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THE AMERICAN GENERA OF ASILIDAE (DIPTERA): KEYS FOR IDENTIFICATION WITH AN ATLAS OF FEMALE SPERMATHECAE AND OTHER MORPHOLOGICAL DETAILS. IX.2. SUBFAMILY ASILINAE LEACH - *EFFERIA* -GROUP, WITH THE PROPOSAL OF FIVE NEW GENERA AND A CATALOGUE OF THE NEOTROPICAL SPECIES

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ABSTRACT

A key is given for the identification of the 11 American genera of the Efferia-group of Asilinae (Asilidae), also a catalogue of the neotropical species. The following genera are proposed as new: Albibarbefferia (type-species, Erax albibarbis Macquart, 1838); Aridefferia (type-species, Erax aridus Williston, 1893); Carinefferia (type-species, Erax carinatus Bellardi, 1861); Pogoniefferia (type-species, Asilus pogonias Wiedemann, 1821); and Tuberculefferia (type-species, Erax tuberculatus Coquillett, 1904).

Keywords: America, Asilidae, *Efferia*, *Albibarbefferia*, gen.n., *Aridefferia*, gen.n., *Carinefferia*, gen.n., *Pogoniefferia*, gen.n., *Tuberculefferia*, gen.n., Neotropic, Taxonomy, Morphology, Catalogue.

INTRODUCTION

This is the part IX.2 of a serie of papers intended as a preliminary effort to define the American genera of Asilidae, describing the new genera, preparatory to the elaboration of a catalogue of Neotropical species for inclusion in the forthcoming World Catalogue of Flies, now being prepared by the U.S. Department of Agriculture and U.S. National Museum of Natural History, Washington D.C.

Previous parts in this series (published and in press) are:

Part I (Key to subfamilies, subfamily Leptogastrinae): Gayana, Zool. 52(1-2): 95-114, 1988;

Part II (Dasypogoninae): Gayana, Zool. 52(3-4): 199-260, 1988;

Part III (Trigonimiminae): Bol. Soc. Biol. Concepción, 60: 35-41, 1989;

Part IV (Laphriinae, except Atomosiini): Bolm. Mus. paraense E. Goeldi, Zool. 4(2): 211-255, 1988;

Part V (Stichopogoninae): Bol. Soc. Biol. Concepción, 61: 39-47, 1990;

Part VI (Laphriinae, Astomosiini): Gayana, Zool. 55(1): 53-87, 1991;

Part VII.1 (Stenopogoninae, key to tribes): Gayana, Zool. 55(2): 139-144, 1991;

Part VII.2 (Stenopogoninae, Tribes Acronychini, Bathypogonini and Ceraturgini): Gayana, Zool. 55(3): 247-255, 1991;

Part VII.3 (Stenopogoninae, Tribes Dioctriini and Echthodopini): Gayana, Zool. 55(4):

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261-266, 1992;
 Part VII.4 (Stenopogoninae, Tribe Enigmomorphini): Bol. Soc. Biol. Concepción 62: 27-53, 1992;
 Part VII.5 (Stenopogoninae, Tribe Tillobromini): Rev. chilena. Ent. 19: 17-27, 1992;
 Part VII.6 (Stenopogoninae, Tribes Phellini, Plesiommatini, Stenopogonini and Willistonini): Gayana, Zool. 57(2): 309-321, 1994;
 Part VII.7 (Stenopogoninae, Tribe Cyrtopogonini): Bol. Soc. Biol. Concepción 62: 55-81, 1992;
 Part VIII. (Laphystiinae): Arquivos de Zoologia, São Paulo 34(1): 1-55, 1997.
 Part IX.I. (Asilinae, key to generic-group): Arquivos de Zoologia, São Paulo 34(2): 57-63, 1997.

MATERIAL AND METHODS

The material used in this series belongs mainly to the Museu de Zoologia da Universidade de São Paulo, Brazil (MZUSP) and to the Departamento de Zoología, Universidad de Concepción, Chile (UCCC).

The methodology employed in the dissection and preservation of the male terminalia, female spermathecae and other morphological parts is the same employed by Artigas (1971).

List of abbreviations:

AMNH: American Museum of Natural History, New York
 BMNH: British Museum (Natural History), London
 CMNH: Field Museum of Natural History, Chicago
 COR: Cornell University, Ithaca, N.Y.
 FRAN: Senckenbergische Naturforschende Gesellschaft, Natur-Museum und Forschungs-institut, Frankfurt
 HT: Holotype
 KU: Snow Collection, Kansas University, Lawrence
 MCZ: Museum of Comparative Zoology, Harvard University, Cambridge, Mass.
 MICH: University of Michigan Zoological Museum, Ann Arbor, Mich.
 MNHNP: Muséum National d'Histoire Naturelle, Paris

MZUSP: Museu de Zoologia, Universidade de São Paulo
 NT: Neotype
 OHIO: Ohio State University, Columbus, Ohio
 OXF: Hope Department of Entomology, Oxford University, Oxford
 SANT: Museo Nacional de Historia Natural, Santiago de Chile
 ST: Syntype
 TORO: Istituto e Museo di Zoologia. Università di Torino, Turin
 TP: Type(s)
 UCCC: Colecciones Científicas, Universidad de Concepción
 USNM: United States National Museum of Natural History, Washington, D.C.
 WASH: Washington State University, Pullman, Wash.
 WIEN: Naturhistorisches Museum, Zoologische Sammlungen, Vienna

EFFERIA-GROUP

Key to the American genera:

1. Fork of R₄ and R₅ much or just before apex of discal cell. R₅ ends above wing apex. Mesonotum anteriorly either with short hairs (or, if long, not bristle-like), or with bristles or bristle-like hairs as long as or longer as scape and pedicel together. Male abdomen either greyish pollinose and frequently with long, parted hairs, or with tergites 2-5 blackish basally, without parted hairs and segments 6-7 white pollinose. Ovipositor either rounded at tip, not split in dorsal view, or pointed and split at tip in dorsal view. (Nearctic).....*Pogoniefferia*, gen.n.
- Fork of R₄ and R₅ opposite to or beyond apex of discal cell. R₅ ends at, below, or above, wing apex. Other combinations of characters2
- 2(1). Apical half of scutellum with many long, black bristles, disc with many long hairs. often similar to bristles. R₅ ends above wing apex. Male terminalia not compressed, epandria with deep apical excision, no

- mane on gonopods (cf. Artigas, 1970: figs. 227, 234). Aedeagus with 3 tubes (cf. Artigas, 1970: figs. 228, 233; 1971: figs. 76, 78). Ovipositor conical, tergite 10 sometimes with minute spines (cf. Artigas, 1970: figs. 230, 231, 235). Spermathecae with 3 rounded capsules with very short basal common duct (cf. Artigas, 1971: figs. 75-77). Length, 15-20 mm. Exclusively Chilean flies.....
.....*Cratolestes* Hull, 1962
- Two to twelve marginal scutellar bristles; scutellum never as above. R_5 ends at, below, or above wing apex. Other combinations of characters. Not occurring in Chile3
- 3(2). Ocellar tubercle without bristles, only short hairs present. Male hypandrium produced. Female ovipositor conical (Figs. 9-10). Spermathecae as in Fig. 11. Length, 20-25 mm. (USA to Guatemala, Panama and Surinam to Paraguay).....
.....*Triorla* Parks, 1968
- Ocellar tubercle with bristles. Other combinations of characters4
- 4(3). Vein R_4 ends in C, far from R_1 , i.e., first submarginal cell open. R_5 ends at, below, or above wing apex5
- Vein R_4 ends in R_1 , i.e., first submarginal cell closed and petiolate. R_5 ends above wing apex. Anatergite bare or pilose. (Venezuela, Colombia, Peru).....
.....*Diplosynapsis* Enderlein, 1914
- 5(4). Anatergite bare. R_5 ends above or below wing apex.....6
- Anatergite pilose. Costal section between tip of R_5 and tip of M_1 larger than costal section between tips of R_4 and R_5 , i.e., R_5 ends at or above wing apex (South America, but not in Chile).....
.....*Porasilus* Curran, 1934
- 6(5). R_5 curves backwards at the tip and meets the Costa below the apex of wing, i.e., costal section between tip of R_5 and tip of M_1 shorter than costal section between tips of R_1 and R_5 (Americas, but not in Chile)
..... *Nerax* Hull, 1962
- R_5 curved forward, meeting the Costa above the apex of wing, i.e., costal section between tip of R_5 and tip of M_1 larger than costal section between tips of R_1 and R_57
- 7(6). Wing with only 2 submarginal cells.....8
- Wing with submarginal cells, i.e., an extra vein arises in R_4 near its junction with R_5 , which unites R_4 with R_{2+3} (Nearctic)
.....*Efferia* Coquillett, 1893
- 8(7). Mesonotum compressed laterally and the mid-dorsal line with a narrow crest of long hairs or bristles (Nearctic).....
.....*Carinefferia*, gen.n.
- Mesonotum not compressed laterally, hairs anteriorly usually short, but if long not covering the dorsocentral as well as the central row9
- 9(8). Mesonotum anteriorly with numerous erect hairs as long as scape and pedicel together. Scutellum usually with numerous marginal bristles. Tergal bristles usually white. (Nearctic).....
..... *Aridefferia*, gen.n.
- Mesonotum anteriorly usually with hairs shorter than scape and pedicel together. Scutellum usually with not more than 6 marginal bristles. Bristles of tarsi usually black 10
- 10(9). Male abdomen ventrally with prominent tubercles on segments 4-6. Rather small, slender species (Nearctic).....
..... *Tuberculefferia*, gen. n.

Male abdomen without ventral tubercles.
 Small to large species, the small species
 frequently with short stout bristles in the
 upper part of the mystax. (Nearctic).....
*Albibarbetteria*, gen. n.

Genus *Albibarbetteria*, gen. n.

Erax, barbatus-group of Hine, 1919

Efferia, albibarbis-group of Wilcox, 1966: 104

Hine (1919) defined this group as follow:
 "The members of this group have a broad
 mesothorax, quite evenly curved, short-haired all
 over, especially anterior to the transverse suture.
 Only a few prominent bristles above the attachment
 of the wings and posteriorly. Scutellum short-
 haired on the disc, and usually with not more than
 half a dozen bristles on the margin, although
 occasional specimens may have one or two more
 than this number, in most cases there are less.
 Branching of the third vein never anterior to the
 base of the second posterior cell, occasionally it is
 opposite the base of this cell, but in nearly all cases
 it is plainly beyond, making the second
 submarginal cell short. The posterior branch of the
 third vein bends forward, and reaches the costa
 distinctly before the apex of the wing (.....). In some
 species the male has the costa thickened and
 expanded on the anterior margin, somewhat before
 the apex, but in other species this is not the case".

Wilcox (1966: 105) added that "The short
 more or less recumbent hairs anteriorly on the
 mesonotum, subequal in length to antennal segment
 2, applies to all the Nearctic species except *E. willistoni*
 (Hine). In *E. willistoni* the mesonotal hairs are erect
 and anteriorly are as long as antennal segment 1 and
 gradually lengthen apically, has the mesonotum highly
 arched and compressed, has the body metallic black
 in color, and although it lacks a definite mesonotal
 crest, it has been placed in the Carinata Group in order
 to unify the Albibarbis Group".

Type-species, *Erax albibarbis* Macquart, 1838
 Neotropical species:

albibarbis (Macquart), 1838: 118 (1839: 234)
 (*Erax*). Type-locality: North America.
 Neotype-locality: USA, Ohio, Paint

Creek, Bainbridge. Distr.- North America,
 south into Guatemala. TP: MNHNP (only
 legs and wings remaining). NT: USNM
 (Martin, 1962: 252). *Comb. n.*

pumilus Walker, 1855: 640 (*Erax*; preocc.
 Macquart, 1849). Type-locality: Mexico,
 Veracruz.

cinerascens Bellardi, 1861: 139 (39), pl. 2, fig.
 10 (*Erax*). Type-locality: Mexico, Veracruz,
 Tuxpango near Orizaba. TP: TORO.

tricolor Bellardi, 1861: 140 (40), pl. 2, fig.
 12 (*Erax*). Type-locality: Mexico,
 surroundings of Mexico City. TP: TORO.

furax Williston, 1885: 67 (*Erax*). Type-locality:
 USA, Washington Territory. TP: KU.

bicolor (Bellardi), 1861: 147 (47) (*Erax*). Type-
 locality: Mexico, surroundings of Mexico
 City. TP: TORO. *Comb. n.*

bimaculata (Bellardi), 1861: 145 (45), pl. 2, fig.
 11 (*Erax*). Type-locality: Mexico. Distr.-
 Mexico (Jalisco, Morelos, Nayarit,
 Veracruz). TP: TORO. *Comb. n.*

cingulata (Bellardi), 1861: 142 (42) (*Erax*). Type-
 locality: Mexico, Cuautla. Distr.- Mexico
 (Morelos). TP: TORO. *Comb. n.*

eximia (Bellardi), 1861: 138 (38) (*Erax*). Type-
 locality: Mexico, surroundings of Mexico
 City. TP: TORO. *Comb. n.*

grandis (Hine), 1919: 111 (*Erax*). Type-locality:
 USA, California and Texas. Distr.- USA,
 Mexico (Nuevo León, Tamaulipas). TP:
 OHIO. *Comb. n.*

?heteroptera (Macquart), 1846: 211 (1846: 83), pl.
 8, fig. 6 (*Erax*). Type-locality: Colombia
 (as Nouvelle Grenade, cold region) TP:
 OXF. *Comb. n.*

marginata (Bellardi), 1861: 146 (46) (*Erax*). Type-
 locality: Mexico, Cuautla. TP: TORO.
Comb. n.

quadrinaculata (Bellardi), 1861: 144 (44), pl. 2,
 fig. 13 (*Erax*). Type-locality: Mexico,
 Veracruz, Playa Vicente and Córdoba. TP:
 TORO. *Comb. n.*

sagax (Williston), 1901: 324 (*Erax*). Type-locality:
 Mexico, Jalisco, Santiago Escuintla. TP:
 BMNH. *Comb. n.*

Additional Nearctic species not occurring
 in Neotropical region: *armata* (Hine, 1918);
duncani (Wilcox, 1966); *leucocoma* (Williston,

1885); *peralta* (Wilcox, 1966); *similis* (Williston, 1885); *tagax* (Williston, 1885); *vertebrata* (Bromley, 1940); *zonata* (Hine, 1919), *Comb. nn.*

Genus *Aridefferia*, gen. n.,

Erax, aridus-group of Hine, 1919.

