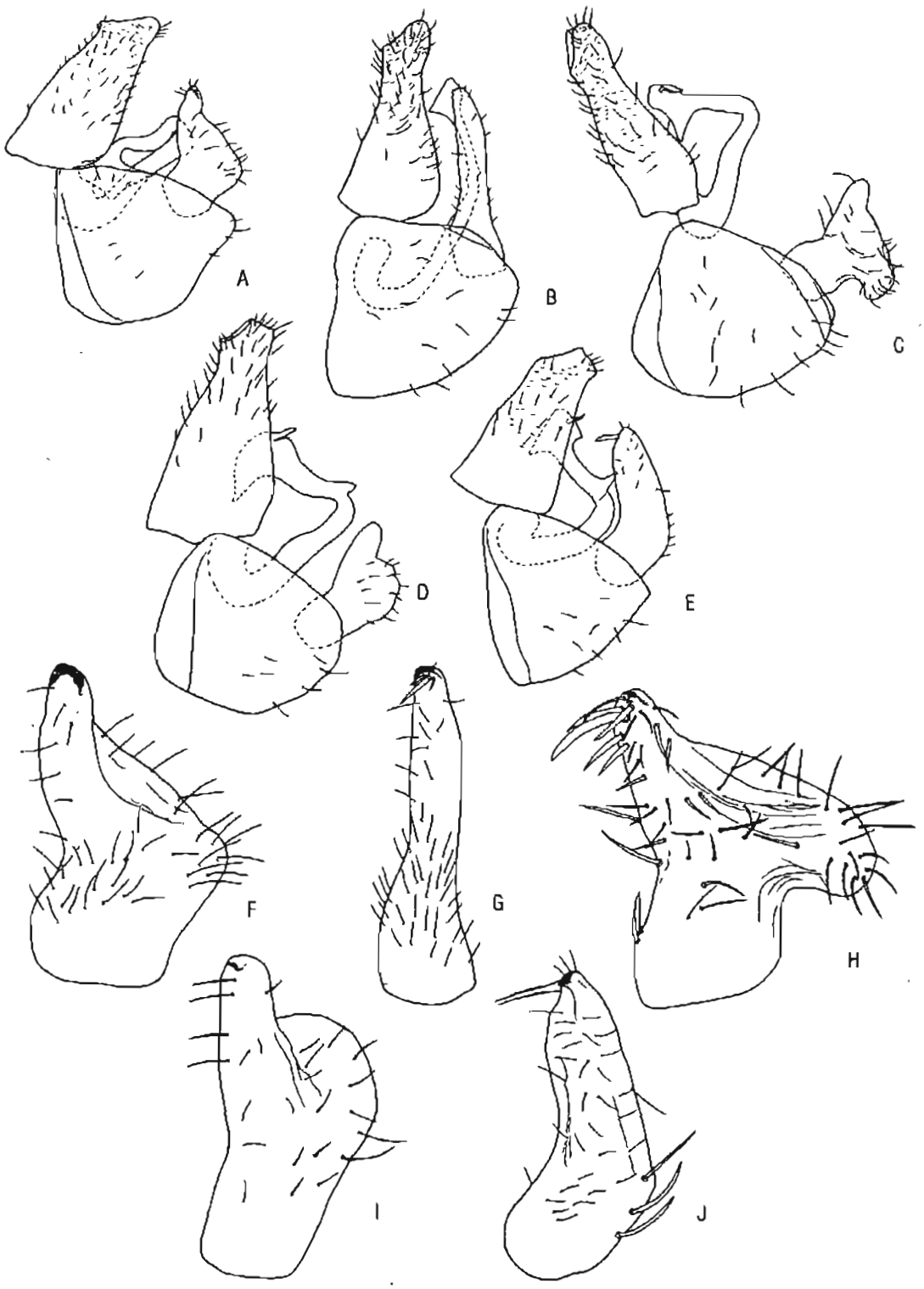

Figure 4. *Leuronota* sp.: A, F, *L. fuscata* (Laing); B, G, ***L. styliforceps* sp. nov.**; C, H, ***L. esenbeckiae* sp. nov.**; D, I, ***L. digitulata* sp. nov.**; E, J, ***L. fagarae* sp. nov.** A–E, Male terminalia; F–J, paramere, inner surface.

Description of adult

Coloration. Dark brown. Thorax with lateral longitudinal stripes. Metacoxae and metatibiae pale yellow. Forewings (Fig. 3A) with well defined brown pattern.

Structure. Head (Fig. 3F) with smooth vertex lacking sculpturing. Forewings (Fig. 3A) with veins Rs and M partially fused; surface spinules absent apart

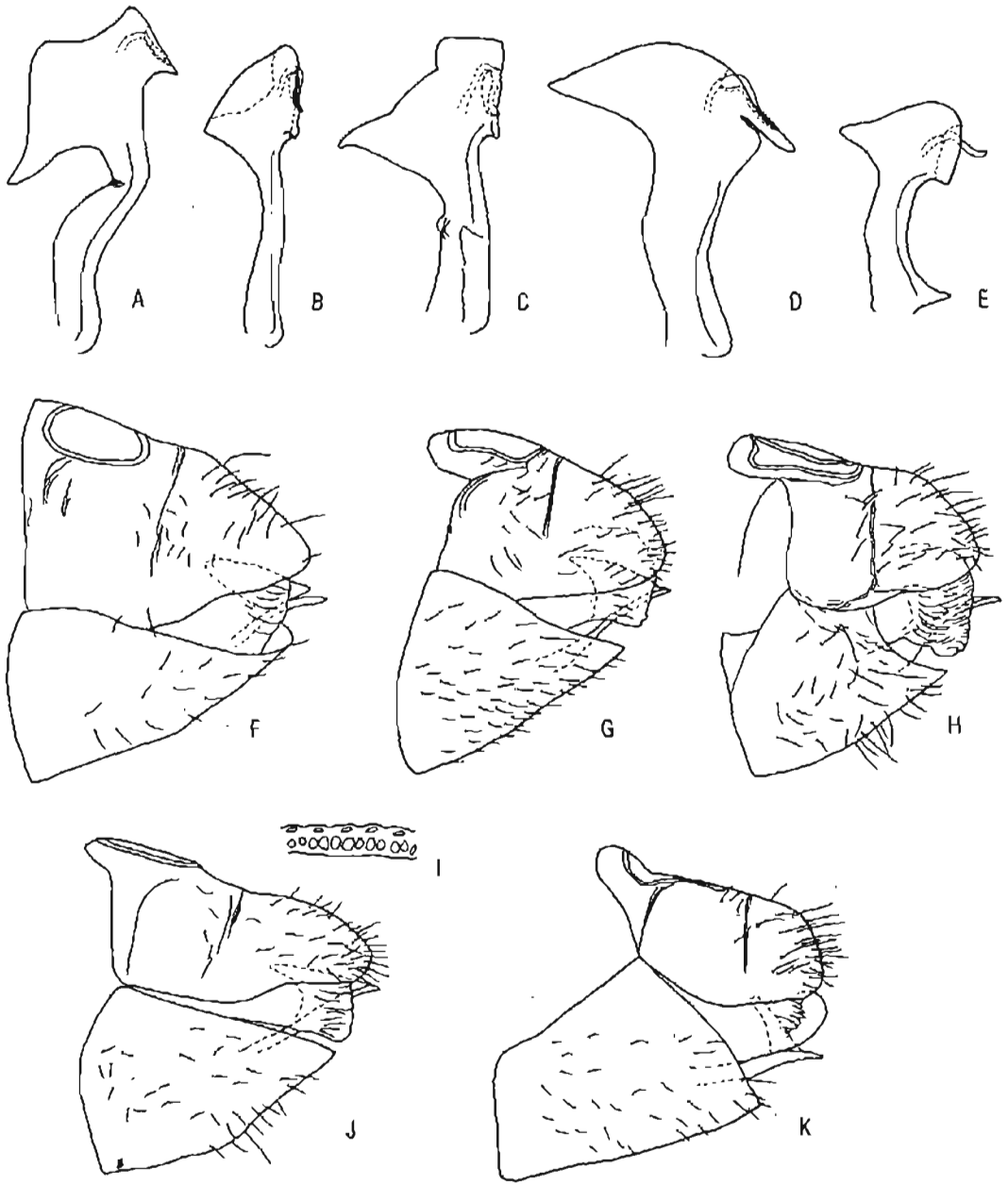

Figure 5. *Leuronota* spp.: A, F, *L. fuscata* (Laing); B, G, ***L. styliforceps* sp. nov.**; C, H, ***L. esenbeckiae* sp. nov.**; D, I, J, ***L. digitulata* sp. nov.**; E, K, ***L. fagarae* sp. nov.** A–E, Distal segment of aedeagus; F–H, J, K, female terminalia; I, section of female circumanal ring, outer pores above.

from cell cu2 and radular spinules which are forming broad areas. Terminalia as in Figs 4A, F, 5A, F. Parameres with strongly indented fore-margin and small posterior lobe. Basal segment of aedeagus narrowly curved basally and evenly tubular apically. Apical segment with recurved apico-dorsal point, broad slightly indented apical margin and subapical apico-ventral hook. Sclerotized end tube of ductus ejaculatorius medium long, sinuous. Female proctiger with transverse sclerotization distal to pore ring. Subgenital plate long with slightly angular ventral margin. Valvulae 3 flattened apically.

Measurements and ratios (1♂, 1♀). HW 0.49–0.51; AL 1.22; WL 2.87–2.89; MP 0.24; FP 0.42; PL 0.20; AEL 0.18.

GCV 0.59–0.75; ALHW 2.50; LLHW 0.48–0.54; TLHW 1.15–1.32; WLHW

5.67–5.86; WLW 2.86–3.01; CUR 1.42–1.53; MPHW 0.48; FPHW 0.86; FPC 3.31; FSP 0.93.

Larva

Unknown.

Host plant

Celtis sp. (Ulmaceae).

Distribution

Recorded from Paraguay (Laing, 1923). Material examined. Paraguay: 1♂, one adult without abdomen, San Bernardino, *Celtis* sp. (K. Fiebrig) (lectotype and paralectotype of *P. fuscata*); 1♂, 1♀, San Bernardino (K. Fiebrig) (BMNH, NHMV).

Comments

L. fuscata is separated from other species of the genus by its characteristic forewing venation. The male genital morphology is close to that of *L. leguminicola* Crawford and *L. michoacana* Ferris.

***Leuronota styliforceps* sp. nov.**

(Figs 3B, G, 4B, G, 5B, G)

Description of adult

Coloration. Yellow, genal processes and pronotum very pale yellowish. Antennal segments 1 and 2 yellow, 3 yellow basally, brown apically, segments 4–10 brown to dark brown. Forewings with yellow membrane and yellow or ochreous veins.

Structure. Head (Fig. 3G) with heavily sculptured vertex; genal processes long with subacute apices. Forewings (Fig. 3B) with elongate cell cu1a and short vein Rs; surface spinules absent apart from base of cell cu2; radular spinules forming narrow stripes. Terminalia as in Figs 4B, G, 5B, G. Parameres very narrow, styliform, apex with two forward directed teeth with a subapical group of long thick setae. Inner surface densely covered in long setae in basal half with a few scattered setae in apical half. Basal segment of aedeagus slender, strongly curved basally. Distal segment with slender shaft and triangular apical dilatation which is strongly excavated ventrally, with two subapical dorsal teeth directed towards base. End tube of ductus ejaculatorius long, slender, slightly sinuous. Female proctiger with transverse sclerotization distal to circumanal ring. Subgenital plate cuneate, pointed apically, densely setose. Valvulae 1–3 as in *fuscata*.

Measurements and ratios (1♂, 1♀). HW 0.49–0.54; AL 1.68; WL 2.78–3.39; MP 0.22; FP 0.48; PL 0.25; AEL 0.15.

GCV 0.71–0.89; ALHW 3.13; LLHW 0.56–0.60; TLHW 1.26–1.35; WLHW 5.84–6.29; WLW 2.84–3.12; CUR 1.70–1.88; MPHW 0.44; FPHW 0.89; FPC 2.88; FSP 0.94.

Larva and host plant

Unknown.

Material examined

Holotype. ♂, Argentina: Tucuman (Vezenyi) (TM).

Paratypes. Argentina: 4♀, same as holotype; 1♂, Tucuman, x.–xi. 1940, 41–16985 (K. J. Hayward). Bolivia: 1♂, 1♀, Villa Montes, end xi.1930 (S. G. Eisentraut); 1♂, same, 30.ix.1930, I. no. 109 D31 (MHNG, MNHU, TM, USNM).

Comments

L. styliformis differs from other species in the very slender parameres which lack a posterior lobe.

***Leuronota esenbeckiae* sp. nov.**

(Figs 3C, H, 4C, H, 5C, H)

Description of adult

Coloration. Head and thorax straw-coloured. Vertex with brown foveae. Antennal segments 1 and 2 yellow, flagellum brown, lighter basally. Thorax with a pair of brown longitudinal dorsal stripes and brown lateral spots. Forewings clear with unevenly infuscated membrane, veins brown. Abdomen brown, in teneral specimens lighter basally.

Structure. Head (Fig. 3H) with sculptured vertex; genal processes subacute apically. Forewings (Fig. 3C) with relatively high cu1a cell; surface spinules greatly reduced, weakly developed, sparsely spaced, denser basally completely absent from cell rs; radular spinules forming narrow fields. Terminalia as in Figs 4C, H, 5C, H. Parameres with large posterior lobe. Basal segment of aedeagus only a little curved basally, slightly dilated on inner side medially. Apical segment with square apex and triangular pointed subapical process, with two small humps at the base of ventral process. Sclerotized end tube medium long, sinuate. Female proctiger with transverse sclerotization distal to the pore ring. Subgenital plate short, pointed apically; ventral margin gently rounded. Valvulae 2 cuneate; valvulae 3 flattened apically.

Measurements and ratios (2♂, 2♀). HW 0.52–0.55; AL 1.38–1.47; WL 2.75–3.48; MP 0.27–0.29; FP 0.41–0.42; PL 0.16–0.17; AEL 0.14–0.15.

GCV 0.70–0.85; ALHW 2.52–2.78; LLHW 0.54–0.55; TLHW 1.16–1.30; WLHW 5.20–6.34; WLW 3.06–3.39; CUR 1.53–1.91; MPHW 0.53–0.56; FPHW 0.75–0.77; FPC 2.15–2.47; FSP 0.86–0.90.

Larva

Unknown

Host plant

Adults were collected on *Esenbeckia febrifuga* A. Juss. (Rutaceae).

Material examined

Holotype ♂, Paraguay: San Bernardino, *Esenbeckia febrifuga* (K. Fiebrig) (NHMV).

Paratypes. Paraguay: 1♂, 1♀, same as holotype; 1♀, 18.v. (S. V. Friebrig); 1♀, same, 30.vi., 2♀, no. 6773 (S. V. Fiebrig). Argentina: 3♂, 1♀, Misiones, Posadas,

v.1961 (N. L. H. Krauss); 2♂, 1♀, Misiones, Ignacio, v.1961 (Krauss) (MHNG, MNHU, NHMV, USNM).

Comments

L. esenbeckiae differs from other species in the large posterior lobe on the parameres.

***Leuronota digitulata* sp. nov.**

(Figs 3D, I, 4D, I, 5D, I, J)

Description of adult

Coloration. Head and thorax brown dorsally, yellow laterally and ventrally. Head and pronotum with yellow dorsal pattern. Antennae yellow, apices of segments 3–8 brown, segments 9 and 10 entirely dark brown. Forewings (Fig. 3D) transparent with brown marginal ribbon along hind-margin; veins yellow. Abdomen brown.

Structure. Head (Fig. 3I) with heavily sculptured vertex; genal processes long, outwards pointing apically. Forewings (Fig. 3D) with elongate cu1a cell; surface spinules absent from cells c+sc and r1, in other cells forming narrow stripes in the middle of the cells except in the apical part of coloured background where they almost reach the veins, spaced densely and irregularly radular spinules forming narrow stripes, along the wing-margin distinctly broader than in *L. esenbeckiae*. Terminalia as in Figs 4D, I, 5D, I, J. Parameres with long finger-like dorsal process and rounded posterior lobe. Basal segment of aedeagus similar to *L. esenbeckiae* but more rounded basally. Distal segment strongly shouldered at joint, with down-curved apical hook and ribbon-like dorsal subapical process. End tube of ductus ejaculatorius long and strongly sinuate. Female proctiger with transverse groove distal to the pore ring. Subgenital plate short; dorsal margin angled. Valvulae 2 cuneate; valvulae 3 flattened apically.

Measurements and ratios (2♂, 1♀). HW 0.50–0.52; AL 1.37; WL 2.95–3.04; MP 0.29; FP 0.50; PL 0.17–0.18; AEL 0.14–0.16.

GCV 1.00–1.06; ALHW 2.69; LLHW 0.54–0.57; TLHW 1.37–1.55; WLHW 5.79–6.08; WLW 3.07–3.58; CUR 2.00–2.17; MPHW 0.57–0.58; FPHW 1.00; FPC 3.00; FSP 0.94.

Larva and host plant.

Unknown

Material examined

Holotype ♂, Paraguay: 27.ii., no. 3016 (S. V. Fiebrig) (MNHU).

Paratypes. Paraguay: 3♂, 1♀, same as holotype; 1♂, same, 2.vii; 1♂, San Bernardino (Fiebrig) (MHNG, MNHU, NHMV).

Comment

Apart from the male genital morphology, *L. digitulata* differs from other species in the long genal cones in conjunction with the elongate and characteristically coloured forewings.

Leuronota fagarae sp. nov.

(Figs 3E, J, 4E, J, 5E, K)

Description of adult

Coloration. Head and pronotum ochreous with dark brown pattern. Antennal segments 1 and 2 brown, 3–8 yellow with brown apices, 9 and 10 dark brown. Mesopraescutum and mesoscutum dark brown with narrow longitudinal yellow stripes. Mesoscutellum yellow. Sides and venter of thorax brown with ochreous spots. Legs yellow, tibiae ochreous. Forewings with dark brown well defined pattern (Fig. 3E), veins brown. Abdomen dark brown.

Structure. Head (Fig. 3J) with sculpturing on vertex weak in the middle, well developed along margins; genal processes short, blunt apically. Forewings (Fig. 3E) very long, with elongate cu1a cell; surface spinules absent from cell r1, in cell c+sc restricted to a narrow stripe basally; in the other cells leaving spinule-free stripes along the veins, spaced in irregular cellular pattern; radular spinules forming narrow stripes. Terminalia as in Figs 4E, J, 5E, K. Parameres lamellar, bent in basal quarter, apex sclerotized, forming a forward directed point. Basal segment of aedeagus with narrowly curved base and slightly bent apical part. Distal segment with thorn-like projection near joint, apex square with triangular ventral lobe. End tube of ductus ejaculatorius medium long, sinuous. Female proctiger with transverse sclerotization distal to the circumanal ring. Subgenital plate long, ventral margin straight. Valvulae 2 ribbon-shaped; valvulae 3 rounded apically.

Measurements and ratios (3♂, 2♀). HW 0.48–0.55; AL 1.27–1.37; WL 2.48–2.99; MP 0.21–0.22; FP 0.29–0.35; PL 0.18–0.20; AEL 0.10–0.12.

GCV 0.63–0.78; ALHW 2.60–2.80; LLHW 0.42–0.45; TLHW 1.18–1.45; WLHW 5.16–5.67; WLW 3.67–3.81; CUR 2.03; MPHW 0.43–0.44; FPHW 0.58–0.64; FPC 2.00–2.40; FSP 1.14–1.33.

Larva

Unknown.

Host plant

Fagara rugosa Eng. (Rutaceae).

Material examined

Holotype. Paraguay: San Bernardino, on leaves of *Fagara rugosa* (Fiebrig) (NHMV).

Paratypes. Paraguay: 3♂, 2♀, San Bernardino (Fiebrig); 3♂, 4♀, same, 30.i. *Fagara rugosa* (MHNG, MNHU).

Comment

L. fagarae has parameres similar to *L. leguminicola* and *michoacana* from which it differs in the detailed structures of the parameres and the aedeagus.

Genus *Rhegmoza* Enderlein

Rhegmoza Enderlein, 1918b: 480. Type-species: *Rhegmoza tinctoria* Enderlein, by original designation.

Description. Head (Fig. 6B) wider than pronotum, distinctly narrower than mesoscutum, in profile only a little deflexed from longitudinal axis of body. Dorsal surface of head and pronotum almost straight, covered in long setae. Vertex flat, rectangular. Genal cones flattened dorsally, lying in the same plane as vertex. Eyes large, adpressed to head. Antennae ten-segmented with rhinaria on segments 4, 6, 8 and 9; segment 10 with two long subequal terminal setae, one of which pointed, the other one truncate apically. Clypeus pyriform. Pronotum and head closely adpressed. Pronotum straight along fore-margin and excavated along hind-margin, very long, transverse. Propleurites broad; episternum triangular, epimeron square; suture with only one dorsal branch developed. Mesonotum only little arched. Pronotum, mesopraescutum and mesoscutum of subequal length along the middle. Legs short and robust. Metacoxae with very small tubercular meracanthus. Metatibiae without basal spine, at most with flattened tubercle, with 1+3 raised apical spurs. Metatarsi without black spurs. Forewings (Fig. 6A) rhomboidal without exact trifurcation of vein R+M+Cu1; veins with very long setae; radular spinules forming broad fields. Hindwings shorter than forewings, narrow, with grouped costal setae. Vein R+M+Cu1 bifurcating into R and M+Cu1. Lateral setae present on abdominal tergites 3–7 in males and 4–8 in females. Male proctiger (Fig. 6C) with narrow posterior lobe. Subgenital plate large, globular. Parameres (Fig. 6D) lamellar with hooked apex. Basal segment of aedeagus narrowly

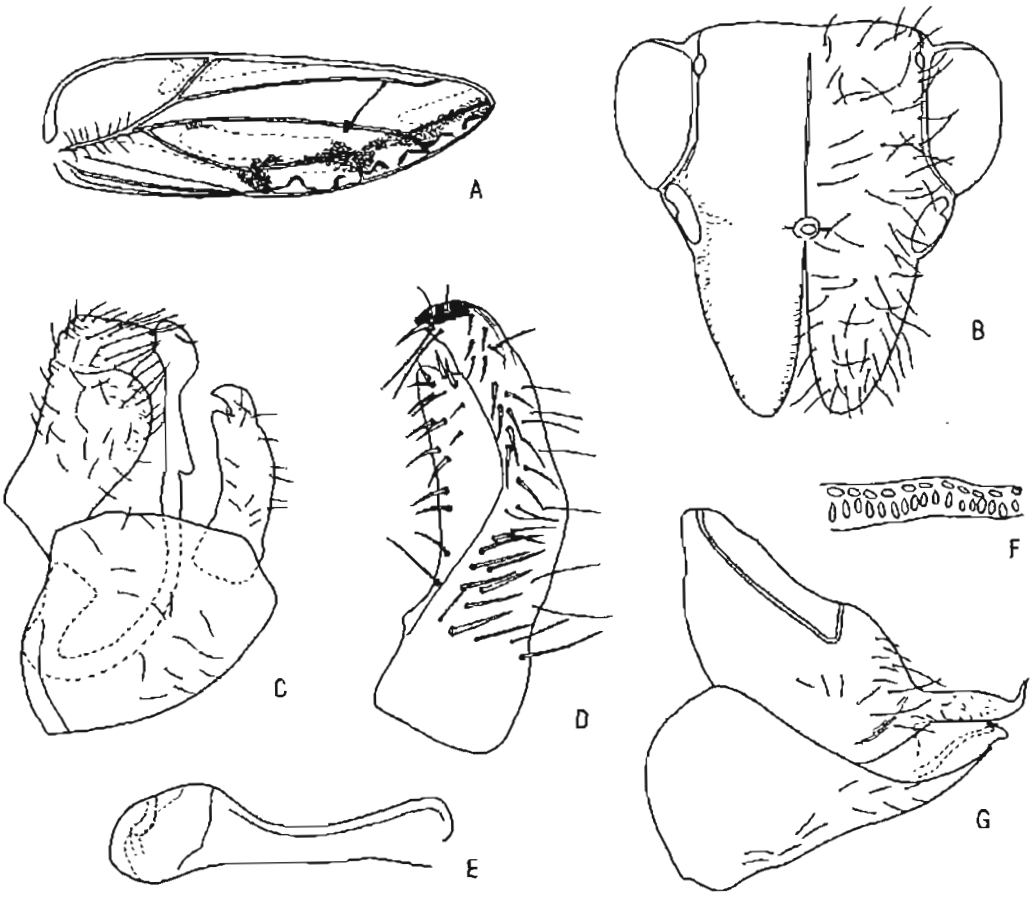

Figure 6. *Rhegmoza tinctoria* Enderlein.: A, forewing; B, head, dorsal view; C, male terminalia; D, paramere, inner surface; E, distal segment of aedeagus; F, section of female circumanal ring, outer pores above; G, female terminalia.

curved at base, straight at apex. Distal segment (Fig. 6E) short with round, dilated apex. End tube of ductus ejaculatorius of medium length, curved. Female proctiger (Fig. 6G) with apical styliform projection, apex upturned. Subgenital plate cuneate, subacute apically. Valvulae 1 slightly curved; valvulae 2 cuneate; valvulae 3 narrowly curved apically. Circumanal ring consisting of two rows of unequal pores (Fig. 6E).

Comments. Enderlein (1918b) separated *Rhegmoza* from *Trioza* on the peculiar rectangular shape of the cu1a cell in the forewings. This character alone would not justify the erection of a new genus but *R. tinctoria* also displays highly derived autapomorphies on head, hind-legs, forewings and terminalia characters. The genus is similar to *Leuronota* and *Trichochermes* in the flattened and elongate body-form which is, however, plesiomorphic or a parallel development. The genus is monotypic and restricted to the tropical and subtropical neotropics. Host plant relationships are unknown.

Rhegmoza tinctoria Enderlein, 1918b
(Fig. 6)

Rhegmoza tinctoria Enderlein, 1918b: 481. Syntypes 2♀, Paraguay: San Bernardino, x.1908 (Fiebrig) (?depository).

Description of adult

Coloration. Head greenish or pale yellow, dorsum apart from lateral parts of vertex brown. Ventral surface of genal processes straw-coloured. Antennal segments 1–8 almost white, 9 and 10 dark brown. Clypeus pale yellow. Thoracic dorsum light brown with ochreous and yellow patches, sides and venter straw-coloured. Legs yellow with brown pattern on metacoxae. Forewings transparent with yellow veins in fore-part and brown veins in hind-part, with characteristic brown pattern as in Fig. 6A. Hindwings whitish. Abdominal dorsum brown, venter greenish or pale yellow. Terminalia yellow to ochreous.

