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Revision of the Neotropical subfamily Eurychoromyiinae (Diptera: Lauxaniidae)

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Abstract

The status of the enigmatic family Eurychoromyiidae is revised to a subfamily of Lauxaniidae, and the entire subfamily is revised with a key to genera and species, and maps for all species. Previously monotypic with only the species *Eurychoromyia mallea* Hendel, one closely related genus, *Tauridion* Papp & Silva, is moved into this subfamily, and five new genera are described: *Choryeuromyia*, *Euryhendelimityia*, *Eurystratiomyia*, *Physegeniopsis*, and *Roryeuchomyia*. Besides the type species for *Eurychoromyia* and *Tauridion*, all species herein are new, including *Choryeuromyia xenisma* (type species of genus), *Euryhendelimityia schlingeri* (type species of genus), *Eurystratiomyia epacrovitta*, *Eurystratiomyia erwini* (type species of genus), *Physegeniopsis albeto*, *Physegeniopsis ankhoidea* (type species of genus), *Physegeniopsis hadrocara*, and *Roryeuchomyia tigrina* (type species of genus). Eggs are described for *Tauridion shewelli* and *Physegeniopsis albeto*.

Key words: Diptera, Lauxaniidae, Eurychoromyiidae, *Choryeuromyia*, *Eurychoromyia*, *Euryhendelimityia*, *Eurystratiomyia*, *Physegeniopsis*, *Roryeuchomyia*, *Tauridion*, Neotropical

Introduction

The Neotropical genus *Eurychoromyia* Hendel was described for the single species *E. mallea* Hendel, based on four specimens collected at the turn of the 20th century by Carl Schnuse (for an account of his travels, see Papavero (1973)) in Sarampiuni, Bolivia (near Mapiro) in the foothills of the Central Andes north of La Paz. Stating that this species represents “ein isolierter Gruppentypus acalyptrater Musciden”—an isolated group of acalyptrate Muscidae—Hendel (1910) classified it in its own family-group (as Eurychoromyiinae, the spelling of which was corrected to Eurychoromyiinae by Brues & Melander (1932)) coordinate in rank with his subfamilies Lauxaniinae (=Lauxaniidae) and Sciomyzinae (=Sciomyzidae). To reach this conclusion, he went by process of elimination. First, he suggested that by first impressions, it should belong to the Ortalidinae (=Uliidiidae), but because it lacked the sclerotized ovipositor found in that group and the related tephritines (=Tephritidae) and lonchaeines (=Lonchaeidae), it could not be considered part of that group, and that the ovipositing apparatus is more suggestive of the sciomyzines and tetanocerines (=Sciomyzidae). However, with the lack of certain setae, and other peculiarities not found in these groups, *Eurychoromyia* could not be forced into any known group. He astutely observed that were he to assign it in an unnatural manner to an existing group, its recognition by subsequent dipterists would be endangered.

Hendel apparently later ascribed the genus to the Sepsidae, since Malloch (1925), disagreed with Hendel’s “parenthetically” referring *Eurychoromyia* to the Sepsidae “in one of his papers.” However, Brues &

Melander (1932) and Brues et al. (1954) also treated the group as a subfamily of Sepsidae in their key, and Vanschuytbroeck (1962) considered *Eurychoromyia* as a member of the subfamily Pandorinae. The few subsequent authors that have specifically considered the position of *Eurychoromyia* have persisted in Hennig's (1958, 1971) notion of its status as a family of Lauxanioidea in the current sense (although Hennig (1973) contradicted this by tentatively placing the family in Sciomyzoidea), having at various times considered it most closely related to each of the other included families—Lauxaniidae (McAlpine, 1968), Chamaemyiidae (Hennig, 1958; Griffiths, 1972), and Celyphidae (McAlpine, 1989). Hennig (1958) and Griffiths (1972) based their placement largely on the presence of four spermathecae (2+2), while all lauxaniids known at the time had three (2+1). McAlpine (1968) suggested its relationship with either Lauxaniidae or Ropalomeridae, but later (McAlpine, 1989) acknowledged that he had misinterpreted one of the core supporting characteristics for the relationship with Ropalomeridae; additionally, there were several misinterpretations of setulae that were suggested to represent reduced ropalomerid-type chaetotaxy. The putative apomorphies shared with ropalomerids are either misinterpretations (e.g., lack of costal setulae, presence of metathoracic spiracular setulae, ropalomerid-like head chaetotaxy) or are present in other lauxaniids (e.g., enlarged prementum, broadened hind tibia, apparent loss of wing vein A_2). In support of the relationship with Lauxaniidae, McAlpine (1968) pointed to a general similarity to lauxaniid male genitalia, distinct from Ropalomeridae. More recently, McAlpine (1989) provided the most detailed, albeit seriously flawed, consideration of the family's placement, noting apomorphic characteristics shared with Celyphidae, a highly unusual group with an African and Oriental distribution. All of the cited shared apomorphies either represent clear trends towards reduction that have evolved in parallel in several lauxanioid lineages (e.g., reduction of macrosetae on the head and thorax, the small ocellar triangle), general conditions found in other lauxanioids, including lauxaniids (widened fronto-orbital plates, exposed scape, shortening of the scutum, absence of preapical dorsal tibial setae, presence of a precoxal bridge), and some were simple misinterpretations of character states (e.g., convex bulging face, costal setulae reduced). In addition, certain characteristics of the Celyphidae are so fundamentally different from those found in this group that a sister-group relationship is highly unlikely, including the extreme nature of the scutellum, the antennal arista arising subapically, the reduction of the parafacial to little more than a strip, the extreme broadening of abdominal tergites and sternites, the nature of the intromittent organ (in celyphids, the phallus is absent, replaced by fused pre- and postgonites (=gonapophyses of Tenorio (1969), and gonites of Tenorio (1972)), which have a highly complex structure.

Even the autapomorphic characteristics McAlpine (1989) listed for Eurychoromyiidae relative to the ground plan of Lauxanioidea are conditions present in other lauxaniids (e.g., hind tibia modified, pregonites and postgonites fused and reduced (interpreted here as simple absence of the pregonite), four spermathecae present). Griffiths (1972), citing an illustration in Hennig (1958), further pointed out as an autapomorphy for Eurychoromyiidae that the tergum and sternum of abdominal segment 7 in the female is fused to form a ring—but this is a condition also found in other lauxaniid genera.

A few more general resources have briefly addressed the family, but added significant confusion. Brues & Melander (1932), Brues et al. (1954) and Vanschuytbroeck (1962) referred *Eurychoromyia* to the Sepsidae, and Bickel (1982) referred to it as belonging to the Ropalomeridae. Colless & McAlpine (1970) referred to it as a subfamily of Chamaemyiidae, but later (1974) treated it as a separate family, in both cases including the genus *Gayomyia* Malloch (in reference to undescribed species from Australia, not the original Neotropical members). However, Hennig (1971) had provided illustrations of an Australian "*Gayomyia*" species, referring to the genus as closely related to *Paraleucopis* Malloch and *Schizostomyia* Malloch in the Anthomyzoidea. Evenhuis (1989) tentatively included the family Eurychoromyiidae in the Australasian and Oceanian catalog, referring to Colless & McAlpine's (1974) placement of the undescribed species from Australia in the genus *Gayomyia*. Colless & McAlpine (1991) later abandoned the notion of *Gayomyia* belonging to Eurychoromyiidae, again referring *Gayomyia* to Chamaemyiidae with no comments on Eurychoromyiidae except stating that it is not part of the Australian fauna. Several elements in this scenario are confusing: first, the species referred to by Colless & McAlpine and Hennig were not members of the genus *Gayomyia* (Wheeler, 2000); second, neither the genus *Gayomyia* nor the concept of *Gayomyia* of Colless & McAlpine are anywhere close

to *Eurychoromyia* or even Lauxanioidea (Hennig, 1971; McAlpine, 1989; Wheeler, 2000); and third, the genus-group name *Gayomyia* was preoccupied and was renamed *Mallochianomyia* Santos-Neto, again incorrectly referring this genus to Chamaemyiidae (Santos-Neto, 1996).

The current study provides evidence for revising the status of Eurychoromyiidae to a subfamily within Lauxaniidae, and adding six additional genera to the group. A key to all genera of New World lauxaniids is provided by Gaimari & Silva (in press), including these genera, but a truncated key (i.e., which separates eurychoromyiines from non-eurychoromyiines) to the included genera and species is provided here, along with maps for all species. Although there is still much work to be done, the key in Gaimari & Silva (in press) complements the key to Old World genera by Stuckenberg (1971).

Materials and methods

Specimens for this study are from several sources: California Academy of Sciences, San Francisco, California, USA (CASC); California State Collection of Arthropods, Sacramento, California, USA (CSCA) and its Frozen Tissue Collection (CSCA-FCT); University of Guelph Insect Collection, Guelph, Ontario, Canada (DEBU); Utah State University Insect Collection, Logan, Utah, USA (EMUS); Florida State Collection of Arthropods, Gainesville, Florida, USA (FSCA); Hungarian Natural History Museum, Budapest, Hungary (HNHM); Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica (INBC); Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil (MZSP); Naturhistorisches Museum, Wien, Austria (NHMW); Staatliches Museum für Tierkunde, Dresden, Germany (SMTD); and National Museum of Natural History, Washington, DC, USA (USNM). Some specimens from the Ecuadorian canopy fogging program of Terry Erwin are held in trust by USNM for the Politécnica Nacional University, Quito, Ecuador (PNUQ). For all specimens where abdomens were dissected, the abdomen and genitalia are in glycerin in a glass vial mounted on the same pin. Label data from specimens originating from INBC (e.g., “L N 330200_380200, #2897, INBIO CRI 001 869990”) require some clarification. Geographic coordinates for localities are based upon the grid system of the 1:50,000 topographic maps of Costa Rica published by the Instituto Nacional Geográfico (San José, Costa Rica), known as the Lambert system, with L N referring to Lambert North, and L S referring to Lambert South. The number following these coordinates (with a # sign) is the collection event “lot” number. The string of characters following the lot number represents the specimen’s unique database number (repeated as a barcode) in the INBC database.

Terminology. Basic terminology follows McAlpine (1981) and Shewell (1987), with clarifications of male genitalic terminology in Cumming et al. (1995)—see Fig. 17 for labeled structures herein. Body length was measured by adding the length of the head (without antenna) through the thorax with the abdominal length, to account for differential curling of the abdomens among specimens. For head ratios: the head length and height were measured from lateral view, respectively, from the tip of the frons through the posterior occiput, and from the vertex through the bottom edge of the subgena; the head width, frons width, and frons length were measured from dorsal view, with head width measured through the widest part, frons width measured across the upper edge of the lunule, and frons length from the anterior ocellus through the anterior edge of the frons. On the thorax, the scutal width was measured at the level of the supra-alar setae, and the scutellar width is measured through the area of contact with the scutum. In the wing, the height was measured at the level just proximal to tip of Cu_1 ; the discal medial cell length was measured from the $bm-cu$ crossvein through the anterior tip of the $dm-cu$ crossvein. All other measurements were made through their maximum widths, lengths, heights, etc.