Efferia, arida-group of Wilcox, 1966: 138.

Hine (1919) defined his 'aridus-group' as follows: "A few species from the more or less arid regions of western United States are much like members of the Stramineus-group, but the branching of the third vein is almost exactly opposite the base of the second posterior cell".

Wilcox (1966: 138) says: "This group is more likely to be confused with the Pogonias Group as the males of most species have abdominal segments 1-5 blackish and 6-7 silvery white. In the Arida Group the mystax is composed entirely or almost entirely of hairs while in the Pogonias Group there is a row of strong bristles on the oral margin. Even in the females a question may develop, as it is not always easy to tell whether the cerci are split at the tip or not. In the Arida Group the cerci are rounded apically and tergite 9 is usually longer than the cerci. In the Pogonias Group the cerci are pointed apically and are longer than tergite 9 dorsally.

The males of the western species similar to males of the Pogonias Group can be separated by the largely white bristles of the legs, especially of the tarsi they are black or largely so in the Pogonias Group. The Arida Group for the most part comes out in the spring while the Pogonias Group comes out in the fall.

The branching of the third vein may be slightly before, opposite or beyond the base of the second posterior cell (discal crossvein)".

Type-species, *Erax aridus* Williston, 1893.

List of the Nearctic species: *apache* (Wilcox, 1966); *arida* (Williston, 1893); *basingeri* (Wilcox, 1966); *coulei* (Wilcox, 1966); *cuervana* (Hardy, 1943); *harveryi* (Hine, 1919); *pinali* (Wilcox, 1966) (= *subarida* Bromley, 1940, part); *prattii* (Hine, 1919); *snowi* (Hine, 1919); *subarida* (Bromely, 1940); *subpilosa* (Schaeffer, 1916); *tolandi* (Wilcox, 1966), *Comb. nn.*

Genus *Carinefferia*, gen.n.

Erax, carinatus-group of Hine, 1919.

Efferia, carinata-group of Wilcox, 1966: 151.

Hine (1919) defined this group as follows: "In Western United States and extending into Mexico and Central America there are several species of the genus *Erax* that are distinct from the others on account of the following characters:

The dorsum of the mesothorax is more convex than usual, with a distinct crest of erect hairs on the middle of the dorsum, beginning just behind the head and extending back to beyond the base of the second posterior cell; stump rudimentary or altogether absent in the male, present and somewhat variable in length in the female; costa in the male always thickened and expanded but much more evident in some species than the others".

Wilcox (1966: 151-152) adds the following: "The crest on the mesonotum arises from the central stripe and in most species is formed of dense hairs but in *E. cressoni*, *E. latruncula*, and *E. ordwayae* it is composed mainly of bristles or bristlelike hairs. The ground color of the body is metallic black with greenish or purplish reflections. The mesonotum appears to be more highly arched and compressed laterally than in the other groups, its height at the suture is about three-fourths its width in dorsal view.

Efferia willistoni has been transferred to this group from the Albibarbis Group where it was placed by Hine. It shows most of the above characters plus the rudimentary stump vein and dilated costa in the males, but the mesonotal crest is not as definite as in the other species. The anterior mesonotal hairs are subequal in length to antennal segment 1 and nearly twice as long at the suture. With this transfer all the Nearctic species in the Albibarbis Group have quite short hairs anteriorly on the mesonotum".

Type-species, *Erax carinatus* Bellardi, 1861.

Neotropical species:

aper (Walker), 1855: 621 (*Erax*). Type-locality: Mexico. TP: BMNH. *Comb. n.*
comatus Bellardi, 1861: 134 (34) (*Erax*).
 Type-locality: Mexico. TP: TORO.
unicolor Bellardi, 1861: 137 (37) (*Erax*).

Type-locality: Mexico. Orizaba. TP: TORO.

carinata (Bellardi), 1861: 136 (36), pl. 2, fig. 9 (*Erax*). Type-locality: Mexico. TP: TORO. *Comb. n.*

concinata (Williston), 1901: 323 (*Erax*). Type-locality: Mexico, Guerrero, Acaguizotla and Rincón. TP: BMNH. *Comb. n.*

parvula (Bellardi), 1861: 135 (35), pl. 2, fig. 8 (*Erax*). Type-locality: Mexico. TP: TORO. *Comb. n.*

prolifca (Osten Sacken), 1887: 202 (*Erax*). Type-locality: Mexico, northern Sonora. TP: WIEN. *Comb. n.*

Additional Nearctic species not occurring in Mexico: *caliente* (Wilcox, 1966); *costalis* (Williston, 1885); *cressoni* (Hine, 1919); *jubata* (Williston, 1885); *latruncula* (Williston, 1885); *ordwayae* (Wilcox, 1966); *subcuprea* (Schaeffer, 1916); *willisoni* (Hine, 1919), *Comb. n.*

Genus *Cratolestes* Hull

Cratolestes Hull, 1962: 483. Type-species, *Asilus spectabilis* Philippi (orig. des.) = *chiliensis* (Macquart).

chiliensis (Macquart), 1850: 389 (1850: 85), pl. 8, fig. 5 (*Erax*). Type-locality: Chile. Distr.-Bolivia, Chile. TP: MNHNP.

spectabilis Philippi, 1865: 695 (*Asilus*). Type-locality: Chile, Santiago, Illapel. TP: SANT.

albescens Schiner, 1868: 180 (*Erax*). Type-locality: Chile. TP: WIEN.

perniger Schiner, 1868: 180 (*Erax*). Type-locality: Chile. TP ?

wirthi Artigas, 1970: 268, figs. 232-235, 421. Type-locality: Chile, Arica, Río Azapa. TP: UCCC.

Genus *Diplosynaspis* Enderlein

Diplosynaspis Enderlein, 1914: 259. Type-species, *argentifascia* Enderlein (orig. des.).

argentifascia Enderlein, 1914: 259, fig. 5. Type-

locality: Peru, Chanchamayo and Brazil, Pará. ST ?

?*cellata* (Schiner), 1868: 181 (*Erax*). Type-locality: South America (Venezuela on ST's labels). ST: WIEN.

halterata Enderlein, 1914: 260. Type-locality: Colombia, Hacienda Pehlke. TP ?

Genus *Efferia* Coquillett

Efferia Coquillett, 1893: 175. Type-species, *candida* Coquillett (sub. des., 1910: 536).

Erax, authors (part), not Scopoli.

Erax, anomalus-group of Hine, 1919.

Efferia, anomala-group of Wilcox, 1966: 120.

Hine (1919) says: "These species belong to the group with three submarginal cells normally. They are all rather light colored and inhabitants of more or less arid regions. Coquillett has proposed the genus *Efferia* for the reception of these species, but usually it is considered a synonym of *Erax*. The furcation of the third vein occurs about midway between the base of the second posterior cell and the anterior crossvein. Costa not dilated".

Wilcox (1966: 120) adds the following considerations: "The group as considered here contains several species with the basal segments of the abdomen brown or black and male segments 6 and 7 silvery pollinose; also in these species the third vein branches at or near the end of the discal cell. The greater number of species have the abdomen white or greyish pollinose and the males of most of them have long white parted hairs on three or more segments.

The presence of three submarginal cells is quite constant, rarely is a specimen found with three cells in one wing and two in the other, and very rare are specimens with only two cells in both wings. Bromley (1951) in a lot of 103 specimens of *E. completa* (Macquart) all collected at the same time, found 97 with 3 submarginal cells in both wings, 3 with only two submarginal cells in both wings (2 specimens were not accounted for). James (1941) in reference to the *Anomala* Group says, 'however, three submarginal cells occur as an abnormality in occasional specimens of other species, such as *E. barbatus*, *E. bicaudatus*, and *E. pallidulus*'.

Neotropical species:

- anomala* (Bellardi), 1861: 132 (32), pl. 2, fig. 7 (*Erax*). Type-locality: Mexico, Cuautla. TP: TORO.
- candida* Coquillett, 1893: 176. Type-locality: USA, California, Los Angeles Co. Distr.- USA (California, Arizona), Mexico.

Additional Nearctic species not occurring in Mexico: *anacapai* (Wilcox & Martin, 1945); *antiochi* Wilcox, 1966; *azteci* Wilcox, 1966; *bryanti* Wilcox, 1966; *completa* (Macquart, 1838) (= *rava* Coquillett, 1893; = *completa* Bromley, 1951); *davisi* Wilcox, 1966; *gila* Wilcox, 1966; *halli* Wilcox, 1966; *luna* Wilcox, 1966; *pernicis* Coquillett, 1893; *tricella* (Bromley, 1951).

Genus *Nerax* Hull

- Nerax* Hull, 1962: 476. Type-species, *Asilus aestuans* Linnaeus (orig. des.).
- Erax*, authors, not Scopoli.
- Efferia*, authors, not Coquillett.
- Erax. aestuans*-group of Hine, 1919.
- Efferia, aestuans*-group of Wilcox, 1966: 94.

With the erection of *Nerax* by Hull, in 1962, and the restriction of *Efferia* Coquillett to those species with 3 submarginal cells, and the erection of the new genera proposed in this paper, *Erax* Scopoli is finally eliminated from the Americas, becoming restricted to the Old World. However, in *Nerax*, a great number of unrecognized species remains; the list of the nominal species given in the sequence, therefore, from the Neotropical region, may in the future, when all the types are examined, disclose that many of the species belong to entirely different genera. For the moment, we have to leave those species here, for lack of information.

Neotropical species:

- abdominalis* (Wiedemann), 1821: 432 (*Asilus*). Type-locality: South America. ST: WIEN (specimens from Brazil, São Paulo, Ipanema; there is one specimen from Sumatra mixed with the syntypic series).
- affinis* (Bellardi), 1861: 141 (41) (*Erax*). Type-

locality: Mexico, Veracruz, Córdoba. TP: TORO.

- amazonicus* (Bromley), 1934b: 359 (*Erax*). Type-locality: Brazil, Minas Gerais, Curralinho. TP: COR.
- apicalis* (Wiedemann), 1821: 191 (*Asilus*). Type-locality: North America. Distr.- USA, Mexico. TP ?
- vicinus* Macquart, 1846: 213 (1846: 85) (*Erax*). Type-locality: USA, Texas, Galveston. TP: MNHNP.
- auribarbis* (Wiedemann), 1821: 186 (*Asilus*). Type-locality: Brazil, Bahia. TP ?
- badiapex* (Bromley), 1928: 4 (*Erax*). Type-locality: Brazil, Mato Grosso, Chapada dos Guimarães. TP: AMNH.
- bardyllis* (Walker), 1849: 401 (*Asilus*). Type-locality: Brazil. TP: BMNH.
- bilineatus* (Wulp), 1882: 115 (*Erax*). Type-locality: Argentina. TP ?
- brunnescens* (Bromley), 1929: 291, fig. 13, pl. 1, figs. 6, 9 (*Erax*). Type-locality: Cuba, Guantánamo. TP: MCZ.
- camposianus* (Curran), 1931b: 23 (*Erax*). Type-locality: Ecuador, Guayaquil. TP: AMNH.
- caudex* (Walker), 1849: 404 (*Asilus*). Type-locality: Jamaica. TP: BMNH.
- invarius* Walker, 1851: 131 (*Asilus*). Type-locality: Jamaica. TP: BMNH.
- cazieri* (Curran), 1953: 5 (*Erax*). Type-locality: Bahama Islands, South Bimini Island. TP: BMNH.
- cockerellorum* (James), 1953: 50, fig. 3 (*Erax*). Type-locality: Honduras, Morelos, Uroca. TP: WASH.
- commiles* (Walker), 1851: 132 (*Erax*). Type-locality: South America. TP: BMNH.
- cubensis* (Bromley), 1929: 292, fig. 14 (*Erax*). Type-locality: Cuba, Soledad. TP: MCZ.
- demifasciatus* (Macquart), 1850: 390 (1850: 86) (*Erax*). Type-locality: Guiana. TP lost.
- eurylabis* (Wiedemann), 1828: 469 (*Asilus*). Type-locality: Brazil. TP ?
- flavofasciatus* (Wiedemann), 1828: 470 (*Asilus*). Type-locality: Brazil. TP ?
- forbesi* (Curran), 1931a: 10, fig. 3 (*Erax*). Type-locality: Puerto Rico, Coamo Springs. TP: AMNH.
- fortis* (Walker), 1855: 623 (*Erax*). Type-locality: Santo Domingo. TP: BMNH.