Structure. Head (Fig. 6B) with very long conical genal processes. Dorsum of vertex and genal cones flattened, smooth, sculpturing restricted to margins. Vertex passing smoothly into genae. Forewings (Fig. 6A) rhomboidal, with strongly curved vein C+Sc and straight fore-margin; cell cu1a rectangular, anal cell very narrow; surface spinules present mainly along wing-margin and in cell m1+2; densely and irregularly spaced. Terminalia as in Fig. 6C–G. Male proctiger covered in long hairs, particularly at apex. Parameres on inner surface with long thick setae, subapical incision forming an outer lobe and an inner forward pointed hook. Distal segment of aedeagus short and robust. Female terminalia sparsely covered in long hairs apically.

Measurements and ratios (1♂, 1♀). HW 0.60–0.73; AL 0.83–0.95; WL 2.74–3.48; MP 0.21; FP 0.59; PL 0.22; AEL 0.16.

GCV 0.92–0.95; ALHW 1.29–1.39; LLHW 0.44–0.46; TLHW 0.77–0.83; WLHW 4.59–4.73; WLW 2.89–3.18; CUR 2.17–2.95; MPHW 0.34; FPHW 0.67; FPC 2.00; FSP 0.80.

Larva and host plant

Unknown.

Distribution

Recorded from Paraguay (Enderlein, 1918b). Material examined. Argentina: 1♂, Misiones, env. de San Ignacio, Villa Lutecia, ix.1911 (E. R. Wagner). Bolvia: 1♂, Villa Montes, end xi.1930 (Eisentraut). Panama: 1♀, Cerro Punta, Boquete Trail, 2060–2330 m, 28.vii.1982 (D. Burckhardt). Paraguay: 1♂, San Bernardino (Fiebrig) (MHNG, MNHN, MNHU, NHMV).

Comment

The single Panamanian ♀ differs from the other material in its broader forewings, the wing-pattern and its larger size. As ♀ syntypes seem to be lost, the Panamanian specimen is referred to *R. tinctoria* only provisionally.

Genus *Neolithus* Scott

Neolithus Scott, 1882: 445. Type-species: *Neolithus fasciatus* Scott, by monotypy.

Description. Head (Fig. 7B) as wide as pronotum, about one-third as wide as mesoscutum; in profile inclined at almost 90° to longitudinal axis of body. Vertex rectangular, with indented foveae and strongly incised median suture. Ocelli large. Eyes hemispherical. Genae only weakly produced bearing long setae. Antennae ten-segmented with rhinaria on segments 4, 6, 8 and 9. Flagellar segments with long hairs; segment 10 with a pair of very short terminal setae. Clypeus globular with a small group of apical setae. Head and thorax sparsely covered in long setae dorsally. Thorax strongly arched. Pronotum transverse, relatively flat, sides bent backwards. Propleurites with large triangular episternum and narrow rectangular epimeron, median suture with only one dorsal branch developed. Mesopraescutum and mesoscutum of subequal length along the middle. Legs robust. Metacoxae with small blunt meracanthus. Metatibiae without knee spine, at most with blunt tubercle, with 1+(2–4) apical spurs. Basal metatarsi without spurs. Forewings (Fig. 7A) ovoid. Vein R+M+Cu1 not strictly trifurcating. Radular spinules forming narrow stripes. Hindwings about half forewing length; costal setae ungrouped, vein R+M+Cu1 with indistinct trifurcation. Setae present on abdominal tergites 5–7 in males, and on 6–8 in females. Male proctiger (Fig. 7C) with narrow posterior lobes. Subgenital plate globular. Parameres (Fig. 7D) broad. Distal segment of aedeagus (Fig. 7E) clavate. Female terminalia (Fig. 7F) cuneate.

Comment. Neolithus has several primitive characters which separate it from more advanced triozids such as the relatively flat pronotum in the adults, and two-segmented tarsi, and the absence of both secta-setae and a humeral lobe in the fifth instar larvae. Larval *Neolithus* have a blunt terminal process on the abdomen which is unique among triozids. No apomorphies are known that link *Neolithus* with any other triozid genus. White & Hodkinson (1985: fig. 185a, characters 3 and 24) used the presence of swollen genae and forewings with apex acute or acutely rounded as synapomorphies defining the Triozidae minus *Neolithus* as a monophyletic group, *Neolithus* being the sister-group of all other triozids. This classification seems doubtful as the presence of genal cones is probably the primitive condition within the Triozidae (Hollis, 1984), and apically rounded forewings occur also in some *Pauropsylla* and *Trioza* spp.

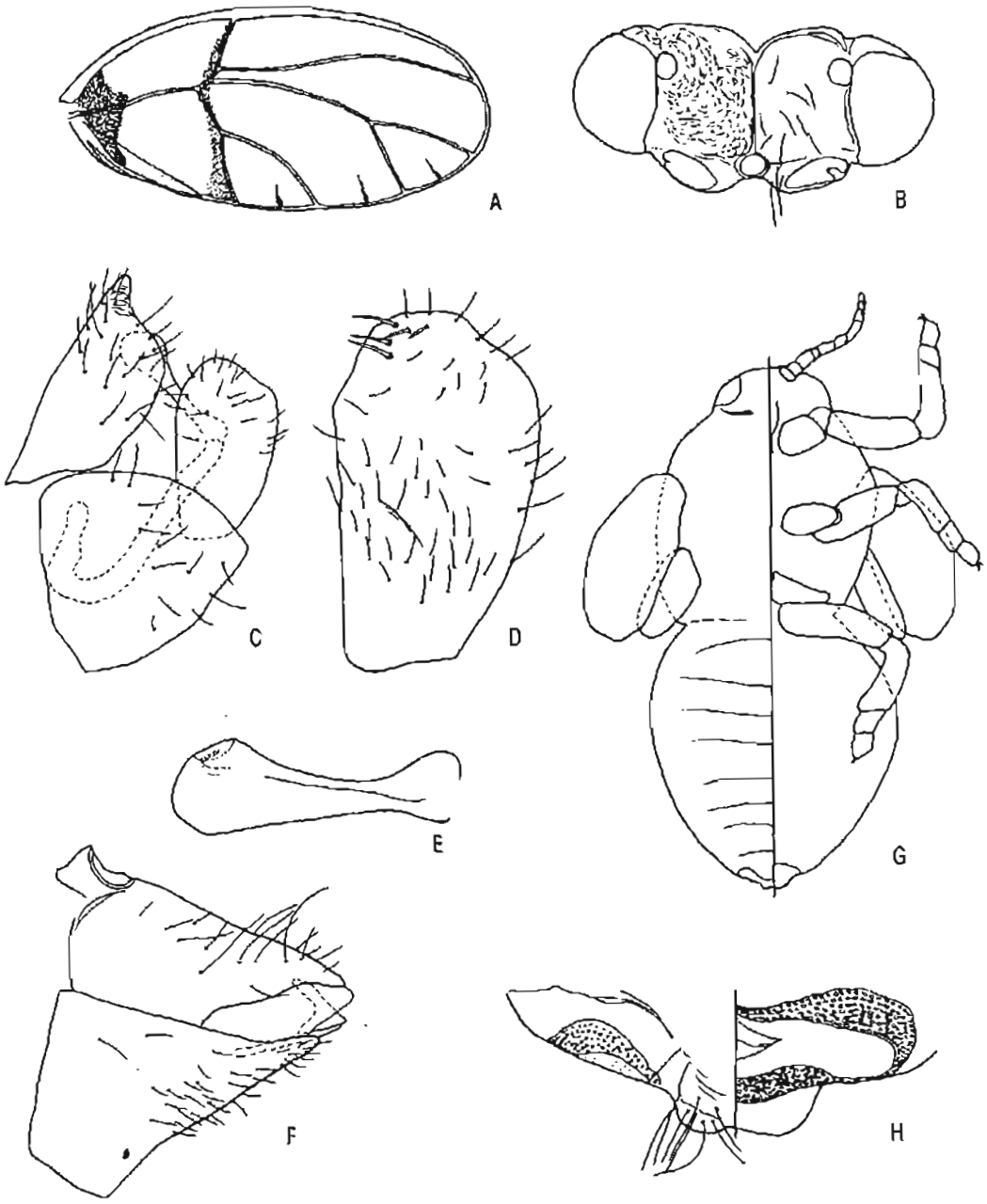

Figure 7. *Neolithus fasciatus* Scott: A, forewing; B, head, dorsal view; C, male terminalia; D, paramere, inner view; E, distal segment of aedeagus; F, female terminalia; G, fifth instar larva, dorsal surface left, ventral surface right; H, detail of abdominal apex.

The larvae described by White & Hodkinson (1985) under *Neolithus* differ from *N. fasciatus* in the presence of tooth-like structures at the abdominal apex, in the shape of the circumanal ring, in the number of antennal segments and in the host plant family, suggesting that the two species are not congeneric.

Neolithus is, as presently defined, a monotypic neotropical genus trophically linked to Euphorbiaceae.

Neolithus fasciatus Scott, 1882
(Fig. 7)

Neolithus fasciatus Scott, 1882: 446. Lectotype ♂, Argentina: Buenos Aires, *Sapium aucuparium* var. *salicifolium* (J. Berg) (BMNH), here designated (examined).

Description of adult

Coloration. Head light brown with dark foveae. Antennal segments 1 and 2 yellow, segments 3–8 yellow or ochreous with brown apices, 9 and 10 dark brown. Clypeus dark brown. Pronotum of same colour as vertex. Rest of thorax darker brown with yellow pattern, more developed laterally. Legs brown with partially yellow femora. Forewings (Fig. 7A) transparent with ochreous veins and brown pattern basally and medially. Hindwings transparent. Abdomen brown. Teneral specimens yellow to ochreous with restricted brown pattern.

Structure. Head (Fig. 7B) small, adpressed to head. Metacoxae with slightly outwards directed meracanthus and with tubercle at base of meracanthus. Forewings (Fig. 7A) apart from radular spinules without surface spinules. Terminalia as in Fig. 7C–F. Male proctiger with narrow posterior lobes and strongly attenuate apex. Parameres broadly lamellar; outer surface with a group of sparsely spaced setae in apical half, inner surface with thin long setae basally and with a small apical group of thick setae. Distal segment of aedeagus clavate, dilated basally and apically. Female proctiger and subgenital plate subacute apically. Dorsal margin of proctiger almost straight. Ventral margin of subgenital plate concave.

Measurements and ratios (4♂, 4♀). HW 0.71–0.80; AL 1.11–1.42; WL 3.53–4.75; MP 0.39–0.49; FP 0.54–0.65; PL 0.29–0.33; AEL 0.22–0.26.

ALHW 1.41–2.01; LLHW 0.39–0.49; TLHW 1.07–1.47; WLHW 4.74–6.22; WLW 2.07–2.32; CUR 1.05–1.46; MPHW 0.53–0.63; FPHW 0.71–0.85; FPC 4.40–6.50; FSP 0.82–0.89.

Larva

Coloration. Yellow with ochreous antennae. Legs brown. Wing-pads ochreous with brown margins.

Structure. Body (Fig. 7G) robust, only little sclerotized with delimitation of segments hardly visible, covered in simple setae. Head and thorax sparsely covered in short setae dorsally, wing-pads densely covered in long setae mainly along margins. Antennae eight-segmented, covered in long setae, with one small rhinarium on segments 4 and 6, and 2 on segment 8. Legs robust with two-segmented tarsi; separation of basal segment sometimes indistinct. Tarsi with a pair of big claws, lacking an arolium. Abdomen without well defined sclerites, setae arranged in broad transverse bands. Apex of abdomen (Fig. 7H) terminating in a blunt process covered in long hairs dorsally. Anus in ventral position, at the extreme abdominal end. Outer circumanal ring consisting of several rows of pores extending to dorsal abdomen surface.

Measurements and ratios (five specimens). AL 0.73–0.88; WL 1.13–1.32; BL 2.94–4.13.

ALW 0.56–0.78; BBL 0.68–0.76.

Host plant

Forms large galls on the shoots and branches of *Sapium aucuparium* Jacq. var. *salicifolium* Knth. (= *S. biglandulosum* Muller) (Euphorbiaceae).

Distribution

Recorded from Argentina, Brazil and Uruguay (Hodkinson & White, 1981).

Material examined

Argentina: 7♂, 3♀, one adult without abdomen, Buenos Aires, *Sapium acuparium* var. *salicifolium* (J. Berg) (lectotype and paralectotypes of *N. fasciatus*); 3♂, 3♀, Buenos Aires (Signoret); 1♀, Tucuman, 450 m, 24.i.1905 (S. V. Steinbach). Brazil: 1♂, 1♀, 12 larvae, Belo Horizonte, 11,ii.1982, *Sapium biglandulosum (G. W. A. Fernandes). Paraguay*: 5♀, San Bernardino (Fiebrig); 1♂, Asuncion, 1904 (Vezenyi); 1♀, 12.vii. (S. V. Fiebrig). Uruguay: 15♂, ♀ (BMNH, MHNG, MNHU, NHMV, TM).

Genus *Triozoida* Crawford

Triozoida Crawford, 1911b: 491. Type-species: *Triozoida johnsonii* Crawford, by original designation.

Description. Head (Fig. 8E–H) wider than pronotum, about as wide as mesonotum, in profile strongly inclined to longitudinal axis of body. Vertex with slightly raised lateral margins and rounded fore-margin, median suture developed. Genal processes present, often widely separated medially. Apices with two to four very long setae. Dorsal surface of genal processes in a lower plane than vertex and more inclined. Eyes large, hemispherical. Antennae ten-segmented, with rhinaria on segments 4, 6, 8 and 9, segment 10 bearing a pair of long unequal, terminal setae. Clypeus pyriform with a pair of apical setae. Apical two labial segments 0.5–0.6 times head width. Pronotum transverse, fore-margin bent downwards and sides bent backwards. Pronotum strongly arched dorsally. Metacoxae with large, blunt meracanthus. Metatibiae with several large basal spines and two to four outer and three to four inner apical spurs. One outer and the inner spurs large, of subequal size; the remaining outer spurs are smaller. Basal metatarsi without spurs. Forewings (Fig. 8A–D) membranous with subacute apex, often with brown or black streak along veins R+M+Cu1, R and R1. Vein M and Cu1 with very short stalk. Surface spinules absent apart from an apical field in cell c+sc and a basal field in cell cu2, sometimes also with a small field in basal part of cell r1. Radular spinules forming narrow stripes in cells m1+2, m3+4 and cu1a. Hindwings at most three-quarters forewing length, narrow. Costal setae grouped. Abdomen with lateral setae present on tergites 3 and 4 in males and on 4 and 5 in females. Male proctiger (Fig. 9A–D) simple with lobed posterior margin. Subgenital plate short, densely setose. Parameres (Fig. 9E–H) lamellar with strongly sclerotized inward directed, apical tooth. Distal segment of aedeagus (Fig. 9I–L) with long stalk-shaped base and with dilated apex. Sclerotized end tube of medium length, strongly curved. Female terminalia (Fig. 10) cuneate, densely setose. Circumanal ring consisting of two uneven rows of pores. The outer ones are broad, the inner ones elongate. Valvulae 1 subacute apically, often with short ventral teeth; valvulae 2 cuneate; valvulae 3 irregularly rounded or flattened apically.

Comments. The taxonomic status of the genera *Cerotrioza, Ceropsylla, Izpania, Myrmecephala, Optomopsylla* and *Triozoida* as well as some of the species included therein, is confused. The single neotropical species referred to the oriental *Cerotrioza* by Tuthill (1959) is not congenetic with the type-species. It was

originally described as *Ceropsylla* and Tuthill apparently confused the two similarly sounding generic names.

The type-species of *Ceropsylla, Izpania* and *Triozoida* are similar but no detailed synapomorphies are known which confirm the monophyly of the three genera together.

The position of *Ceropsylla discrepans* Tuthill and *pulchra* Tuthill is doubtful as they were described only from females. *C. martorelli* Caldwell by contrast has unique male and female terminalia. These three species are perhaps therefore not closely related to the type-species of *Ceropsylla* and neither fit the above description of *Triozoida*.

The genera *Myrmecephala, Optomopsylla* and *Triozoida* are currently being revised by Dr R. G. Brown (personal communication). *Trioza limbata* Enderlein which was transferred to *Myrmecephala* (Klimaszewski, 1962) is congeneric with *Triozoida johnsonii*.

Hodkinson & White (1981) list five species of the mainly tropical New World genus *Triozoida*, members of which develop on Myrtaceae. An additional North American species is listed by Crawford (1911b). Four species occur in temperate South America, three of which are new.

Key to the species of Triozoida

1 Large species; forewings longer than 4.0 mm. Terminalia as in Figs 9A, E, I, 10A. Parameres in profile without median constriction . . . . . ***T. ingens* sp. nov.**

— Small species; forewings shorter than 3.5 mm. Parameres in profile with median constriction (Fig. 9F–H) . . . 2

2 Head (Fig. 8F) with blunt genal processes; vertex very sparsely covered in short setae; sculpture absent from margin of antennal insertion. Forewings (Fig. 8B) usually without surface spinules in basal part of cell r1; vein Rs short. Terminalia as in Figs 9B, F, J, 10B. Male proctiger with very long setae along posterior margin. Dorsal margin of female proctiger concave subapically, apex appears, therefore, upturned . . *T. limbata* (Enderlein)

— Head (Fig. 8G, H) with subacute genal processes; vertex conspicuously covered in setae; sculptures present along antennal insertion. Forewings (Fig. 8C, D) usually with a basal group of surface spinules in cell r1; veins Rs long. Male proctiger with short setae along posterior margin (Fig. 9C, D). Dorsal margin of female proctiger (Fig. 10C, D) almost straight 3

3 Forewings (Fig. 8C) widest proximal to the middle; more than 2.9 times as long as wide. Terminalia as in Figs 9C, G, K, 10C. Male proctiger with posterior lobe in the middle. Head of distal segment of aedeagus large, bearing a dorso-apical, membraneous lobe. Female proctiger with subapical constriction

***T. angustipennis* sp. nov.**

— Forewings (Fig. 8D) widest distal to the middle, less than 2.8 times as long as wide. Terminalia as in Figs 9D, H, L, 10D. Male proctiger with posterior lobe basally. Head of distal segment of aedeagus small, without dorso-basal, membranous lobe. Female proctiger without subapical constriction . . . . . ***T. lateritia* sp. nov.**

***Triozoida ingens* sp. nov.**
(Figs 8A, E, 9A, E, I, 10A)

Description of adult

Coloration. Teneral specimens green. Vertex brown, genal processes dark brown. Antennal segments 1–8 yellow with darker apices, 9 and 10 black.

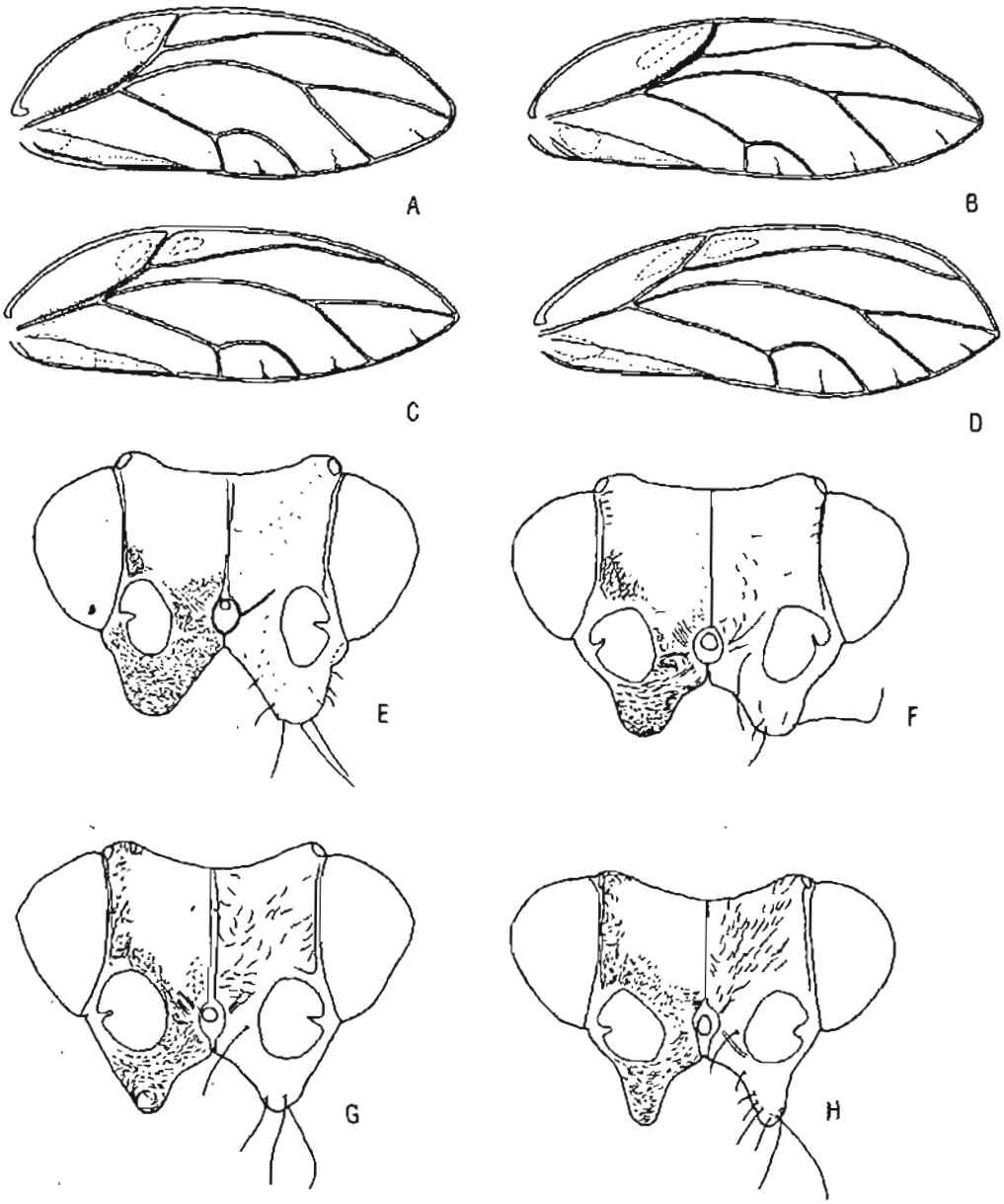

Figure 8. *Triozoida* spp.: A, E, ***T. ingens* sp. nov.**; B, F, *T. limbata* (Enderlein); C, G, ***T. angustipennis* sp. nov.**; D, H, ***T. lateritia* sp. nov.** A–D, Forewing; E–H, head, dorsal view.

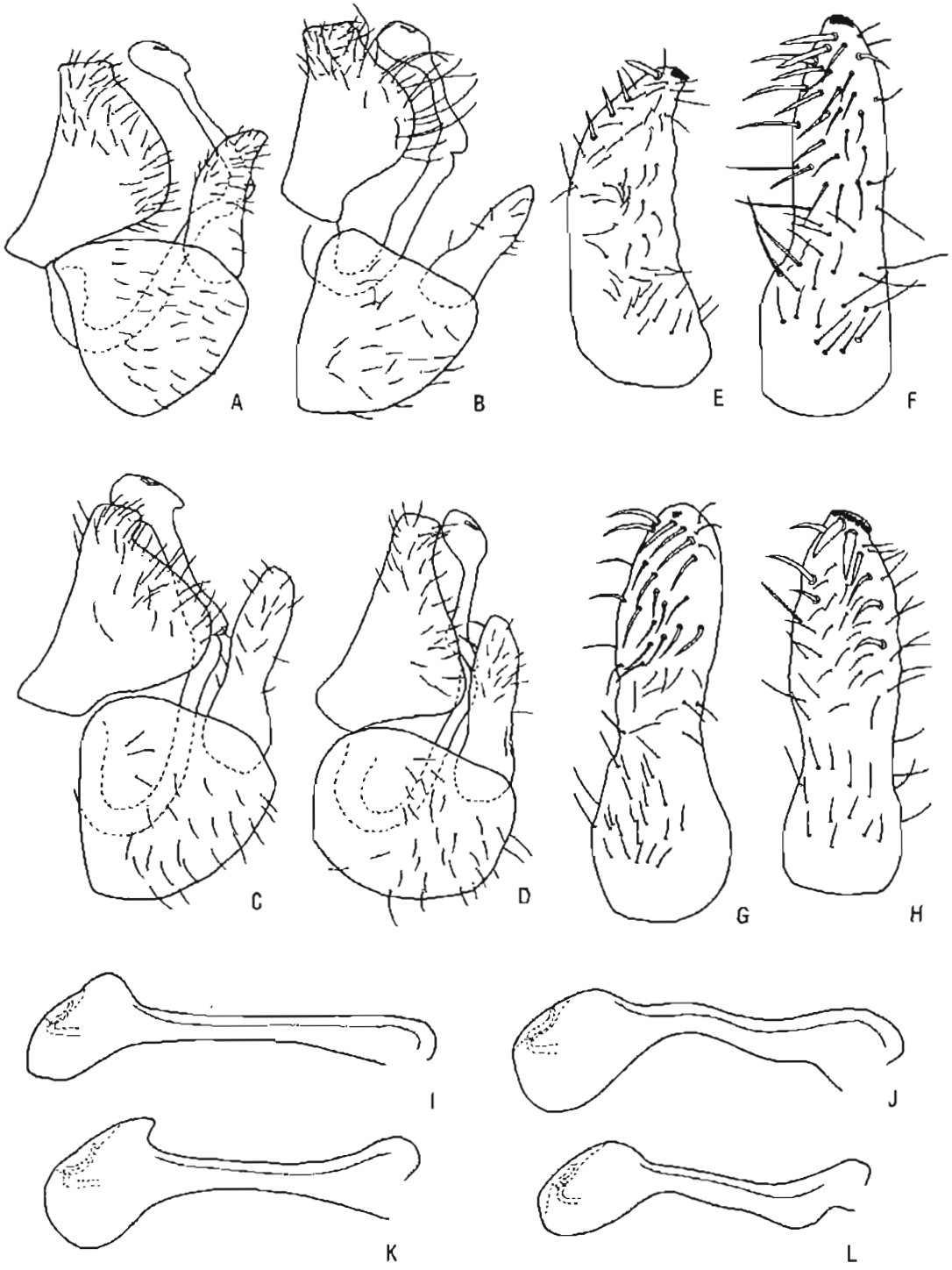

Figure 9. *Triozoida* spp.: A, E, I, ***T. ingens* sp. nov.**; B, F, J, *T. limbata* (Enderlein); C, G, K, ***T. angustipennis* sp. nov.**; D, H, L, ***T. lateritia* sp. nov.** A–D, Male terminalia; E–H, paramere, inner surface; I–L, distal segment of aedeagus.