Remarks about terminology. One structure on the head requires clarification, because it is used so infrequently in studies of acalyptrate Diptera. The subgena is a structure rarely mentioned in descriptions (but see Marshall et al. (2009)), likely due to typically being an inconspicuous narrow strip, or being interpreted as the lateral-most part of the lower face. Reviews of head morphology in Diptera by Peterson (1916) and in insects by Matsuda (1965) provide details of the subgena, although in Peterson (1916) no name is given for the struc-

ture (it is clearly delineated by his tentorial thickening). Reviewing the acalyptrate chapters in McAlpine (1987), the only family with even a mention of the subgenera in the diagnosis is Lauxaniidae, simply put as “subgenera narrow” (Shewell, 1987). Among acalyptrate families, the subgenera is often present, although is usually inconspicuous. In eurychoromyiines, this structure is enlarged and very apparent, with a clear subgenal suture separating it from the gena.

Two structures of the male genitalia also require clarification. First, the phallapodeme is not present as a structure separate from the phallus in eurychoromyiines. In considering *Eurychoromyia mallea*, McAlpine (1968) made no mention of the aedeagal apodeme (=phallapodeme), but Griffiths (1972) referred to it as scarcely differentiated from the aedeagus (=phallus), in reference to the figures in McAlpine (1968). McAlpine (1989) later referred to the structure as absent. Herein, the phallapodeme is treated as fused to the phallus as a rod-like anterior projection present in all eurychoromyiines. Although this possibly represents a true loss of the phallapodeme with a concurrent medial extension of anterior part of the phallus, the two occurring together suggests a case of fusion. Second, the pregonite is treated as absent in the eurychoromyiines. Shewell (1987) points out that the gonopod (=pregonite) is rarely well developed, and is often absent, in lauxaniids, while the paramere (=postgonite) is present and often highly modified. This is in contradiction to McAlpine (1989), which refers to the gonopod (=pregonite) and paramere (=postgonite) in Eurychoromyiidae as being indistinguishably fused. Herein, Shewell’s (1987) interpretation of the absence of the pregonite in some lauxaniids is followed, although it is possible (with no evidence suggesting it) that the postgonite herein represents a fused pregonite and postgonite.

Eurychoromyiinae Hendel

Eurychoromyiinae Hendel, 1910: 123. Type genus *Eurychoromyia* Hendel, 1910. Brues & Melander, 1932: 322 [corrected spelling; in key, as subfamily of Sepsidae]; Brues et al., 1954: 362 [in key, as subfamily of Sepsidae]; Hennig, 1958: 599 [status as family, inclusion in Lauxanioidea, affiliation with Chamaemyiidae], 1971: 33 [inclusion in Lauxanioidea], 1973: 822 [tentative affiliation with Sciomyzoidea]; McAlpine, 1968: 819 [affiliation with Sciomyzoidea (in the broad sense, including Lauxaniidae), most similar to Lauxaniidae and Ropalomeridae]; Colless & McAlpine, 1970: 724 [as subfamily of Chamaemyiidae, including the genus *Gayomyia* sensu Colless & McAlpine], 1974: 95 [as family, including the genus *Gayomyia* sensu Colless & McAlpine], 1991: 768 [comment, not part of Australian fauna]; Griffiths, 1972: 98 [affiliation with Chamaemyiidae], 276 [in key]; Prado, 1975: 1 [catalog]; Evenhuis, 1989: 593 [catalog, tentative inclusion based only on the genus *Gayomyia* sensu Colless & McAlpine]; McAlpine, 1989: 1446 [affiliation with Celyphidae], figure 116.4 [in cladogram].

Diagnosis. This subfamily can be differentiated from other lauxaniids by the following characteristics. The head is always wider than the scutal width, with the vertex distinctly concave in dorsal view. The frons has very broad fronto-orbital plates, with the condition of fronto-orbital setae varying among species as follows: either with 2 reclinate pairs (anterior seta either diminutive or reaching 0.6 X the length of the posterior seta), or with 1 diminutive reclinate seta in the upper part of the fronto-orbital plate (this is sometimes so diminutive as to appear absent at first look). The ocellar triangle is small, slightly raised, and placed anterior to the vertex. The ocellar setae are either present (tiny or normal-sized), proclinate and diverging, or are absent. The postocellar setae are either present (tiny or normal-sized) and cruciate, or are absent. The eye is longer than high, and the height of the subgena and gena together approaches or exceeds the eye height. The subgena is enlarged, bulging and conspicuous. The lunule is straight. The face is at least slightly bulging and visible in profile. The antennal bases are separated by at least the width of an antennal socket, and in some species by 3 X the width. The scape is fully exposed, rather than being concealed under the lunule. The parafacial is always broad and extending inconspicuously into the gena. The clypeus is distinctly bulbous, and the prementum is large and broad. The scutal chaetotaxy is variable, with setae in some species being diminutive or absent. Following is the variation of setal arrangement (noting that setae, when present, are sometimes diminutive): dorsocentral setae 0+2 or 0+3; prescutellar acrostichal seta present or absent; 1 postpronotal seta; 2 notopleural setae; 0-1 intra-alar setae; 0-1 presutural and 0-1 postsutural supra-alar setae; 1 postalar seta; 0-1 proepister-

nal setae; 1 anepisternal seta on posterior edge of anepisternum; 1–2 katepisternal setae. There are always 2 pairs of scutellar setae, with the anterior pair shorter. The prosternum is broad. The fore femur has posterodorsal and posteroventral rows of setae, and lacks a ctenidium. The tibiae are either cylindrical or are slightly sharpened dorsally with a slight or great laterally flattened expansion. The preapical dorsal tibial setae are present or absent, sometimes with absence only on the hind leg. The wing is >3 X longer than high, is sapro-myziform (i.e., setulae along costa reach point between R_{2+3} and R_{4+5}), and vein A_1 is long, nearly reaching the wing margin, and the anal lobe either lacks any evident vein A_2 or has it present as a crease (Fig. 13F, inset). The abdomen abruptly tapers in the distal segments, with the tergites being broad and wrapping around laterally sometimes to a near ventral position. In the male: tergite 6 is large and broad (equal in length to preceding tergite); sternite 6 is a membranous transverse strip; syntergosternite 7+8 is simple and transversely saddle-shaped; the epandrium is simple and setose; the surstylus is articulated with the epandrium, is elongate and connected by the medially-fused bacilliform sclerite; the cercus is simple, rounded and setose; the pregonite is absent; the postgonite is simple and ribbon-like, connecting the anterior part of the hypandrium to the basolateral part of the phallus; the phallus is broad with the edges sclerotized and the middle membranous, extends anteriorly into a medial projection (possibly the fused phallapodeme), and posteriorly has paired anteriorly-oriented hooks over the gonopore; the phallapodeme is not present as separate from phallus. In the female terminalia: sternum and tergum 7 are fused to form a ring (syntergosternite 7); sternite 8 is broader than long, and is semicircular with the posterior part rounded; the hypoproct is simple and semicircular; the epiproct is absent; the cercus is simple, papillate and setulose; and the spermathecae have a 2+2 arrangement.

Immatures. The egg stage is only known for two species in two genera (Fig. 15A–D). Approximately 50 eggs were present in the relatively full abdomens of each of these species. Fully mature eggs are elongate, with a large, distinct tubercle at the anterior pole and a smaller tubercle at the posterior pole. The dorsal surface has a series of flanged longitudinal ridges with an extensive pattern of transverse ribs in between. The lateral surface has smaller ridges, and the ventral surface is slightly flattened and nondescript. In cross section, the eggs are subcylindrical.

Distribution. Neotropical, from Costa Rica south to Peru and Bolivia in the west and São Paulo State, Brazil in the east.

Biology. For all included species, abdominal dissections have revealed their gut contents (Fig. 15E) to include fungal hyphae and spores (Fig. 15E, inset), as is a typical diet for known lauxaniid adults that scrape leaves using their specialized labellum (with pseudotracheal canals fanning out from the oral opening without branching, and with prongs and scoops for cutting and raking fungal hyphae and spores to the oral opening) (Figs. 5E, inset, 6B, inset) to consume this solid food source (Broadhead, 1984; Mello & Silva, 2006).

Several of the genera (*Eurystratiomyia*, *Roryeuchomyia*) are known entirely, or mostly (*Tauridion*) from the rainforest canopy, so adults likely oviposit in places where decaying vegetation accumulates in the canopy, e.g., in the crotches of major limbs to axils of branches. This may provide a clue as to why specimens of this group have been so rarely collected and described (i.e., *Eurychoromyia mallea* known from only four specimens; *Tauridion shewelli* described from a singleton specimen).

Remarks. Most of the included genera share all the standard external characteristics typical of lauxaniids, although some are characterized by sharp reductions and/or losses of head and thoracic setae. The characteristics that indicate the monophyly of Lauxaniidae are also present in Eurychoromyiinae (where characters were available for study), including the unique state of the male accessory glands forming an elongated dense tangle of bifurcating tubes filling most of the abdomen (cf. Fig. 4, Gaimari, 2004). Other characteristics include the unexposed lunule, the adaptations of the adult labellum for fungal grazing (Broadhead, 1984; Mello & Silva, 2006) including the pseudotracheal canals fanning out from the oral opening without branching and associated scoops and prongs, and the large tergite 6 in males. Apomorphic characteristics for the subfamily include: antennal bases widely separated; scape fully exposed (not concealed by lunule); parafacial broad; subgena enlarged, bulbous and conspicuous; eye longer than high; posterior edge of vertex distinctly concave from dorsal view; ocellar triangle small, with ocelli very closely approximated; frons with fronto-orbital

plates broad; wing elongate, with vein A_1 long, nearly reaching wing margin; male phallus broad, with sclerotized lateral edges and membranous medially, anteriorly tapering into anteromedial extension (and phallopodeme absent or fused with the basiphallus), and posteriorly with large anteriorly-oriented hooks over a wide gonopore; male pregonite absent and postgonite ribbon-like; female epiproct absent; 4 spermathecae (2+2); female with tergite and sternite of the 7th abdominal segment fused into a ring. Some of these apomorphies are also present sporadically in other lauxaniids.