- rufitibia* Macquart, 1848: 187 (1848: 27) (*Erax*; in part, only his Haiti specimen, not his Rio Negro's). TP: OXF.
- fulvibarbis* (Macquart), 1848: 188 (1848: 28), pl. 2, fig. 13 (*Erax*). Type-locality: Haiti. TP ?
- fuscanipennis* (Macquart), 1850: 390 (1850: 86) (*Erax*). Type-locality: Guiana. TP: OXF.
- fuscus* (Wiedemann), 1828: 465 (*Erax*). Type-locality: Brazil. TP ?
- gossei* (Farr), 1965: 31 (*Efferia*). Type-locality: Jamaica, St. Thomas, Morant Point. TP: BMNH.
- haloesus* (Walker), 1849: 405 (*Asilus*). Type-locality: Jamaica. TP: BMNH.
- hubbelli* (James), 1953: 51, fig. 4 (*Erax*). Type-locality: Honduras, Morazán, Mt. Calucatepe, 4200-4500 feet. TP: MICH.
- imbuda* (Curran), 1934a: 16, fig. 1 (*Erax*). Type-locality: Ecuador, Golfo de Guayaquil, Isla Puná, Porto Grande. TP: AMNH.
- labidophorus* (Wiedemann), 1828: 459 (*Asilus*). Type-locality: Brazil. TP ?
- lades* (Walker), 1849: 403 (*Asilus*). Type-locality: Brazil. TP lost.
- lascivus* (Wiedemann), 1828: 474 (*Asilus*). Type-locality: Brazil. TP: WIEN.
- loewi* (Bellardi), 1862: 218 (21), fig. 17 (*Erax*). Type-locality: Mexico, Veracruz, Tuxpango near Orizaba. TP: TORO.
- dolichogaster* Williston, 1901: 326, pl. 6, fig. 6 (*Erax*). Type-locality: Mexico, Veracruz, Atoyac; Tabasco, Teapa. ST: BMNH.
- medianus* (Wiedemann), 1828: 473 (*Asilus*). Type-locality: Brazil. TP ?
- mexicanus* (Hine), 1919: 123 (*Erax*). Type-locality: Mexico, Chiapas, Tapachala. TP: OHIO.
- nigrimystaceus* (Macquart), 1847: 57 (1847: 41) (*Erax*). Type-locality: Guadeloupe. TP: OXF.
- nigrinus* (Wiedemann), 1821: 197 (*Asilus*). Type-locality: Brazil. ST: WIEN.
- nigripes* (Macquart), 1850: 389 (1850: 85), pl. 8, fig. 6 (*Erax*). Type-locality: Bolivia. TP: MNHNP.
- nigritarsis* (Hine), 1919: 129 (*Erax*). Type-locality: Cuba, Havana. TP: OHIO.
- obscurus* (Macquart), 1838: 112 (1839: 228) (*Erax*). Type-locality: Brazil. TP lost.
- pachychaeta* (Bromley), 1928: 1 (*Erax*). Type-locality: Haiti, La Molinière. TP: AMNH.
- parvus* (Walker), 1855: 639 (*Erax*). Type-locality: Brazil, Pará, Santarém. ST: BMNH.
- patagoniensis* (Macquart), 1850: 387 (1850: 83) (*Erax*). Type-locality: Argentina, Patagonia. TP: MNHNP.
- pictipennis* (Schiner), 1868: 182 (*Erax*). Type-locality: South America (Colombia). TP: WIEN.
- pilosulus* (Bromley), 1929: 292, fig. 11 (*Erax*). Type-locality: Cuba, Sierra Maestra. TP: MCZ.
- poecilamprus* (James), 1953: 48, fig. 2 (*Erax*). Type-locality: Honduras, Tela. TP: MICH.
- portoricensis* (Hine), 1919: 128 (*Erax*). Type-locality: Puerto Rico, Ensenada. TP ?
- pyrrhognus* (Wiedemann), 1828: 472 (*Asilus*). Type-locality: Brazil. TP: WIEN.
- rufipes* (Macquart), 1838: 112 (1839: 228) (*Erax*). Type-locality: Brazil, Rio de Janeiro, Rio de Janeiro. TP: MNHNP.
- rufithorax* (Macquart), 1846: 210 (1846: 82) (*Erax*). Type-locality: Brazil. TP: OXF (abdomen missing).
- rufitibia* (Macquart), 1848: 187 (1848: 27), pl. 2, fig. 11 (*Erax*). Type-locality: Rio Negro. (His Haiti specimen is synonymous with *fortis* (Walker), q.v.; cf. Curran, 1953: 4). TP: MNHN.
- stigmatosus* (Carrera & d'Andretta), 1950: 172 (*Erax*). Type-locality: Mexico, Veracruz, Orizaba. TP: CMNH.
- stylatus* (Fabricius), 1775: 795 (*Asilus*). Type-locality: Cuba. Distr.- Cuba, Haiti, Puerto Rico, Santo Domingo, Virgin Islands, St. Thomas Island. TP ?
- haitensis* Macquart, 1848: 188 (1848: 28) (*Erax*). Type-locality: Haiti. TP: OXF.
- subappendiculatus* (Macquart), 1838: 114 (1839: 230) (*Erax*). Type-locality: Brazil. TP: MNHNP.
- subchalybeus* (Bromley), 1928: 2 (*Erax*). Type-locality: Brazil, Rio de Janeiro, Rio de Janeiro. TP: AMNH.
- titan* (Bromley), 1934b: 359 (*Erax*). Type-locality: Guyana, Bartica. TP: AMNH.
- tortola* (Curran), 1928: 23 (*Erax*). Type-locality: Virgin Islands, Tortola. TP: AMNH.
- vauriei* (Curran), 1953: 4 (*Erax*). Type-locality: Bahama Islands, South Bimini Island. TP: AMNH.
- velox* (Wiedemann), 1828: 468 (*Asilus*). Type-locality: Brazil, Pernambuco. TP ?

Additional Nearctic species not occurring in the Neotropics: *aestuans* (Linnaeus, 1763); *aurimystaceus* (Hine, 1919); *beameri* (Wilcox, 1966); *belfragei* (Hine, 1919); *femoratus* (Macquart, 1838); *kansensis* (Hine, 1919); *slossonae* (Hine, 1919); *tabescens* (Banks in Hine, 1919).

Genus *Pogonioefferia*, gen.n.

This genus may be immediately recognized by the fork of R₄ and R₅, which lays much or just before the apex of the discal cell, and by R₅, which ends above the wing apex (Fig. 5). Wilcox (1966) recognized two groups of species: *pogonias*-group and *straminea*-group, which we are merging under this genus; Wilcox himself recognized (p. 214) that in the case of '*Efferia*' *pilosa* "the male of this species traces to the Staminea Group while the female traces to the Pogonias Group".

Type-species, *Asilus pogonias* Wiedemann, 1821.

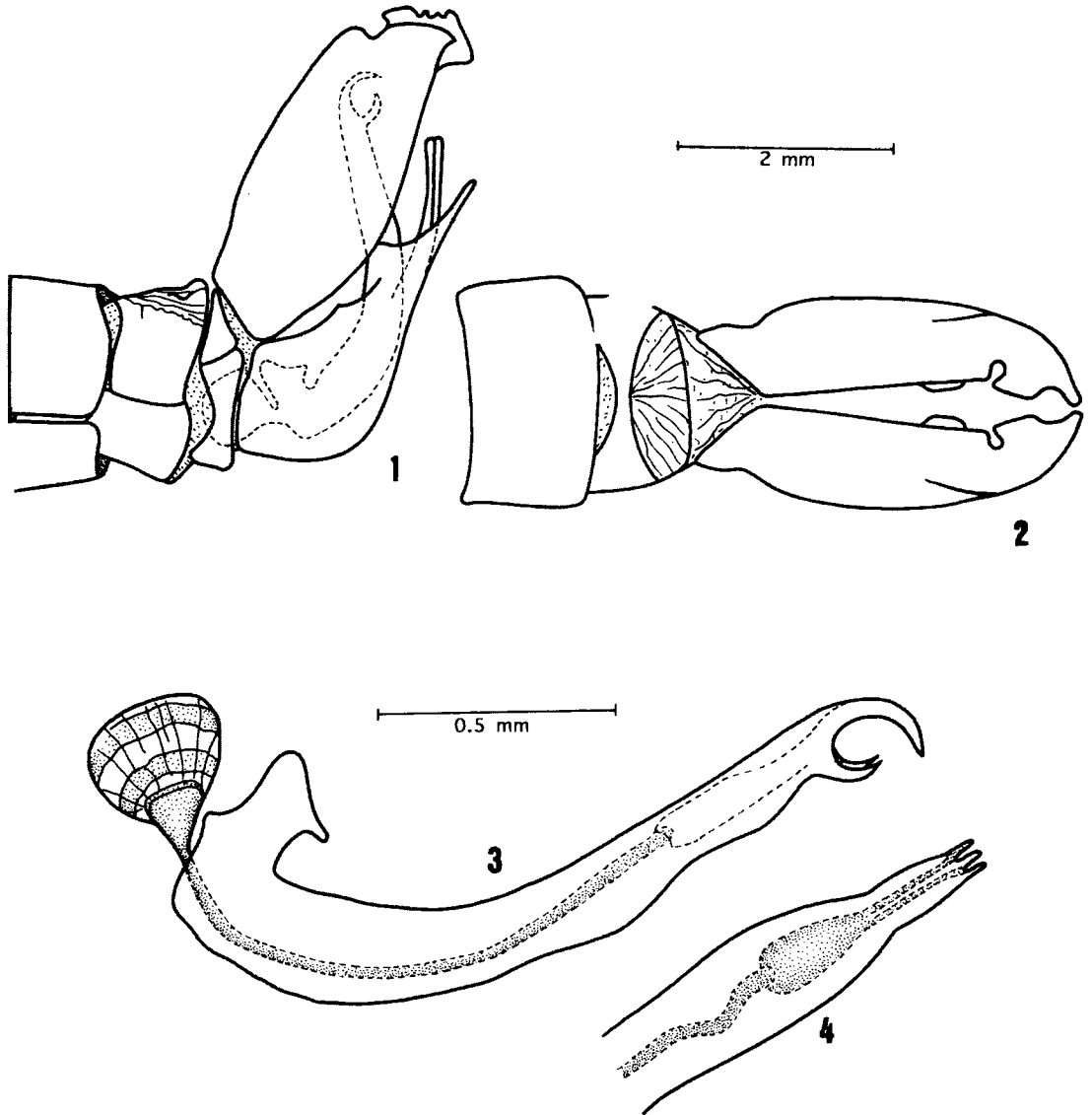
List of Nearctic species: *argentifrons* (Hine, 1911); *argyrosoma* (Hine, 1911); *auripila* (Hine, 1916); *basini* (Wilcox, 1966); *benedicti* (Bromley, 1940); *bexarensis* (Bromley, 1934a); *bicaudata* (Hine, 1919); *cabeza* (Wilcox, 1966); *californica* (Schaeffer, 1916); *cana* (Hine, 1916); *canella* (Bromley, 1934a); *clementi* (Wilcox & Martin, 1945); *coquilletti* (Hine, 1919); *deserti* (Wilcox, 1966); *dubia* (Williston, 1885); *ehrenbergi* (Wilcox, 1966); *frewingi* (Wilcox, 1966); *helenae* (Bromley, 1951); *inflata* (Hine, 1911); *kelloggi* (Wilcox, 1966); *knowltoni* (Bromley, 1937); *mesquite* (Bromley, 1937); *monki* (Bromley, 1951); *mortensoni* (Wilcox, 1966); *nemoralis* (Hine, 1911); *neoinflata* (Wilcox, 1966); *pallidula* (Hine, 1911); *parkeri* (Wilcox, 1966); *pilosa* (Hine, 1919); *plena* (Hine, 1916); *pogonias* (Wiedemann, 1821) (= *rufibarbis* (Hine, 1919); = *barbata* (Martin, 1962)); *priariensis* (Bromley, 1934a); *rapax* (Osten Sacken, 1887); *splendens* (Williston, 1901); *staminea* (Williston, 1885); *texana* (Banks in Hine, 1919); *triton* (Osten Sacken, 1887); *truncata* (Hine, 1911); *utahensis* (Bromley, 1937); *varipes* (Williston, 1885); *wilcoxi* (Bromley, 1940); *yermo* (Wilcox, 1966); *yuma* (Wilcox, 1966). *Comb. nn.*