Thorax with brown dorsal pattern. Legs green with brown tibiae and tarsi. Forewings transparent with narrow brown streak along veins R+M+Cu1, R and R1. Mature specimens with more extended brown coloration and reddish brown abdomen.

Structure. Head (Fig. 8E) with large, blunt genal processes. Vertex along antennal insertion without sculpturing. Forewings (Fig. 8A) with long vein Rs; surface spinules usually absent from basal part of cell r1. Terminalia as in

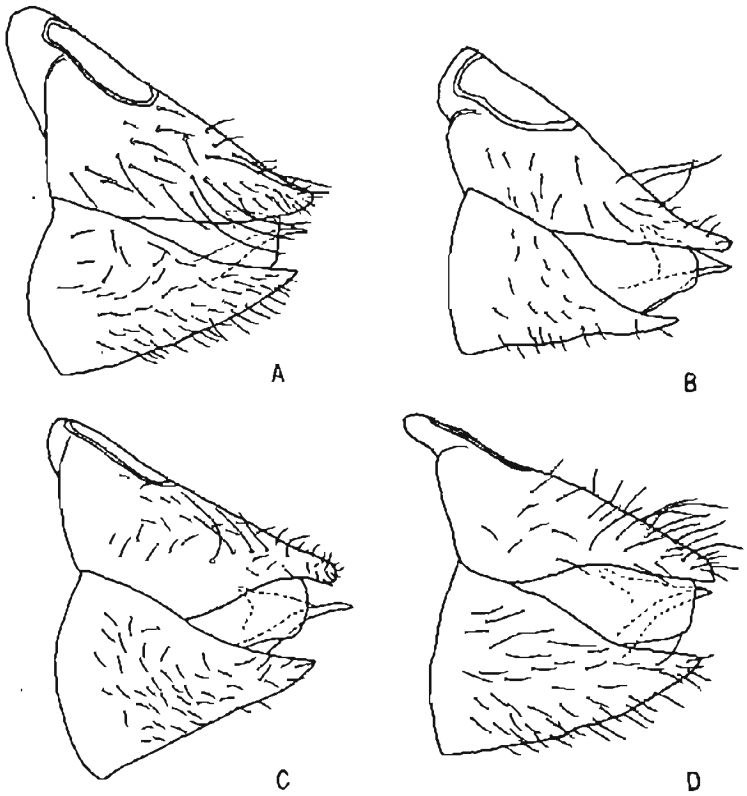

Figure 10. *Triozoida* spp.: female terminalia. A, ***T. ingens* sp. nov.**; B, *T. limbata* (Enderlein); C, ***T. angustipennis* sp. nov.**; D, ***T. lateritia* sp. nov.**

Figs 9A, E, I, 10A. Male proctiger with broad posterior lobe, its greatest width in the middle. Setae relatively short. Parameres without constriction in the middle; inner surface with some thick setae along the apical half of the fore-margin. Proximal segment of aedeagus straight medially, not expanded, apex curved backwards. Head of apical segment of aedeagus with a large dorso-basal lobe. Dorsal margin of female proctiger almost straight, apex blunt, with very long setae laterally and apically.

Measurements and ratios (1♂, 1♀). HW 0.86–0.93; WL 4.16–4.80; MP 0.32; FP 0.75; PL 0.28; AEL 0.34.

GCV 0.71–0.76; LLHW 0.56–0.59; TLHW 0.95–0.97; WLHW 4.83–5.16; WLW 2.65–2.81; CUR 1.69–1.86; MPHW 0.38; FPHW 0.77; FPC 2.70; FSP 0.75.

Larva

Unknown.

Host plant

Adult specimens were collected from *Pimenta* sp. (Myrtaceae).

Material examined

Holotype ♂, Paraguay: 10.v., no. 3743 (S. V. Fiebrig) (MNHU).

Paratypes. Paraguay: 1♂, 3♀, same as holotype; 1♀, 20.iv., no. 3492, same; 1♀, 8.v., same. Brazil: 2♂, 4♀, Minas Gerais, 23.ix.1981, *Pimenta* (A. C. Favia) (BMNH, MHNG, MNHU).

Comment

T. ingens differs from all other *Triozoida* in its size. The parameres are similar to those of *T. johnsonii*, which also lack the median constriction.

Triozoida limbata (Enderlein, 1918a) **comb. nov.**
(Figs 8B, F, J, 10B)

Trioza limbata Enderlein, 1918a: 351. Lectotype ♂, Bolivia: Prov. Sara (S. Steinbach) (IZPAN), here designated (examined).

Description of adult

Coloration. Head shiny black. Antennal segments 1–3 green to ochreous, 4–10 dark brown to almost black. Clypeus yellow to light brown. Thorax black dorsally, ochreous with brown patches laterally and ventrally. Legs brown, femora dirty yellow. Forewings transparent with yellow veins, a black streak present along veins R+M+Cu1, R and R1, clavus brown. Radular spinules dark. Hindwings transparent. Abdomen dark brown dorsally, green ventrally. Terminalia brown. Immature specimens with less extended dark coloration.

Structure. Head (Fig. 8F) similar to *T. ingens* but genal processes more slender and shorter. Forewings (Fig. 8B) with short vein Rs; surface spinules usually absent from base of cell r1. Terminalia as in Figs 9B, F, J, 10B. Male proctiger with narrow posterior lobe, its greatest width in the middle. Margins covered in very long setae. Parameres narrow, lamellar, relatively slender apically, with distinct median constriction. Basal segment of aedeagus with hump in the middle; apex straight, with subapical incision. Distal segment of aedeagus with large globular head. Dorsal margin of female proctiger concave subapically; long lateral setae shorter than *ingens*.

Measurements and ratios (3♂, 2♀). HW 0.55–0.61; AL 1.11–1.34; WL 2.60–3.05; MP 0.23–0.24; FPHW 0.52–0.54; PL 0.20–0.21; AEL 0.20–0.21.

GCV 0.52–0.74; ALHW 1.95–2.36; LLHW 0.60–0.66; TLHW 0.93–0.98; WLHW 4.65–5.02; WLW 2.64–2.98; CUR 2.07–2.45; MPHW 0.40–0.44; FPHW 0.89–0.91; FPC 2.65–2.75; FSP 0.68–0.71.

Larva and host plant

Unknown.

Distribution

Recorded from Bolivia (Enderlein, 1918a). Material examined. Argentina 1♂, 2♀, xi.1936 (Lizer). Bolivia: 2♂, Prov. Sara (Steinbach) (lectotype and paralectotype of *T. limbata*). Chile: 1♂, 5 km S Punta Arenas, 3.ii.1959 (J. F. G. Clarke) (MHNG, IZPAN, USNM).

Comment

T. limbata is close to *T. johnsonii* from which it differs in the constricted parameres and the long setae on the male proctiger. It differs from *T. media* Tuthill in the lack of a basal infuscation of the forewings. The relationships to *T. inconstans* Tuthill and *silvestris* Tuthill are being investigated by Dr R. G. Brown (personal communication).

Triozoida angustipennis sp. nov.

(Figs 8C, G, 9C, G, K, 10C)

Description of adult

Coloration. Similar to *T. limbata* but lighter in general appearance. Head and thorax dark brown. Dark streak along veins R+M+Cu1, R and R1 of forewings narrower and less marked than in *limbata.*

Structure. Head (Fig. 8G) with narrow genal processes. Vertex along antennal insertion with micro-sculpture. Forewings (Fig. 8C) similar to *T. limbata* but veins Rs longer and cell r1 usually with a basal group of surface spinules. Terminalia as in Figs 9C, G, K, 10C. Male proctiger with large posterior lobes, its greatest width in the middle, setae along posterior margin short. Parameres long with median constriction; inner surface with thick, long setae in apical half. Proximal segment of aedeagus straight and not expanded in the middle, with subapical incision. Head of distal segment large with membranous dorso-basal lobe. Dorsal margin of female proctiger almost straight, strongly tapering subapically.

Measurements and ratios (3♂, 3♀). HW 0.57–0.66; AL 1.23–1.31; WL 2.64–3.37; MP 0.22–0.24; FP 0.47–0.51; PL 0.21–0.24; AEL 0.19–0.20.

GCV 0.60–0.73; ALHW 2.09–2.17; LLHW 0.55–0.64; TLHW 0.86–0.98; WLHW 4.58–5.13; WLW 2.94–3.07; CUR 1.96–2.50; MPHW 0.37–0.39; FPHW 0.74–0.84; FPC 2.48–2.82; FSP 0.71–0.81.

Larva

Unknown.

Host plant

Adults were collected from *Tabernaemontana hilariana* Mudl. (Apocynaceae) and *Viviania* sp. (Vivianiaceae) which are, however, unlikely to be host plants.

Material examined

Holotype ♂, Paraguay: San Bernardino, Herbar no. 342 (Fiebrig) (MNHU).

Paralypes. Paraguay: 4♂, 5♀, same as holotype; 1♂, 1♀, 2.ii., *Tabernaemontana hilariana* (Fiebrig); 2♂, 2.ix., Herbar no. 342 (Fiebrig); 1♂, 21.iii., *Viviania* sp. (Fiebrig). Argentina: 1♂, Chaco, 28.x.–11.xi.1933 (K. J. Hayward) (BMNH, MHNG, MNHU, NHMV).

Comment

T. angustipennis differs from *limbata, inconstans, silvestris, mutabilis* and *johnsonii* in the longer Rs vein of the forewings. It differs from the latter also in the medially constricted parameres. It is separated from *T. media* by the lack of basal infuscation in the forewings.

Triozoida lateritia sp. nov.

(Figs 8D, H, 9D, H, L, 10D)

Description of adult

Coloration. Head dark brown, hind part ochreous. Lateral margins of vertex yellow. Genal processes black. Antennae dark brown. Thorax reddish brown

with dark brown pattern. Fore and mid-legs brown, hind-legs yellow. Forewings transparent to whitish. Veins R+M+Cu1, R and R1 dark brown, other veins brown. Hindwings whitish or transparent. Abdomen dark brown dorsally and brown ventrally. Terminalia brown.

Structure. Head (Fig. 8H) similar to *T. angustipennis* but vertex with longer and more densely spaced setae. Forewings (Fig. 8D) widest distal to middle, with very long, sinuous vein Rs; surface spinules usually present in basal part of cell r1. Terminalia as in Figs 9D, H, L, 10D. Male proctiger with narrow posterior lobes, widest in basal third; setae along posterior margin short. Parameres long, with median constriction; inner surface with thick setae along fore-margin and hind-margin. Basal segment of aedeagus straight in the middle and at apex. Distal segment strongly curved basally with oval apical dilation. Dorsal margin of female proctiger almost straight, apex blunt. Long dorsal setae similar to *T. angustipennis*.

Measurements and ratios (2♂, 2♀). HW 0.60–0.70; AL 1.19–1.51; WL 2.79–3.38; MP 0.22–0.24; FP 0.44–0.53; PL 0.22; AEL 0.19.

GCV 0.85–0.91; ALHW 1.97–2.21; LLHW 0.50–0.56; TLHW 0.81–0.85; WLHW 4.45–4.86; WLW 2.54–2.71; CUR 1.55–1.83; MPHW 0.35–0.39; FPHW 0.70–0.75; FPC 3.12–3.21; FSP 0.74–0.80.

Larva and host plant

Unknown.

Material examined

Holotype ♂, Argentina: Salta, Pampa Grande, La Viña E, 25°30'S, 65°33'W, 26.xi.1983 (L. E. Peña) (MHNG).

Paratypes. Argentina: 6♂, 4♀, same as holotype (MHNG).

Comment

T. lateritia differs from other species mainly in its apically widened forewings and the male terminalia.

Genus *Trioza* Förster

Trioza Förster, 1848: 67. Type-species: *Chermes urticae* Linnaeus, by subsequent designation (Oshanin, 1912: 128).

Calinda Blanchard, 1852: 309. Type-species *Calinda testacea* Blanchard, here designated. **Syn. nov.**

Comments. Trioza is used here in the sense of Hollis (1984) who gives also an extensive list of synonyms. Further synonyms are discussed by Burckhardt (1986a, b). The phylogenetic relationships within and around *Trioza sensu* Hollis are obscure but the genus is obviously polyphyletic. Hollis (1984) and Burckhardt (1986a, b) arrange the afrotropical and some of the palaearctic *Trioza* spp. in monophyletic species groups but as the phylogenetic relationships between these remain unclear they are not raised to generic rank. The same applies to neotropical *Trioza* spp.

When describing *Calinda*, Blanchard (1852) did not fix a type-species. Although he included members of *Notophorina*, *Calophya* and *Trioza* in *Calinda* (Burckhardt, 1986c), his description refers to triozids, and a species from the *Trioza baccharidis*-group is designated here as the type-species. The *baccharidis*-group is not raised to generic rank as its delimitation and relationships are difficult to establish and *Calinda* is synonymized with *Trioza*.

The temperate neotropical *Trioza* spp. are assigned to four groups: the *T. baccharidis*-group, the *T. hastata*-group, the *T. ocoteae*-group and the *T. berberidis*-group.

Key to the species of Trioza

1 Head (Figs 11A, 14A–C) weakly deflexed from longitudinal axis of body with very short genal processes. Vertex subrectangular, flat apart from foveae 2

— Head (Figs 15G, 17) with well-developed, long, conical genal processes. Head strongly deflexed from longitudinal axis of body and/or vertex trapezoidal or bulged anteriorly 14

2 Metatibiae with 1+3 apical spurs. Aedeagus long and very slender. Apex of distal segment (Fig. 11L–P) very long and narrow often with ventral, subapical teeth. Female terminalia (Fig. 12C–G) very long, styliform. *T. baccharidis*-group . . 3

— Metatibiae with 1+2 apical spurs. Aedeagus not extremely long and slender. Apex of distal segment (Fig. 13J–L) short and broad. Female terminalia (Fig. 14D–F) elongate but never styliform. *T. hastata*-group 12

3 Males 4

— Females 8

4 Parameres (Fig. 11G–I) narrow, tapering or with subparallel margins apically. Distal segment of aedeagus (Fig. 11L–N) with adpressed ventral, subapical teeth, shorter than or subequal to parameres 5

— Parameres (Fig. 11J, K) broad with strongly expanded apex. Distal segment of aedeagus (Fig. 11O, P) with ventral subapical teeth not adpressed to shaft, distinctly longer than parameres 7

5 Terminalia as in Fig. 11B, G, L. Proctiger with large posterior lobes, hind-margin almost straight. Parameres tapering apically, distinctly longer than proctiger and distal segment of aedeagus *T. gibbosa* Tuthill

— Proctiger (Fig. 11C, D) with narrow posterior lobes, hind-margin strongly curved. Parameres (Fig. 11H, I) with subparallel margin apically. Proctiger, parameres and distal segment of aedeagus of subequal length . . . 6

6 Terminalia as in Fig. 11C, H, M. Proctiger concave along subapical posterior margin. Thick spines on inner surface of parameres usually restricted to posterio-basal part. Distal segment of aedeagus with small subapical points on ventral side *T. testacea* (Blanchard)

— Terminalia as in Fig. 11D, I, N. Proctiger convex along posterior margin. Thick spines on inner surface of parameres covering almost entire posterior half. Distal segment of aedeagus without subapical ventral points *T.* sp. near *testacea* (Blanchard)

7 Coloration predominantly green, yellow and ochreous. Terminalia as in Fig. 11E, J, O. Parameres strongly constricted in the middle, apical dilatation, therefore, appearing large. Apical dilatation of distal segment of aedeagus with straight ventral margin . . . . . *T. aguilari* Tuthill

— Coloration predominantly dark brown or black. Terminalia as in Figs 11F, K, P. Parameres with weak constriction medially, apical dilatation, therefore, appearing small. Apical dilatation of distal segment of aedeagus with concave ventral margin . *T. parviceps* Tuthill

8 Terminalia as in Fig. 12C. Ventral margin of subgenital plate with large lobe in the middle . . . . *T. gibbosa* Tuthill

— Ventral margin of subgenital plate at most with rounded hump medially or basally 9

9 Terminalia as in Fig. 12G. Proctiger and subgential plate evenly tapering, subgenital plate almost as long as proctiger *T. parviceps* Tuthill

— Proctiger and subgenital plate unevenly tapering, consisting of a large basal part and a styliform projection . 10

10 Body coloration brown, ochreous and yellow. Terminalia as in Fig. 12D. Transition from proximal part of proctiger to apical projection relatively smooth. Ventral margin of subgenital plate with only a very flat hump near the base . *T. testacea* (Blanchard)

— Body coloration green, yellow and ochreous. Transition from basal part of proctiger (Fig. 12E, F) to apical projection marked. Ventral margin of subgenital plate with conspicuous hump medially. *T. aguilari/testacea* complex . 11

11 Terminalia as in Fig. 12E. Apical projection of proctiger long, about twice as long as apical projection of subgenital plate Form a

— Terminalia as in Fig. 12F. Apical projection of proctiger short, about 1.5 times as long as projection of subgenital plate . . . . . Form b

12 Forewings (Fig. 13A) with vein Rs ending above bifurcation of M. Terminalia as in Figs 13D, G, J, 14D. Parameres lanceolate. Female proctiger shorter than 4.0 times head width
***T. hastata* sp. nov.**

— Forewings (Fig. 13B, C) with vein Rs ending beyond bifurcation of M. Parameres (Fig. 13H, I) lamellar, curved backwards. Female proctiger (Fig. 14E, F) longer than 4.0 times head width 13

13 Terminalia as in Figs 13E, H, K, 14E. Parameres with rounded or subacute apex; sclerotization relatively restricted. Distal segment of aedeagus with large subapical hook. Female proctiger shorter than 5.0 times head width. Valvulae 2 relatively short, cuneate . . . . . ***T. tergobscura* sp. nov.**

— Terminalia as in Figs 13F, I, L, 14F. Parameres with flattened apex; sclerotization relatively expanded. Distal segment of aedeagus with short subapical ventral tooth. Female proctiger longer than 5.0 times head width. Valvulae 2 long and narrow, curved downwards
***T. steinbachi* sp. nov.**

14 Metatibiae with 1+2 apical spurs, the inner ones contiguous. Forewings (Fig. 15A, B) with concave, straight or slightly sinuous vein Rs. *T. ocoteae*-group 15

— Metatibiae usually with 1+3 apical spurs; if with only two inner spurs then they are widely separated. Forewings often with very long and strongly sinuous vein Rs. *T. berberidis*-group 17

15 Forewings shorter than 3.2 mm; vein Rs concave and very short, ending proximal to bifurcation of M. Head width less than 0.6 mm . . . . . *T. alacris* Flor

— Forewings longer than 3.3 mm; vein Rs almost straight and ending above or beyond bifurcation of M. Head width over 0.6 mm 16

16 Forewings (Fig. 15A) more than 5.0 times head width, with cell cu1a less than 1.5 times as wide as high. Terminalia as in Fig. 15C, E, H, J. Parameres lamellar with forward directed apical hook. Distal segment of aedeagus with large lentil-shaped apical dilatation. Female proctiger with angular apex
T. ocoteae Houard

— Forewings (Fig. 15B) less than 5.0 times head width, with cell cu1a more than 1.5 times as wide as high. Terminalia as in Fig. 15D, F, I, K. Parameres lanceolate, apex slightly curved inwards. Distal segment of aedeagus with small globular apical dilatation. Female proctiger with rounded apex. . . . . ***T. monsalvei* sp. nov.**

17 Terminalia as in Figs 19A, 20A, 21A, 22A. Male proctiger with large triangular posterior lobes. Aedeagus three-segmented. Female terminalia densely covered in long setae. Antennal segment 10 with a pair of long subequal, terminal setae
T. milltosoma (Blanchard)

— Male proctiger without large triangular posterior lobes. Aedeagus two-segmented. Female terminalia sparsely setose. Antennal segment 10 with one long and one short truncate terminal seta 18

18 Forewings (Fig. 18B) with vein Rs almost straight ending not far beyond bifurcation of M. Head (Fig. 17B) with large robust genal processes. Terminalia as in Figs 19B, 20B, 21B, 22B. Parameres bifid. Female proctiger short, dorsal margin strongly curved, apex blunt . . . . . ***T. fissa* sp. nov.**

— Forewings with vein Rs short or long. Head with long slender or triangular genal processes. Parameres not bifid. Female proctiger subacute apically or with dorsal longitudinal groove 19

19 Genal processes more than 1.0 times vertex length, slender (Fig. 17C, D) 20

— Genal processes less than 1.0 times vertex length, triangular with wide base and subacute apex 21

20 Forewings (Fig. 18C) with long sinuous vein Rs, surface spinules present in all cells. Terminalia as in Figs 19C, 20C, 21C, 22C
***T. dendroseridis* sp. nov.**

— Forewings (Fig. 18D) with short, almost straight vein Rs, surface spinules absent. Terminalia as in Figs 19D, 20D, 21D, 22D. . . . . ***T. striacauda* sp. nov.**

21 Forewings (Fig. 18E) longer than 5.0 times head width, vein Rs short, straight ending above bifurcation of vein M. Terminalia as in Figs 19E, 20E, 21E, 22E . . . *T. longipennis* (Blanchard)

— Forewings shorter than 5.0 times head width, vein Rs long, sinuous ending beyond bifurcation of vein M 22

22 Forewings without surface spinules apart from base of cell cu2 . 23

— Forewings with surface spinules present in all cells, sometimes very weakly developed 24

23 Forewings (Fig. 18F) shorter than 2.2 mm, broadest in apical third. Terminalia as in Figs 19F, 20F, 21F, 22F. Parameres with apical process about as long as basal portion ***T. inlechsis* sp. nov.**

— Forewings longer than 2.5 mm, broadest in apical third. Parameres with apical process longer than basal portion
T. chilensis Šulc

24 Forewings (Fig. 18G, H) with very long and sinuous vein Rs and broadly rounded apex. Apical dilatation of aedeagus short (Fig. 21G, H). Female proctiger longer than 0.9 times head width 25

— Forewings (Fig. 18I–K) with shorter and less curved vein Rs and more angular apex. Apical dilatation of aedeagus large (Fig. 21I–K). Female proctiger shorter than 0.9 times head width 26

25 Forewings (Fig. 18G) with large surface spinules, covering the whole membrane. Terminalia as in Figs 19G, 20G, 21G, 22G ***T. blanchardi* sp. nov.**

— Forewings (Fig. 18H) with faint surface spinules, leaving broad spinule-free stripes along the veins. Terminalia as in Figs 19H, 20H, 21H, 22H . . ***T. berberidis* sp. nov.**

26 Forewings (Fig. 18I) with subacute apex; surface spinules strongly reduced. Terminalia as in Figs 19I, 20I, 21I, 22I ***T. lischines* sp. nov.**

— Forewings (Fig. 18J, K) with surface spinules covering the whole membrane up to the veins 27

27 Forewings (Fig. 18J) convex, dark brown. Genal processes less than 0.4 times vertex length (Fig. 17J). Terminalia as in Figs 19J, 20J, 21J, 22J . . . . ***T. cochleipennis* sp. nov.**

— Forewings (Fig. 18K) flat, yellow. Genal process more than 0.4 times vertex length (Fig. 17K). Terminalia as in Figs 19K, 20K, 21K, 22K . . . ***T. nilisches* sp. nov.**

The *baccharidis*-group

Description of adult. Head (Fig. 11A) about as wide as pronotum, distinctly narrower than mesonotum. In profile, only little deflexed from longitudinal axis of body. Vertex subrectangular, flat apart from indented foveae. Genae only little expanded forming short, blunt or subacute processes which are situated beneath the antennal insertions. Vertex covered in short setae. Genae with a long dorsal seta and usually with several long apical setae. Eyes large, adpressed to head. Antennae ten-segmented, 1.4–2.8 times as long as head width, with rhinaria on segments 4, 6, 8 and 9. Segment 10 with a pair of relatively short, blunt subequal terminal setae. Clypeus hemispherical. Apical two labial segments 0.5–0.8 times as long as head width. Thorax strongly arched dorsally. Pronotum transverse. Fore-margin bent downwards, sides curved backwards. Mesopraescutum and mesoscutum of subequal length along midline, a lot longer than pronotum. Legs robust. Metacoxae with large horn-shaped meracanthus. Metatibiae 0.8–1.3 times as long as head width, with a group of conspicuous basal spines and with 1+3 apical spurs. Forewings (Fig. 12A, B) very long, widest in apical third. Apex subacute or rounded. Vein Rs very long, strongly sinuous, ending far beyond bifurcation of vein M; vein

R+M+Cu1 with strict trifurcation. Cell cu1a larger in surface area than cell m1+2. Surface spinules absent apart from a field in cell cu2 and rarely in cell c+sc. Radular spinules present in cells m1+2, m3+4 and cu1a, forming narrow stripes. Anal break in distance from apex of cell cu1a. Hindwings about three-quarters forewing length. Costal setae grouped. Lateral setae present in males on abdominal tergite 3, in females on tergite 4 and sometimes also a few on tergites 5 and 6. Terminalia (Figs 11B–P, 12C–G) displaying a wide range of shapes and structures. Male subgenital plate globular, densely covered in long setae. Aedeagus very slender and long. Proximal segment with long and very narrow apical dilatation. Sclerotized end tube of ductus ejaculatorius very short and thick, sinuous. Female terminalia very long, often styliform. Circumanal ring consisting of two unequal rows of pores. The outer pores are broad, the inner ones elongate. Valvulae 1 with ventral apical saw.

Larva. Descriptions by del Guercio (1914) and Kieffer & Herbst (1911). General body form elongate, only little flattened. Sectasetae present on margin of wing-pads and abdomen. Anus on ventral surface.

Host plants. Most species develop on *Baccharis* spp. where they produce galls on the leaves (Kieffer & Herbst, 1911) or on the flower heads (Kieffer & Jörgensen, 1910). *T. parviceps* has been reported from *Senecio* (Compositae). It is not known if species are monophagous or oligophagous.