Key to the genera and species of Eurychoromyiinae

1. Frons with fronto-orbital setae absent (Fig. 7B), or with 1 pair only (Figs 7A, E, 8A–B); prescutellar acrostichal seta absent (Figs. 9A–B, 10, 12A) 7
 - Frons with 2 pairs fronto-orbital setae (Figs. 7C, D, 8C–E), posterior seta strong and reclinate, anterior seta strong or weak and reclinate to inclinate; prescutellar acrostichal seta usually present, strong (Figs. 9C, 11, 12D) 2
2. Subgenera usually inconspicuous, as a narrow strip below gena; height of gena and subgena together less than half height of eye (usually closer to 0.2 times); wing length not exceeding 2.5 times height; vein A_1 short non-Eurychoromyiinae
 - Subgenera broad (e.g., Fig. 5A), 0.6 times height of gena or greater, and clearly differentiated from gena by suture; height of gena and subgena together 0.7 times height of eye or greater; wing elongate, length 3 times height or greater; vein A_1 long, nearly reaching wing margin (Fig. 13) 3
3. Face lacking spots, instead with reticulated pattern of brown and yellowish pruinosity (e.g., Fig. 7C–D); gena lacking spot below eye (Fig. 5C–D); fore tarsus less than 1.5 times longer than hind tarsus (Figs. 2A, 4B–C) 6
 - Face with paired velvety black pruinose spots (Fig. 8C–E); gena with velvety black pruinose spot below eye (Fig. 6C–E); fore tarsus at least twice length of hind tarsus (Fig. 3) *Physegeniopsis*, **gen. nov.** ... 4
4. Frons lacking frontal vitta (Fig. 8E). Face strongly bulging beyond distal tip of 1st flagellomere; distally bilobed with large black velvety spot on each lobe (Fig. 6E). Scutum with 2 rows of setulae between dorsocentral setal rows (Fig. 11C) *Physegeniopsis hadrocarra*, **sp. nov.**
 - Frons with distinct dark brown frontal vitta (Fig. 8C–D). Face bulging slightly beyond end of pedicel; rounded, not bilobed, also with black velvety spots (Fig. 6C–D). Scutum with 4 rows of setulae between dorsocentral setal rows (Fig. 11A–B) 5
5. Ocellar setae present, strong (Figs. 6D, 8D). Face with ankh-shaped central brown marking (Fig. 8D). Maxillary palpus thin, slightly clavate. Prementum yellowish *Physegeniopsis ankhoidea*, **sp. nov.**
 - Ocellar setae absent or tiny (Figs. 6C, 8C). Face mainly diffuse brownish (Fig. 8C). Maxillary palpus strong, knife-like. Prementum dark brown *Physegeniopsis albeto*, **sp. nov.**
6. Ocellar seta as strong as postocellar seta (Fig. 9C); anterior fronto-orbital seta strong, more than half length of posterior seta (Fig. 5C); anterior part of fronto-orbital plate without small brown spots (Fig. 7C); orbito-antennal spot a small elongated black mark (Fig. 7C) *Euryhendelimityia schlingeri*, **gen. et sp. nov.**
 - Ocellar seta weak, hair-like, much smaller than postocellar seta (Fig. 12B); anterior fronto-orbital seta tiny, hair-like (Fig. 5D); anterior part of fronto-orbital plate with small brown spots at bases of all setulae (Fig. 7D); orbito-antennal spot large, rounded, velvety black pruinose (Fig. 7D) *Tauridion shewelli* Papp & Silva
7. Body and legs elongate, with mid- and hind femora each longer than scutum; hind tarsus either longer than hind femur or with basal tarsomere expanded into flattened pad undescribed genus
 - Body and legs more compact, with femora shorter than scutum; hind tarsus unmodified, shorter than hind femur ... 8
8. Antennal length shorter than head height (Fig. 5A–B, E); scape and pedicel much shorter than first flagellomere (Fig. 5A–B, E); scutum not vittate (Figs. 9A–B, 12A); at least hind tibia greatly expanded and laterally flattened (Figs. 1, 4A) 10
 - Antenna very elongate, altogether 1.5 times longer than head height (Fig. 6A–B); all antennal segments elongated, with scape and pedicel subequal in length, and first flagellomere only slightly longer than either (Fig. 6A–B); scutum with silvery gray dorsocentral vittae on brown background (Fig. 10); tibiae unmodified (Fig. 2B–C) *Eurystratiomyia Gaimari* & Silva, **gen. nov.** ... 9
9. Dorsocentral vitta wide throughout length, ending at or beyond posterior dorsocentral seta (Fig. 10B); scutellum with brown basal marking small, only along margin with scutum (Fig. 10B) *Eurystratiomyia erwini*, **sp. nov.**
 - Dorsocentral vitta tapering to sharp point, ending slightly beyond anterior dorsocentral seta (Fig. 10A); scutellum

- with brown basal marking large, hemispherical, extending posteriorly beyond anterior scutellar seta (Fig. 10B)
 *Eurystratiomyia epacrovitta*, **sp. nov.**
10. Antennal first flagellomere elongated, 3 times longer than scape and pedicel together (Fig. 5A); postocellar seta present but small; scutellum with shallow longitudinal depression, appearing weakly bilobed on distal part of dorsal surface *Choryeuromyia xenisma*, **gen. et sp. nov.**
- Antennal first flagellomere short, only slightly longer than scape and pedicel together (Fig. 5B, E); postocellar seta absent; scutellum unmodified 11
11. Body predominantly yellow pruinose with brown markings (Fig. 4A); setae of head (e.g., fronto-orbital seta, inner and outer vertical setae) and thorax (e.g., 2 pairs of dorsocentral setae, 2 pairs of scutellar setae, anepisternal seta) small, but distinct (Fig. 12A); gena slightly higher than subgena, and height of gena and subgena together less than eye height (Fig. 5E); frons yellow and brown pruinose (Fig. 7E) *Roryeuchomyia tigrina*, **gen. et sp. nov.**
- Body dark brown to black, with some whitish pruinosity (Fig. 1B–C); setae of head and thorax at most tiny and inconspicuous (Fig. 9B); gena at least 1.4 times higher than eye, and 5 times higher than subgena (Fig. 5B); frons shiny black, with only sparse pruinosity (Fig. 7B) *Eurychoromyia mallea* Hendel

***Choryeuromyia*, gen. nov.**

Type species. *Choryeuromyia xenisma*, sp. nov., by present designation.

Etymology. Rearrangement of the letters in the stem of the genus name *Eurychoromyia*, indicating similarity to this enigmatic genus; feminine.

Diagnosis. As a monotypic genus, the diagnosis for the genus is identical to that of the single species.

***Choryeuromyia xenisma*, sp. nov.** (Figs. 1A, 5A, 7A, 9A, 13A; Map 1)

Etymology. Greek, *xenisma*, meaning amazement, strangeness, surprise; a noun in apposition.

Diagnosis. This species (Fig. 1A) can be differentiated from other eurychoromyiines by the following characteristics. The frons has a large, rectangular, black pruinose median spot encompassing the entire frontal vitta. The fronto-orbital plates each have a shiny black bulge on the lower part, flanking the frontal vitta, while the upper part of each is flat with a single reduced (<0.2 mm), reclinate fronto-orbital seta. The eye is slightly longer than high, with the height slightly less than the combined height of the gena and subgena. The subgena is enlarged, bulbous and conspicuous, and only slightly shorter than the gena. The scape and pedicel are short and subequal, with the combined length being half the length of the 1st flagellomere, which is 5 X longer than high. The face is shiny brown with a pattern of silvery-white pruinosity and a median sliver of brown pruinosity. The scutum is mostly brown pruinose, but extensively marked with silvery pruinose spots and patches. The scutal chaetotaxy is diminutive, with most setae 0.1 mm or smaller. The following chaetotaxy is noteworthy: 0+3 dorsocentral setae; prescutellar acrostichal seta is absent; proepisternal seta is present. The scutellum is strongly arched with a shallow median longitudinal depression. The fore tibia is laterally flattened and only slightly expanded, while the mid- and hind tibiae are laterally flattened and strongly expanded, with a large bare area on this flattened expansion. The preapical dorsal tibial setae are absent, or not evident.

Adult, ♀ (♂ unknown). Body length 4.3 mm.

Head (Figs. 5A, 7A, 9A). 1.6 X higher than long, 2.3 X wider than high, 1.2 X wider than scutum; eye slightly longer than high; subgena and gena broad, together slightly higher than eye height. Vertex and upper frons brown, with covering of whitish pruinescence; strongly concave from dorsal view, sharpened medially and rounded laterally; outer vertical seta short (<0.2 mm), fine, widely separated from slightly longer inner vertical seta, with distance between them subequal to distance from inner vertical seta to central vertex. Ocellar triangle small, slightly raised, placed well anterior of vertex; ocelli in small equilateral triangle. Ocellar and postocellar setae weak (0.05 mm); ocellar setae proclinate, diverging; postocellar setae converging. Postocular area white pruinose, with single row of small postocular setulae. Frons 1.9 X wider than long at level above lunule, parallel-sided but widening anteriorly, sloping into facial plane; with large rectangular black pruinose median spot encompassing entire frontal vitta, flanked laterally by bare shiny black bulge (=lower part of fronto-orbital plate) with large rectangular black pruinose orbito-antennal spot below; upper part of fronto-orbital plate flat, with single reduced (<0.2 mm) reclinate fronto-orbital seta. Lunule straight. Antenna

dark brown, except scape and pedicel yellowish brown; antennal bases widely separated, distance equivalent to two antennal socket widths; small bump-like facial carina present between bases; scape fully exposed, as long as pedicel; 1st flagellomere 5 X longer than high, with rounded apex; arista long, 1.5 X longer than 1st flagellomere and extending beyond its tip, bare in basal 1/3, with minute, widely-spaced pubescence in distal 2/3. Face slightly bulging, visible in profile; very broad from frontal view, ventral edge 0.8 X width of frons at level above lunule; shiny brown, except for pattern of silvery-white pruinosity and median sliver of brown pruinosity; lacking antennal grooves; ptilinial suture straight, at 45° from lunule. Parafacial broad; shiny black, with thin strip of white pruinoscence below orbito-antennal spot. Gena brownish below eye, becoming yellowish posteriorly to postgena; lacking setulae, but with light covering of fine silvery hairs. Subgena enlarged, bulbous and conspicuous, slightly smaller than gena; shiny brown. Clypeus bulbous, brown. Maxillary palpus dark brown, slender, cylindrical; with several black setulae and distal seta. Prementum large, dark brown. Labellum large.

Thorax (Fig. 9A). Scutum strongly arched, length and width subequal; scutellum thick, strongly arched, with shallow median longitudinal depression, with width at base 1.3 X greater than length; scutum and scutellum mostly brown pruinose, but scutum extensively marked with silvery pruinose spots and patches, lateral pre- and postsutural patches nearly black, and scutellum silvery pruinose in basal third. Pleura dark brown, covered with fine short whitish hairs. Prosternum broad, with few fine setulae. Chaetotaxy (all setae distinctly diminutive, mostly 0.1 mm or smaller): 0+3 dorsocentral setae, with posterior seta 0.12 mm long, middle seta closer to anterior seta than to posterior seta; prescutellar acrostichal seta absent; 1 postpronotal seta; 2 notopleural setae, in anterior and posterior corners; 1 intra-alar seta; 1 presutural and 1 postsutural supra-alar setae; 1 postalar seta; 2 widely spaced, sparse rows of fine acrostichal setulae between dorsocentral setal rows; 1 proepisternal seta at ventral tip; 1 long (0.2 mm) fine anepisternal seta along posterior edge of anepisternum, anepisternum otherwise with short fine setulae in posterior third; anepimeron bare; 2 long (0.18 mm) fine katepisternal setae, katepisternum otherwise with few fine setulae and with several longer setae ventrally near midline; 2 pairs scutellar setae, length 0.14 mm. *Legs*. Brown, except distal parts of femora yellowish brown, and tarsomere 1 of fore and mid legs and tarsomeres 1–3 of hind leg white; preapical dorsal tibial setae not evident. Fore femur with indistinct posterodorsal and posteroventral rows of fine setae, in addition to scattered fine setulae; ctenidium absent. Fore tibia laterally flattened and slightly expanded; apically with ventromedial comb of thickened setulae. Fore tarsus subequal in length to tibia. Mid femur with fine setulae. Mid tibia laterally flattened and strongly expanded; with fine setulae, but bare through expanded flattened area; apical spurs apparently lacking, but several setulae enlarged, but not arranged as ventromedial combs. Hind femur with fine setulae. Hind tibia (Fig. 1A, inset) laterally flattened and strongly expanded; with fine setulae, but bare through expanded flattened area; apically with ventromedial comb of thickened setulae. *Wing* (Fig. 13A). Length 5.0 mm; 3.3 X longer than high. Hyaline, very slightly infuscated anteriorly; sapromyziform (setulae along costal vein reach point between R_{2+3} and R_{4+5}), with costal setulae finer than in typical lauxaniids, but present and distinct. Discal medial cell 2.0 mm long, 4 X longer than crossvein dm-cu. Crossvein r-m located at midpoint of discal medial cell. Crossvein dm-cu slightly curved. Vein R_{4+5} ending at wing tip, subparallel with vein M_1 . Vein A_1 long, nearly reaching wing margin. Anal lobe lacking signs of vein A_2 . Halter yellow.