Genus *Porasilus* Curran

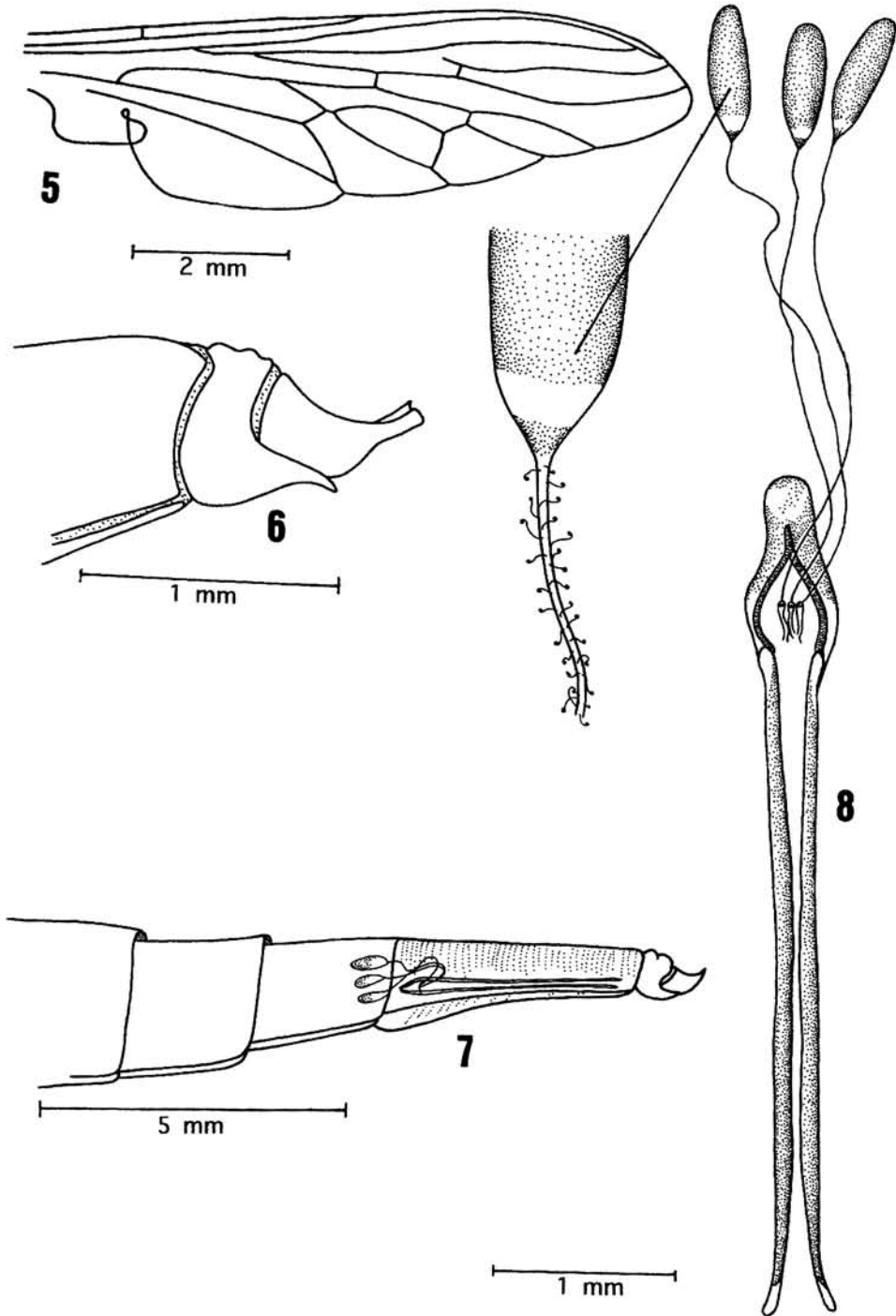
- Porasilus* Curran, 1934a: 15. Type-species, *barbiellinii* Curran (orig. des.).
- barbiellinii* Curran, 1934a: 15. Type-locality: Brazil, São Paulo. HT: AMNH.
- garciai* Lamas, 1971: 51, figs. 10-12. Type-locality: Peru, Lima, Lima. Distr.- Peru (Lima, Junín). HT: MZUSP.
- intermedius* Lamas, 1971: 53, figs. 13-16. Type-locality: Brazil, Amazonas, Manaus. Distr.- Brazil (Amazonas, Pará). HT: MZUSP.
- lesbius* Lamas, 1971: 49, figs. 7-9. Type-locality: Brazil, São Paulo, São Bernardo do Campo. Distr.- Brazil (Minas Gerais, São Paulo). HT: MZUSP.
- ?*parphorus* (Walker), 1851: 127 (*Erax*). Type-locality: Colombia. HT: BMNH (apex of abdomen eaten away; first submarginal cell very narrowly open).
- satyrus* Lamas, 1971: 46, figs. 4-6. Type-locality: Brazil, Acre, Forte Príncipe da Beira. Distr.- Brazil (Acre, Goiás, Mato Grosso do Sul). HT: MZUSP.
- senilis* (Wiedemann), 1828: 471 (*Asilus*). Type-locality: Uruguay, Montevideo. ST: WIEN. *Comb. n.*

Genus *Triorla* Parks

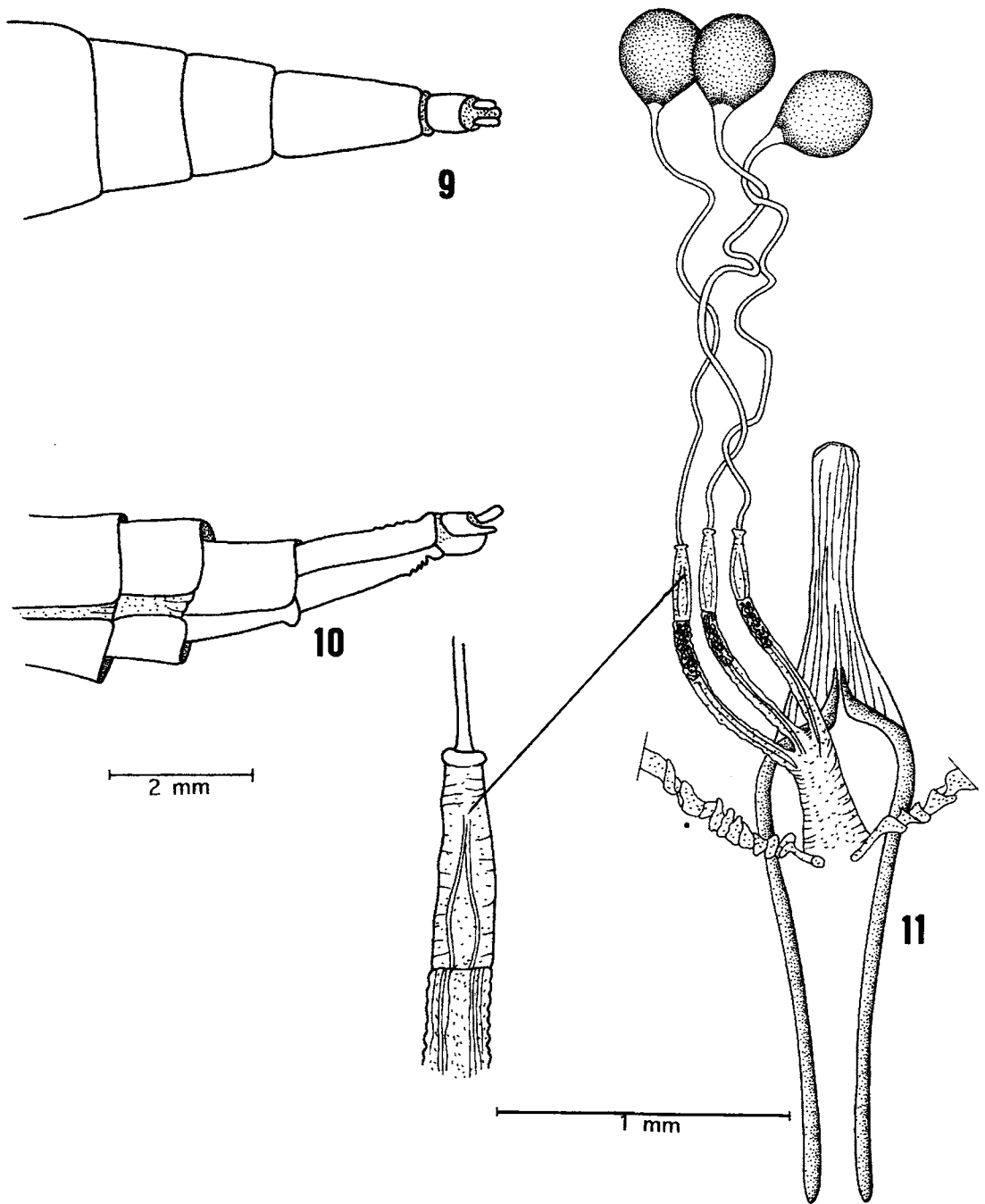
- Triorla* Parks, 1968: 175. Type-species, *Asilus interruptus* Macquart (orig. des.).
- interrupta* (Macquart), 1834: 310 (*Asilus*). Type-locality: USA, Georgia. Distr.- USA, Mexico, Guatemala, Honduras. TP lost.
- maculatus* Macquart, 1838: 111 (1839: 227), pl. 9, figs. 6a-b (*Erax*). Type-locality: Guiana, Colombia and Guadeloupe. ST female. MNHNP are synonyms of *interruptus*.
- lateralis* Macquart, 1838: 116 (1839: 232) (*Erax*). Type-locality: USA, Philadelphia. TP ?
- ambiguus* Macquart, 1846: 212 (1846: 84) (*Erax*). Type-locality: USA, Galveston;



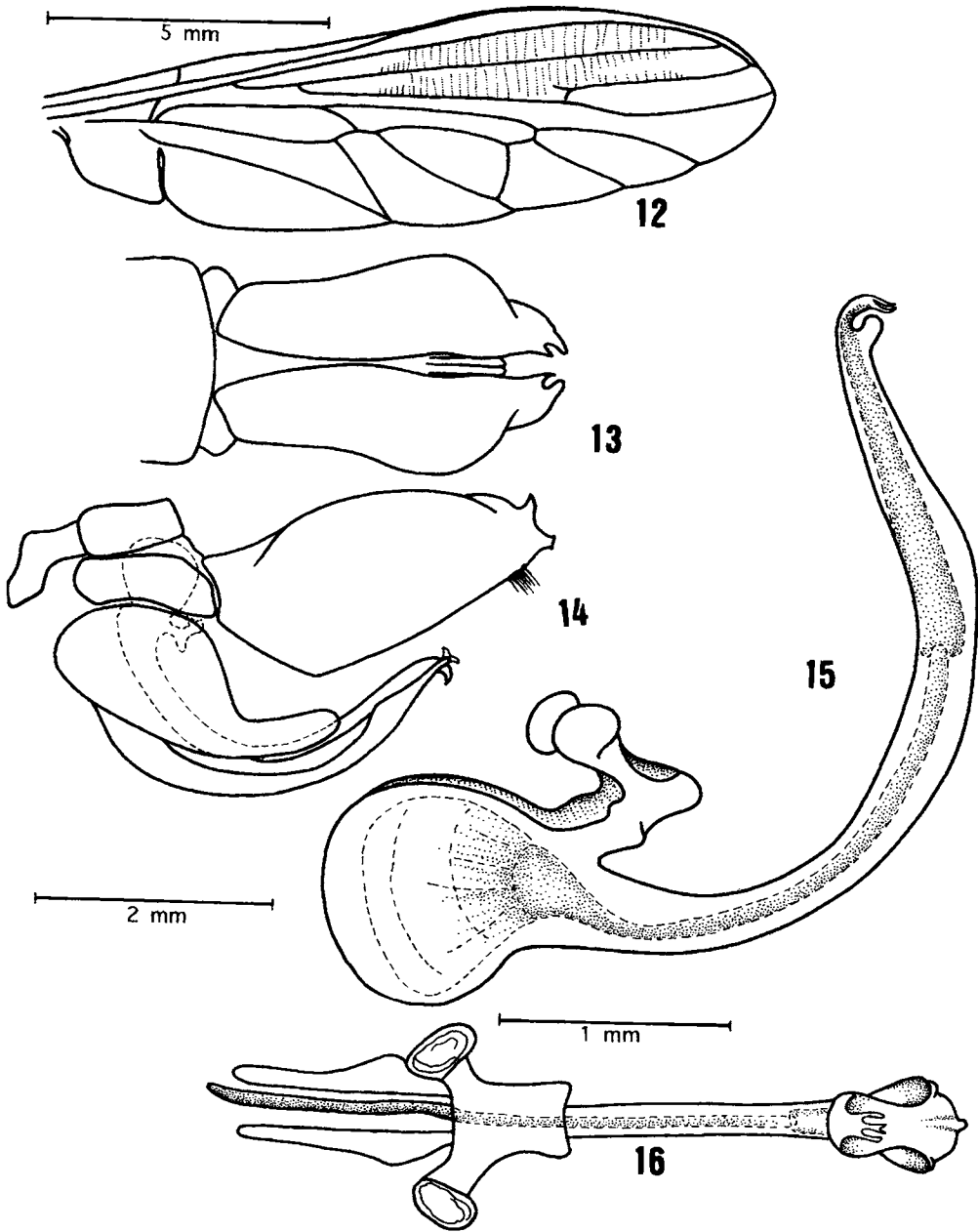
Figs. 1-4. *Pogoniefferia bicaudata* (Hine). 1-2: male terminalia in lateral and dorsal views; 3-4: aedeagus, lateral and dorsal (apex) views.