Comments. The definition of the *T. baccharidis*-group given here is wider than that of Tuthill (1959). The following species are included: *Trioza aguilari* Tuthill (1959), *T. baccharidis* Tuthill (1959), *T. baccharis* Kieffer & Herbst (1911) nomen dubium, *T. beingoleai* Tuthill (1959), *T. collaris* Crawford (1910) (= *T. longistylus* Crawford, 1910), *Trioza gibbosa* Tuthill (1959), *T. magniforceps* Tuthill (1964), *T. montana* Tuthill (1959), *T. parviceps* Tuthill (1964), *T. peruana* Tuthill (1959), *T. proximata* Crawford (1911a), *T. simoni* Tuthill (1959), *T. testacea* (Blanchard, 1852) **comb. nov.** (= *Cecidotrioza mendocina* Kieffer & Jörgensen, 1910, **syn. nov.**; = *Calinda nigromaculata* Blanchard, 1852, **syn. nov.**), *T. velardei* Tuthill (1959), and perhaps also *T. renarsa* Tuthill (1959).

Members of the group have a very homogenous morphology. They are characterized mainly by their terminalia. The body coloration seems to be constant and useful to separate some of the species. Although the terminalia exhibit a wide variety of shapes and forms it is difficult to assign specimens to species as they are very variable. There are also large differences in absolute and relative body size. It is unknown if these differences are intraspecific variability or if they are of specific significance. More information on the biology is required to solve this problem.

Members of the *T. baccharidis*-group and the *T. hastata*-group are similar and possibly closely related. However, apart from the general body shape, there are no complex synapomorphies giving evidence for a true relationship. Differences between the two groups are in the terminalia and in the number of metatibial spurs. The shape of the aedeagal apex in the *T. baccharidis*-group suggests a relationship to species of the *T. berberidis*-group and some *Trioza* spp. from New Zealand. This similarly is perhaps only based on plesiomorphy. Some of the New Zealand species have also styliform female terminalia (Dale, 1985) which might be a parallel development.

Some species show a sexual dimorphism in the body coloration and it is sometimes difficult to assign males and females to the same species. This is particularly true in the case of the *aguilari/testacea* complex. In the following text, the females of this complex are, therefore, treated separately.

Trioza gibbosa Tuthill, 1959
(Figs 11B, G, L, 12C)

Trioza gibbosa Tuthill, 1959: 20. Holotype ♂, Peru: Banos de Monterrey, 21./23.xi.1958, *Baccharis floribunda* (L. D. Tuthill) (USNM).

Description of adult

Coloration. Male. Head and thorax ochreous. Foveae and coronal suture black. Antennal segments 1 and 2 ochreous, 3–5 ochreous to brown with dark apices, segments 6–10 dark brown or black. Clypeus ochreous. Mesopraescutum with two longitudinal black stripes, mesoscutum with three black and two brown longitudinal stripes. Legs ochreous with brown tibiae and tarsi. Forewings with yellowish membrane and ochreous veins. Hindwings transparent. Abdomen with black sclerites and ochreous intersegmental membranes. Terminalia yellow with brown parameres. Female. Head, antennae and clypeus as in males but foveae and coronal suture brown. Thorax greenish, with ochreous or brown patches on mesopraescutum and mesoscutum. Legs green with ochreous tibiae and brown tarsi. Forewings as in males but membrane uncoloured. Hindwings transparent. Abdomen green. Proctiger dark brown basally, green in the middle and with black apical projection. Subgenital plate green with brown apical projection.

Structure. Terminalia as in Figs 11B, G, L, 12C. Male proctiger with large posterior lobes, hind-margin straight. Setae restricted to a narrow ribbon along posterior and apical margin. Parameres narrow, tapering apically, longer than proctiger. Inner surface covered in thin setae in apical third and in thick setae in basal two-thirds. Distal segment of aedeagus shorter than parameres with head little expanded. Ventral subapical teeth adpressed to base and recognizable only as incision on the head. Dorsal margin of female proctiger with hump in the middle bearing some long setae. Apex forming long styliform projection. Subgenital plate with large median lobe on ventral side of basal part.

Measurements and ratios (2♂, 1♀). HW 0.63–0.71; AL 1.31–1.57; WL 3.55–4.06; MP 0.22–0.31; FP 1.07; PL 0.41–0.51; AEL 0.25–0.33.

ALHW 1.97–2.19; LLHW 0.61–0.64; TLHW 1.04–1.16; WLHW 5.66–5.88; WLW 2.38–2.52; CUR 1.28–1.37; MPHW 0.34–0.44; FPHW 1.60; FPC 4.95; FSP 0.72.

Larva

Unknown.

Host plant

Baccharis floribunda H. B. K. (Compositae).

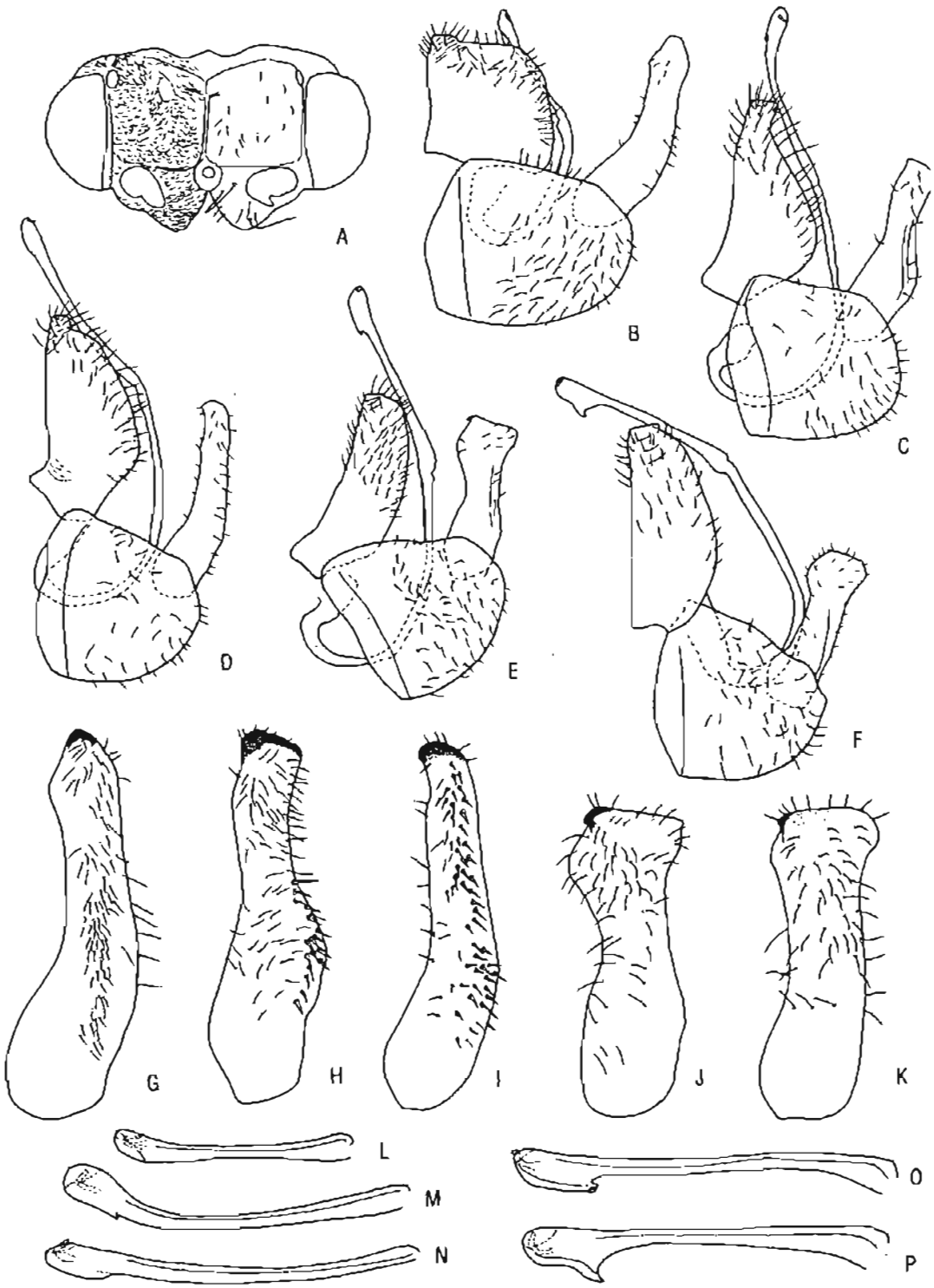

Figure 11. *Trioza* spp.: A, C, H, M, *T. testacea* (Blanchard); B, G, L, *T. gibbosa* Tuthill; D, I, N, *T.* sp. near *testacea* (Blanchard); E, J, O, *T. aguilari* Tuthill; F, K, P, *T. parviceps* Tuthill. A, Head, dorsal view; B–F, male terminalia; G–K, paramere, inner surface; L–P, distal segment of aedeagus.

Distribution

Recorded from Peru (Tuthill, 1959). Material examined. Chile: 6♂, Tarapaca, Belen, 18°21'S, 69°31'W, 3400 m, 12.xi.1983 (L. E. Peña). Equador: 1♀, Calderon, 1930 (R. Benoist); 1♀, Quito, ii.1930, same; 1♂, same, x.1930. Venezuela: 1♂, one adult without abdomen, 1864, (Lindig) (MHNG, MNHN, NHMV).

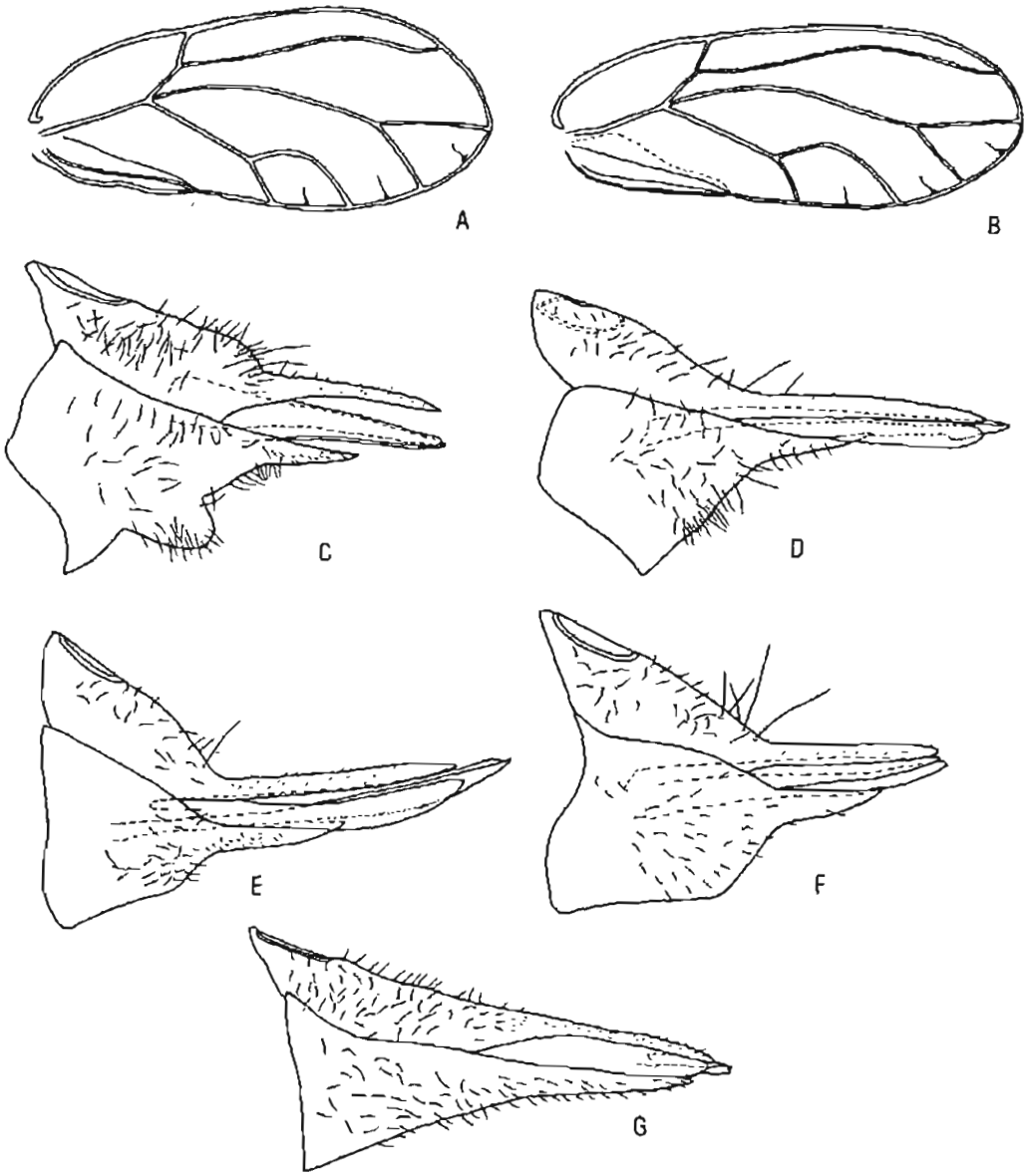

Figure 12. *Trioza* sp. A, D, *T. testacea* (Blanchard); B, G, *T. parviceps* Tuthill; C, *T. gibbosa* Tuthill; E, *T. testacea/aguilari* complex 'Form a'; F, *T. testacea/aguilari* complex 'Form b'. A, B, Forewing; C–G, female terminalia.

Trioza testacea (Blanchard, 1852) **comb. nov.**
(Figs 11A, C, H, M, 12A, D)

Calinda testacea Blanchard, 1852: 310. Lectotype ♂, Chile: San Carlos (MNHN), here designated (examined).

Calinda nigromaculata Blanchard, 1852: 311. Lectotype ♀, Chile: Valdivia (MNHN), here designated (examined). **Syn. nov.**

Cecidotrioza mendozina Kieffer & Jörgensen, 1910: 372. Syntypes ♂♂ and ♀♀, Argentina: Mendoza, Pedregal and Chacras de Coria, xii.–vi. (P. Jörgensen) (destroyed). **Syn. nov.**

Description of adult

Coloration. Head ochreous with dark brown foveae and coronal suture. Antennal segments 1 and 2 yellow dorsally, brown ventrally, 3 and 4 yellow,

5–10 brown to almost black apically. Clypeus yellow. Thorax yellow to ochreous with longitudinal dark brown stripes on mesonotum and scattered dark brown patches laterally. Legs yellow, apical tarsi and metacoxae partially dark brown. Forewings with ochreous veins and weakly yellowish membrane. Hindwings transparent. Males. Abdomen dark brown laterally, yellow dorsally and ventrally. Terminalia ochreous, tips of parameres black. Females. Abdomen greenish to yellow or ochreous. Processes on proctiger and subgenital plate dark brown or black.

Structure. Terminalia as in Figs 11C, H, M, 12D. Male proctiger with narrow posterior lobes widest in basal third. Covered in long setae along posterior margin and apically. Hind-margin concave in apical third; apex of proctiger slender. Parameres and proctiger of subequal length. Parameres lamellar, hind-margin in basal third slightly produced. Apex truncate. Inner surface covered mainly in thin setae; thick setae relatively few in number, restricted to an area near the hind-margin of basal half. Shape of parameres relatively variable. Distal segment of aedeagus with small ventral subapical point. Female proctiger with apical process longer than basal portion, transition from base to apex relatively smooth. Ventral margin of subgenital plate with flat hump near the base bearing a group of densely spaced setae. Process of subgenital plate extending to about the middle of the apical process of proctiger. Apical ventral saw on valvulae 1 relatively short, well delimited basally.

Measurements and ratios (7♂, 3♀). HW 0.54–0.67; AL 0.78–1.10; WL 2.84–3.67; MP 0.31–0.35; FP 1.02–1.27; PL 0.31–0.36; AEL 0.27–0.34.

ALHW 1.45–1.70; LLHW 0.50–0.62; TLHW 0.78–1.09; WLHW 4.95–6.09; WLW 2.36–2.74; CUR 1.13–1.60; MPHW 0.53–0.62; FPHW 1.78–2.20; FPC 5.20–5.76; FSP 0.45–0.59.

Larva

Unknown.

Host plant

Baccharis salicifolia Pers. (Compositae).

Distribution

Recorded from Argentina as *Cecidotrioza mendocina* (Kieffer & Jörgensen, 1910) and from Chile as *Calinda testacea* and *C. nigromaculata* (Blanchard, 1852). Material examined. Argentina: 6♂, 6♀, Rio Negro, El Bolson, forehill of Mt. Piltriquitron, 360 m, 8.ii.1961, beaten from various trees and bushes, no. 261 (G. Topal); 1♀, same, Mt. Piltriquitron, 1000 m, 27.x.1961, netted from carcass, no. 662; 1♂, Neuquien, 50 km N Choel-Malal, 8.xii.1983 (L. E. Peña): 1♂, Iturbe, Jujuy N, 31.xii.1984, same; 2♂, Salta, 2500 m, I. no. 1240/05, angek. 12.xii.1905. (S. V. Steinbach); 1♀, Bariloche, Terr. Rio Negro, 25.–28.x.1926 (F. & M. Edwards). Chile: 1♂, San Carlos (lectotype of *Calinda testacea*); 1♀, Valdivia (lectotype of *Calinda nigromaculata*); 1♂, Talca, Alto Vilches, 6.x.1983 (L. E. Peña); 2♂, Magallanes, Parque John Fell, 14.–23.iv.1982, yellow pan tray no. 11 (J. Petersen C.). Equator: 1♀, Chillacocha, 3900 m, ii.1905 (P. Rivet) (BMNH, IPPA, MHNG, MNHN, MNHU, TM).

Comment

T. testacea is closely related to the North American *T. collaris* and *T. proximata* from which it differs in the apically truncate parameres, and to the South American *T. anguilari, baccharidis, simoni* and sp. near *testacea* from which it differs in the male terminalia. Examination of the lectotype of *Calinda nigromaculata* showed it to be the female of *T. testacea* and it is synonymized. The description of *Cecidotrioza mendozina* fits *T. testacea* best of all members of the group and the male terminalia show all important characters of *testacea*; the former is therefore synonymized.

Trioza sp. near *testacea* (Blanchard, 1852)
(Figs 11D, I, N)

Description of adult

Coloration. Similar to *testacea* but with more expanded green and more restricted dark brown coloration.

Structure. Terminalia as in Fig. 11D, I, N. Similar to *T. testacea.* Posterior margin of male proctiger in apical third with convex lobe. Parameres very variable, distinctly longer than proctiger, broadly trunctate apically or forming a forward directed point. Inner surface covered in thick setae. Distal segment of aedeagus with subapical ventral teeth strongly adpressed to stem leaving only an incision. No females could be attributed to this species with certainty.

Measurements and ratios (7♂). HW 0.53–0.65; AL 0.88–0.93; WL 2.51–3.25; MP 0.28–0.32; PL 0.35–0.42; AEL 0.33–0.42.

ALHW 1.50–1.58; LLHW 0.53–0.61; TLHW 0.85–1.04; WLHW 4.27–5.19; WLW 2.53–2.67; CUR 1.20–1.44; MPHW 0.45–0.76.

Larva and host plant

Unknown.

Material examined

Argentina: 2♂, Salta, 2500 m, iii.–iv.1905, I. no. 1240/05 angek. 12.xii.1905 (S. V. Steinbach); 1♂, Rio Negro, El Bolson, foot of Mt. Piltriquitron, 350 m, 1.ii.1961, singled material, no. 248 (G. Topal); 2♂, same, 360 m, 8.ii.1961, beaten from various trees and bushes no. 261. Chile: 1♂, Magallanes, Parque John Fell, 14.–23.iv.1982, yellow pan tray no. 6 (J. Petersen C.); 1♂, Maule, Pellines, S. Constitucion, 16.xii.1976 (A. B. Gurney) (IPPA, MHNG, MNHU, TM, USNM).

Trioza aguilari Tuthill, 1959
(Fig. 11E, J, O)

Trioza aguilari Tuthill, 1959: 21. Holotype ♂, Peru: Bandera Blanca, nr. Carpis, 30.xii.1958, *Baccharis* sp. (L. D. Tuthill) (USNM).

Description of adult

Coloration. Head and thorax yellow to ochreous, mesopraescutum and mesoscutum brown. Legs ochreous. Forewings with yellow or ochreous veins and yellowish membrane. Abdomen ochreous to brown.

Structure. Terminalia as in Fig. 11E, J, O. Male proctiger tubular, covered in setae in apical half. Parameres broad, strongly incised medially, shorter than proctiger. Inner surface covered in thin long setae. Distal segment of aedeagus longer than or as long as proctiger. Ventral side of apical dilatation straight. Subapical ventral teeth in distance from shaft of aedeagus. The female described by Tuthill (1959) is similar to 'Form a' described below.

Measurements and ratios (2♂). HW 0.54; AL 1.42; WL 3.04–3.14; MP 0.37–0.39; PL 0.32–0.34; AEL 0.39–0.43.

ALHW 2.64; LLHW 0.78; TLHW 1.27; WLHW 5.84; WLW 2.50–2.51; CUR 1.68–1.74; MPHW 0.69.

Larva

Unknown.

Host plant

Baccharis sp. (Compositae).

Distribution

Recorded from Peru (Tuthill, 1959). Material examined. Argentina: 1♂, Tucuman, i.1906 (Vezenyi); 1♂, Tucuman 450 m, 24.–28.i.1905, I. no. 1240/05, angek. 12.xii.1905 (S. V. Steinbach) (MNHU, TM).

Comment

The females of *aguilari* are most similar to 'Form a' described below. According to the material to hand females of 'Form a' have been collected together with males of sp. near *testacea*. Perhaps the *aguilari/testacea*-complex comprises several closely related spcies.

Females of the testacea/aguilari-complex
Form a (Fig. 12E)

Description of adult

Coloration. Green. Head sometimes yellow. Mesonotum with orange to ochreous longitudinal stripes. Forewings with ochreous veins and yellowish membrane. Apical processes of proctiger and subgenital plate dark brown or black.

Structure. Terminalia as in Fig. 12E. Basal portion of proctiger with strongly bulged dorsal margin shorter than apical projection. Transition from basal portion to apical projection marked. Ventral margin of subgenital plate strongly bulged medially, process ending in about the middle of apical projection of proctiger. Ventral saw on valvulae 1 long, not well delimited basally.

Measurements and ratios (4♀). HW 0.57–0.63; AL 0.88–0.92; WL 2.66–3.53; FP 1.07–1.24.

ALHW 1.47–1.57; LLHW 0.48–0.61; TLHW 0.90–1.03; WLHW 4.48–5.81; WLW 2.43–2.64; CUR 1.28–1.51; FPHW 1.77–2.05; FPC 4.36–5.52; FSP 0.56–0.67.

Larva and host plant

Unknown.

Material examined

Argentina: 2♀, Rio Negro, El Bolson, forehill of Mt. Piltriquitron, 360 m, 8.ii.1961, beaten from various trees and bushes, no. 261 (G. Topal); 1♀, Salta, 2500 m, iii.–iv.1905, I. no. 1240/05, angek. 12.xii.1905 (S. V. Steinbach). Chile: 1♀, Magallanes, Parque John Fell, 18.iii.–2.iv.1982, yellow pan tray no. 11 (J. Petersen, C.); 1♀, same, 14.–23.iv.1982; 4♀, same, 23.iv.–3.v.1982; 1♀, same, 20.v.–4.vi.1982; 1♀, Parque Nacional Penuelas, 1.vii.1966 (L. Marnef M.); 1♀, Maule, Pellines, S Constitucion, 16.xii.1976 (A. B. Gurney). Equador: 2♀, Chillacocha, 3900 m, ii.1905 (P. Rivet) (IPPA, MHNG, MNHN, MNHNS, TM, USNM).

Comment

The material to hand corresponds with Tuthill's description of *T. aguilari*. However, some of the material has been collected with males of sp. near *testacea* suggesting that they are the same species.

Form b (Fig. 11F)

Description of adult

Coloration. Head and thorax ochreous, mesopraescutum and mesoscutum orange brown. Legs ochreous. Forewings with yellow or ochreous veins and yellowish membrane. Abdomen green with dark brown apical projection on proctiger and brown apical projection on subgenital plate.

Structure. Terminalia as in Fig. 11F. Proctiger as in *T. testacea* but apical process about as long as basal portion. Subgenital plate similar to 'Form a', apical process ending at apical third of process of proctiger.

Measurements and ratios (2♀). HW 0.47–0.58; WL 3.04–3.28; FP 0.76.

LLHW 0.57–0.59; TLHW 0.84–0.85; WLHW 5.34–5.68; WLW 2.21–2.43; CUR 1.08–1.22; FPHW 1.32–1.34; FPC 4.11–4.59; FSP 0.82–0.83.

Larva and host plant

Baccharis tridentata (Compositae).

Material examined

Argentina: 9♀, Salta 2500 m, I. no. 1240–05, angek. 12.xii.1905 (S. V. Steinbach). Chile: 1♀, Magallanes, Parque John Fell, 14.–23.iv.1982, yellow pan tray, no. 11 (J. Petersen C.); 1♀, P. Santiago, Curacavi, 30.xi.1967 (J. Apablaza). Paraguay: 2♀, San Bernardino, *Baccharis tridentata* (Fiebrig). Venezuela: 1♀, one adult without abdomen, Bogota, highlands, 1914 (E. Pehlke S.) (IPPA, IZPAN, MHNG, MNHNS, MNHU, NHMV).

Comment

It is unknown, if 'Form b' belongs to one of the species listed above, or if it is possibly an additional species whose males are not represented in the material to hand.

Trioza parviceps Tuthill, 1964
(Figs 11F, K, P, 12B, G)

Trioza parviceps Tuthill, 1964: 30. Holotype ♂, Peru: Cuzco, 13.vi.1959, *Senecio rudbeckiaefolius* (L. D. Tuthill) (USNM).

Description of adult

Coloration. Head above dark brown to almost black. Genal processes and ventral side of head brown. Antennal segments 1–5 ochreous, apices of segments 3–5 dark brown, 6–10 almost black. Clypeus dark brown. Thorax dark brown or almost black with dirty yellow lateral patches. Legs brown with dirty yellow femora. Forewings with dark brown veins and transparent to whitish membrane. Hindwings transparent. Abdomen including terminalia dark brown. Parameres and base of female subgenital plate ochreous to brown. Teneral specimens brown with more extended yellow patches.

Structure. Terminalia as in Figs 11F, K, P, 12G. Male similar to *T. aguilari.* Parameres shorter than proctiger, less constricted medially. Distal segment of aedeagus with ventral side of apical dilatation distinctly concave. Subapical ventral teeth much separated from shaft. Female terminalia elongate cuneate, evenly tapering. Proctiger and subgenital plate of subequal length. Ventral apical saw of valvulae 1 very short. Valvulae 2 short, cuneate.