Abdomen. Abruptly tapering after segment 5. Tergites brown; with fine hairs and sparse fine brownish setulae; broad, wrapping around laterally to ventral position; tergites 3–5 with dense silver hairs anterolaterally, extending all the way around; from ventrolateral or lateral view, tergite with bare shiny brown area through middle. Sternites yellow with dusting of silvery-white pruinoscence; with sparse fine setulae; sternites 2–5 slightly longer than wide; sternite 6 wider than preceding sternites.

Female terminalia. Syntergosternite 7 forming a complete ring, surrounded with fine brownish setulae, with spiracle embedded laterally. Tergite 8 broader than long, wrapping around abdomen to lateral edge of hypoproct; with few longer setae posteriorly. Sternite 8 broader than long; semicircular, with posterior part rounded; entirely sclerotized; with dense fine setae. Hypoproct simple, semicircular, setulose with fine hair-like setae; epiproct not evident; cercus simple, papillate, setulose, with several longer hair-like setae.

Immatures. Unknown.

Type material. Holotype ♀ (glued to side of pin; good condition; Fig. 1A), deposited in USNM (with permission from EMUS) with the following labels: 1) “COSTA RICA Ala[juela Province]. / 20 km S Upala / 6 Nov 1990 / F.D. Parker”; 2) “HOLOTYPUS ♀ / *Choryeuromyia* / *xenisma* / Gaimari & Silva” (red label).

Distribution (Map 1). Known only from Costa Rica (Alajuela Province).

Biology. Adult and larval biology unknown.

Remarks. Like *Eurychoromyia*, *Eurystratiomyia* and *Roryeuchomyia*, the chaetotaxy of the head and thorax is diminutive, usually <0.3 mm for any given seta, if present. This species also shares a lack of prescutellar acrostichal setae with these genera. Along with *Eurychoromyia*, this species lacks postocellar setae. This species shares the elongated antennal 1st flagellomere with *Eurystratiomyia*, but in that genus, the scape and pedicel are also elongated. Like most eurychoromyiines (except *Euryhendelomyia*, *Physegeniopsis* and *Tauridion*), this species has only a single fronto-orbital seta, although it shares the condition of having 0+3 dorso-central setae with these genera. This species shares the condition of having a flattened and strongly expanded hind tibia with *Eurychoromyia* and *Roryeuchomyia*.

***Eurychoromyia* Hendel**

Eurychoromyia Hendel, 1910: 123. Type species, *Eurychoromyia mallea* Hendel (original designation). Malloch, 1925: 311 [comment]; Hennig, 1958: 599 [comments]; Vanschuytbroeck, 1962: [inclusion in Sepsidae: Pandorinae]; McAlpine, 1968: 819 [taxonomic notes]; Bickel, 1982: 587 [inclusion in Ropalomeridae].

***Eurychoromyia mallea* Hendel** (Figs. 1B–C, 5B, 7B, 9B, 13B, 16; Map 2)

Eurychoromyia mallea Hendel, 1910: 127. Type locality: Bolivia. La Paz Department: Sarampiuni. Hennig, 1958: figures 27F [spermathecae], 151 [head], 156 [wing], 165 [female abdomen]; McAlpine, 1968: 822 [lectotype designation, description of male], figures 1–4 [abdominal and genitalic illustrations, reproduced here in Fig. 16A–D], 5 [lateral pleuron], 6 [metathoracic spiracle].

Diagnosis. This species (Fig. 1B–C) can be differentiated from other eurychoromyiines by the following characteristics. The head is very broad, >1.5 X wider than the scutal width. From an anterior view, the head is strongly trapezoidal, with the sides at a 45° angle from the top plane. All of the setae of the head, where present, are diminutive (<0.1 mm) and inconspicuous. The eyes are small, and nearly 2 X longer than high, and are strongly convex at the upper corners of the head. The subgena is bulging and slightly enlarged, but the gena is much larger (nearly 5 X), with both together being >1.6 X higher than the eye. The frons is flat and shiny brown, with light pale pubescence dorsally, and is nearly 3 X wider (at the level of the lunule) than long. The fronto-orbital plate is hardly distinguishable from the frontal vitta, being separated only by a black line. The lower part of the fronto-orbital plate has a broad dark brown pruinose orbito-antennal spot. The face is densely covered with white scale-like hairs, with a distinct dark brown, median strip. The parafacial is as broad as the face, and is indistinguishable from the gena. The gena has a distinct series of white stripes, made up of rows of pale white, densely cruciate hairs with furrows between the rows. The scutum, scutellum and pleuron are dark brown, displaying the ground color with only a light covering of pruinescence. The scutal chaetotaxy is diminutive, with all setae 0.2 mm or smaller. The following chaetotaxy is noteworthy: 0+2 dorsocentral setae; prescutellar acrostichal seta is absent; intra-alar and postsutural supra-alar setae absent. The tibiae are all laterally flattened and expanded, each with a ridged dorsal surface, and with a large bare area on the flattened surface. The preapical dorsal tibial setae are absent, or not evident. The abdominal tergites are shiny brown, displaying the ground color with only a light covering of pruinescence. Tergites 3–5 laterally are covered with triangular, scale-like setulae.

Adult, ♂, ♀. Body length 4.8–5.1 mm in ♀ (singleton ♂ dissected, abdomen not present for measurement; size apparently subequal to ♀).

Head (Figs. 5B, 7B, 9B). 1.4–1.5 X higher than long, 2.1–2.2 X wider than high, 1.6–1.7 X wider than scutum; parallelogram-shaped in lateral view; trapezoidal in anterior view, with sides at 45° angle from top plane; eye 1.7–1.9 X longer than high, highly convex at lateral tip of head; subgena and gena broad, together

1.6–1.8 X higher than eye height (gena alone 1.4–1.5 X eye height). Vertex shiny, very lightly pruinose, with fine tiny hairs; strongly concave from dorsal view, rounded to slightly sharpened medially; inner vertical seta apparently absent, outer vertical seta present and tiny (< 0.1 mm). Ocellar triangle brown pruinose; small, slightly raised, placed slightly anterior of vertex; ocelli in small equilateral triangle, with ocelli subequal. Ocellar setae small (< 0.1 mm), fine, hair-like; proclinate and diverging. Postocellar setae absent. Postocular area shiny brown with tiny hair-like pale pubescence, with few scattered small postocular setulae. Frons shiny brown, with light pale pubescence dorsally; nearly 2.7–3.0 X wider than long at level above lunule; slightly tapering anteriorly; frons flat, slightly down turned anteriorly, with fronto-orbital plate separated by black line from frontal vitta; curving evenly into facial plane; with single reduced (< 0.10 mm) reclinate fronto-orbital seta on upper part of fronto-orbital area; anterolateral part of frons with scattered erect to proclinate thin setulae; with broad dark brown pruinose orbito-antennal spot, thinly present above lunule as small pruinose spot in lower part of frontal vitta. Lunule straight. Antenna brownish except scape orange; antennal bases widely separated, distance slightly greater than antennal socket width; small bump-like facial carina present between bases at very top of lunule, otherwise flat; scape fully exposed, slightly shorter than pedicel; 1st flagellomere short, 1.5–1.6 X longer than high, with rounded apex; arista micropubescent in basal 1/2, bare distally; long, 3.7–4.0 X longer than 1st flagellomere. Face slightly bulging, visible in profile; broad from frontal view, ventral edge 0.5 X width of frons at level above lunule; covered with white scale-like hairs, with distinct dark brown pruinose median strip, and markings below each antennal base; lacking antennal grooves; ptilinal suture straight, at 45° from lunule. Parafacial extremely broad (as broad as face), continuous and indistinguishable from gena. Gena indistinguishable from postgena which has few thin erect setulae; with pale white hairs in 8–12 rows, each row made up of densely cruciate hairs with furrows between rows (Fig. 5B, inset). Subgena slightly enlarged but conspicuous; 0.2 X height of gena; shiny brown. Clypeus bulbous and large, dark brown, with covering of white scale-like hairs. Maxillary palpus small, dark brown, slender, slightly clavate; with few small setulae and distal setae. Prementum large, brown. Labellum large.

Thorax (Fig. 9B). Scutum arched, length slightly greater than width; scutellum thick, strongly arched, with width at base 1.7–1.9 X greater than length; scutum and scutellum dark brown to blackish, displaying ground color with light covering of dark pruinescence. Pleural region dark brown, displaying ground color with light covering of white pruinescence. Prosternum broad, bare (except for light covering of white pruinescence). Chaetotaxy (all setae small, 0.2 mm or smaller): 0+2 dorsocentral setae, with anterior seta slightly smaller than posterior seta, both in posterior 1/3 of scutum; prescutellar acrostichal seta absent; 1 fine small (< 0.12 mm) postpronotal seta; 2 notopleural setae, in anterior and posterior corners; intra-alar and postsutural supra-alar setae absent; 1 presutural supra-alar seta; 1 postalar seta; 2 sparse rows of fine acrostichal setulae between dorsocentral setal rows, and 1 sparse uneven row of setulae in front of anterior dorsocentral seta; proepisternal seta absent; anepisternal seta present along posterior edge of anepisternum, anepisternum otherwise with fine setulae centrally; anepimeron bare; 1 katepisternal seta present, katepisternum otherwise with several smaller fine setulae anterior of seta, and with several setulae ventrally near midline; 2 pairs scutellar setae, anterior one fine, hair-like, posterior one larger, directed upwards. *Legs*. Brown, except mid tarsomere 1 dark yellowish; very lightly pruinose, except distinct large patch of silvery white pruinescence on anterodistal and ventrodiscal surface of fore femur. Fore femur with posterodorsal and posteroventral rows of setae, hardly distinguishable from scattered setulae; ctenidium absent. Fore tibia laterally flattened and expanded into ridged dorsal surface; apically with ventromedial comb of thickened brownish setulae; preapical dorsal seta hardly distinguishable from nearby setulae; with 1 ventral spur. Fore tarsus long, 1.3–1.4 X length of tibia. Mid femur with fine setulae. Mid tibia slightly laterally flattened and expanded into ridged dorsal surface; with fine setulae; preapical dorsal seta hardly distinguishable from nearby setulae; with 1 strong spur. Hind femur with preapical dorsal seta not distinguishable from surrounding setulae; with fine setulae. Hind tibia (Fig. 1C, inset) laterally flattened and strongly expanded into sharply ridged dorsal surface; with fine setulae, but bare through expanded flattened area; apically with ventromedial comb of thickened brownish setulae; preapical dorsal seta not distinguishable from surrounding setulae. *Wing* (Fig. 13B). Length 5.4 mm in ♂, 5.4–5.5 mm in ♀; 3.0–3.2 X longer than high. Hyaline, slightly infuscated anteriorly; sapromyziform, with costal setulae

finer than in typical lauxaniids, but present and distinct. Discal medial cell 2.4 mm long in ♂, 2.5 mm in ♀; 4.8–5.0 X longer than crossvein dm-cu. Crossvein r-m located at midpoint of discal medial cell. Crossvein dm-cu straight. Vein R₄₊₅ ending at wing tip, subparallel with vein M₁. Vein A₁ long, nearly reaching wing margin. Anal lobe lacking signs of vein A₂. Halter yellow.