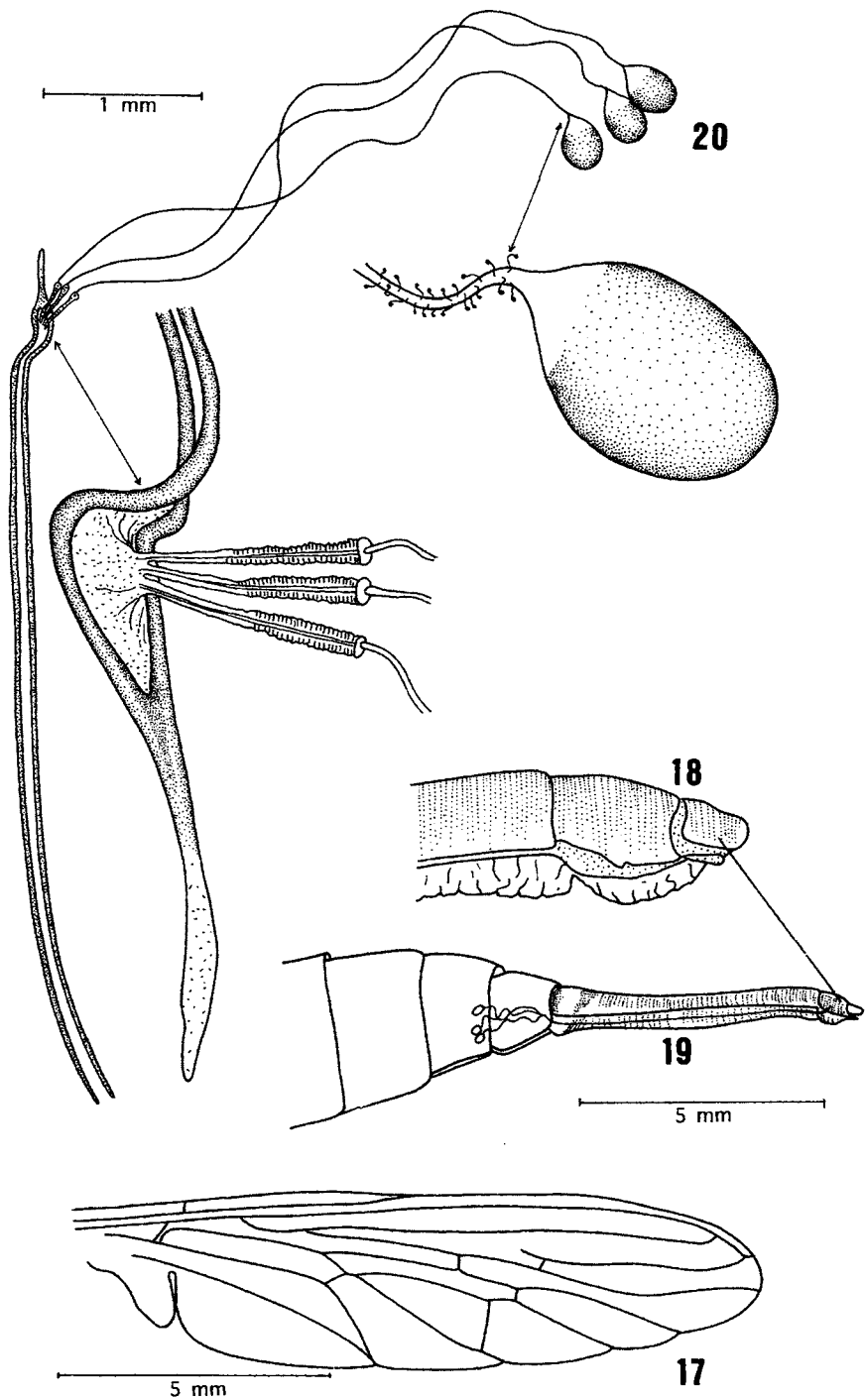
Figs. 5-8. *Pogoniefferia bicaudata* (Hine). 5: wing; 6: female ovipositor, apex; 7: ovipositor in lateral view, showing situation of spermathecae; 8: spermathecae and detail of capsule.



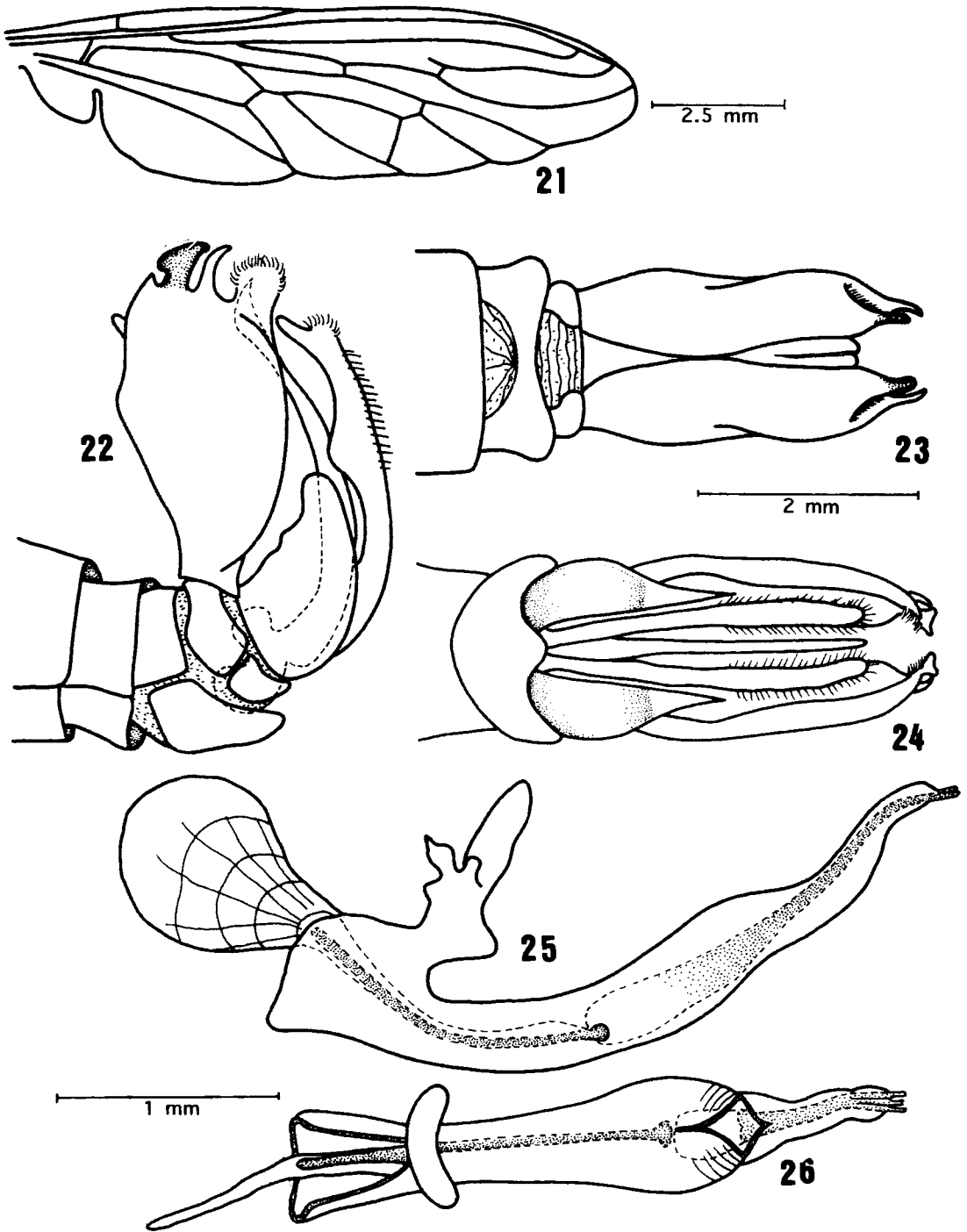
Figs. 9-11. *Trioxla striola* (Fabricius). 9: apex of female abdomen, dorsal view; 10: do., lateral view; 11: spermathecae and detail.



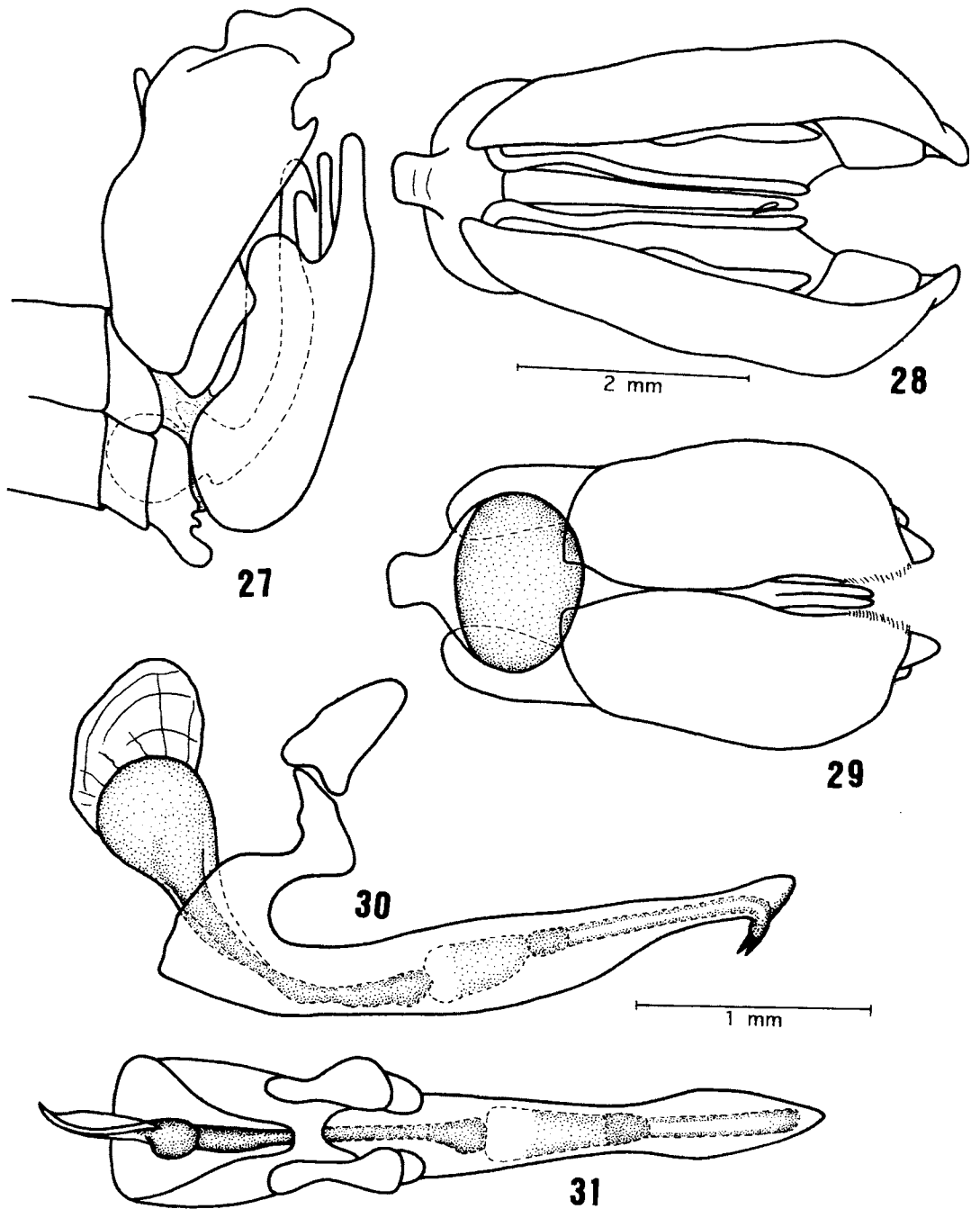
Figs. 12-16. *Diplosynopsis argentifascia* Enderlein. 12: wing; 13-14: male terminalia in dorsal and lateral views; 15-16: aedeagus in lateral and dorsal views.