Measurements and ratios (3♂, 2♀). HW 0.52–0.59; AL 0.90–1.58; WL 2.65–3.90; MP 0.34–0.40; FP 1.19–1.21; PL 0.28–0.34; AEL 0.33–0.42.

ALHW 1.64–2.78; LLHW 0.58–0.76; TLHW 0.98–1.33; WLHW 5.11–6.63; WLW 2.39–2.57; CUR 1.37–1.62; MPHW 0.63–0.75; FPHW 2.03–2.14; FPC 5.08–5.64; FSP 0.79–0.85.

Larva

Unknown.

Host plant

Senecio rubeckiaefolius Meyen & Walp. (Compositae).

Distribution

Recorded from Peru (Tuthill, 1964). Material examined. Argentina: 2♂, 2♀, Salta, Pampa Grande, La Viña E, 25°30'S, 65°33'W, 26.xi.1983 (L. E. Peña); 1♀, Salta, 2500 m, I. no. 1240/05, angek. 12.xii.1905 (S. V. Steinbach); 1♀, same, Tucuman, 450 m, 24.–28.i.1905. Bolivia: 1♂, Lecori, S. Potosi, 3200 m, 26./27.xii.1984 (L. E. Peña); 1♂, Padcoya/Camargo, 2800/3200, 26./28.xii.1984, same (MHNG, MNHU).

Comments

T. parviceps is so far the only species of the *T. baccharidis*-group on a host different from *Baccharis*. The males are similar to *aguilari* from which they differ in the detailed structure of the parameres and the aedeagus, and in the very dark body coloration. The females are recognizable by the evenly tapering proctiger and sugenital plate.

Trioza baccharis Kieffer & Herbst, 1911

Trioza baccharis Kieffer & Herbst, 1911: 696. Syntypes larvae and galls, Chile: Moutcmae near Valparaiso, *Baccharis confertifolia* (P. Herbst) (material destroyed). Nomen dubium.

Comment. The description of the larvae and the gall on *Baccharis confertifolia* Coll. (Compositae) is insufficient to recognize the species and the name is regarded as a nomen dubium.

The *hastata*-group

Description. Similar to the *baccharidis*-group. Head (Fig. 14A–C) with very short subacute or rounded genal processes. Antennae 2.1–2.9 times as long as head width. Apical two labial segments 0.5–0.6 times as long as head width. Metatibiae with 1+2 apical spurs, 0.9–1.2 times as long as head width. Forewings (Fig. 13A–C) with vein Rs relatively straight and short, ending at or beyond bifurcation of M; without surface spinules apart from base of cell cu1b. Terminalia relatively uniform. Male proctiger (Fig. 13D–F) tubular or with narrow posterior lobes, with long setae along posterior margin. Subgenital plate globular. Parameres (Fig. 13G–I) lamellar or lanceolate with inner surface strongly setose. Distal segment of aedeagus with relatively robust basal shaft and short, broad apical dilatation, often with subapical ventral tooth or hook. Female terminalia (Fig. 14D–F) cuneate, not styliform.

Comments. The *Trioza hastata*-group includes, apart from the three species described here, *T. mutisiae* Tuthill (1964) and three species previously referred to the genus *Kuwayama: Trioza enceliae* (Tuthill, 1964) **comb. nov.**, *Trioza flourensiae* (Tuthill, 1959) **comb. nov.** and *Trioza gallicola* (Tuthill, 1959) **comb. nov.**

The group is morphologically homogenous and similar to the *baccharidis*-group from which it differs mainly in the number of apical metatibial spurs and in the terminalia. Species of the *hastata*-group develop on different genera of Compositae excluding *Baccharis*.

The morphology of the head in the *baccharidis*-group and in the *hastata*-group is almost identical and it is difficult to understand why Tuthill (1959, 1964) classified the former in *Trioza*, as having genal cones present, and most of the latter in *Kuwayama*, as having no genal cones. The latter species are not closely related to *Kuwayama medicaginis* Crawford, the type-species and are here recombined with *Trioza*.

***Trioza hastata* sp. nov.**
(Figs 13A, D, G, J, 14A, D)

Description of adult

Coloration. Vertex in the centre dark brown, ochreous along the margins; genal processes light green. Antennal segments 1–8 ochreous to brown with dark brown apices, segments 9 and 10 dark brown or black. Clypeus green. Pronotum light green. Mesonotum and metanotum olive green with broad longitudinal dark brown stripes. Thorax green and yellow laterally and

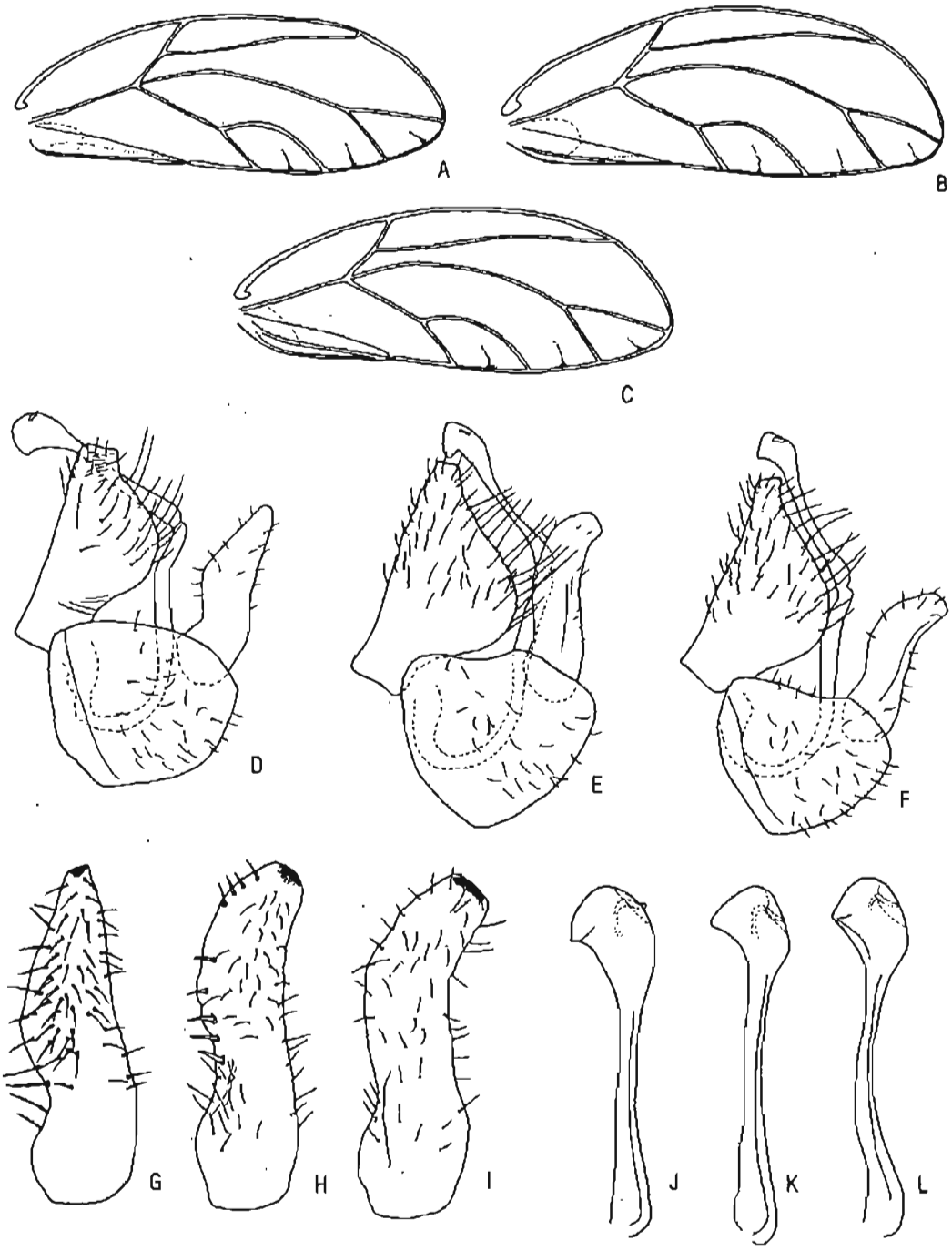

Figure 13. *Trioza* spp.: A, D, G, J, ***T. hastata* sp. nov.**; B, E, H, K, ***T. tergobscura* sp. nov.**; C, F, I, L, ***T. steinbachi* sp. nov.** A–C, Forewing; D–F, male terminalia; G–I, paramere, inner surface; J–L, distal segment of aedeagus.

ventrally. Legs light olive-green with dark brown patches on femora and tibiae. Basal tarsi brown, apical tarsi dark brown. Forewings transparent, membrane very slightly yellowish, veins dirty yellow. Hindwings transparent. Abdomen green. Apices of parameres and of female terminalia dark brown.

Structure. Forewings (Fig. 13A) with short vein Rs ending above bifurcation of vein M. Terminalia as in Figs 13D, G, J, 14D. Male proctiger with broadly rounded posterior lobes, setose mainly in apical half. Parameres lanceolate with a slight constriction in basal third. Apex of distal segment of aedeagus with

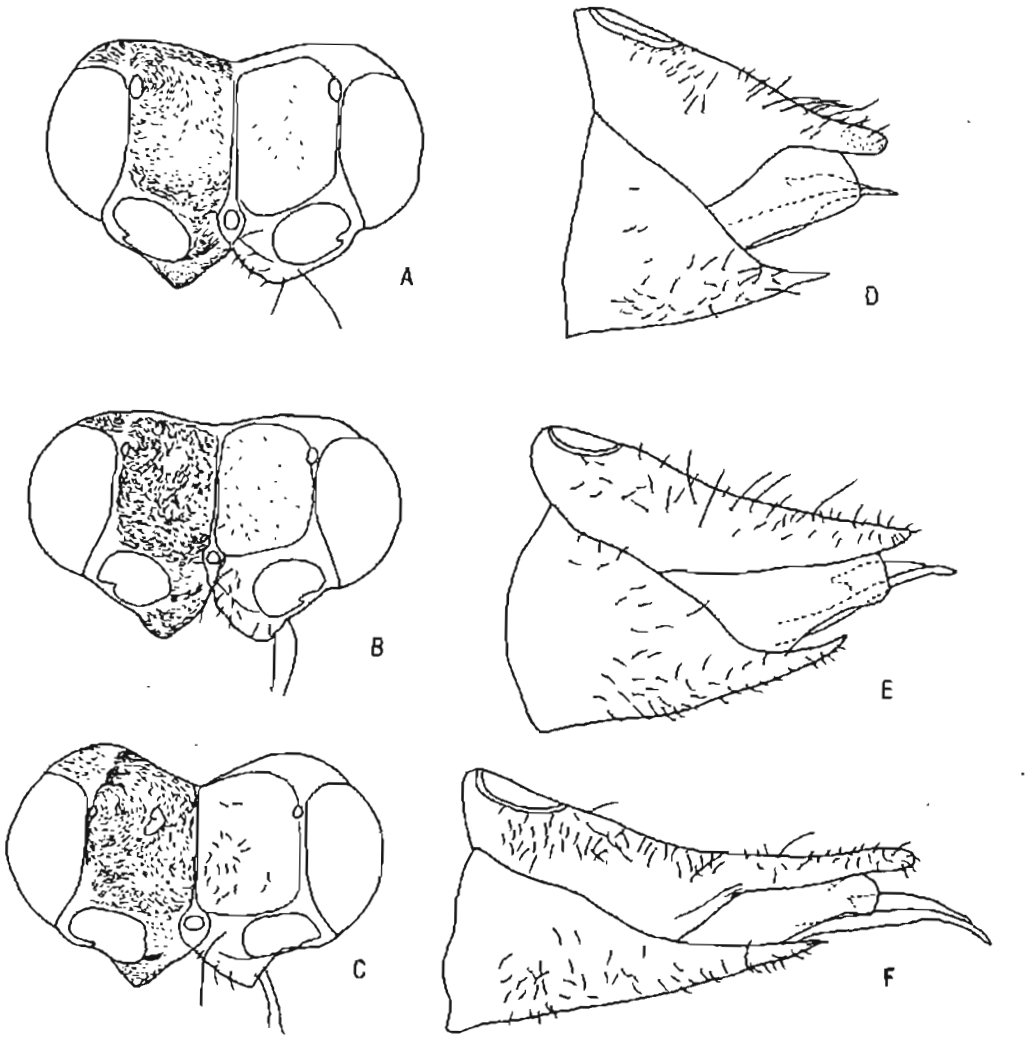

Figure 14. *Trioza* spp.: A, D, ***T. hastata* sp. nov.**; B, E, ***T. tergobscura* sp. nov.**; C, F, ***T. steinbachi* sp. nov.** A–C, Head, dorsal view; D–F, female terminalia.

small ventral tooth. Female terminalia short, cuneate. Both proctiger and subgenital plate strongly tapered apically. Valvulae 1 with several teeth; valvulae 2 cuneate, curved downwards.

Measurements and ratios (1♂, 2♀). HW 0.58–0.65; AL 1.47–1.68; WL 3.04–3.42; MP 0.34; FP 0.72–0.76; PL 0.31; AEL 0.32.

ALHW 2.34–2.87; LLHW 0.55–0.60; TLHW 1.03–1.15; WLHW 5.17–5.45; WLW 2.48–2.64; CUR 1.24–1.35; MPHW 0.58; FPHW 1.16–1.18; FPC 3.70–3.90; FSP 0.76–0.78.

Larva and host plant

Unknown.

Material examined

Holotype ♂, Chile: Malleco, Angol-Cord. Nahuelbuta, Rio Picoyquen, 25.xi.1962, in rastreo (T. Cekalovic) (MHNG).

Paratypes. Chile: 6♀, same as holotype; 1♀, Santiago, Bocatoma de Rio Maipo, 33°35′S, 70°35′W (J. Moroni); 1♀, Cautin, Rio Cautin, Cajon, 3.i.1966 (Flint & Cekalovic) (MHNG, MNHNS, USNM).

Comment

T. hastata is closest to *T. enceliae* from which it differs in the larger body size, the larger posterior lobes on the male proctiger and the apically less constricted parameres.

***Trioza tergobscura* sp. nov.**

(Figs 13B, E, H, K, 14B, E)

Description of adult

Coloration. Male. Head dark brown above. Vertex with ochreous lateral and posterior margins. Genae green. Ventral surface of head greenish and ochreous with dark brown spots. Antennal segments 1–8 yellow or ochreous, segments 4–8 with dark apices, segments 9 and 10 almost black. Pronotum dark brown, propleurites green or yellow. Mesonotum and metanotum dark brown or black sometimes with lighter longitudinal stripe on metanotum. Thoracic pleurae and sternum greenish or pale yellow, sometimes with scattered brown spots. Legs ochreous with pale green coxae and dark brown apical tarsi, hind-legs often lighter. Forewings with yellow veins and semitransparent membrane. Hindwings whitish. Abdomen dark brown dorsally, green ventrally. Terminalia green with variable brown pattern. Females and teneral males green or straw coloured with ochreous dorsal surface of head and thorax.

Structure. Forewings (Fig. 13B) with vein Rs almost straight, ending beyond bifurcation of vein M. Terminalia as in Figs 13E, H, K, 14E. Male proctiger with well developed posterior lobes, setae covering apical two-thirds. Parameres lamellar curved backwards apically. Apex relatively narrow with a strongly sclerotized point on inner surface. Distal segment of aedeagus with a large subapical ventral hook. Female terminalia elongate cuneate. Subgenital plate with a subapical constriction. Valvulae 1 and 2 curved, valvulae 1 with subapical teeth; valvulae 2 cuneate; valvulate 3 flattened apically.

Measurements and ratios (2♂, 2♀). HW 0.52–0.64; AL 1.27–1.71; WL 2.99–3.45; MP 0.37–0.39; FP 0.71; PL 0.31–0.33; AEL 0.31–0.34.

ALHW 2.15–2.78; LLHW 0.56–0.60; TLHW 0.90–1.21; WLHW 5.00–5.89; WLW 2.55–3.05; CUR 1.32–1.67; MPHW 0.58–0.63; FPHW 1.20–1.36; FPC 4.24–4.87; FSP 0.82–0.92.

Larva and host plant

Unknown.

Material examined

Holotype ♂, Chile: Mantahua, Valpo, 22.iii.1967 (J. Solervicens A.) (MNHNS).

Paratypes. Chile: 3♂, 2♀, same as holotype. Argentina: 2♂, 2♀, Tucuman, 1906 (Vezenyi) (MHNG, MNHNS, TM).

Comment

T. tergobscura is similar to *T. gallicola* from which it differs in the larger posterior lobes of the male proctiger, in the presence of a subapical ventral tooth on the distal aedeagal segment and the shorter female terminalia.

Trioza steinbachi sp. nov.
(Figs 13C, F, I, L, 14C, F)

Description of adult

Coloration. Head and thorax yellow with dorsal brown patches in mature males. Antennae yellow with apices of segments 4–8 and segments 9 and 10 dark brown or black. Legs yellow with brown apical tarsi. Forewings transparent with yellow veins. Abdomen yellow or greenish. Apex of parameres dark brown.

Structure. Forewings (Fig. 13C) with weakly sinuous vein Rs, ending beyond bifurcation of vein M. Terminalia as in Figs 13F, I, L, 14F. Male proctiger with broadly rounded posterior lobes, covered in long setae in apical two-thirds. Parameres lamellar with apical third curved backwards. Apex blunt bearing a sclerotized ridge on inner surface. Distal segment of aedeagus with subrectangular apical dilatation and with a small subapical tooth ventrally. Female terminalia very long. Dorsal margin of proctiger concave. Subgenital plate unevenly tapering. Valvulae 1 and 2 curved; valvulae 1 with subapical teeth; valvulae 2 very narrow; valvulae 3 irregularly rounded apically.

Measurements and ratios (6♂, 2♀). HW 0.55–0.74; AL 1.55–1.67; WL 3.00–3.66; MP 0.33–0.39; FP 0.97–1.10; PL 0.30–0.33; AEL 0.29–0.32.

ALHW 2.24–2.80; LLHW 0.49–0.60; TLHW 0.95–1.20; WLHW 4.92–5.71; WLW 2.56–2.86; CUR 1.51–1.84; MPHW 0.61–0.69; FPHW 1.47–1.65; FPC 5.60–6.19; FSP 0.85–0.86.

Larva and host plant

Unknown.

Material examined

Holotype ♂, Argentina; Catamarca, Belen, 28°36′S, 67°00′W, 29.xi.1983 (L. E. Peña) (MHNG).

Paratypes. Argentina: 1♂, 1♀, same as holotype; 1♂, 1♀, Neuquen, 50 km N Choel Malal, 8.xii.1983 (L. E. Peña); 1♀, Salta, Pampa Grande, La Viña E, 25°30′S, 65°33′W, 26.xi.1983 (L. E. Peña); 11♂, 6♀, Salta, 2500 m, iii.1905, In. no. 1240/05 (S. V. Steinbach); 2♀, Mendoza; 1♀, Cat., *c.* 2 km N of Santa Maria, 1800 m, Malaise trap, B. M. 1974–204 (C. R. Vardy); 1♂, Mendoza, 22.x.1906 (S. Jensen-Haarup); 2♂, same, 25.iii.1907 (BMHN, IZPAN, MHNG, MNHU, NHMV).

Comment

T. steinbachi is very close to *tergobscura* from which it differs mainly in the female terminalia and the aedeagus.

The *ocoteae*-group

Description. Head (Fig. 15G) as broad as mesonotum, strongly deflexed from longitudinal axis of body. Vertex subrectangular, flat apart from indented foveae. Dorsal surface of genal processes lying in a plane more inclined and lower than vertex. Apices of genal cones bearing several long setae. Ventral surface of head with large humps at the base of the genal processes and eyes. Antennae ten-segmented with rhinaria on segments 4, 6, 8 and 9. Segment 10

with a pair of short terminal setae. Clypeus prominent, tubular. Pronotum transverse, sides curved backwards. Metatibiae with several basal spines and with 1 + 2 small apical spurs; the inner ones contiguous. Forewings (Fig. 15A, B) with relatively straight vein Rs ending above or beyond bifurcation of vein M. Cell m1+2 distinctly larger in surface area than cell cu1a. Surface spinules weakly developed, restricted to basal part of cells, sometimes only present in a small field of cell cu2. Hindwings about three-quarters forewing length with grouped costal setae. Abdomen with lateral setae present on tergite 3 in males and tergite 4 in females. Male proctiger simple with curved hind-margin. Covered in setae in apical half. Subgenital plate short, globular. Parameres lanceolate. Distal segment of aedeagus with robust shaft and relatively large apical dilatation. End tube of ductus ejaculatorius short and almost straight. Female terminalia cuneate.

Comment. The *ocoteae*-group includes the New World species *Trioza ocoteae* Houard, *T. magnoliae* (Ashmead) and *T. monsalvei* sp. nov., and the Old World species *T. alacris* Flor, all of which are trophically linked to Magnoliaceae and Lauraceae.

The morphological similarity of the adults of *T. alacris* and the New World species might be based on symplesiomorphy and, therefore, do not express close relationship.

Trioza alacris Flor, 1861

Trioza alacris Flor, 1861: 399. Syntype(s) adult(s), France: Gemenos, nr. Marseille, mid vi., *Prunus laurocerasus* (G. Flor) (?depository).

Description. See Hodkinson & White (1979), Vondráček (1957) and White & Hodkinson (1982).

Host plant. Laurus nobilis L. (Lauraceae).

Distribution. Recorded from Europe and North Africa (Klimaszewski, 1973); introduced into North America (Crawford, 1914) and South America: Argentina (Lizer, 1918), Brazil (Lima, 1942) and Chile (Drathen, 1929).

Trioza ocoteae Houard, 1933
(Fig. 15A, C, E, G, H, J)

Trioza ocoteae Houard, 1933: 77. Syntype(s) ?larva(e), Argentina: *Ocotea acutifolia* (?depository).

Trioza ocoteae Lizer, 1943: 152. Holotype ♀, Argentina: Buenos Aires, Tigre, I.C.C.A., x.1924 (C. Lizer) (?depository) (Synonymized by Hodkinson & White, 1981: 511.)

Description of adult

Coloration. Head pale dirty yellow with slightly darker foveae. Clypeus brown. Thorax very pale greyish yellow with dark longitudinal stripes on dorsum. Legs brown; apical tarsi dark brown, metacoxae and metafemora yellow. Forewings transparent with infuscate membrane and dark brown veins. Hindwings transparent whitish. Abdomen yellow. Apex of female terminalia dark brown.

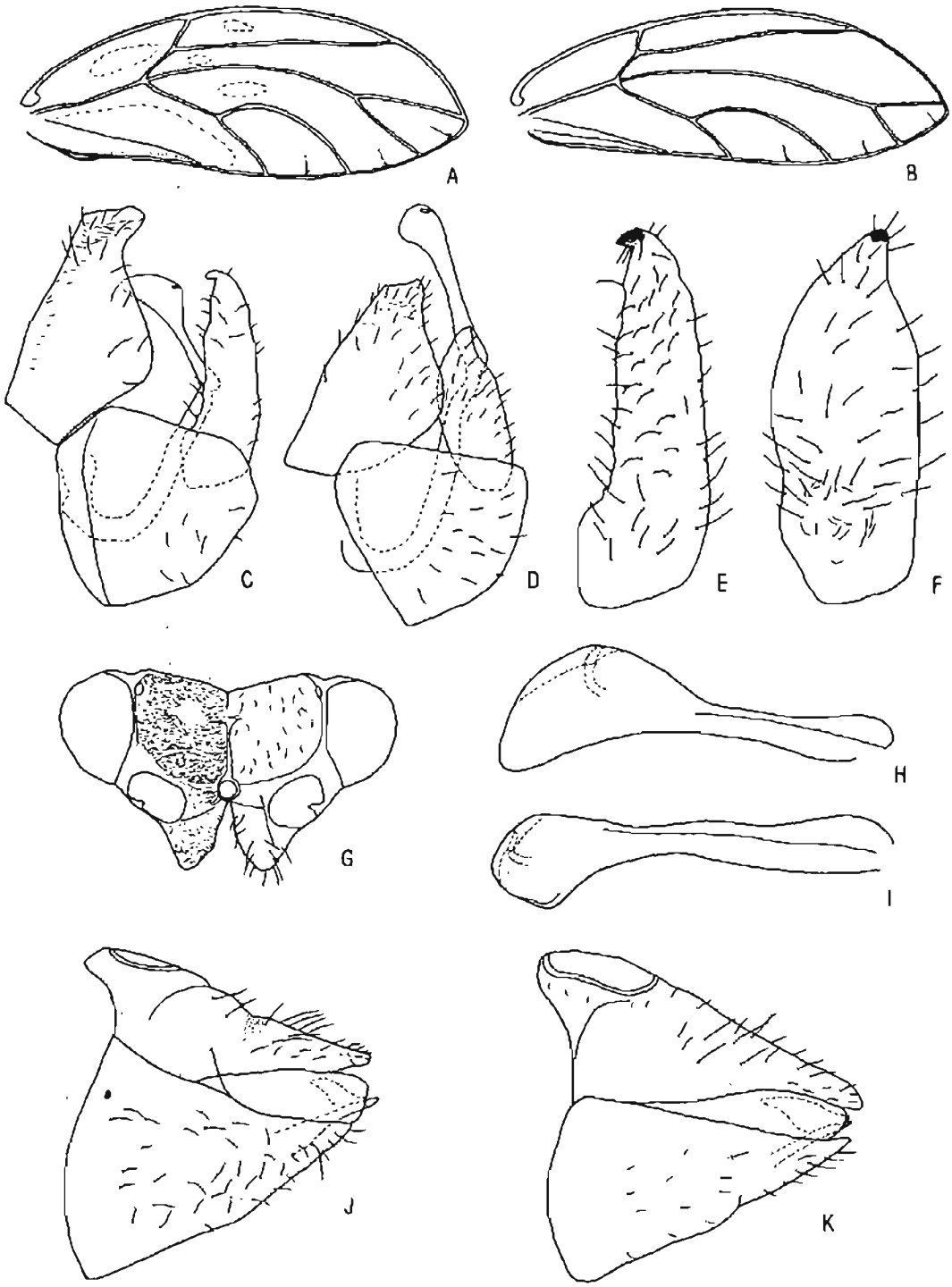

Figure 15. *Trioza* spp.: A, C, E, G, H, J, *T. ocoteae* Houard; B, D, F, I, K, ***T. monsalvei* sp. nov.** A, B, Forewing; C, D, male terminalia; E, F, paramere, inner surface; G, head, dorsal view; H, I, distal segment of aedeagus; J, K, female terminalia.