Abdomen (Fig. 16C). Tapering gradually after segment 3. Tergites brown, displaying ground color with light covering of pruinescence; broad, wrapping around laterally to ventral position. Syntergite 1+2 with fine erect brownish setulae dorsally and laterally; tergites 3–5 laterally with setulae appearing triangular scale-like (made up of microhairs around each setula, Fig. 1B, inset). In ♂, tergite 6 large, as long as preceding tergite. Sternites pale yellow; with sparse fine setulae (except sternite 1), slightly longer posterolaterally. In ♂, sternites 1 and 2 each 3 X wider than long, sternite 3 2 X wider than long, sternites 4–5 as long as wide, sternite 6 a membranous transverse strip, apparently asymmetrical (but see remarks). In ♀, sternites 3–6 longer than wide, with sternite 6 slightly larger than preceding sternites.

Male genitalia (Fig. 16). Syntergosternite 7+8 simple, transversely saddle-shaped, longest medially (less than 1/2 medial length of tergite 6) and tapering laterally. Epandrium simple; setose, most dense directly above surstylus. Surstylus articulated with epandrium; long and thin; becoming spatulate distally, abruptly curving medioventrally at tip; with sparsely distributed fine setae dorsally. Cercus simple, rounded, setose. Phallus broad; with sclerotized edges and membranous area medially; anteriorly tapering into anteromedial extension; at 1/3 distance from base, with dorsolateral extension articulating with postgonite; sclerotized edge with lateral spur 1/4 distance from tip; with large, anteriorly-oriented hooks extending over gonopore; posterior edge extending into pointed tip. Hypandrium simple, rectangular, 2 X wider than long; bare. Postgonite small, thin, ribbon-like, curved dorsally from hypandrium to articulate with anterior-most lateral extension of phallus. Ejaculatory apodeme simple.

Female terminalia. Syntergosternite 7 forming a complete ring, with spiracle embedded laterally. Tergite 8 broader than long, wrapping around abdomen to lateral edge of hypoproct; with few longer setae posterolaterally. Sternite 8 broader than long; semicircular, with posterior part rounded; entirely sclerotized; with dense fine setae. Hypoproct simple, semicircular, setulose with short hair-like setae posteriorly; with sclerotization on ventral surface acting as an egg guide with sternite 8; epiproct not evident; cercus simple, papillate, setulose. Spermathecae with configuration 2+2; round; each pair closely linked at bifurcation (one pair illustrated in Hennig 1958, Fig. 27F).

Immatures. Unknown.

Type material. Lectotype ♂ (pinned; good condition, except abdomen gone; Fig. 1B) (designated by McAlpine, 1968), housed in SMTD (abdominal dissection not located) with the following labels: 1) “Bolivia—Mapiri / 23.I.03 / Sarampioni [=Sarampiuni] 700m” [green label]; 2) “Typus” [red label]; 3) “LECTOTYPE / Eurychoromyia ♂ / mallea Hendel / McAlpine 1968” [red label, handwritten]; 4) “Eurychoromyia / mallea, H” [handwritten]; 5) “Staatl. Museum für / Tierkunde Dresden”; 6) “Staatl. Museum für / Tierkunde Dresden / coll. W. SCHNUSE, 1911.” Paralectotypes. **BOLIVIA. La Paz Department.** Mapiri, Sarampiuni (C.W. Schnuse), 3.i.1903 [1 ♀ (NHMW)]; 15.iii.1903 [1 ♀ (NHMW), Fig. 1C; 1 ♀ (SMTD; dissected, with associated slide of abdomen, spermathecae not on slide), Fig. 1B, inset].

Distribution (Map 2). Known only from Sarampiuni, Bolivia (La Paz Department), a small village near Mapiri in the lowlands (about 700 m elevation) north of La Paz.

Biology. The four known specimens of this species were collected in January and March (of 1903), which are rainy or wet months in this part of Bolivia. Note that the slide of the female abdomen dissected by Hennig has a single fungal spore, likely being gut contents, which would indicate the same adult feeding biology as other lauxaniids as fungal grazers. Larval biology unknown.

Remarks. Like *Choryeuromyia*, *Eurystratiomyia* and *Roryeuchomyia*, the chaetotaxy of the head and thorax is diminutive, usually <0.3 mm for any given seta, if present. This species also shares a lack of prescutellar acrostichal setae with these genera. Along with *Choryeuromyia*, this species lacks postocellar setae. Among the eurychoromyiines, this species has the smallest subgena, at only 0.2 X the height of the gena, which is

very high. On the gena, this species is characterized by having a distinct series of white stripes, made up of rows of pale white, densely cruciate hairs with furrows between the rows; the condition of having such stripes is shared with *Eurystratiomyia*, but they are of a different conformation (Fig. 6A, inset). Like most eurychoromyiines (except *Euryhendelimityia*, *Physegeniopsis* and *Tauridion*), this species has only a single fronto-orbital seta. This species shares the condition of having 0+2 dorsocentral setae with *Eurystratiomyia* and *Roryeuchomyia*. This species shares the condition of having a flattened and strongly expanded hind tibia with *Choryeuchomyia* and *Roryeuchomyia*. This species is unique in having a very broad frons, in having most setae so diminutive as to be unnoticeable without careful observation, and in having at least the lateral abdominal setulae appearing triangular and scale-like. According to the illustration in McAlpine (1968) (Fig. 16C herein), sternite 6 is asymmetrical. However, given the highly membranous nature of this structure in all other species, and the difficulty of discerning the true edges of the structure, it is possible that either McAlpine misinterpreted the shape of the structure, or the asymmetry is unique to this species.

***Euryhendelimityia*, gen. nov.**

Type species. *Euryhendelimityia schlingeri*, sp. nov., by present designation.

Etymology. It is with great pleasure that we name this genus as a patronym for the great Austrian acalyptrate specialist Freidrich Georg Hendel, specifically honoring his work on *Eurychoromyia*, formed by inserting his name between the first part of the stem *eurys* (from Greek, meaning broad, wide) and the ending *-myia* (from Greek, meaning fly); feminine.

Diagnosis. As a monotypic genus, the diagnosis for the genus is identical to that of the single species.

***Euryhendelimityia schlingeri*, sp. nov.** (Figs. 2A, 5C, 7C, 9C, 17; Map 3)

Etymology. Named for Evert I. Schlinger, the Californian dipterist who has done so much good for dipterology and insect systematics in general, in addition to his collecting the single specimen of this species.

Diagnosis. This species (Fig. 2A) can be differentiated from other eurychoromyiines by the following characteristics. The frons is flat and brown pruinose, with distinct paired silvery markings centrally, and pale yellow along the eye margin. The fronto-orbital plates are wide and concolorous with the frontal vitta. The orbito-antennal spot is only a small, dark brown pruinose mark. The setae of the head are normal-sized (i.e., for lauxaniids), with none reduced or absent, including strong inner and outer verticals, strong proclinate and diverging ocellars, strong cruciate postocellars, and 2 pairs of strong reclinate fronto-orbitals. The eye is only slightly longer than high, with the gena and subgena together being slightly shorter than the eye height. The subgena is large, bulging and conspicuous, and is subequal to the genal height. The face is brown pruinose, with a distinctive pattern of pale pruinose markings. The scutum and scutellum are brownish pruinose, with thin grayish pruinose vittae and around the outer edge of the scutellum. The scutal chaetotaxy is strong (typical of lauxaniids), with the following being noteworthy: 0+3 dorsocentral setae, prescutellar acrostichal seta is present and strong. The tibiae are normal, being neither flattened nor expanded, and each possesses a preapical dorsal seta.

Adult, ♂ (♀ unknown). Body length 6.1 mm in ♂.

Head (Figs. 5C, 7C, 9C). 1.8 X higher than long, 1.2 X wider than high, 1.3 X wider than scutum; parallelogram-shaped in lateral view; eye 1.1 X longer than high; subgena and gena broad, together 0.8 X eye height. Vertex silvery gray pruinose; strongly concave from dorsal view, rounded medially; inner and outer vertical setae long, inner seta 1.4 X longer than outer, widely spread, with distance between them 1/2 that of distance from inner vertical seta to central vertex. Ocellar triangle brown pruinose; small, slightly raised, placed slightly anterior of vertex; ocelli in small isosceles triangle, with anterior ocellus subequal to posterior. Ocellar setae long (1/2 length of posterior fronto-orbital seta); proclinate and diverging. Postocellar setae present, strong, cruciate. Postocular area pale pruinose along eye edge, silvery pruinose beyond edge; with row and scattered small postocular setulae. Frons brown pruinose, with distinct paired silvery markings cen-

trally and pale yellow along eye edge; 1.5 X wider than long at level above lunule; lateral edges parallel; frons flat, with fronto-orbital plate wide, concolorous with frontal vitta; at greater than 90° angle to facial plane; with two strong reclinate fronto-orbital seta, anterior seta 0.6 X length of posterior seta; frons setulose, with 1–2 slightly enlarged setulae laterally, and middle-most setulae proclinate and convergent; with small dark brown pruinose orbito-antennal spot. Lunule straight. Antenna orangish, except distal 2/3 of 1st flagellomere and entire arista brown; antennal bases widely separated, distance slightly greater than antennal socket width; small bump-like facial carina present between bases at very top of lunule, otherwise flat; scape fully exposed, slightly shorter than pedicel; 1st flagellomere short, 1.6 X longer than high, with rounded apex; arista micro-pubescent, long, 2.6 X longer than 1st flagellomere. Face slightly bulging, visible in profile; broad from frontal view, ventral edge 1.1 X wider than frons at level above lunule; brown pruinose, with distinctive pale pruinose markings (mark below each antennal base, single central mark, and paired inverted-V shaped marks); lacking antennal grooves; ptilinal suture straight, at 45° from lunule. Parafacial broad; brown pruinose, with goldish pruinose markings below orbito-antennal spot; with thin erect setulae on lower half. Gena goldish to silvery pruinose, with brown marking below eye; with few thin erect setulae. Subgena enlarged, bulbous and conspicuous; subequal in size to gena; pruinose brown through middle, silvery pruinose dorsally and ventrally. Clypeus small, silvery pruinose, with median part brown pruinose. Maxillary palpus dark brown, long, slender, slightly clavate; with few small setulae and distal seta. Prementum moderately large, brown. Labellum moderately large.