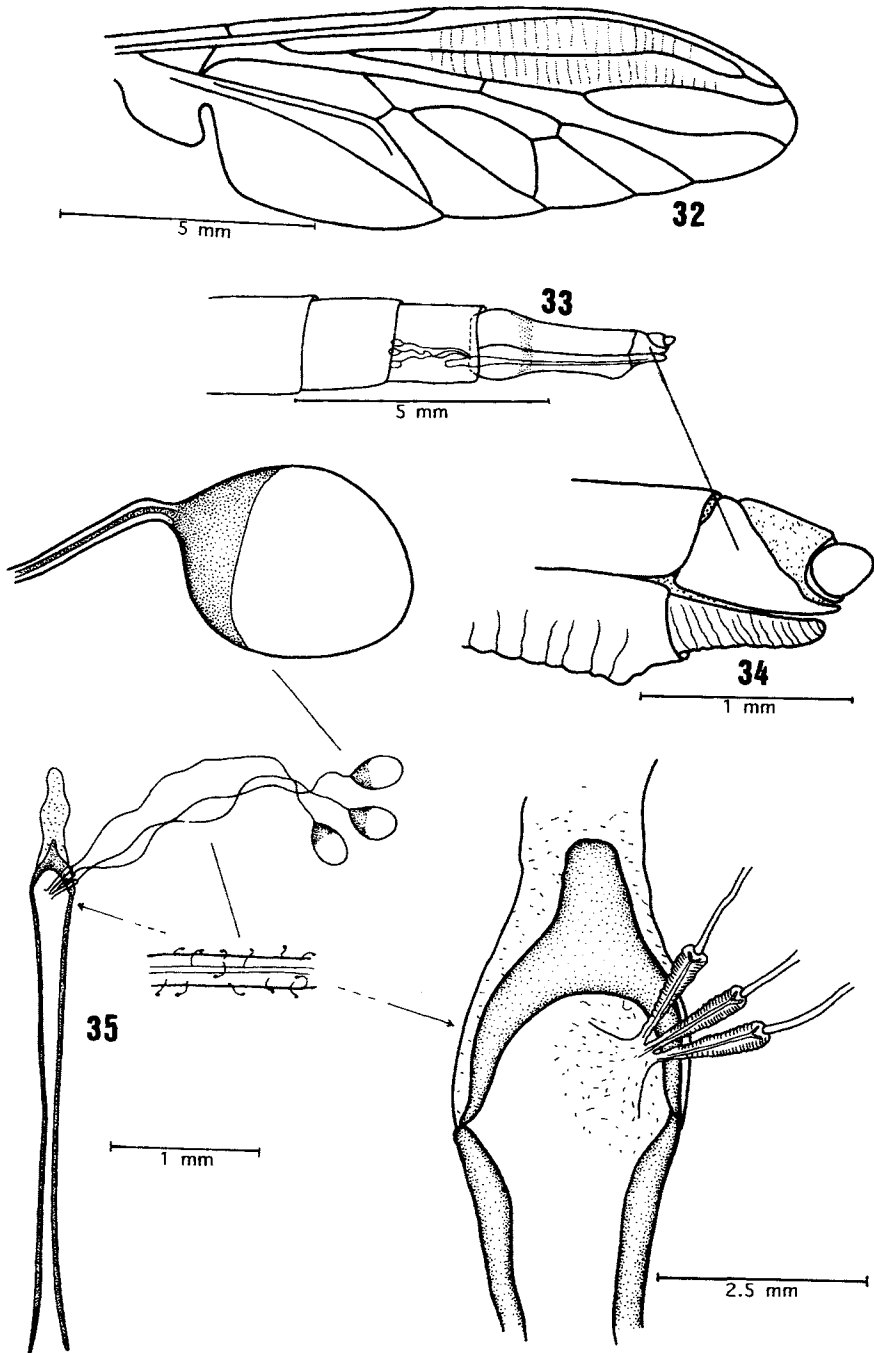
Figs. 17-20. *Diplosynopsis argentifascia* Enderlein. 17: wing; 18: female ovipositor, lateral view; 19: apex of female abdomen, lateral view, showing situation of spermathecae; 20: spermathecae and details.



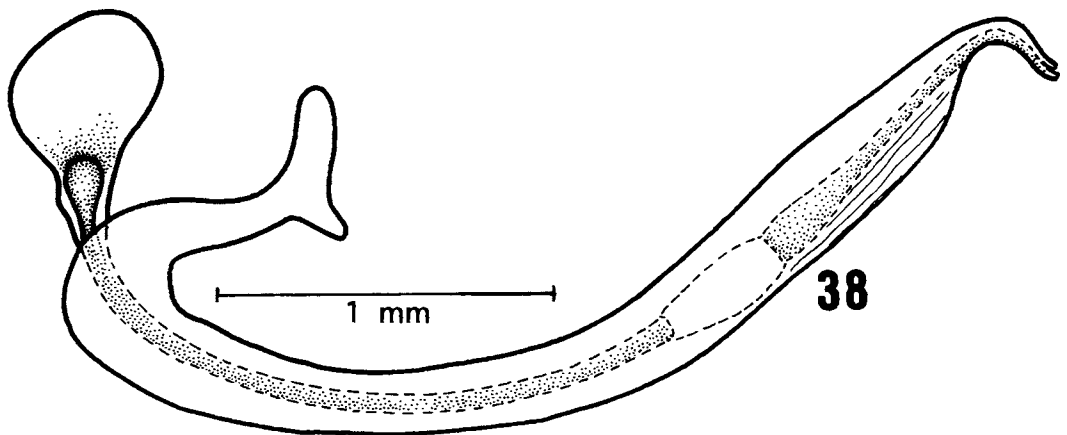
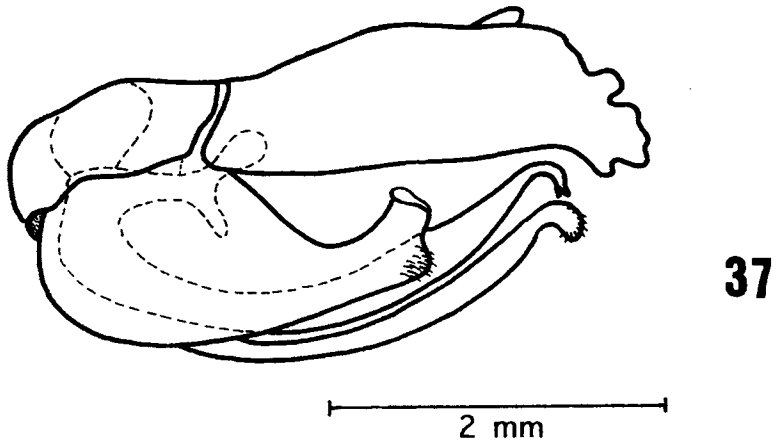
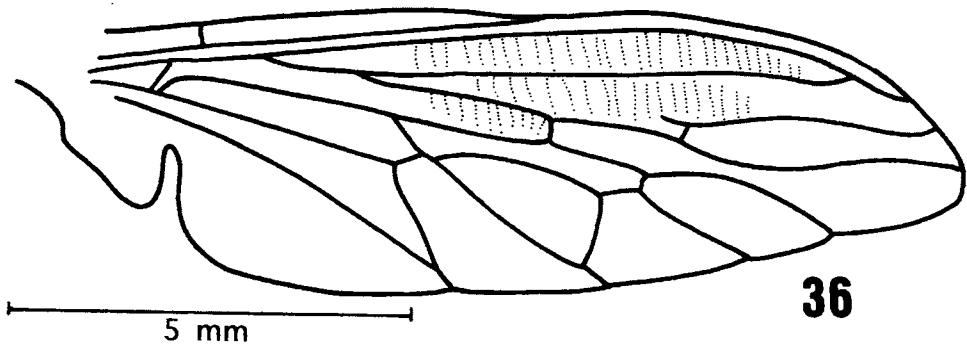
Figs. 21-26. *Diplosynopsis* sp. 21: wing; 22-24: male terminalia in lateral, dorsal and ventral views; 25-26: aedeagus in lateral and dorsal views.



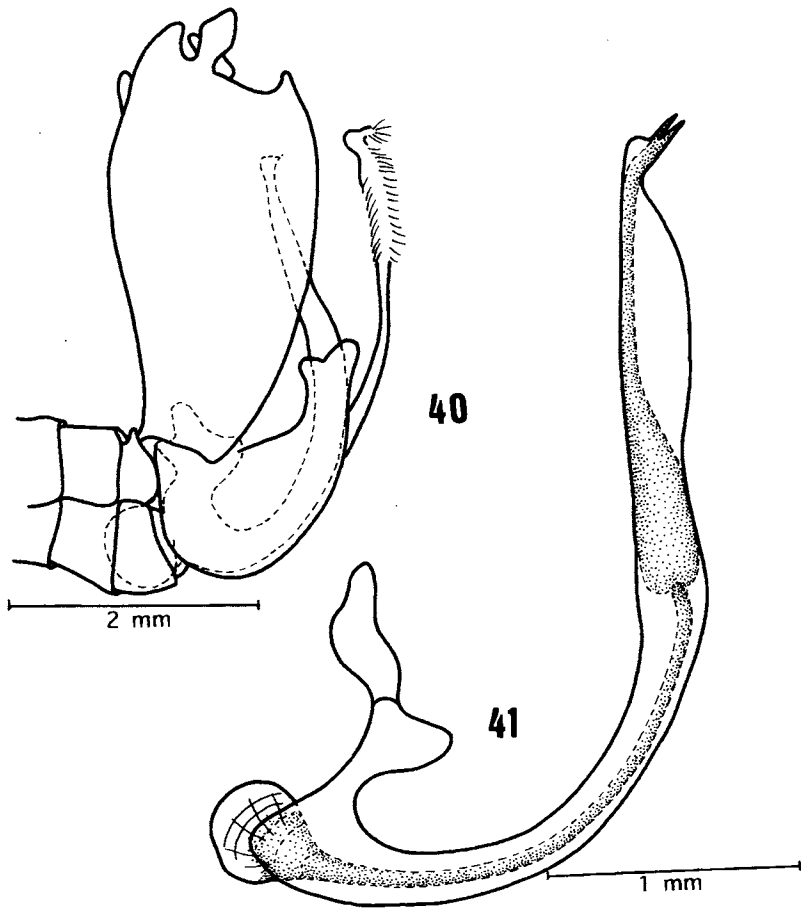
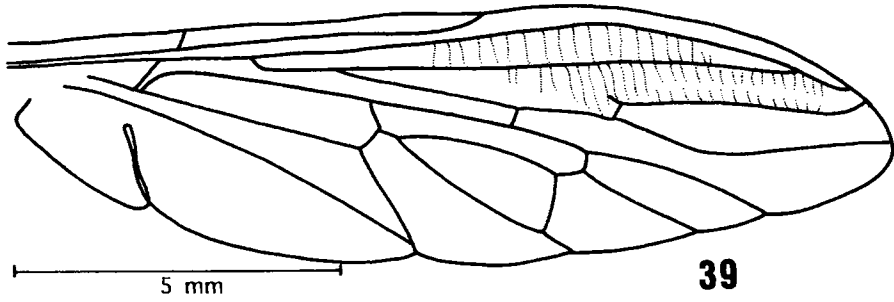
Figs. 27-31. *Porasilus barbiellinii* Curran. 27-29: male terminalia in lateral, ventral and dorsal views; 30-31: aedeagus in lateral and dorsal views.



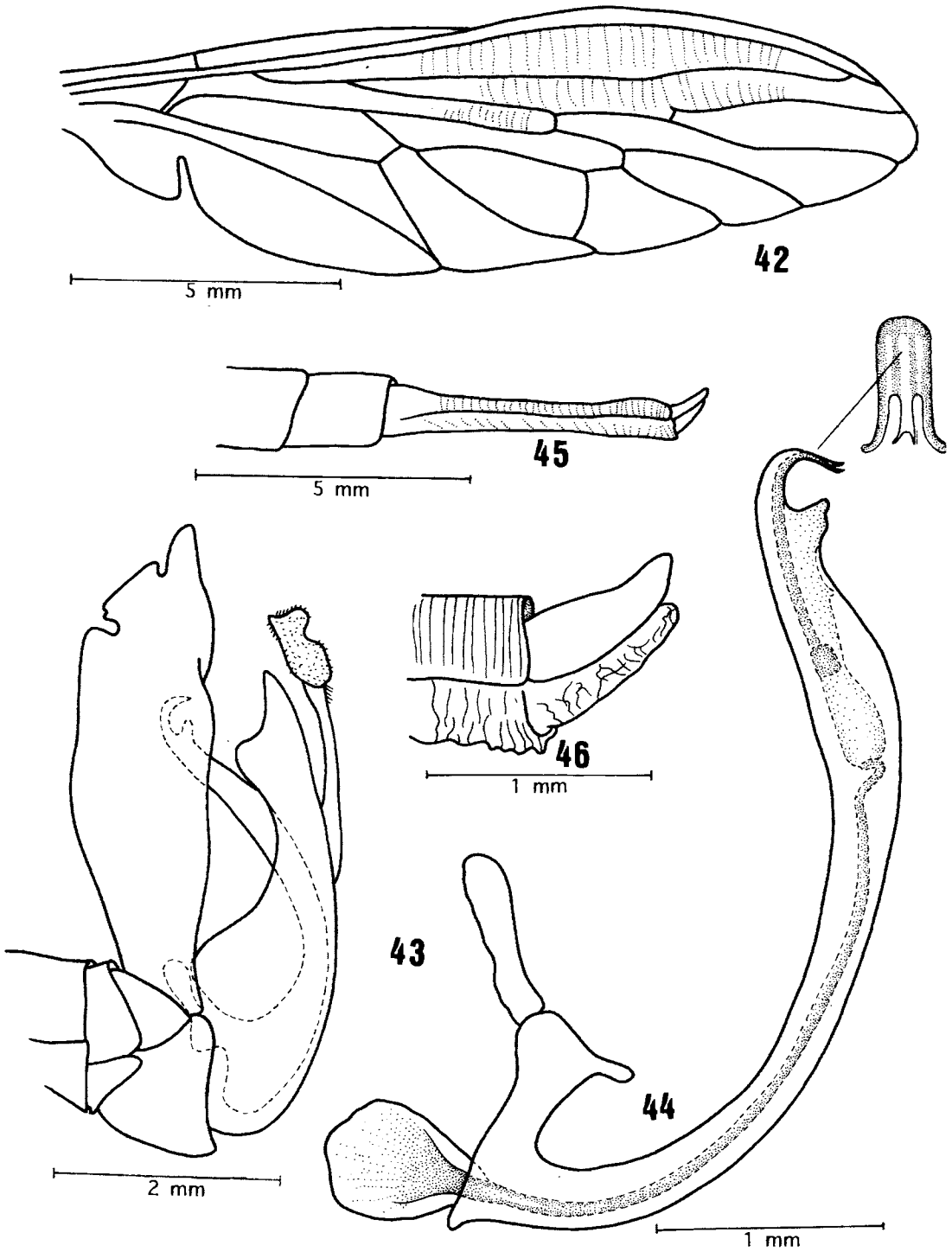
Figs. 32-35. *Porasilus barbiellinii* Curran. 32: wing; 33: apex of female abdomen, showing situation of spermathecae; 34: female ovipositor, lateral view; 35: spermathecae and details.