Structure. Head (Fig. 15G) with globular eyes. Pronotum with broadly rounded hump medially. Forewings (Fig. 15A) with vein Rs ending beyond bifurcation of vein M. Terminalia as in Fig. 15C, E, H, J. Parameres lamellar with strongly sclerotized forward directed apical hook. Inner surface evenly covered in long setae. Distal segment of aedeagus short with large lentil-shaped apical dilatation. Female proctiger slightly indented in the middle of dorsal margin, apex angular. Valvulae 1 straight with subapical teeth; valvulae 2 cuneate with sinuous dorsal margin.

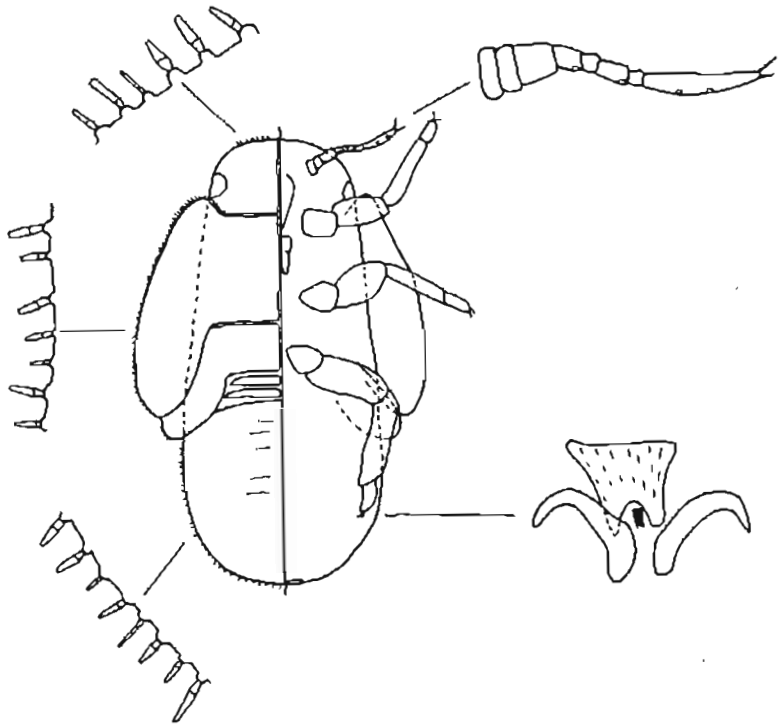

Figure 16. ***Trioza monsalvei* sp. nov.**, fifth instar larva, left dorsal surface, right ventral surface.

Measurements and ratios (1♂, 1♀). HW 0.70–0.71; WL 3.37–3.42; MP 0.38; FP 0.55; PL 0.22; AEL 0.20.

GCV 0.85–0.86; LLHW 0.41–0.42; TLHW 1.10–1.11; WLHW 4.85; WLW 2.57–2.75; CUR 1.19–1.35; MPHW 0.55; FPHW 0.78; FPC 2.55; FSP 1.04.

Larva

Described by Lizer (1918).

Host plant

The larvae produce galls on *Ocotea acutifolia* Mez. (Lauraceae).

Distribution

Recorded from Argentina (Houard, 1933; Lizer, 1943). Material examined. Argentina: 1♂, 1♀ (possibly paratypes of *T. ocoteae* Lizer) (C. Lizer) (USNM).

***Trioza monsalvei* sp. nov.**

(Figs 15B, D, F, I, K, 16)

Description of adult

Coloration unknown as only slide mounted material available, perhaps similar to *T. magnoliae*.

Structure. Head with hemispherical eyes, more adpressed to head than in *ocoteae*; genal processes evenly tapering, blunt apically. Pronotum flattened medially. Forewings (Fig. 15B) with vein Rs ending proximal or above bifurcation of vein M. Terminalia as in Fig. 15D, F, I, K. Parameres lanceolate, dilated subapically, with concave indentation along hind-margin; apex slightly curved inwards. Inner surface sparsely covered in long setae. Distal segment of

aedeagus with relatively small globular apical dilatation. Female proctiger with straight dorsal margin and narrowly rounded apex. Valvulae as in *T. ocoteae*.

Measurements and ratios (2♂, 1♀). HW 0.63–0.66; AL 1.01–1.03; WL 3.56–3.67; MP 0.29–0.30; FP 0.62; PL 0.24; AEL 0.23–0.25.

GCV 0.83–1.00; ALHW 1.54–1.64; LLHW 0.59–0.60; TLHW 1.09–1.13; WLHW 5.60–5.71; WLW 2.74–2.83; CUR 1.95–2.02; MPHW 0.47–0.48; FPHW 0.94; FPC 3.15; FSP 0.89.

Larva

Coloration. (Slide mounted material.) Ochreous.

Structure. Body (Fig. 16) elongate, dorsal surface covered in small normal setae. Antennae eight-segmented with one rhinarium on segments 4 and 6 respectively, and two rhinaria on segment 8. Tarsal arolia short, trapezoidal, unguitractor short. Forewing pads with small humeral lobes. Anus terminal or subterminal. Circumanal ring slightly convoluted, consisting of a single row of oval pores. Marginal secta-setae variable in size and shape, sometimes almost pointed and slender, sometimes broad and truncate: following numbers present (one side only): head 12–14; prothorax 1; forewing-pad 52–59; hindwing-pad 6–8; abdominal margin 33–45.

Measurements and ratios (4 specimens). AL 0.42–0.54; WL 0.98–1.11; BL 1.78–2.25; CPB 0.90–1.01.

AWL 0.41–0.49; BBL 0.63–0.73; CPR 1.36–1.53; ACB 0.24–0.26.

Host plant

Persea lingue L. (Lauraceae).

Material examined

Holotype ♂, Chile: Los Lienques, 950 m, 6.iv.1975, *Persea lingue* (G. Monsalve) (BMNH).

Paratypes: Chile: 8♂, 4♀, same as holotype (BMNH, MHNG).

Material not included in type-series. Chile: five larvae, same as holotype (BMNH, MHNG).

Comments

T. monsalvei is very close to *T. magnoliae* (Ashmead) which is also recorded developing on *Persea*. It differs in the less sinuous parameres, the apically more dilated aedeagus and the shorter female terminalia.

The larvae is intermediate between *T. alacris* and *T. ocoteae*. The former is elongate, has pointed marginal secta-setae, short humeral lobes, a convoluted circumanal ring, consisting of several rows of pores, and has the anus in terminal position. The latter is broadly oval, has truncate marginal secta-setae, large humeral lobes, an oval circumanal ring consisting of a single row of pores, and has the anus in ventral position.

The *T. berberidis*-group

Description. Head (Fig. 17) slightly broader than pronotum, narrower than mesonotum; in profile, inclined at about 45° to longitidunal axis of body. Vertex

trapezoidal, mostly flat apart from indented foveae and weakly bulged fore-margin, separated from genae by transverse sutures. Genae forming subacute conical processes, sparsely setose. Dorsal surface of genae lying in a plane lower and more inclined than vertex. Eyes large hemispherical, adpressed to head. Antennae ten-segmented with rhinaria on segments 4, 6, 8 and 9. Segment 3 is longest segment. Segment 10 with pair of long and subequal terminal setae in *T. miltosoma*, and with one long subacute and one short truncate seta in other species. Clypeus pyriform adpressed to ventral surface of head. Pronotum transverse. Mesonotum flat or produced anteriorly. Metatibiae with weakly developed basal spines and with 1+2 or 1+3 apical spurs. In species with 1+2 the inner spurs are widely separated (in the ocoteae-group the two inner spurs are always contiguous), in species with 1+3 one inner spur often stands apart from the other two. Forewings displaying a wide range of shapes. Surface spinules present or absent, radular spinules present in cells m1+2, m3+4 and cu1a. Anal break distant from apex of vein Cu1b. Hindwings three-quarters of forewing length with more or less distinctly grouped costal setae. Lateral setae in all species present on abdominal tergite 3 in males and 4 in females, in some species also present on other tergites. Male subgenital plate globular, sparsely setose ventrally. Distal segment of aedeagus usually with large ventral hook. Female circumanal ring consisting of two unequal rows of pores. Valvulae 1 straight with several subapical teeth.

Comments. The *T. berberidis*-group includes the 12 species described below and is restricted to the temperate and subantarctic neotropics. Known host plants are *Berberis* spp. (Berberidaceae) with the exception of *Dendroseris* (Compositae), the host of *T. dendroseridis*.

T. chilensis, *lischines*, *inlechsis* and *cochleipennis* form a monophyletic complex. Although small, the specific differences in the terminalia seem to be constant and are paralleled by marked differences in the coloration and characters of the forewings, such as shape, the venation and spinules. The four species possess a very large apical dilatation of the aedeagus which bears ventral recurved points, and parameres with a broad basal portion and a finger-like apical process. Based on the male terminalia it is suggested that *T. berberidis* is the sister-species of the former four species together. *T. longipennis* and *blanchardi* share the elongate parameres and a relatively small apical dilatation of the aedeagus and are together probably the sister-group of the former five species.

Based on the shape of head and male terminalia, *T. dendroseridis* and *striacauda* are closely related. The large apical dilation of the aedeagus and/or the presence of a very long and strongly sinuous vein Rs in the forewings suggest a relationship of the latter two species, *T. miltosoma* and *T. fissa* to the remaining species of the *T. berberidis*-group.

A similar type of aedeagus and forewing venation is also present in some *Trioza* spp. from New Zealand (Dale, 1985) indicating a close relationship between the two groups.

Trioza miltosoma (Blanchard, 1852) **comb. nov.**
(Figs 17A, 18A, 19A, 20A, 21A, 22A)

Calinda miltosoma Blanchard, 1852: 311. Lectotype ♂, Chile: Valdivia (MNHN), here designated (examined).

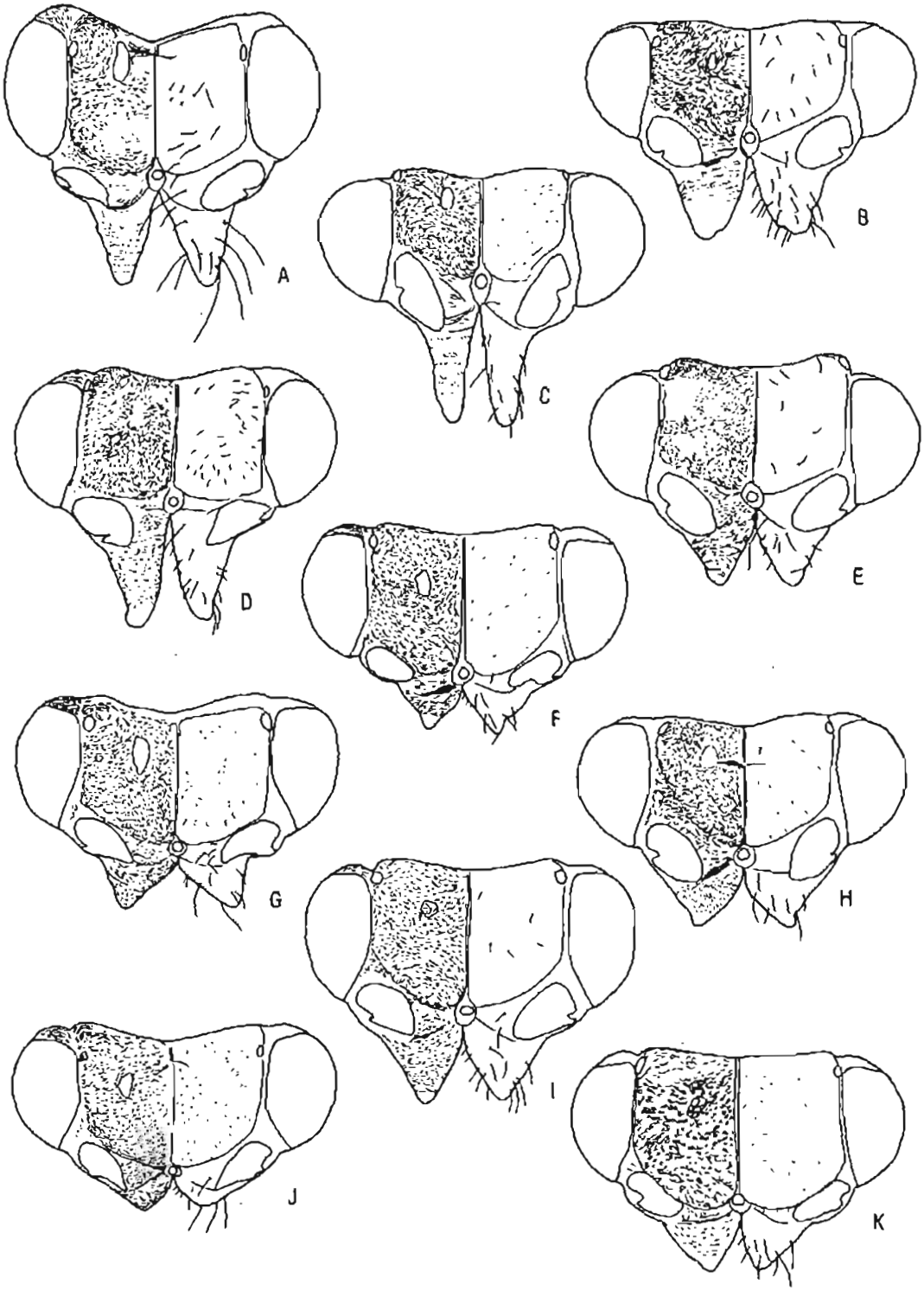

Figure 17. *Trioza* spp.: head, dorsal view. A, *T. miltosoma* (Blanchard); B, ***T. fissa* sp. nov.**; C, ***T. dendroseridis* sp. nov.**; D, ***T. striacauda* sp. nov.**; E, *T. longipennis* (Blanchard); F, ***T. inlechsis* sp. nov.**; G, ***T. blanchardi* sp. nov.**; H, ***T. berberidis* sp. nov.**; I, ***T. lischines* sp. nov.**; J, ***T. cochleipennis* sp. nov.**; K, ***T. nilisches* sp. nov.**

Description of adult

Coloration. Head light brown with darker foveae and coronal suture, lateral margins of vertex ochreous. Antennal segments 1–8 yellow, apices of 4, 6 and 8 brown, segments 9 and 10 dark brown. Clypeus brown. Thorax dirty yellow or light brown with dark brown longitudinal stripes dorsally and dark patches

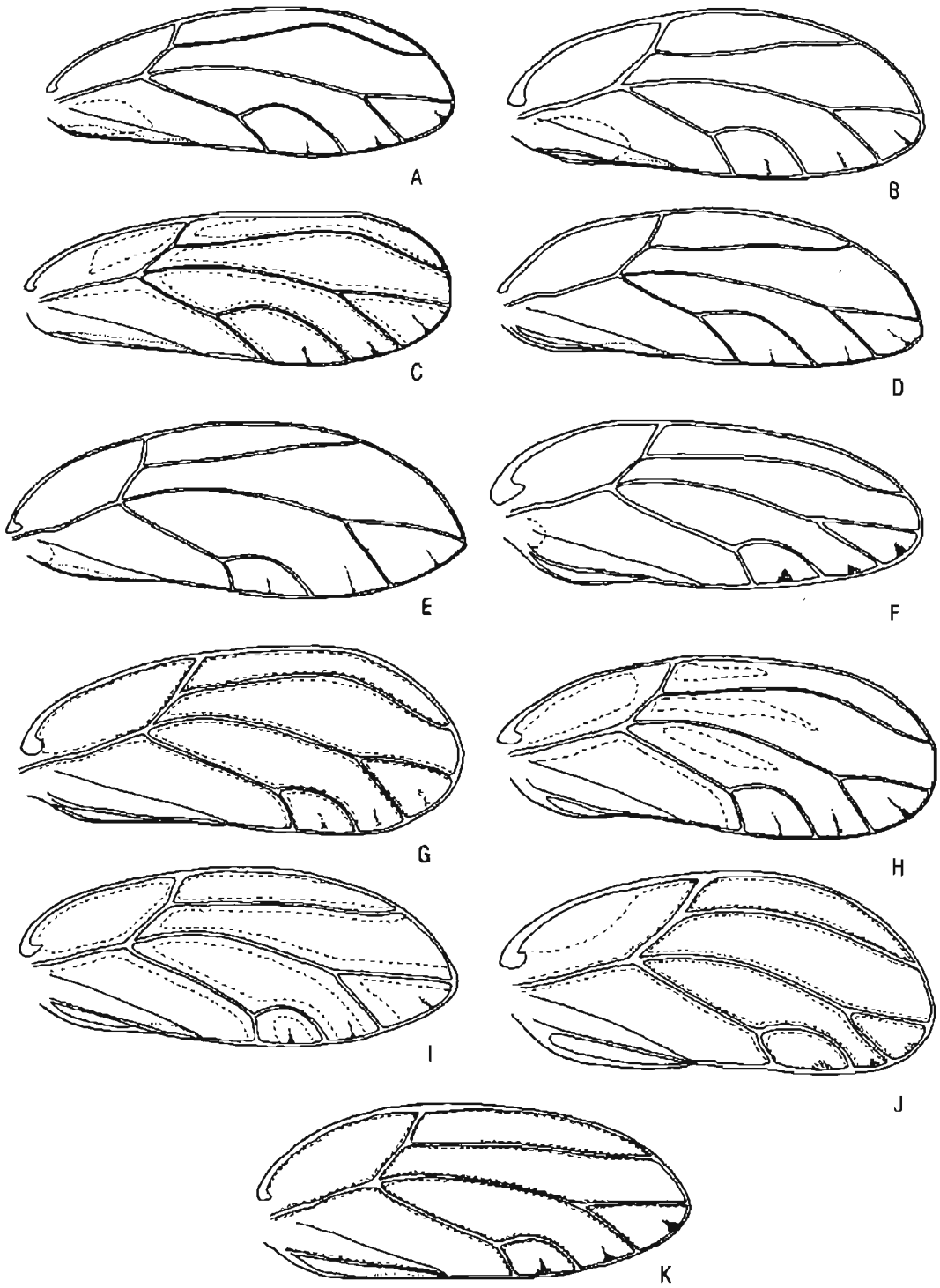

Figure 18. *Trioza* spp.: forewing. A, *T. miltosoma* (Blanchard); B, ***T. fissa* sp. nov.**; C, ***T. dendroseridis* sp. nov.**; D, ***T. striacauda* sp. nov.**; E, *T. longipennis* (Blanchard); F, ***T. inlechsis* sp. nov.**; G, ***T. blanchardi* sp. nov.**; H, ***T. berberidis* sp. nov.**; I, ***T. lischines* sp. nov.**; J, ***T. cochleipennis* sp. nov.**; K, ***T. nilisches* sp. nov.**

laterally. Legs ochrous, apical tarsi brown. Forewings transparent to whitish with brown veins. Hindwings whitish. Abdomen dark brown dorsally, straw-coloured ventrally. Teneral specimens green or yellow becoming first ochreous on thorax, darkening gradually to reddish and brown.

Structure. Head (Fig. 17A) with long and relatively slender genal processes. Antennal segment 10 with a pair of long subequal setae. Mesonotum bulged

anteriorly. Mesopraescutum and mesoscutum of subequal length, much longer than pronotum. Metatibiae with 1+3 apical spurs; inner spurs contiguous. Forewings (Fig. 18A) widest in apical third, vein Rs long, strongly bent towards fore-margin. Surface spinules absent apart from base of cell cu2, radular spinules forming narrow stripes. Abdominal tergites 3 in males and 4 in female with lateral setae. Terminalia as in Figs 19A, 20A, 21A, 22A. Male proctiger short with large triangular posterior lobes and long marginal setae. Anus in strict terminal position. Parameres lamellar, tapering, ending in an inward and forward directed sclerotized tooth. Inner surface covered in long slender setae, with a small group of thick subapical setae. Aedeagus three-segmented. Basal segment short. Median segment curved with slightly dilated base and apex. Apical segment short with large ventral hook. Female terminalia densely covered in long setae. Dorsal margin of proctiger gently rounded. Pore ring circular. Subgenital plate with straight ventral margin. Valvulae 2 with large hump in the middle of dorsal margin; valvulae 3 broadly rounded apically.

Measurements and ratios (6♂, 3♀). HW 0.56–0.61; AL 1.03–1.18; WL 2.94–3.82; MP 0.23–0.27; FP 0.71–0.77; PL 0.34–0.39; AEL 0.28–0.31.

GCV 0.74–1.00; ALHW 1.81–1.97; LLHW 0.53–0.63; TLHW 1.09–1.17; WLHW 5.17–6.29; WLW 2.5–2.75; CUR 1.43–1.65; MPHW 0.41–0.72; FPHW 1.21–1.34; FPC 4.50–5.00; FSP 0.35–0.43.

Larva and host plant

Unknown.

Distribution

Recorded from Chile: Valdivia and Chesque (Blanchard, 1852). Material examined. Argentina: 7♂, 13♀, Rio Negro, El Bolson, along Arroyo Negro, 350 m, 2.ii.1961, beaten from trees, no. 254 (G. Topal); 5♂, 5♀, same 6.iii.1961, netted material, no. 301; 1♂, 1♀, same, 10.iii.1961, beaten from various trees and bushes, no. 309; 8♂, 7♀, same, 15.iii.1961, netted over waters of muddy path and brook, no. 322; 75♂, 46♀, same, 17.iii.1961, no. 331; 43♂, 19♀, Rio Negro, El Bolson, forehill of Mt. Piltriquitron, 460 m, 16.iii.1961, singled material, no. 329 (G. Topal); 29♂, 15♀, Chubut, El Puelo, 230 m, forest near Lago Puelo, 25.iii.1961, beaten from various trees, no. 354 (G. Topal); 2♂, same, 220 m, forest NE of Lago Puelo, 5.xi.1961, beaten from *Libocedrus*, *N. dombeyi*, wild rose and *Aristotelia*, no. 700, same; 1♀, Rio Negro, El Bolson, valley of Rio Azul, 300 m, near river, 7.xi.1961, beaten from pitra-trees in *Nothofagus dombeyi–Myrceugenia exsupca* marsh–forest, no. 710, same; 1♂, Chubut, El Puelo, 15 km S of El Bolson, 270 m, near Rio Azul, 10.xi.1961; beaten from shrubby riverside vegetation, no. 716, same; 6♂, 10♀, Rio Negro, El Bolson, 350 m, 5.ii.1961, beaten from trees along Arroyo Negro, no. 154 (G. Topal); 11♂, 16♀, Rio Negro, El Bolson, Pampa Azcona along Arroyo Negro, 350 m, 8.iii.1961, beaten from various trees and bushes, no. 305 (G. Topal); 1♂, same, 13.iii.1961, netting in grasses on great marsh-side field near Arroyo Negro, no. 317; 3♂, 2♀, same 27.iii.1961, beaten from various trees, mainly *Myrceugenia exsupca* after blossoming, along Arroyo Negro, no. 357; 1♀, Rio Negros, El Bolson, Mt. Piltriquitron, 680 m, 21.iv.1961, beaten from *Colletia*, *Fabiana imbricata*, *Aristotelia maqui*, *Maytenus boaria*, *Berberis buxifolia*, *Baccharis magellanica* and *Lomatia obliqua*,

no. 410 (G. Topal); 2♀, Rio Negro, El Bolson, B. M. 1964–193 (A. Kovacs). Chile: 1♂, Valdivia (lectotype of *Calinda miltosoma* Blanchard); 2♂, without information (1♂ paralectotype of *C. miltosoma*, 1♂ found loose in the box, possibly paratype of *C. miltosoma*); 1♂, 2♀, Malleco, Angol–Cord Mahuelbuta, Rio Picoyyquen, 25.xi.1962, 'in rastreo' (T. Cekalovic); 2♀, Prov. Santiago, Curacavi, 30.xi.1967 (J. Apablaza); 1♀, Chepu, Chiloe, 42°S, 30 ft., 11.x.1958, secondary scrub, HC12 (BMNH, MHNG, MHMH, MNHNS, TM).

Comments

T. miltosoma is included in the *berberidis*-group mainly because of its forewing venation with the very long and strongly sinuous vein Rs. It differs from other species in the three-segmented aedeagus and the detailed structure of the terminalia.

***Trioza fissa* sp. nov.**

(Figs 17B, 18B, 19, 20B, 21B, 22B)

Description of adult

Coloration. Head almost black, vertex ochreous or brown. Antennal segments 1, 2, 9 and 10 black, segments 3–8 ochreous to brown. Clypeus black. Pronotum ochreous or brown medially, black laterally. Mesonotum and metanotum dark brown with ochreous longitudinal stripes. Thorax laterally and ventrally dark brown to black with lighter lateral patches. Legs dark brown to black, tibiae and basal tarsi dirty yellow, metacoxae ochreous. Forewings clear or slightly infuscate with light brown veins. Hindwings transparent. Abdomen almost black. Teneral specimens lighter with more restricted dark coloration.

Structure. Head (Fig. 17B) with robust genal processes, apices blunt. Antennal segment 10 with one medium long, subacute terminal seta and one short, truncate seta. Pronotum transverse, bent backwards laterally. Mesopraescutum and mesoscutum of subequal length, both much longer than pronotum. Metatibiae with 1+2 small apical spurs, two of the inner ones contiguous, one standing apart. Forewings (Fig. 18B) widest in the middle, vein Rs short, only weakly sinuous, ending beyond bifurcation of vein M. Surface spinules absent apart from base of cu2; radular spinules forming relatively broad stripes. Abdominal tergite 3 in male and tergite 4 in females with lateral setae. Terminalia as in Figs 19B, 20B, 21B, 22B. Male proctiger with anterio-apically slanting anus, relatively short with strongly lobed posterior margin, bearing long marginal setae. Parameres bifid. Distal segment of aedeagus with short shaft and large apical dilatation, dorsal part membranous, ventral part forming two processes ending in several small points. Female proctiger with strongly bulged dorsal margin, sparsely setose. Circumanal ring oval. Subgenital plate cuneate, evenly covered in setae. Valvulae 1 straight with several subapical teeth; valvulae 2 with concave dorsal margin; valvulae 3 broadly rounded apically.