Thorax (Fig. 9C). Scutum slightly arched, length 1.2 X greater than width; scutellum thick, flattened dorsally, with width at base 1.5 X greater than length; scutum and scutellum brownish pruinose, except for thin grayish pruinose vittae slightly medial to dorsocentral row, and grayish pruinose around outer edge of scutellum. Pleural region mostly brownish pruinose, with some faint grayish pruinose areas along proepisternum, through middle of anepisternum, and in ventral part of katopisternum. Prosternum broad, bare (except for light covering of white pruinescence). Chaetotaxy (setae normal-sized to long): 0+3 dorsocentral setae, with posterior seta long (1.1 mm), middle seta slightly shorter (0.9 mm), and anterior seta slightly shorter still (0.8 mm); anterior seta near suture, middle seta slightly closer to anterior than to posterior seta; prescutellar acrostichal seta present, strong, subequal to middle dorsocentral seta; 1 strong (0.6 mm) postpronotal seta; 2 strong notopleural setae, in anterior and posterior corners, posterior seta 0.6 X length of anterior seta; intra-alar seta present, strong; presutural and postsutural supra-alar setae present, strong; 1 postalar seta; acrostichal setulae in 6 uneven rows, scutum otherwise with scatter setulae throughout; proepisternal seta present, strong; 1 long (0.9 mm) strong anepisternal seta along posterior edge of anepisternum, anepisternum otherwise with long (up to 0.2 mm) fine setulae in posterior 2/3; anepimeron bare; 2 long, strong katopisternal setae, posterior seta slightly longer than anterior seta, katopisternum otherwise with smaller fine setulae, extending ventrally to stronger setulae near midline; 2 pairs long, strong scutellar setae. *Legs*. Brown, except hind tarsomere 1 dark yellowish; very lightly pruinose. Fore femur with row of 3 posterodorsal setae distally, and posteroventral row of setae, in addition to scattered setulae and setae; ctenidium absent. Fore tibia normal (not flattened or expanded); apically with ventromedial comb of thickened brownish setulae; preapical dorsal seta strong; with 1 ventral spur. Fore tarsus long, 1.5 X length of tibia. Mid femur setulose. Mid tibia normal; with fine setulae; preapical dorsal seta strong; with 1 strong spur. Hind femur with strong preapical dorsal seta; setulose. Hind tibia normal; with fine setulae; apically with ventromedial comb of thickened brownish setulae; preapical dorsal seta present, long but thin; with 1 strong spur. *Wing*. Length 9.4 mm; 3.6 X longer than high. Hyaline, slightly infuscated anteriorly; sapromyziform, with costal setulae short and thick. Discal medial cell 3.4 mm long; 1.9 X longer than crossvein dm-cu. Crossvein r-m located just beyond midpoint of discal medial cell. Crossvein dm-cu straight. Vein R_{4+5} ending at wing tip, subparallel with vein M_1 . Vein A_1 long, nearly reaching wing margin. Anal lobe with vein A_2 present as crease. Halter yellow.

Abdomen. Tapering gradually after segment 3. Tergites brownish pruinose, except silvery pruinose laterally and along posterior edges of each; with black setulae, longest along posterior edges of tergites and on posterolateral corners; broad, wrapping around laterally to ventral position. Tergite 6 large, as long as preceding

tergite. Sternites brownish yellow; with sparse fine setae (except sternite 1), slightly longer posterolaterally. Sternite 2 slightly wider than sternite 3, which is slightly wider than sternites 4–5; sternites 2–4 1.3 X wider than long, sternite 5 1.6 X wider than long, sternite 6 a membranous transverse strip.

Male genitalia (Fig. 17). Syntergosternite 7+8 simple, transversely saddle-shaped, longest medially (3/4 medial length of tergite 6) and tapering laterally. Epandrium simple; setose, most dense directly above surstylus. Surstylus articulated with epandrium; long and tapering from thicker base to spatulate tip, curving medioventrally in distal 1/3; with sparsely distributed fine setae dorsally, becoming dense distally, and with several fine setae ventrally, particularly in distal 1/3. Bacilliform sclerite strong, extending from inner basal part of surstylus and forming an anteriorly directed arc, and basally with large sclerotized lateral pads. Cercus simple, rounded, setose. Phallus broad; with sclerotized edges and membranous area medially; anteriorly tapering into anteromedial extension; at 1/4 distance from base, with dorsolateral extension articulating with postgonite; medially with sharp dorsal projection at halfway point; sclerotized edge with lateral spur 2/5 distance from tip; with large, anteriorly-oriented hooks extending over gonopore; tip extended distally into sharp dorsal keel. Hypandrium bilobed, with lobes directed posteriorly; 1.6 X wider than length of lobe; bare. Postgonite small, thin, ribbon-like, curved dorsally from hypandrium to articulate with anterior-most dorsolateral extension of phallus. Ejaculatory apodeme simple, small, thin.

Immatures. Unknown.

Type material. Holotype ♂ (glued to paper point; good condition, but slightly greased; Fig. 2A; abdomen dissected, in glass vial mounted on pin below specimen), deposited in CASC with the following labels: 1) “COLOMBIA: 25 / mi. SW. Mocoa / Narino. 2080 m / III-3-1995”; 2) “E.I. Schlinger / & E.S. Ross / collectors”; 3) “SDG dissection / 1318 ♂”; 4) “HOLOTYPUS ♂ / *Euryhendelimitya* / *schlingeri* / Gaimari & Silva” (red label).

Distribution (Map 3). Known only from Colombia, along the borders of the Nariño and Putumayo Provinces (but probably on the Putumayo Province side, contrary to the label data). At around 2000 m elevation, this locality seems to be at the very eastern edge of the Amazonian Rainforest.

Biology. Mouth parts, body and wings of the adult with scattered pollen, indicating this species may take nectar at flowers, in addition to being fungal grazers as confirmed by the presence of fungal spores in gut contents. Larval habits unknown.

Remarks. Like *Physegeniopsis* and *Tauridion*, the chaetotaxy of the head and thorax is mostly normalized (i.e., strong). This species also shares the presence of prescutellar acrostichal setae with these genera. Along with only two species of *Physegeniopsis*, this species has strong ocellar setae. Like *Physegeniopsis* and *Tauridion*, this species has two fronto-orbital seta (although the anterior seta is diminutive in *Tauridion*), also sharing the condition of having 0+3 dorsocentral setae with these genera and *Choryeuromyia*. Along with *Roryeuchomyia* and *Tauridion*, this species has a brown pruinose face and parafacial with distinctive, reticulated pale pruinose markings. This species shares the condition of having cylindrical tibiae with *Tauridion*.

***Eurystratiomyia*, gen. nov.**

Type species. *Eurystratiomyia erwini*, sp. nov., by present designation.

Etymology. From part of the stem (*Eury-*) of *Eurychoromyia*, + *stratio* from the root of the family Stratiomyidae, + *myia*, Greek, meaning fly, referring to the superficial similarity of this genus to certain stratiomyids; feminine.

Diagnosis. This genus can be differentiated from other eurychoromyiines by the following characteristics. The antenna are very long, about 2 X longer than the head, with the scape and 1st flagellomere being nearly the same length, and the pedicel only slightly shorter; the 1st flagellomere is about 4 X longer than high, and the arista is pale yellow to white and longer than the 1st flagellomere; in all specimens, the antenna have an upward (45°) orientation. The frons is pale, gray and brown pruinose in a distinct pattern, which includes a brown patch in the upper part of the fronto-orbital plate upon which is a single, small (>0.2 mm), reclinate fronto-orbital seta. The fronto-orbital plates are each subequal in size to the frontal vitta. The orbito-antennal

spot is large, round and velvety black, with a shiny black area above it on the lower fronto-orbital plate. The setae of the head are small (>0.3 mm), but present. The eye is 1.2–1.4 X longer than high, with the gena and subgena together only slightly shorter than the eye height. The subgena is large, bulging and conspicuous, and is slightly more than half the height of the gena. The gena has thick pruinescence in distinct longitudinal rows and furrows. The face is goldish pruinose with distinct markings, including a small silvery white mark below each antennal base, a brown upper half (which sometimes has paired goldish spots), and the lower face has a distinct brown “W” or “U” shaped (with a broad base and divergent arms) mark centrally. The scutum is dark brown pruinose, with silvery gray dorsocentral vittae, and with a yellow lateral margin that extends around (or dominates) the scutellum. The scutal chaetotaxy is mostly diminutive, with most setae being 0.3 mm or less (posterior dorsocentral seta is the exception, sometimes reaching 0.4 mm). The following chaetotaxy is noteworthy: 0+2 dorsocentral setae, with the anterior seta much shorter than the posterior seta; prescutellar acrostichal seta is absent; intra-alar, supra-alar and proepisternal setae are absent. The fore tibia is not expanded, but does have a sharpened dorsal edge; the mid tibia is cylindrical; and the hind tibia is laterally flattened and slightly expanded. The fore and mid tibiae each have a preapical dorsal seta, but the hind tibia lacks this seta.

Distribution. Ecuador.

Remarks. Like *Choryeuromyia*, *Eurychoromyia* and *Roryeuchomyia*, the chaetotaxy of the head and thorax is diminutive, usually <0.3 mm for any given seta, if present. Species of this genus also share a lack of prescutellar acrostichal setae with these genera. Species of this genus share the elongated antennal 1st flagellomere with *Choryeuromyia*, but the scape and pedicel are also elongated in *Eurystratiomyia* (this is unique among lauxaniids). Like most eurychoromyiines (except *Euryhendelimyia*, *Physegeniopsis* and *Tauridion*), members of this genus have only a single fronto-orbital seta. Along with *Eurychoromyia* and *Roryeuchomyia*, the species of this genus have 0+2 dorsocentral setae. The tibiae of species of this genus have at most a sharpened anterior surface, with only a slight expansion of the hind tibia.

***Eurystratiomyia epacrovitta*, sp. nov.** (Figs. 2B, 6A, 8A, 10A, 18E; Map 2)

Etymology. From Greek, *epakros*, meaning pointed at the end + Latin, *-vitta*, meaning stripe, referring to the sharply pointed posterior end of the dorsocentral vitta on the scutum; a noun in apposition.

Diagnosis. This species (Fig. 2B) can be differentiated from its congener by the following characteristics. The silvery gray dorsocentral vittae on the scutum end posteriorly in a sharp point between the anterior and posterior dorsocentral setae. The scutellum is pale yellow around a strongly arching brown semicircle basomedially, which extends posteriorly beyond the level of the anterior scutellar setal pair. The phallus is <3 X longer than wide at the widest point.

Adult, ♂, ♀. Body length 4.8–5.1 mm in ♂, 4.8–5.3 mm in ♀.