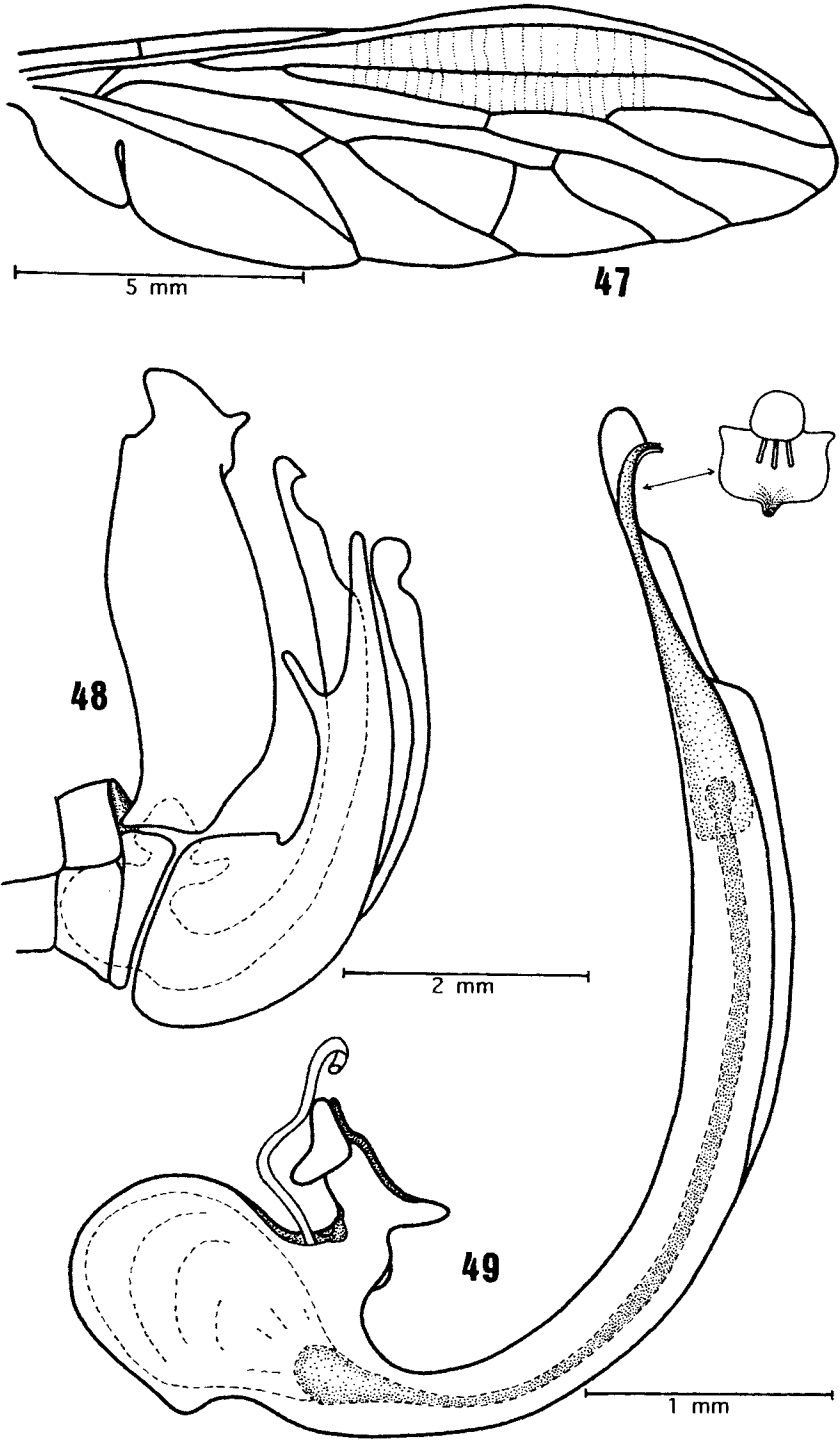
Figs. 36-38. *Porasilus garciai* Lamas. 36: wing; 37: male terminalia, lateral view; 38: aedeagus, lateral view.



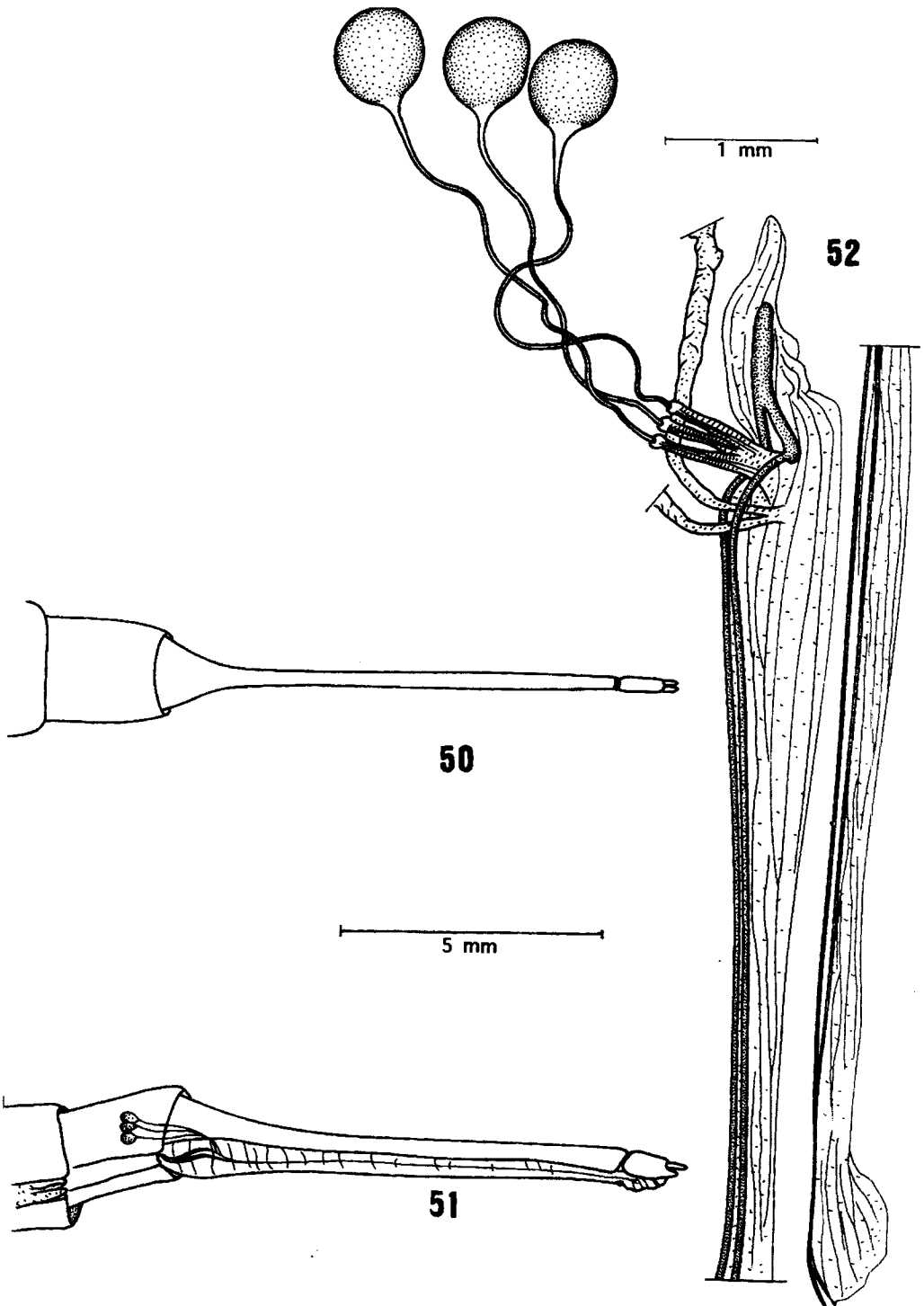
Figs. 39-41. *Porasilus intermedius* Lamas. 39: wing; 40: male terminalia, lateral view; 41: aedeagus, lateral view.



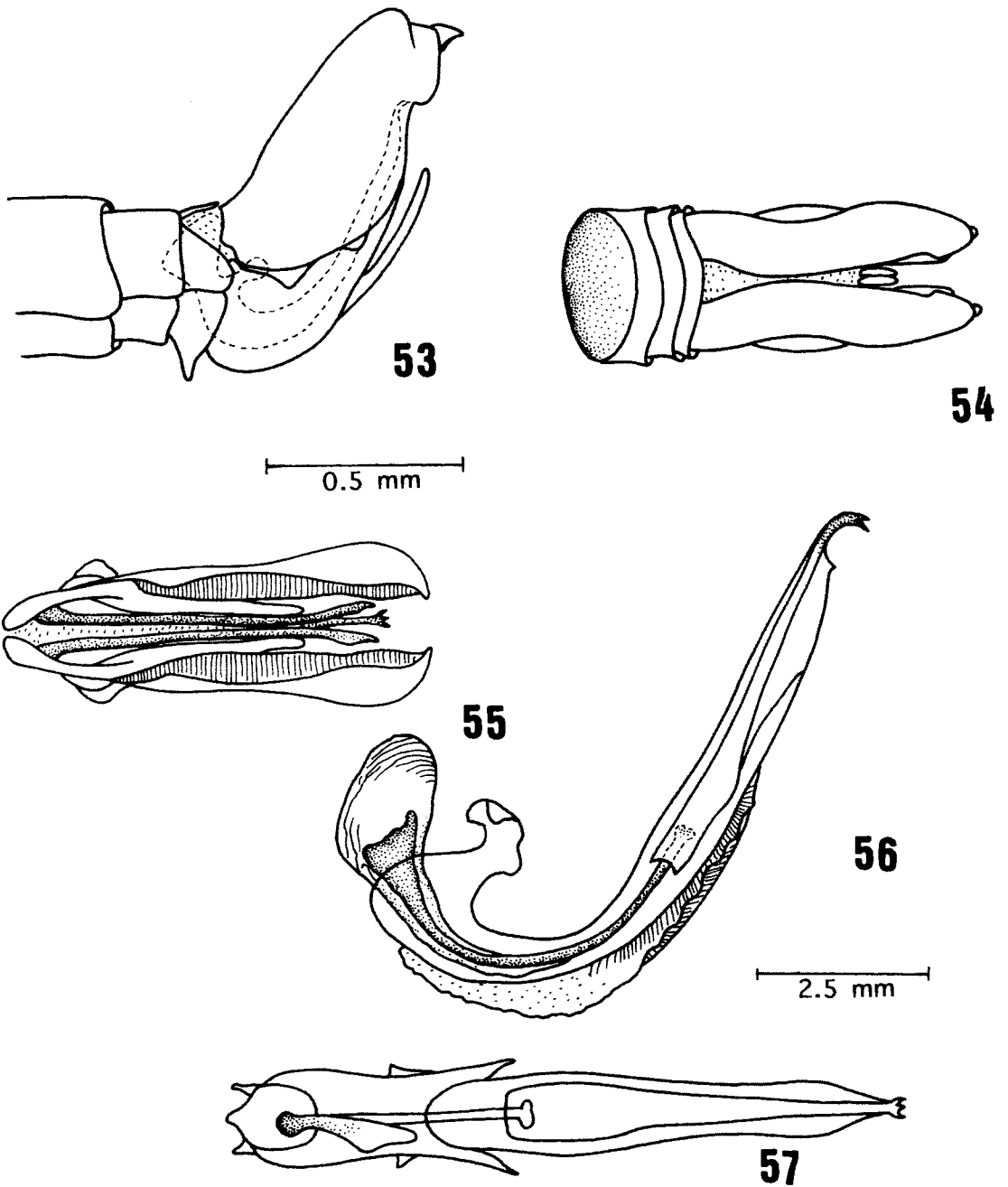
Figs. 42-46: *Porasilus lesbius* Lamas. 42: wing; 43: male terminalia, lateral view; 44: aedeagus, lateral view; 45: apex of female abdomen, lateral view; 46: female ovipositor, lateral view.