Measurements and ratios (4♂, 3♀). HW 0.60–0.69; AL 1.13–1.24; WL 2.42–2.66; MP 0.25–0.34; FP 0.45–0.48; PL 0.23–0.24; AEL 0.20–0.21.

GCV 0.72–1.14; ALHW 1.67–1.84; LLHW 0.36–0.49; TLHW 0.84–1.00; WLHW 3.58–4.39; WLW 2.26–2.52; CUR 1.26–1.62; MPHW 0.38–0.50; FPHW 0.70–0.75; FPC 2.23–2.71; FSP 0.59–0.67.

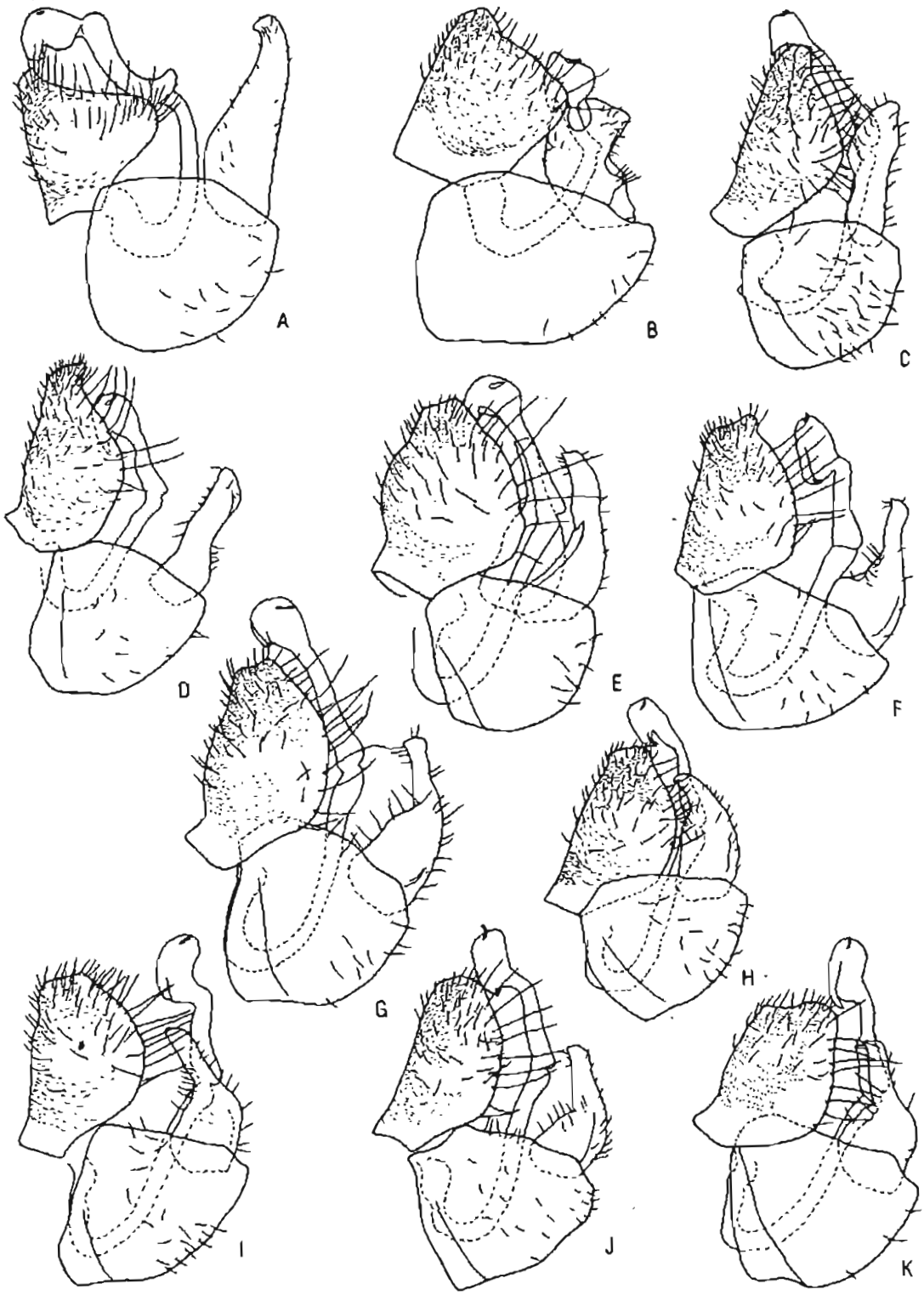

Figure 19. *Trioza* spp.: male terminalia. A, *T. miltosoma* (Blanchard); B, ***T. fissa* sp. nov.**; C, ***T. dendroseridis* sp. nov.**; D, ***T. striacauda* sp. nov.**; E, *T. longipennis* (Blanchard); F, ***T. inlechsis* sp. nov.**; G, ***T. blanchardi* sp. nov.**; H, ***T. berberidis* sp. nov.**; I, ***T. lischines* sp. nov.**; J, ***T. cochleipennis* sp. nov.**; K, ***T. nilisches* sp. nov.**

Larva

Unknown.

Host plants

Adults were collected off *Berberis buxifolia* Lam. and *B. darwini* Hook. (Berberidaceae).

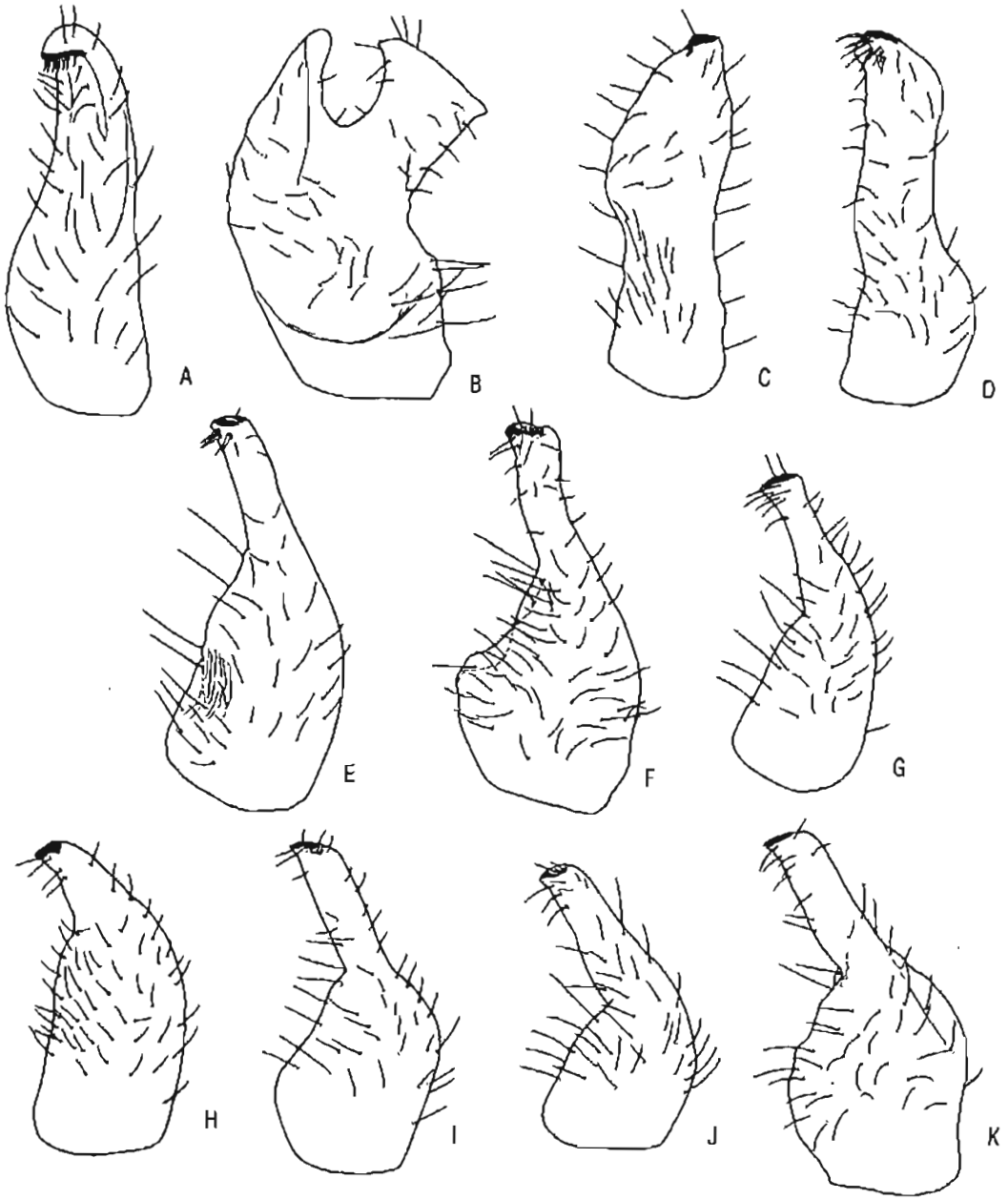

Figure 20. *Trioza* spp.: Paramere, inner surface. A, *T. miltosoma* (Blanchard); B, ***T. fissa* sp. nov.**; C, ***T. dendroseridis* sp. nov.**; D, ***T. striacauda* sp. nov.**; E, *T. longipennis* (Blanchard); F, ***T. inlechsis* sp. nov.**; G, ***T. blanchardi* sp. nov.**; H, ***T. berberidis* sp. nov.**; I, ***T. lischines* sp. nov.**; J, ***T. cochleipennis* sp. nov.**; K, ***T. nilisches* sp. nov.**

Material examined

Holotype ♂, Chile: Magallanes, Punta Arenas, Quinta Pittet, 14.i.1966, *Berberis buxifolia* (T. Cekalovic) (MHNG).

Paratypes. Chile: 1♂, 8♀, same as holotype; 1♀, Magallanes, Chorillo Los Alambres, 22.ii.1971, *Nothofagus antarctica*, same; 2♂, 6♀, Magallanes, Punta Brat, Seno Otway; 1.i.1962, same; 2♂, 1♀, Magallanes, Rio El Ganso, Seno Otway, 31.xii.1982, *Berberis buxifolia*, same; 3♂, 5♀, Magallanes, 21.xi.1961, *Berberis buxifolia*, same; 1♂, Magallanes, Laguna Los Robles, 1.x.1961, same; 1♀, Puerto Williams, 18.i.1959. Argentina: 2♀, Terr. Rio Negro, Bariloche, 5.–10.ii.1925, B. M. 1927–63 (F. & M. Edwards); 1♂, 4♀, Rio Negro, Mt. Piltriquitron, 350–800 m, 20.x.1961, beaten from budding *Berberis buxifolia*, after

dusk, no. 643 (G. Topal); 14♂, 19♀, same, 1000 m, 23.x.1961, beaten from *Berberis buxifolia* bushes coming into flower, no. 650; 1♂, same, 730–720 m, 25.x.1961; beaten from *Berberis darwini* bushes coming into bloom, no. 656; 2♂, 2♀, same, 800–1000 m, 14.xi.1961, beaten from blossoming *Berberis buxifolia* bushes, no. 724 (BMNH, MNHG, TM, USNM).

Comments

T. fissa differs from other species of the *T. berberidis*-group in the broad genal processes and the bifid parameres. The aedeagus suggests a close relationship to *berberidis* and the *chilensis* complex.

***Trioza dendroseridis* sp. nov.**

(Figs 17C, 18C, 19C, 20C, 21C, 22C)

Description of adult

Coloration. Head and pronotum pale yellow with dark brown patches on vertex, on ventral surface of head and on lateral part of pronotum. In mature specimens tips of genal processes dark. Antennae dark brown to black, segment 3 ochreous, in teneral specimens also segment 2 and base of segment 4 ochreous. Clypeus and apex of labium almost black. Mesonotum and metanotum black with a longitudinal ochreous stripe on praescutum and two stripes on scutum, disappearing in older specimens. Thorax ochreous laterally, black ventrally.

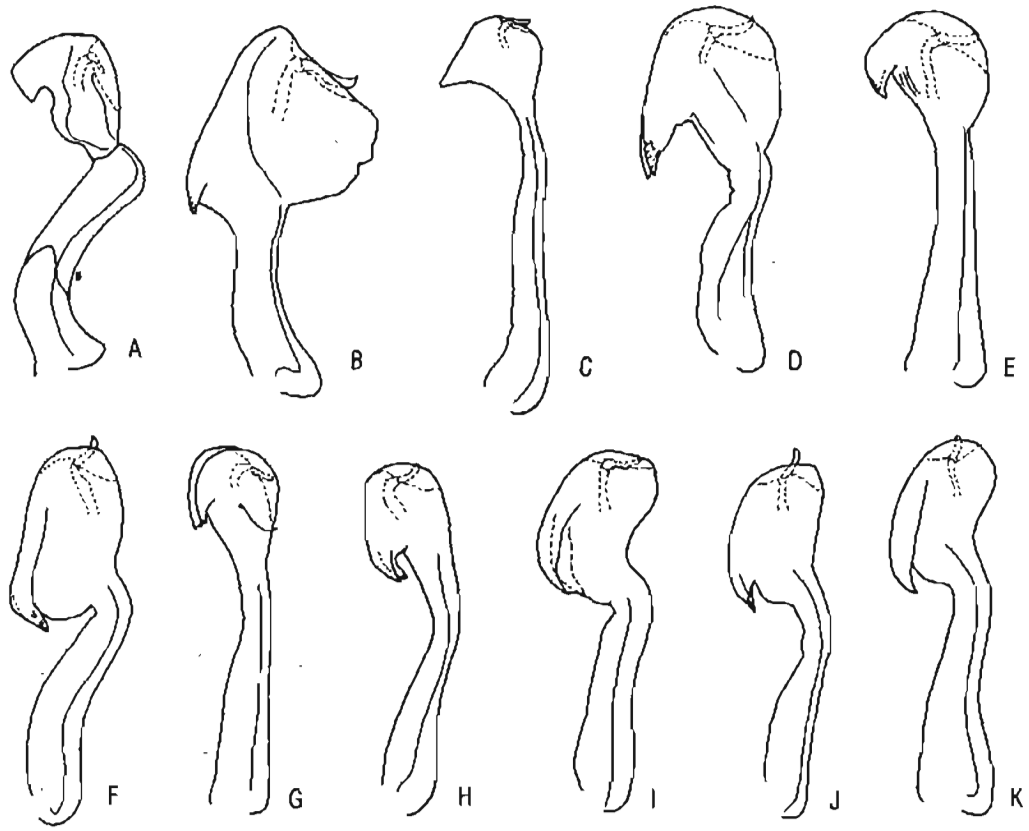

Figure 21. *Trioza* spp.: distal segment of aedeagus. A, *T. miltosoma* (Blanchard); B, ***T. fissa* sp. nov.**; C, ***T. dendroseridis* sp. nov.**; D, ***T. striacauda* sp. nov.**; E, *T. longipennis* (Blanchard); F, ***T. inlechsis* sp. nov.**; G, ***T. blanchardi* sp. nov.**; H, ***T. berberidis* sp. nov.**; I, ***T. lischines* sp. nov.**; J, ***T. cochleipennis* sp. nov.**; K, ***T. nilisches* sp. nov.**

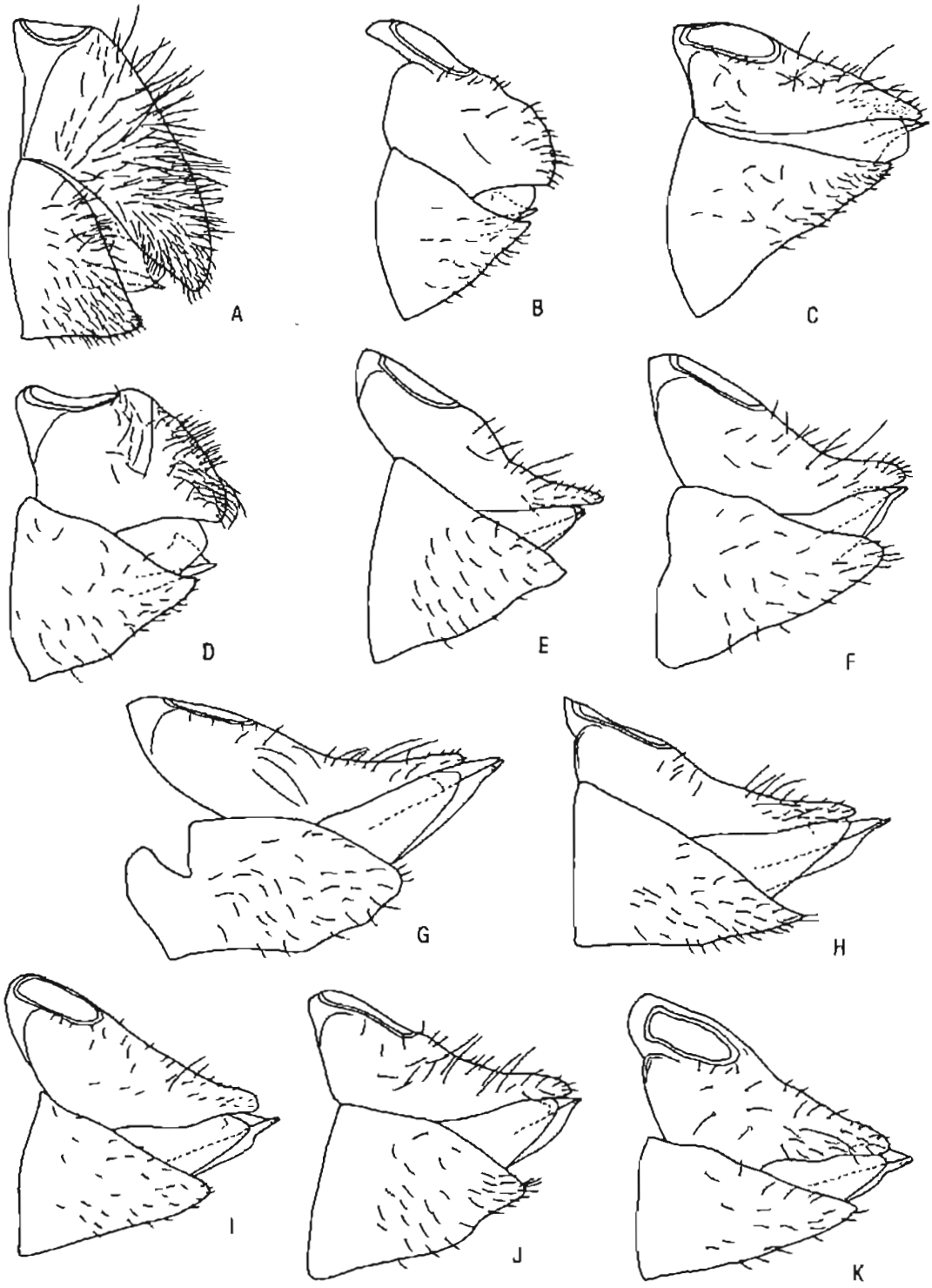

Figure 22. *Trioza* spp.: female terminalia. A, *T. miltosoma* (Blanchard); B, ***T. fissa* sp. nov.**; C, ***T. dendroseridis* sp. nov.**; D, ***T. striacauda* sp. nov.**; E, *T. longipennis* (Blanchard); F, ***T. inlechsis* sp. nov.**; G, ***T. blanchardi* sp. nov.**; H, ***T. berberidis* sp. nov.**; I, ***T. lischines* sp. nov.**; J, ***T. cochleipennis* sp. nov.**; K, ***T. nilisches* sp. nov.**

Legs yellowish, femora brown basally. Forewings clear or whitish with brown veins. Hindwings whitish. Abdomen brown dorsally, green ventrally. Terminalia green. Parameres brown.

Structure. Head (Fig. 17C) with very long and slender genal processes. Antennae and thorax as in *T. fissa*. Forewings (Fig. 18C) oblong–oval, widest in

apical third, apex broadly rounded, vein Rs very long and strongly bent towards fore-margin. Cell cu1a large, larger in surface area than cell m1+2. Surface spinules present in all cells leaving spinule-free stripes along the veins evenly spaced; radular spinules forming narrow stripes. Lateral setae present in males on tergites 3 and 4, in females on segments 4 and 5. Terminalia as in Figs 19C, 20C, 21C, 22C. Male proctiger with terminal anus, strongly dilated in the middle, posterior margin strongly bulged with long marginal setae. Parameres lanceolate, broadest in apical third, apex blunt with inward directed tooth, fore-margin with long, slender setae. Inner surface densely setose in basal half and with scattered setae in apical half. Distal segment of aedeagus with slender shaft and relatively small apical dilatation bearing a triangular ventral process ending in a single point. Dorsal margin of female proctiger almost straight with some long dorsal setae, apex subacute. Circumanal ring unevenly oval, angular proximally, rounded distally. Subgenital plate cuneate, ventral margin with inconspicuous hump medially. Evenly covered in setae apart from base. Valvulae 1 as in *T. fissa*; valvulae 2 with strongly convex dorsal margin; valvulae 3 broadly rounded apically.

Measurements and ratios (1♂, 1♀). HW 0.61–0.66; AL 1.34–1.47; WL 2.85–3.06; MP 0.32; FP 0.54; PL 0.24; AEL 0.27.

GCV 1.04–1.35; ALHW 2.21–2.24; LLHW 0.51–0.58; TLHW 0.90–1.02; WLHW 4.66–4.69; WLW 2.71–2.91; CUR 1.39–1.44; MPHW 0.53; FPHW 0.82; FPC 2.62; FSP 0.89.

Larva

Unknown.

Host plant

Adults were collected on *Dendroseris berteriana* Hook. & Arn. (Compositae).

Material examined

Holotype ♂, Chile: Juan Fernandez, Masatierra, Yunque, 915 m, 10.ii.1952, *Dendroseris berteriana*, B. M. 1954–57 (F. G. Kuschel) (BMNH).

Paratypes. Chile: 10♂, 19♀, same as holotype (BMNH, MHNG).

Comments

T. dendroseridis is included in the *berberidis*-group mainly because of its wing venation. The aedeagus with a small apical dilatation is atypical for the group. The head with the long genal processes and the lamellar parameres suggest a close relationship to *T. striacauda.*

***Trioza striacauda* sp. nov.**

(Figs 17D, 18D, 19D, 20D, 21D, 22D)

Description of adult

Coloration. Head pale yellow, margin of antennal sockets and sometimes tips of genal processes dark brown. Antennal segment 1 and 2 brown, segments 3–8 pale yellow or ochreous with brown apices, segments 9 and 10 almost black. Clypeus dark brown. Thorax dark brown with a very broad longitudinal yellow

stripe dorsally, ochreous laterally. Legs yellow with partially dark brown metacoxae and metafemora. Forewings transparent with yellow veins. Hindwings whitish. Abdomen almost black with a narrow yellow longitudinal stripe dorsally and sometimes also ventrally. Teneral specimens almost entirely yellow, darkening gradually.

Structure. Head (Fig. 17D) with long, slender genal processes; apices slightly turned outwards. Antennae, thorax and metatibiae as in *T. fissa*. Forewings (Fig. 18D) widest medially. Vein Rs short and relatively straight, cell cu1a high, about as large as cell m1+2 in surface area. Surface spinules absent apart from base of cell cu2. Lateral setae present on abdominal tergite 3 in males and tergite 4 in females. Terminalia as in Figs 19D, 20D, 21D, 22D. Male proctiger expanded in the middle, hind-margin strongly bulged, with long setae, apical half of proctiger densely covered in setae. Subgenital plate globular, sparsely setose. Parameres lamellar, shorter than proctiger, curved outwards in the middle, apex oblique with sclerotized tooth. Inner surface covered in slender setae with a subapical group of thick setae. Female proctiger with longitudinal groove distal to the circumanal ring, dorsal margin strongly curved. Densely covered in long setae dorsally. Subgenital plate cuneate, evenly covered in setae. Ventral margin bent medially. Circumanal ring as in *T. fissa*. Valvulae 1 straight with several subapical teeth; valvulae 2 cuneate with subapically indented dorsal margin. Valvulae 3 rounded apically.

Measurements and ratios (2♂, 1♀). HW 0.58–0.61; AL 1.23; WL 2.29–2.50; MP 0.29–0.30; FP 0.43; PL 0.24–0.26; AEL 0.21–0.22.

GCV 1.09; ALHW 2.14; LLHW 0.47–0.67; TLHW 0.98–1.02; WLHW 3.97–4.11; WLW 2.63–2.75; CUR 1.34–1.61; MPHW 0.50–0.53; FPHW 0.71; FPC 2.32; FSP 0.82.

Larva

Unknown.

Host plant

Adults were collected on *Berbis buxifolia* Lam. (Berberidaceae).

Material examined

Holotype ♂, Chile: Prov. Magallanes, Rio El Ganso, Seno Otway, 31.xii.1962, *Berberis buxifolia* (T. Cekalovik) (MHNG).

Paratypes. Argentina: 3♂, 3♀, Prov. Santa Cruz, Rio Chico, Canadon Leon, 29.i.1961, *Berberis buxifolia* "Calafate" (T. Cekalovic); 1♀, Chubut, Rio Senzuer, 1.ii.1962 (T. Cekalovic); 1♀, Chubut, El Maiten, 15.ii.1961, singled material, no. 275 (G. Topal); 2♂, 4♀, Rio Negro, Norquinco, 900 m, 15.ii.1961, singled material, no. 279, same; 1♀, Rio Negro, El Bolson, Mt. Piltriquitron, 680 m, 22.iv.1961, beaten from *Colletia, Fabiana imbricata, Aristotelia maqui, Maytenus boaria, Berberis buxifolia, Baccharis magellanica* and *Lomatia obliqua*, no. 410, same (MHNG, TM).

Comments

T. striacauda and *dendroseridis* share long, slender genal processes and lamellar parameres, and are possibly closely related. *T. striacauda* has short female terminalia as *T. fissa* but the proctiger has a longitudinal dorsal groove.

Trioza longipennis (Blanchard, 1852) **comb. nov.**
(Figs 17E, 18E, 19E, 20E, 21E, 22E)

Calinda longipennis Blanchard, 1852: 310. Lectotype ♂, Chile: Coquimbo (MNHN), here designated (examined).

Description of adult

Coloration. Head dark brown dorsally, yellow ventrally. Dorsum of thorax and abdomen dark brown to black, sides and venter yellow to ochreous. Legs yellow. Forewings with transparent membrane and brown veins. Hindwings transparent or whitish. Teneral specimens yellow, darkening gradually.