Head (Figs. 6A, 8A, 10A). 1.2–1.3 X higher than long, 1.5 X wider than high, 1.2–1.3 X wider than scutum; parallelogram-shaped in lateral view; eye 1.2–1.4 X longer than high; subgena and gena broad, together 0.9 X eye height. Vertex brown pruinose; strongly concave from dorsal view, rounded to slightly sharpened medially; inner and outer vertical setae subequal, short (~ 0.3 mm), widely spread, with distance between them subequal to distance from inner vertical seta to central vertex. Ocellar triangle brown pruinose; small, strongly raised, placed well anterior of vertex; ocelli in small equilateral triangle, with anterior ocellus subequal to posterior. Ocellar setae small ($1/2$ length of vertical seta), fine, hair-like; proclinate and diverging. Postocellar setae present, small (subequal to ocellar seta, but thicker), cruciate. Postocular area brown pruinose, with few scattered small postocular setulae. Frons pale, gray and brown pruinose, in distinct pattern (brown medially surrounded by pale white; brown spot at base of fronto-orbital seta surrounded by goldish); 2.4–2.6 X wider than long at level above lunule; sides parallel; frons slightly depressed with upper edge of lunule bulging slightly forward, with fronto-orbital plate separated from frontal vitta by black line; at nearly 90° angle to facial plane; with single reduced (subequal to postocellar seta) reclinate fronto-orbital seta on upper part of fronto-orbital area (directly lateral of ocellar triangle); anterior part of fronto-orbital plate shiny brown, lacking pruinescence; with black velvety orbito-antennal spot. Lunule straight. Antenna brown, except

basal 1/3 lighter and arista pale yellow to white; antennal bases widely separated, distance 2 X antennal socket width; transverse bump-like facial carina present between bases at very top of lunule, bulging beyond anterior edge of frons, otherwise flat; antenna long, about 2 X head length; scape length slightly less than 1st flagellomere length; pedicel length 3/4 of scape length, 1st flagellomere long, 3.8–4.2 X longer than high, with rounded apex; arista pubescent, long, 1.3–1.5 X longer than 1st flagellomere. Face slightly bulging, visible in profile; broad from frontal view, ventral edge 0.6–0.7 X width of frons at level above lunule; goldish pruinose, with distinct markings (small mark below each antennal base silvery white pruinose, otherwise upper face mostly brown (except paired goldish spots), and lower face with distinct brown “W” or “U” (with a broad base and divergent arms) shaped mark centrally); lacking antennal grooves; ptilinal suture straight, at 45° from lunule. Parafacial broad (about 1/2 width of face); pale goldish pruinose, with small dark brown pruinose mark below orbito-antennal spot; with thin erect setulae on lower half. Gena with dark brown pruinose mark below eye, becoming yellowish posteriorly to postgena; with few thin erect setulae; gena and postgena with pruinescence in distinct longitudinal rows and furrows (Fig. 6A, inset). Subgena enlarged, bulbous and conspicuous, 0.6–0.7 X height of gena; mostly shiny brown. Clypeus bulbous, dark brown with light covering of pale scale-like hairs. Maxillary palpus small, dark brown, slender, slightly clavate; with few small setulae and distal setae. Prementum large, yellowish. Labellum large.

Thorax (Fig. 10A). Scutum slightly arched, slightly longer than wide; scutellum thick, flattened to slightly depressed medially, with width at base 1.6–1.7 X greater than length; scutum brown pruinose, except for silvery gray dorsocentral vittae ending at sharp point between anterior and posterior dorsocentral setae, along lateral portion of scutum pale yellow, and postpronotal lobe pale yellow; scutellum pale yellow with strongly arching brown semicircle basomedially, extending posteriorly beyond level of anterior scutellar setal pair. Pleural region mostly yellowish to silvery gray pruinose, except dark brown (lacking pruinescence) on upper and lower part of anepisternum. Prosternum broad, lacking setulae. Chaetotaxy (all setae small, mostly 0.2–0.3 mm, except posterior dorsocentral and posterior scutellar 0.3–0.4 mm): 0+2 dorsocentral setae, with anterior seta 1/3 length of posterior seta, both in posterior 1/3 of scutum; prescutellar acrostichal seta absent; 1 fine small (<0.2 mm) postpronotal seta; 2 notopleural setae, in anterior and posterior corners; intra-alar and supra-alar setae absent; 1 postalar seta; 1 row of tiny fine acrostichal setulae between dorsocentral setal rows, 2 rows of tiny fine setulae in front of anterior dorsocentral seta, and sparse tiny fine setulae outside dorsocentral row; proepisternal seta absent; 1 long (0.2–0.3 mm) fine anepisternal seta along posterior edge of anepisternum, anepisternum otherwise with short (0.05–0.10 mm) fine setulae centrally; anepimeron bare; 1 short (<0.3 mm) fine katepisternal seta, katepisternum otherwise with 1 to few smaller fine setulae anterior of seta, and with several setulae ventrally near midline; 2 pairs scutellar setae, anterior one 2/3 length of posterior one. *Legs*. Brown, except yellow on basal 3/4 of fore femur, tarsomere 1 of fore tarsus, basal 1/2 to 3/4 of mid tibia, tarsomeres 1–3 of mid tarsus, and tarsomeres 1–3 of hind tarsus. Fore femur with posterodorsal and posteroventral rows of setae, in addition to scattered setulae; ctenidium absent. Fore tibia slightly sharpened dorsally; apically with ventromedial comb of thickened goldish setulae; preapical dorsal seta strong; with 1 ventral spur. Fore tarsus long, slightly longer than tibia. Mid femur with fine setulae. Mid tibia cylindrical; with fine setulae; preapical dorsal seta strong; with 1 strong spur. Hind femur with preapical dorsal seta; with fine setulae. Hind tibia laterally flattened and slightly expanded; with fine setulae; apically with ventromedial comb of thickened goldish setulae; preapical dorsal seta absent. *Wing* (as in Fig. 13C). Length 5.0–5.1 mm in ♂, 5.0–5.3 mm in ♀; 3.2–3.5 X longer than high. Hyaline, slightly infuscated anteriorly; sapromyziform. Discal medial cell 2.1 mm long in ♂, 2.2–2.3 mm in ♀; 4.2–4.9 X longer than crossvein dm-cu. Crossvein r-m located at midpoint of discal medial cell. Crossvein dm-cu straight to slightly curved. Vein R₄₊₅ ending at wing tip, subparallel with vein M₁. Vein A₁ long, nearly reaching wing margin. Anal lobe lacking signs of vein A₂. Halter yellow.

Abdomen. Tapering gradually after segment 3. Tergites with tiny inconspicuous setulae, except syntergite 1+2 with conspicuous erect setulae; broad, wrapping around laterally to ventral position; syntergite 1+2 and tergites 3–4 brown pruinose dorsally, gray pruinose laterally; tergite 5–6 gray pruinose except brown medial

stripe and along posterolateral edge. In ♂, tergite 6 large, as long as preceding tergite. Sternites pale yellowish; with sparse fine setae (except sternite 1), slightly longer posterolaterally. In ♂, sternite 1 2.3 X wider than long, invaginated along anterior margin, sternite 2 1.6 X wider than long, sternites 3–5 as long as wide, sternite 6 a membranous transverse strip. In ♀, sternites 3–6 as long as wide, with sternite 6 slightly larger than preceding sternites.

Male genitalia (Fig. 18E, otherwise as in Fig. 18A–C). Syntergosternite 7+8 simple, transversely saddle-shaped, longest medially (1/2 medial length of tergite 6) and tapering laterally; brown dorsally, grayish laterally. Epandrium simple; setose, most dense directly above surstylus. Surstylus articulated with epandrium; long and thin (lacking dorsobasal extension); becoming spatulate distally, abruptly curving medioventrally at tip; densely setose dorsally and laterally, except distally and basally lacking setae. Bacilliform sclerite strong, extending from inner basal part of surstylus and forming an anteriorly directed arc, with lateral wings anteriorly. Cercus simple, rounded, setose. Phallus broad, with length 2.9 X width; with sclerotized edges and membranous area medially; anterior end with edges tapering evenly and extending into short anteromedial extension; at 1/4 distance from base, lateral edges with dorsal spur articulating with postgonite; at 1/4 distance from tip, lateral edges pinched inward, sclerotized edge with ventral spur, and dorsal surface with median spur; with large, anteriorly-oriented hooks extending over gonopore. Hypandrium with anterior edge straight, lateral edges pinched inwards and slightly tapering anteriorly; posterior edge with large tapering process extended over phallus as hood; maximum width slightly greater than maximum length; bare. Postgonite small, thin, ribbon-like, curved dorsally from hypandrium to articulate with anterior-most dorsal spur of phallus. Ejaculatory apodeme simple, small, thin.

Female terminalia (as in Fig. 14A). Syntergosternite 7 forming a complete ring, with spiracle embedded laterally. Tergite 8 broader than long, with anterolateral corners extending and wrapping around abdomen to near lateral edge of hypoproct; with few longer setae posterolaterally. Sternite 8 2 X broader than long; semi-circular, with posterior part rounded; entirely sclerotized; with dense fine setae; anterior corners extended into thin processes curving around to contact extensions of tergite 8. Hypoproct simple, semicircular, setulose with short hair-like setae posteriorly; with pair of thin longitudinal sclerotizations on ventral surface acting as an egg guide with sternite 8; epiproct not evident; cercus simple, papillate, setulose. Spermathecae (as in Fig. 14B) with configuration 2+2; each spermathecae round, 0.12 mm diameter, entirely smooth, closely linked at bifurcation.

Immatures. Unknown.

Type material. Holotype ♂ (glued to paper point; excellent condition; Fig. 2B), deposited in USNM with the following labels: 1) "ECUADOR: Depto. Orellana, Reserva / Etnica Waorani, 1 km S. Onkone Gare / Camp, Transect Ent., 10 OCT 1994, / 00°39'26"S, 076°27'11"W, 220m, / T.L. Erwin et al., Trans. 3, Sta. 8 / Fogging in terra firme forest Lot 937"; 2) "HOLOTYPUS ♂ / *Eurystratiomyia* / *epacrovitta* / Gaimari & Silva" (red label). Paratypes: **ECUADOR. Orellana Province**. Reserva Etnica Waorani, 1 km S. Onkone Gare Camp, Transect Ent., 220 m, 00°39'26"S 076°27'11"W (T.L. Erwin et al.), fogging in terra firme forest, 10.x.1994, Transect 3, Station 7, Lot 936 [1 ♀ (USNM)], 10.x.1994, Transect 3, Station 8, Lot 937 (same data as holotype) [2 ♂ (including SDG dissection 1300), 2 ♀ (USNM); 1 ♂, 1 ♀ (CSCA)], 25.vi.1996, Transect 2, Station 2, Lot 1532 [1 ♀ (USNM), SDG dissection 1301], 4.x.1996, Transect 10, Station 7, Lot 1757 [1 ♀ (USNM)].

Distribution (Map 2). Known only from Ecuador (Orellana Province).

Biology. Known only from the rainforest canopy, so adults likely oviposit in places where decaying vegetation accumulates in the canopy, e.g., in the crotches of major limbs to axils of branches. Adults are fungal grazers, as confirmed by the presence of fungal spores in gut contents.

Remarks. Although specimens of both this species and its congener were collected in the same places, and are very similar, there were several characteristics that were consistent through relatively large series, i.e., the dorsocentral vitta posteriorly ending in a sharpened point before the posterior dorsocentral seta, the brown semicircular marking on the scutellum extending beyond the level of the anterior scutellar setae, and in the more stout conformation of the phallus.

***Eurystratiomyia erwini*, sp. nov.** (Figs. 2C, 6B, 8B, 10B, 13C, 14A–B, 18A–D; Map 2)

Etymology. Named for Terry L. Erwin, the Smithsonian coleopterist whose extensive canopy fogging efforts in Ecuador resulted in all currently known specimens of this and other eurychoromyiine genera, and provided the critical taxa for figuring out the enigmatic relationships of *Eurychoromyia*.

Diagnosis. This species (Fig. 2C) can be differentiated from its congener by the following characteristics. The silvery gray dorsocentral vittae on the scutum extend beyond the posterior dorsocentral setae almost to the posterior edge of the scutum, and do not taper posteriorly. The scutellum is pale yellow, with only a small basomedial mark which does not even extend halfway to the level of the anterior scutellar setal pair. The phallus is >4 X longer than wide at the widest point.