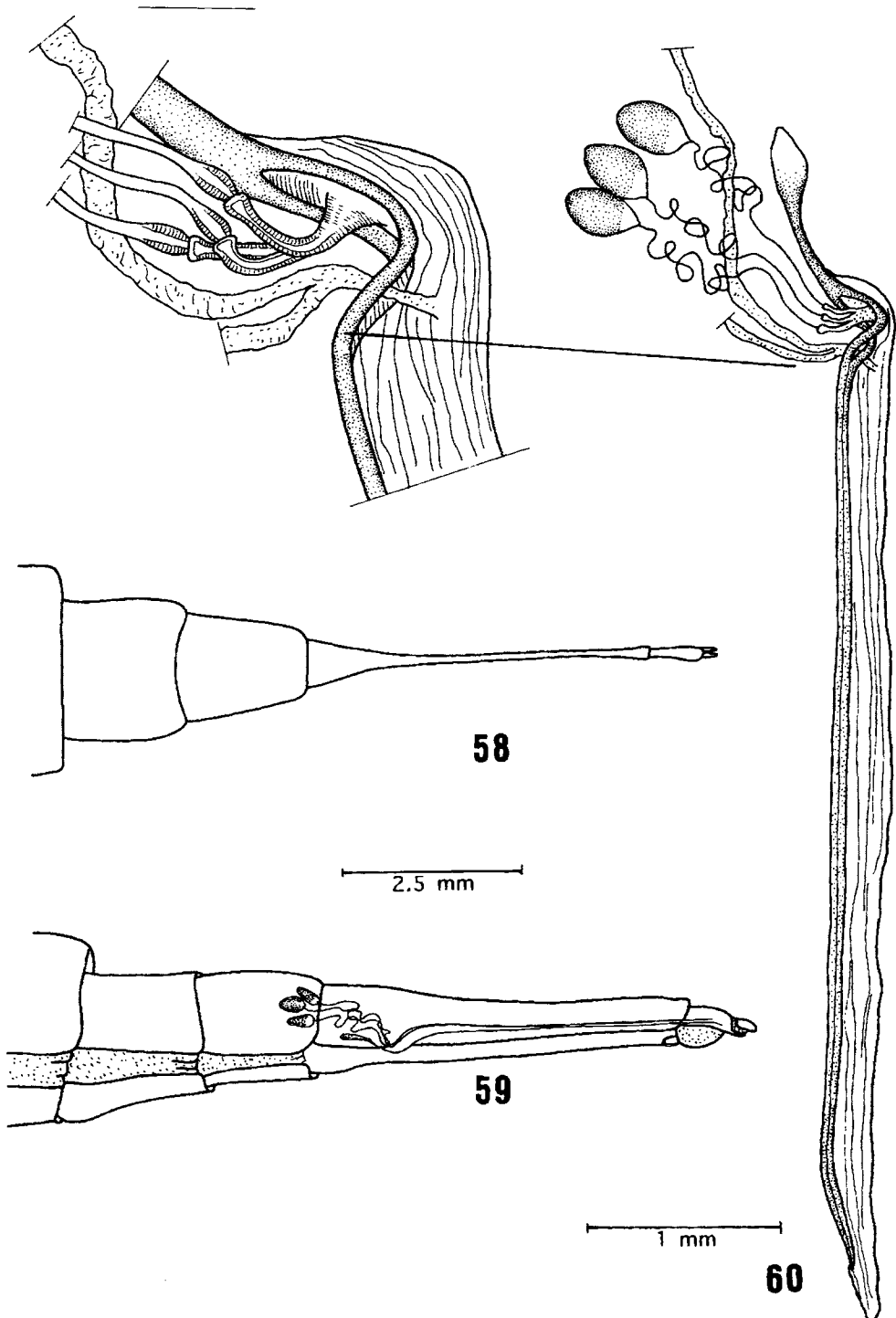
Figs. 47-49. *Porasilus satyrus* Lamas. 47: wing; 48: male terminalia, lateral view; 49: aedeagus, lateral view.



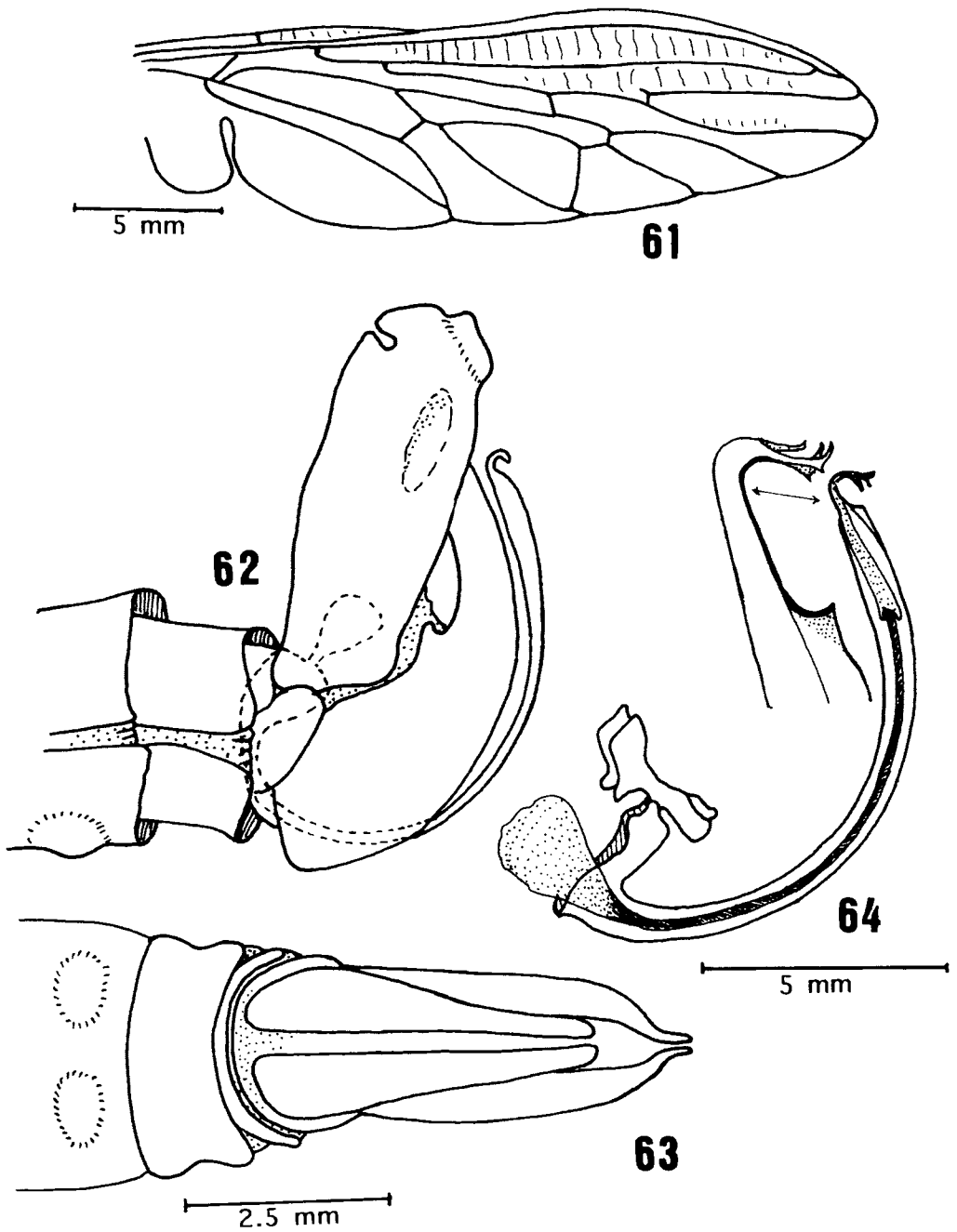
Figs. 50-52. *Nerax labidophorus* (Wiedemann). 50: apex of female abdomen, dorsal view; 51: do., lateral view, showing situation of spermathecae; 52: spermathecae.



Figs. 53-57. *Efferia anomala* (Bellardi). 53-55: male terminalia in lateral, dorsal and ventral views; 56-57: aedeagus in lateral and dorsal views.



Figs. 58-60. *Efferia anomala* (Bellardi). 58: apex of female abdomen, dorsal view; 59: do., lateral view, showing situation of spermathecae; 60: spermathecae and detail.



Figs. 61-64. *Nerax labidophorus* (Wiedemann). 61: wing; 62-63: male terminalia in lateral and ventral views; 64: aedeagus.

- Mexic, Yucatán, Mérida. ST: MNHNP.
rubidiventris Macquart, 1850: 388 (1850: 84)
 (*Erax*). Type-locality: Brazil (certainly in
 error; possibly Mexico). TP: MNHNP. *N. syn.*
concolor Walker, 1851: 130 (*Erax*). Type-
 locality: unknown. TP: BMNH.
perrumpeus Walker, 1860: 283 (*Asilus*).
 Type-locality: Mexico. TP: BMNH.
villosus Bellardi, 1861: 149 (*Erax*). Type-
 locality: Mexico. TP: TORO.
striola (Fabricius), 1805: 172 (*Dasygogon*). Type-
 locality: South America. Distr.- Panama
 and Surinam to Paraguay. HT ?
maculatus Macquart, 1838: 116 (1839: 232),
 pl. 9, figs. 6a-b (*Erax*). Type-locality:
 Guianas, Colombia and Guadeloupe. ST:
 male are synonyms of *striola*, MNHNP.
sicyon Walker, 1849: 399 (*Asilus*). Type-
 locality: Brazil. TP: BMNH. *N. syn.*
stimicon Walker, 1851: 129 (*Erax*). Type-
 locality: Colombia. TP: BMNH. *N. syn.*
dilectus Walker, 1855: 632 (*Erax*). Type-
 locality: Brazil, Pará, Santarém. ST:
 BMNH. *N. syn.*
zetterstedti Jaennicke, 1865: 362 (*Erax*). Type-
 locality: Venezuela. TP: FRAN (eaten by
 dermestids, abdomen missing, without
 antennae, eyes eaten away). *N. syn.*
currani Bromley, 1951: 27 (*Erax*). Type-
 locality: Panama, Canal Zone, Corozal.
 TP: AMNH. *N. syn.*

Genus *Tuberculefferia*, gen. n.

Erax, tuberculatus-group of Hine, 1919

Efferia, tuberculata-group of Wilcox, 1966: 225.

Hine (1919) says: "The male of this group are at once known by the presence of a tooth-like prominence on the venter of each of abdominal segments four, five and six, and costa entirely normal. Branching of the third vein distinctly beyond the base of the second posterior cell. The species are slender and of rather small size".

Wilcox (1966: 225) adds: "The tubercles on the venter of the abdomen are usually blunt on segments 4 and 5 and pointed on 6; *E. tuberculata* (Coquillett) has the tubercles pointed on all three

segments. The females have no distinct characters which will separate them from the females of the smaller species in the Albibarbis Group. Most of the specimens in the Albibarbis Group have short, sparse, strong bristles in the upper part of the mystax which are never found in the females of the Tuberculata Group but are not always found in the Albibarbis Group. The females of *E. wilcoxi* (Bromley) in the Staminea Group can also be confused with females of this group, as the furcation of the third vein is opposite the end of the discal cell (base of the second posterior cell). The wings of the most males and some females have the costa slightly dilated and the subcostal cell is tinged light brown opposite the discal cell".

Type-species, *Erax tuberculatus* Coquillett, 1904.

List of the Nearctic species: *producta* (Hine, 1919); *setigera* (Wilcox, 1966); *spiniventris* (Hine, 1919); *tuberculata* (Coquillett, 1904); *tucsoni* (Wilcox, 1966), *Comb. nn.*

Unrecognized or unplaced species
 of the *Efferia*-group

- aurivestitus* Hine, 1919: 142 (*Erax*). Type-locality: Mexico, Morelos. TP: OHIO.
pavidus Williston, 1901: 326 (*Erax*). Type-locality: Mexico, Guerrero, Xucumanatlán. TP: BMNH.
schadei Bromley, 1951: 30 (*Erax*). Type-locality: Paraguay, Villarrica. TP: AMNH.
singularis Macquart, 1838: 111 (1839: 227), pl. 9, fig. 10 (*Erax*). Type-locality: 'Uruguay, depuis l'embouchure de l'Uruguay jusqu'aux Missions' (= western part of Uruguay, along Uruguay River). TP: MNHNP.

ACKNOWLEDGEMENTS

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Concepción. NP is "Pesquisador do Conselho Nacional de Desenvolvimento Científico e Tecnológico" (CNPq, Proc. nº 30.09946/79).

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