Structure. Head (Fig. 17E) with triangular genal processes. Thorax and metatibiae as in *T. fissa*. Forewings (Fig. 18E) broadest in apical third with almost straight vein Rs. Cell cu1a smaller than cell m1+2. Surface spinules absent apart from base of cell cu2. Lateral setae present on abdominal tergite 3 in males and tergite 4 in females. Terminalia as in Figs 19E, 20E, 21E, 22E. Male proctiger as in *T. striacauda* with slightly anterio-dorsally directed anus. Subgenital plate as in *T. striacauda*. Parameres with a subapical group of thick setae on inner surface, otherwise evenly covered in long slender setae. Apex with forward-directed sclerotized tooth. Posterior corner of apex angular. Distal segment of aedeagus with small globular apical dilatation bearing two recurved ventral hooks. Dorsal margin of female proctiger strongly indented medially, apex subacute, circumanal ring as in *T. striacauda*. Subgenital plate cuneate with weak subapical indentation. Ventral margin almost straight. Valvulae 1 straight with subapical teeth; valvulae 2 cuneate with straight dorsal margin; valvulae 3 unevenly curved apically.

Measurements and ratios (1♂, 1♀). HW 0.64–0.74; WL 3.23–3.84; MP 0.21; FP 0.51; PL 0.22; AEL 0.19.

GCV 0.72; LLHW 0.46–0.57; TLHW 0.91; WLHW 5.08–5.16; WLW 2.52–2.61; CUR 1.97–2.39; MPHW 0.32; FPHW 0.68; FPC 3.06; FSP 0.81.

Larva

Unknown.

Host plant

T. longipennis forms galls on the leaves of *Berberis chilensis* Gill. (Berberidaceae).

Distribution

Recorded from Chile (Blanchard, 1852). Material examined. Chile: 1♂, Coquimbo (lectotype of *Calinda longipennis*); 1♀, without data; 11♂, 10♀, Santiago, San Gabriel, 8.xii.1983, emerged from galls on the leaves of *Berberis chilensis* (29.xii.1983) (I. Meza) (MHNG, MNHN).

Comments

T. longipennis and *blanchardi* have similar parameres and aedeagi and are probably sister-species. *T. longipennis* differs from other species in the very long forewings with short vein Rs, in the slender parameres, in the small apical dilatation of the aedeagus and the dorsally concave female proctiger.

Trioza inlechsis sp. nov.

(Figs 17F, 18F, 19F, 20F, 21F, 22F)

Description of adult

Coloration. Head yellow ochreous, ridge between vertex and genae brown. Antennal segments 1–8 yellow or ochreous, segments 9 and 10 black. Pronotum with the same colour as vertex, with two dark spots on either side. Thorax brown with lighter longitudinal stripes dorsally; ochreous laterally and black ventrally. Legs ochreous or brown. Forewings light brown, veins slightly darker than membrane. Hindwings membranous. Abdomen dark brown to black. Terminalia ochreous with dark brown patches. Teneral specimens with more extended yellow and ochreous coloration.

Structure. Head (Fig. 17F) with short, triangular genal processes, apices subacute. Antennae very short with terminal setae as in *T. fissa*. Thorax flat dorsally with relatively long and little arched pronotum. Metatibiae with 1+3 apical spurs as in *T. fissa*. Forewings (Fig. 18F) oviform, broadest in basal third. Vein Rs long, slightly sinuous. Surface spinules absent apart from base of cell cu2. Radular spinules forming broad triangular fields. Lateral setae present on abdominal tergites 3–6 in males and on tergites 4–7 in females. Terminalia as in Figs 19F, 20F, 21F, 22F. Male proctiger and subgenital plate as in *T. striacauda*. Parameres with broad basal portion bearing a small but conspicuous hump on the fore-margin, apical process very narrow with forward directed apical tooth and apical indentation producing a posterio-apical tubercle. Distal segment of aedeagus with large apical dilatation; ventral processes ending in several small points, strongly curved subapically. Female terminalia similar to *T. longipennis*. Dorsal margin of proctiger concave, apical process shorter and thicker than in *longipennis*. Ventral margin of subgenital plate straight apart from slightly curved apex. Subgenital plate longer than in *longipennis*. Valvulae 1 and 3 as in *longipennis*; valvulae 3 cuneate with almost straight dorsal margin.

Measurements and ratios (4♂, 4♀). HW 0.57–0.62; AL 0.50–0.61; WL 1.88–2.13; MP 0.20–0.22; FP 0.39–0.42; PL 0.23–0.24; AEL 0.21–0.23.

GCV 0.44–0.58; ALHW 0.81–1.05; LLHW 0.43–0.47; TLHW 0.68–0.76; WLHW 3.20–3.66; WLW 2.36–2.56; CUR 1.32–1.62; MPHW 0.34–0.37; FPHW 0.63–0.73; FPC 2.31–2.87; FSP 0.70–0.81.

Larva

Unknown.

Host plant

Adults were collected on *Berberis buxifolia* Lam. (Berberidaceae).

Material examined

Holotype ♂, Argentina, Prov. Santa Cruz, Rio Chico, Canadon Leon, 29.i.1962, *Berberis buxifolia* "calafate" (T. Cekalovic) (MHNG).

Paratypes. Argentina: 18♂, 17♀, same as holotype; 2♂, 1♀, Rio Negro, Norquinco, 900 m, 15.ii.1961, singled material, no. 279 (G. Topal) (MHNG, TM).

Comments

T. inlechsis is closely related to *T. chilensis, lischines, cochleipennis* and *nilisches* from which it is separated by the combination of the following characters: (a) forewings without surface spinules; (b) forewings light brown; (c) forewings oviform, broadest in basal third; (d) parameres with broad basal portion bearing a conspicuous hump on its fore-margin; (e) distal segment of aedeagus with broad apical dilatation with ventral processes ending in several small points, strongly curved subapically; (f) dorsal margin of female proctiger strongly concave.

Trioza chilensis Šulc, 1914

Trioza chilensis Šulc, 1914: 5. Holotype ♂, Chile: Parral, in den Bädern von Longavi (Schönemann) (MMB) (examined).

Description

By Šulc (1914).

Larva and host plant

Unknown.

Distribution

Recorded from Chile from a single specimen (Šulc, 1914).

Comments

In Šulc's collection is a badly damaged specimen and a pin without specimen. As the original description mentions that the species is known only from a single male, the damaged specimen is regarded as holotype. As the terminalia are missing the identity of *chilensis* cannot be established conclusively. It seems closest to *T. lischines* which has faint surface spinules in the forewings, is slightly smaller and has a shorter apical process on the parameres. *T. chilensis* differs from the other related species in its larger body size and the broader and more pointed wing shape.

***Trioza blanchardi* sp. nov.**

(Figs 17G, 18G 19G, 20G, 21G, 22G)

Description of adult

Coloration. Head yellow. Antennal segments 1–3 yellow, 4–8 light brown, 9 and 10 black. Clypeus dark brown. Pronotum yellow as vertex, with two dark spots on either side. Thorax yellow or ochreous with scattered dark brown patches. Legs dark brown with lighter tibiae and basal tarsi. Forewings with transparent membrane and yellow veins. Hindwings whitish. Abdomen dark brown with yellow longitudinal stripe ventrally. Terminalia dark brown with yellow patches.

Structure. Similar to *T. longipennis*. Genal cones (Fig. 17G) short triangular. Thorax slightly more flattened than in *longipennis*. Forewings (Fig. 18G) broadest in apical third, apex broadly rounded. Vein Rs very long, strongly curved towards fore-margin. Surface spinules present in all cells, covering the whole cells up to veins, large, evenly spaced. Radular spinules forming narrow stripes. Lateral setae present on abdominal tergite 3 in males and tergite 4 in

females. Terminalia as in Figs 19G, 20G, 21G, 22G. Male proctiger and subgenital plate as in *T. longipennis*. Parameres similar to *T. longipennis* but base more slender and apex with a forward and a backward directed tooth. Distal segment of aedeagus with relatively short globular apical dilatation bearing two ventral processes ending in two points each. Female terminalia similar to *T. longipennis*. Dorsal margin of proctiger concave with several long dorsal setae. Subgenital plate elongate. Dorsal margin strongly incised at base. Ventral margin with median hump. Valvulae 2 with almost straight dorsal margin.

Measurements and ratios (1♂, 1♀). HW 0.64–0.66; WL 2.19–2.30; MP 0.25; FP 0.62; PL 0.25; AEL 0.28.

GCV 0.60–0.73; LLHW 0.49–0.51; TLHW 0.85–0.91; WLHW 3.34–3.62; WLW 2.33–2.35; CUR 1.11–1.43; MPHW 0.39; FPHW 0.97; FPC 3.71; FSP 0.71.

Larva and host plant

Unknown.

Material examined

Holotype ♂, Chile: Picton Is., 55°S, 25 ft., 1.ii.1959, *Drymis, Ribes, Berberis*, HW 20 (BMNH).

Paratypes. Chile: 1♂, Isla Navarino, Puerto Williams, 55°S, 100 ft. 12.i.1959, *Nothofagus* forest, HW1; 1♀, same, 25 ft., 16.i.1959, *Chiliotrichum* scrub, HW5 (BMNH).

Comments

T. blanchardi and *longipennis* have similar male terminalia and are probably sister-species. The two differ in the forewings and detailed structure of the terminalia.

***Trioza berberidis* sp. nov.**

(Figs 17H, 18H, 19H, 20H, 21H, 22H)

Description of adult

Coloration. Head dark brown, genal processes ochreous or brown. Antennal segment 1 dark brown, segments 2–5 ochreous to brown, 6 and 7 dark brown, segments 8–10 black. Clypeus almost black. Thorax dark brown dorsally, ochreous or reddish brown laterally. Legs ochreous to brown, with black procoxae, mesocoxae, metafemora and apical tarsi. Forewings transparent with yellow or ochreous veins. Hindwings transparent. Abdomen almost black. Teneral specimens orange dorsally, yellow ventrally, darkening gradually.

Structure. Head (Fig. 17H) with short triangular genal processes, subacute apically. Thorax arched dorsally. Pronotum transverse, sides bent backwards. Mesonotum weakly bulged anteriorly. Mesopraescutum and mesoscutum of subequal length along mid-line much longer than pronotum. Metatibiae with 1+3 apical spurs, two of the inner ones contiguous, the third one slightly apart. Forewings (Fig. 18H) with long sinuous vein Rs, apex rounded, cell cu1 about as large as cell m1+2. Surface spinules large, weakly developed, sometimes

strongly reduced apart from cell cu2. Radular spinules forming long stripes. Lateral setae present in males on tergites 3 and 4, in females on tergites 4–6. Terminalia as in Figs 19H, 20H, 21H, 22H. Male proctiger and subgenital plate similar to *T. striacauda*. Parameres with elongate wider basal part and relatively short and broad apical processes with forward directed apical tooth. Distal segment of aedeagus with relatively long shaft and distal dilatation intermediate between *T. longipennis* and *T. inlechsis*, bearing two subapical, slightly recurved processes on ventral side, ending in several small points. Female terminalia similar to *T. longipennis*. Dorsal margin of proctiger concave, less indented than in *longipennis* but process longer and more slender. Subgenital plate irregularly tapering with ventral hump in the middle, longer and apically more acute than in *longipennis*. Valvulae 2 with concave dorsal margin.

Measurements and ratios (2♂, 1♀). HW 0.59–0.61; AL 0.80–0.91; WL 2.34–2.45; MP 0.24–0.28; FP 0.61; PL 0.21–0.23; AEL 0.23–0.24.

GCV 0.52–0.63; ALHW 1.32–1.50; LLHW 0.48–0.53; TLHW 0.95–1.00; WLHW 3.85–4.03; WLW 2.38–2.44; CUR 1.28–1.38; MPHW 0.39–0.48; FPHW 1.00; FPC 3.20; FSP 0.73.

Larva

Unknown.

Host plants

Berberis buxifolia Lam., *darwini* Hook. (Berberidaceae).

Material examined

Holotype ♂, Chile: Magallanes, Parque John Fell, 20.v.–4.vi.1982, yellow pan tray no. 6 (J. Petersen C.) (MHNG).

Paratypes. Chile: 1♀, same, 14.–23.iv.1982; 1♂, 1♀, same 23.iv.–3.v.1982; 2♂, 5♀, same, 18.iii.–2.iv.1982, yellow pan tray no. 11; 6♂, 8♀, same, 2.–14.iv.1982; 14♂, 7♀, same, 14.–23.iv.1982; 1♂, 1♀, same, 23.iv.–3.v.1982; 1♂, 2♀, same, 3.–20.v.1982; 2♀, same 20.v.–4.iv.192; 1♀, same, 14.–23.iv.1982; yellow pan tray no. 12; 1♂, same, 23.iv.–3.v.1982; 1♀, same, 20.v.–4.vi.1982; 1♂, same, 12.–17.ii.1982, yellow pan try no. 6 (D. Lanfranco); 1♂, 3♀, same, yellow pan tray no. 11; 2♂, 1♀, same, 17.–26.ii.1982; 33♂, 3♀, same, 26.ii.–8.iii.1982; 2♂, 3♀, 8.–18.iii.1982; 10♂, 23♀, Magallanes, Punta Arenas, 22.ii.1962, *Nothofagus antarctica, Berberis buxifolia* (T. Cekalovic); 40♂, 32♀, same, 19.ii.1969; 13♂, 9♀, same, 12.ii.1963; 1♂, same, 22.ii.1962; 2♀, same, 9.iii.1961; 1♀, Magallanes, 23.xi.1961, same; 25♂, 37♀, Magallanes, Punta Arenas, Quinta Pittet, 7.ii.1971, *Nothofagus antarctica, Berberis buxifolia*, same; 36♂, 54♀, same, 14.i.1966, *Berberis buxifolia*; 68♂, 48♀, 22.ii.1962, *Nothofagus antarctica*; 2♂, 2♀, Magallanes, Seno Otway, Rio Galeta, 26.ii.1961, same; 2♂, 1♀, Magallanes, Punta Brat, Seno Otway, 1.i.1962, same; 5♂, 4♀, Magallanes, Laguna Amarga, 1.i.1966, same; 9♂, 13♀, Magallanes, Chorillo Los Alambres, 22.ii.1971, *Nothofagus antarctica*, same; 7♂, 11♀, Magallanes, Isla Navarino, Canal Beagle, Rio Ukika, 16.vii.1976, same; 28♂, 33♀, Rio Calete, 28.iv.1971, *Berberis buxifolia* (F. Gomez); 1♀, Magallanes, Fuerte Bulnes, 55 km SW of Punta Arenas, 17.iv.1971 (Flint & Hevel); 1♀, Picton Island, 55°S, 25 ft. 1.ii.1959, *Berberis, Drymis, Ribes*, HW 20. Argentina: 1♂, 2♀, Terr. Rio Negro, Bariloche, 5.–10.xi.1926 (F. & M.

Edwards); 1♀, same, Lago Nahuel Huapi, eastern end, 28.–31.x.1926; 4♂, 15♀, Rio Negro, El Bolson, Mt. Piltriquitron, 700 m, near creek, 1.iv.1961, beaten from various bushes except for *Lomatia*, no. 369 (G. Topal); 7♂, 7♀, same, 19.iv.1961, no. 397; 118♂, 101♀, same 1170 m, 19.iv.1961, beaten from various trees and bushes near edge of *Nothofagus pumilio* forest, no. 402; 1♂, same, 680 m, 22.iv.1961, beaten from *Colletia, Fabiana imbricata, Aristotelia maqui, Maytenus boaria, Berberis buxifolia, Baccharis magellanica* and *Lomatia obliqua* no. 410; 70♂, 91♀, same, 1170–1150 m, 20.x.1961, beaten from budding *Berberis buxifolia* bushes, after dusk, no. 643; 32♂, 38♀, same 1000 m, 23.x.1961, beaten from *Berberis buxifolia* bushes coming into flower, no. 650; 1♂, 2♀, same, 730–720 m, 25.x.1961, beaten from *Berberis darwini* bushes coming into bloom, no. 656; 2♂, same, 1170 m, 27.x.1961, beaten from *Nothofagus antarctica* near brook, no. 663; 1♂, 2♀, same, beaten from blossoming *Ugni molinae* bushes in lenga-forest, no. 664; 12♂, 5♀, same, 1000 m, 13.xi.1961, beaten from blossoming *Berberis buxifolia* bushes, no. 724; 65♂, 68♀, Chubut, El Hoyo, Lago Espejo, 1000 m, beaten from budding *Berberis buxifolia* bushes on clearing in *Nothofagus antarctica* forest near lake, no. 603–604 (G. Topal) (BMNH, IPPA, MHNG, TM, USNM).

Comments

Among material from Chile: Rio Calete 28.iv.1971, *Berberis buxifolia* (F. Gomez) (MHNG) are 5 larvae which are possibly the species described by del Guercio (1914) from *Berberis ruscifolia* referred by him to *Rhinocola* or *Aphalara*. Even though lacking marginal secta-setae, the specimens are triozids, but as several species seem to develop on *Berberis buxifolia* it is uncertain whether they belong to *T. berberidis*. Another sample from Chile: Magallanes, Punta Arenas, Quinta Pittet, 22.ii.1962, *Nothofagus antarctica* (T. Cekalovic) (MHNG) contains apart from a series of adult *T. berberidis* a third instar larva of a triozid with marginal truncate and pointed secta-setae. It is uncertain whether the larva and the adults are conspecific; however, *Nothofagus* is almost certainly not the true host of neither adults nor larva.

T. berberidis can be recognized by its long sinuous Rs in the forewings, the parameres and the long pointed female terminalia.

***Trioza lischines* sp. nov.**

(Figs 17I, 18I, 19I, 20I, 21I, 22I)

Description of adult

Coloration. Head dark brown with yellow genal processes and anterior margin of vertex; ventral surface yellow. Antennal segments 1 and 2 brown, segments 3–8 yellow, 9 and 10 dark brown. Clypeus black. Thorax dark brown dorsally, yellow laterally and ventrally with scattered brown patches. Legs yellow with partially brown femora. Forewings with infuscate membrane and brown veins. Abdominal tergum dark brown to black, sternum yellow. Teneral specimens with yellow to orange head and thorax, and green abdomen.

Structure. Similar to *inlechsis* and *chilensis*. Forewings (Fig. 18I) widest in the middle, apex subacute. Vein Rs only slightly curved, relatively short. Surface spinules present in all cells, weakly developed apically leaving broad spinule-free stripes along the veins; sometimes reduced in apical part of cells. Lateral setae present on abdominal tergites 3–5 in males and 4–6 in females. Terminalia as in

Figs 19I, 20I, 21I, 22I. Male proctiger and subgenital plate similar to *T. inlechsis*. Parameres with basal portion slightly narrower and more parallel-sided; finger-like apical process straight. Apex with foreward directed tooth. Inner surface covered in long setae. Distal segment of aedeagus with two subapical processes on ventral side ending in a single strongly curved point. Dorsal margin with large subapical indentation, apex broadly rounded. Female terminalia similar to *T. inlechsis*. Dorsal margin of proctiger almost straight, slightly indented subapically. Covered in short setae apart from a few very long dorsal ones. Ventral margin of subgenital plate almost straight. Valvulae 2 with weakly curved dorsal margin; valvulae 3 angular apically.

Measurements and ratios (1♂, 1♀). HW 0.55–059; AL 0.55–0.83; WL 2.30–2.55; MP 0.21–0.24; FP 0.49–0.51; PL 0.21–0.24; AEL 0.23–0.24.

GCV 0.36–0.64; ALHW 1.25–1.42; LLHW 0.44–0.53; TLHW 0.80–0.91; WLHW 4.10–4.49; WLW 2.45–2.61; CUR 1.48–1.87; MPHW 0.38–0.44; FPHW 0.87–0.88; FPC 2.89–2.94; FSP 0.71–0.96.

Larva

Unknown.

Host plant

Adults were collected off *Berberis darwini* Hook. (Berberidaceae).

Material examined

Holotype ♂, Argentina: Rio Negro, El Bolson, Mt. Piltriquitron, 730–720 m, 25.x.1961, beaten from *Berberis darwini* bushes coming into bloom, no. 656 (G. Topal) (TM).

Paratypes. Argentina: 1♂, 1♀, same as holotype; 1♂, same, 1000 m, 26.x.1961, beaten from *Nothofagus antarctica* trees near brook, no. 658; 1♀, Chubut, Cordon del Derrumbe W slope, 450–500 m, 18.xi.1961, beaten from various trees in diverse habitats, no. 736, same. Chile: 1♀, Puerto Eden, 400 m, 28.xi.1958; 1♀, Prov. Cautin, nr Pucon, 4.i.1966 (Flint & Cekalovic) (BMNH, MHNG, TM, USNM).

Comments

T. lischines and *nilisches* have similar terminalia but differ in the shape of the forewings, the general body coloration and the detailed structure of the aedeagus which has a large apical dilatation in *lischines*. According to the description of *T. chilensis* it is very close to *lischines* and there is a possibility that the two are conspecific. However, Šulc (1914) states that surface spinules are completely absent from the forewings and gives larger dimensions for the forewings, and, according to the figures, the parameres have a longer and more inclined apical process. These differences are considered to be of specific significance and are comparable with the differences among other species within this complex.

***Trioza cochleipennis* sp. nov.**

(Figs 17J, 18J, 19J, 20J, 21J, 22J)

Description of adult

Coloration. Head dark brown, genal processes and ventral surface slightly lighter. Antennae dark brown. Thorax dark brown dorsally, lighter brown

laterally and ventrally. Legs, forewings and abdomen dark brown. Hindwings whitish. Terminalia black. Teneral specimens brown or reddish brown.

Structure. Head (Fig. 17J) with very short, triangular genal processes. Antennae, thorax and metatibiae as in *T. inlechsis*. Forewings (Fig. 18J) slightly bulged, widest medially, with arched vein Rs and irregularly rounded apex. Surface spinules large, evenly spaced, present in all cells covering the whole membrane up to the veins apart from a field in cell c+sc. Radular spinules forming broad triangular patches. Lateral setae present on abdominal tergites 3 and 4 in males and 4–7 in females. Terminalia as in Figs 19J, 20J, 21J, 22J, similar to *T. lischines*. Parameres with relatively longer apical process. Distal segment of aedeagus with two subapical processes ending in several points, not strongly curved apically; dorsal margin strongly indented subapically. Apical projection of female proctiger and setae longer than in *T. lischines*. Subgenital plate with ventral bulge medially. Valvulae 2 with almost straight dorsal margin.

Measurements and ratios (2♂, 2♀). HW 0.65–0.70; WL 1.78–2.10; MP 0.27–0.29; FP 0.47; PL 0.23–0.24; AEL 0.26.

GCV 0.25–0.35; LLHW 0.49–0.54; TLHW 0.90–0.94; WLHW 2.74–3.01; WLW 2.12–2.33; MPHW 0.42–0.44; FPHW 0.68–0.69; FPC 2.40–2.53; FSP 0.94–1.00.

Larva and host plant

Unknown.

Material examined

Holotype ♂, Argentina: Río Negro, El Bolson, Mt. Piltriquitron, 680 m, 22.iv.1961, beaten from *Colletia, Fabiana imbricata, Aristotelia maqui, Maytenus boaria, Berberis buxifolia, Baccharis magellanica* and *Lomatia obliqua* no. 410 (G. Topal) (TM).

Paratypes. Chile: 7♂, 7♀, same as holotype (MHNG, TM).

Comments

T. cochleipennis differs from the other closely related species, in addition to its genital structures, mainly in its dark body coloration, the slightly curved forewings and the very short genal processes.

***Trioza nilisches* sp. nov.**

(Figs 17K, 18K, 19K, 20K, 21K, 22K)

Description of adult

Coloration. Head pale yellow. Antennal segments 1–8 ochreous, segments 9 and 10 black. Clypeus brown. Dorsum of thorax and abdomen dark brown or black. Rest of thorax, including legs and abdomen yellow. Forewings transparent, dirty yellowish with yellow veins. Teneral specimens with less expanded dark coloration on dorsum and with green abdomen.

Structure. Similar to *T. lischines*. Head (Fig. 17K) with relatively broad genal processes. Forewings (Fig. 18K) oval, widest in the middle, apex angular, vein

Rs almost straight. Surface spinules present in all cells covering the whole membrane up to the veins; large, evenly spaced. Radular spinules forming triangular patches. Lateral setae present on abdominal tergites 3–5 in males and 4–6 in females. Terminalia as in Figs 19K, 20K, 21K, 22K. Similar to *T. lischines*. Parameres with slightly wider and less parallel-sided basal portion. Apical dilatation of distal aedeagal segment more slender. Dorsal margin of female proctiger slightly sinuous. Valvulae 2 with strongly curved dorsal margin.

Measurements and ratios (1♂, 1♀). HW 0.56–0.58; AL 0.65; WL 1.97–2.13; MP 0.22; FP 0.44; PL 0.21; AEL 0.22.

GCV 0.42–0.48; ALHW 1.12–1.16; LLHW 0.42; TLHW 0.75; WLHW 3.53–3.68; WLW 2.41–2.45; CUR 1.63–1.78; MPHW 0.39; FPHW 0.76; FPC 3.00; FSP 0.78.

Larva

Unknown.

Host plant

Adults were collected off *Berberis buxifolia* Lam. (Berberidaceae).

Material examined

Holotype ♂, Argentina: Rio Negro, El Bolson, Mt. Piltriquitron, 680 m, 22.iv.1961, beaten from *Colletia, Fabiana imbricata, Aristotelia maqui, Maytenus boaria, Berberis buxifolia, Baccharis magellanica* and *Lomatia obliqua* no. 410 (G. Topal) (TM).

Paratypes. Argentina: 7♂, 6♀, same as holotype; 2♂, 1♀, same, 930 m, 23.iii.1961, beaten from various trees mainly *Lomatia*, no. 350; 1♀, same, 700 m, 1.iv.1961, beaten from various bushes except for *Lomatia* near creek, no. 369; 2♂, same, beaten from *Lomatia* bushes, near creek, no. 370; 1♂, 1♀, same 1000 m, 23.x.1961, beaten from *Berberis buxifolia* bushes coming into flower, no. 650; 1♂, 1♀, Chubut, El Hoyo, 230 m, 14.ii.1961, beaten from *Berberis buxifolia*, no. 272, same; 1♂, 1♀, same, Lago Espejo, 1000 m, 8.x.1961, beaten from budding *Berberis buxifolia* bushes on clearing of *Nothofagus antarctica* forest near lake, nos. 603–604 (MHNG, TM).

Comments

T. nilisches is closely related to *T. lischines* from which it differs apart from the genital characters, in the large spinules of the forewings which cover the whole membrane, and the lighter general body coloration.

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