Adult, ♂, ♀. Body length 5.0–5.6 mm in ♂, 4.8–5.7 mm in ♀.

Head (Figs. 6B, 8B, 10B). 1.2–1.4 X higher than long, 1.4–1.6 X wider than high, 1.2–1.3 X wider than scutum; parallelogram-shaped in lateral view; eye 1.2–1.4 X longer than high; subgena and gena broad, together 0.9 X eye height. Vertex brown pruinose; strongly concave from dorsal view, rounded to slightly sharpened medially; inner and outer vertical setae subequal, short (~0.3 mm), widely spread, with distance between them subequal to distance from inner vertical seta to central vertex. Ocellar triangle brown pruinose; small, strongly raised, placed well anterior of vertex; ocelli in small equilateral triangle, with anterior ocellus slightly smaller than posterior. Ocellar setae small (1/2 length of vertical seta), fine, hair-like; proclinate and diverging. Postocellar setae present, small (subequal to ocellar seta, but thicker), cruciate. Postocular area brown pruinose, with few scattered small postocular setulae. Frons pale, gray and brown pruinose, in distinct pattern (brown medially surrounded by pale white; brown spot at base of fronto-orbital seta surrounded by goldish); 2.5–2.7 X wider than long at level above lunule; sides parallel; frons slightly depressed with upper edge of lunule bulging slightly forward, with fronto-orbital plate separated from frontal vitta by black line; at nearly 90° angle to facial plane; with single reduced (subequal to postocellar seta) reclinate fronto-orbital seta on upper part of fronto-orbital area (directly lateral of ocellar triangle); anterior part of fronto-orbital plate shiny brown, lacking pruinescence; with black velvety orbito-antennal spot. Lunule straight. Antenna brown, except basal 1/3 lighter and arista pale yellow to white; antennal bases widely separated, distance 2 X antennal socket width; transverse bump-like facial carina present between bases at very top of lunule, bulging beyond anterior edge of frons, otherwise flat; antenna long, about 2 X head length; scape length slightly less than 1st flagellomere length; pedicel length 3/4 of scape length; 1st flagellomere long, 4.0–4.6 X longer than high, with rounded apex; arista pubescent, long, 1.3–1.4 X longer than 1st flagellomere. Face slightly bulging, visible in profile; broad from frontal view, ventral edge 0.6–0.7 X width of frons at level above lunule; goldish pruinose, with distinct markings (small mark below each antennal base silvery white pruinose, otherwise upper face mostly brown (except paired goldish spots), and lower face with distinct brown “W” shaped mark centrally); lacking antennal grooves; ptilinal suture straight, at 45° from lunule. Parafacial broad (about 1/2 width of face); pale goldish pruinose, with small dark brown pruinose mark below orbito-antennal spot; with thin erect setulae on lower half. Gena with dark brown pruinose mark below eye, becoming yellowish posteriorly to postgena; gena and postgena with pruinescence in distinct longitudinal rows and furrows (as in Fig. 6A, inset); with few thin erect setulae. Subgena enlarged, bulbous and conspicuous, 0.6–0.7 X height of gena; mostly shiny brown. Clypeus bulbous, dark brown with light covering of pale scale-like hairs. Maxillary palpus small, dark brown, slender, slightly clavate; with few small setulae and distal setae. Prementum large, yellowish. Labellum large.

Thorax (Fig. 10B). Scutum slightly arched, slightly longer than wide; scutellum thick, flattened to slightly depressed medially, with width at base 1.7–2 X greater than length; scutum brown pruinose, except for silvery gray dorsocentral vittae extending beyond posterior dorsocentral seta almost to posterior edge, along lateral portion of scutum pale yellow, and postpronotal lobe pale yellow; scutellum pale yellow except small brown area basomedially. Pleural region mostly yellowish to silvery gray pruinose, except dark brown (lacking pruinescence) on upper and lower part of anepisternum. Prosternum broad, lacking setulae. Chaetotaxy (all setae small, mostly 0.2–0.3 mm, except posterior dorsocentral and posterior scutellar 0.4–0.5 mm): 0+2 dorsocentral setae, with anterior seta 1/3 length of posterior seta, both in posterior 1/3 of scutum; prescutellar across-

tichal seta absent; 1 fine small (<0.2 mm) postpronotal seta; 2 notopleural setae, in anterior and posterior corners; intra-alar and supra-alar setae absent; 1 postalar seta; 2 rows of tiny fine acrostichal setulae between dorsocentral setal rows, 1 row of tiny fine setulae in front of anterior dorsocentral seta, and sparse tiny fine setulae outside dorsocentral row; proepisternal seta absent; 1 long (0.2–0.3 mm) fine anepisternal seta along posterior edge of anepisternum, anepisternum otherwise with short (0.05–0.10 mm) fine setulae centrally; anepimeron bare; 1 short (<0.3 mm) fine katapisternal seta, katapisternum otherwise with 1 to few smaller fine setulae anterior of seta, and with several setulae ventrally near midline; 2 pairs scutellar setae, anterior one 3/5 length of posterior one. *Legs*. Brown, except yellow on basal 3/4 of fore femur, tarsomere 1 of fore tarsus, basal 3/4 or entire mid tibia, tarsomeres 1–3 of mid tarsus, and tarsomeres 1–3 of hind tarsus. Fore femur with posterodorsal and posteroventral rows of setae, in addition to scattered setulae; ctenidium absent. Fore tibia slightly sharpened dorsally; apically with ventromedial comb of thickened goldish setulae; preapical dorsal seta strong; with 1 ventral spur. Fore tarsus long, slightly longer than tibia. Mid femur with fine setulae. Mid tibia cylindrical; with fine setulae; preapical dorsal seta strong; with 1 strong spur. Hind femur with preapical dorsal seta; with fine setulae. Hind tibia laterally flattened and slightly expanded; with fine setulae; apically with ventromedial comb of thickened goldish setulae; preapical dorsal seta absent. *Wing* (Fig. 13C). Length 4.7–5.5 mm in ♂, 4.6–5.2 mm in ♀; 3.1–3.4 X longer than high. Hyaline, slightly infuscated anteriorly; sapromyziform. Discal medial cell 2.1–2.3 mm long in ♂, 2.0–2.2 mm in ♀; 4.7–5.1 X longer than crossvein dm-cu. Crossvein r-m located just beyond midpoint of discal medial cell. Crossvein dm-cu straight to slightly curved. Vein R₄₊₅ ending at wing tip, subparallel with vein M₁. Vein A₁ long, nearly reaching wing margin. Anal lobe lacking signs of vein A₂. Halter yellow.

Abdomen. Tapering gradually after segment 3. Tergites with tiny inconspicuous setulae, except syntergite 1+2 with conspicuous erect setulae; broad, wrapping around laterally to ventral position; syntergite 1+2 and tergites 3–4 brown pruinose dorsally, gray pruinose laterally; tergite 5–6 gray pruinose except brown medial stripe and along posterolateral edge. In ♂, tergite 6 large, as long as preceding tergite. Sternites pale yellowish; with sparse fine setae (except sternite 1), slightly longer posterolaterally. In ♂, sternite 1 2.3 X wider than long, invaginated along anterior margin, sternite 2 1.6 X wider than long, sternites 3–5 as long as wide, sternite 6 a membranous transverse strip. In ♀, sternites 3–6 as long as wide, with sternite 6 slightly larger than preceding sternites.

Male genitalia (Fig. 18A–D). Syntergosternite 7+8 simple, transversely saddle-shaped, longest medially (1/2 medial length of tergite 6) and tapering laterally; brown dorsally, grayish laterally. Epandrium simple; setose, most dense directly above surstylus. Surstylus articulated with epandrium; long and thin (lacking dorsobasal extension); becoming spatulate distally, abruptly curving medioventrally at tip; densely setose dorsally and laterally, except distally and basally lacking setae. Bacilliform sclerite strong, extending from inner basal part of surstylus and forming an anteriorly directed arc, with lateral wings anteriorly. Cercus simple, rounded, setose. Phallus broad, 4.3 X longer than wide; with sclerotized edges and membranous area medially; anterior end with edges tapering evenly and extending into short anteromedial extension; at 1/4 distance from base, lateral edges with dorsal spur articulating with postgonite; at 1/4 distance from tip, lateral edges pinched inward, sclerotized edge with ventral spur, and dorsal surface with median spur; with large, anteriorly-oriented hooks extending over gonopore. Hypandrium with anterior edge straight, lateral edges pinched inwards and slightly tapering anteriorly; posterior edge with large tapering process extended over phallus as hood; maximum width slightly greater than maximum length; bare. Postgonite small, thin, ribbon-like, curved dorsally from hypandrium to articulate with anterior-most dorsal spur of phallus. Ejaculatory apodeme simple, small, thin.

Female terminalia (Fig. 14A). Syntergosternite 7 forming a complete ring, with spiracle embedded laterally. Tergite 8 broader than long, with anterolateral corners extending and wrapping around abdomen to near lateral edge of hypoproct; with few longer setae posterolaterally. Sternite 8 2 X broader than long; semicircular, with posterior part rounded; entirely sclerotized; with dense fine setae; anterior corners extended into thin processes curving around to contact extensions of tergite 8. Hypoproct simple, semicircular, setulose with

short hair-like setae posteriorly; with pair of thin longitudinal sclerotizations on ventral surface acting as an egg guide with sternite 8; epiproct not evident; cercus simple, papillate, setulose. Spermathecae (Fig. 14B) with configuration 2+2; each spermathecae round, 0.12 mm diameter, entirely smooth, closely linked at bifurcation.

Immatures. Unknown.

Type material. Holotype ♂ (glued to paper point; excellent condition; Fig. 2C), deposited in USNM with the following labels: 1) "ECUADOR: Depto. Orellana, Reserva / Etnica Waorani, 1 km S. Onkone Gare / Camp, Transect Ent., 6 OCT 1994, / 00°39'26"S, 076°27'11"W, 220m, / T.L. Erwin et al., Trans. 10, Sta. 6 / Fogging in terra firme forest Lot 885"; 2) "HOLOTYPUS ♂ / *Eurystratiomyia* / *erwini* / Gaimari & Silva" (red label). Paratypes: **ECUADOR. Orellana Province.** Reserva Etnica Waorani, 1 km S. Onkone Gare Camp, Transect Ent., 220 m, 00°39'26"S 076°27'11"W (T.L. Erwin et al.), fogging in terra firme forest, 21.vi.1994, Transect 7, Station 8, Lot 697 [1 ♀ (USNM)], 4.x.1994, Transect 2, Station 1, Lot 860 [1 ♂ (USNM)], 6.x.1994, Transect 10, Station 6, Lot 885 (same data as holotype) [2 ♀ (USNM)], 10.x.1994, Transect 3, Station 8, Lot 937 [3 ♂ (including SDG dissection 1298), 3 ♀ (including SDG dissection 1299) (USNM); 2 ♂, 2 ♀ (CSCA); 1 ♂, 1 ♀ (EMUS)], 10.x.1994, Transect 4, Station 2, Lot 941 [1 ♂ (USNM), SDG dissection 1367], 1.vii.1995, Transect 2, Station 2, Lot 1142 [1 ♀ (USNM)], 1.vii.1995, Transect 3, Station 8, Lot 1158 [1 ♂ (USNM)], 8.vii.1995, Transect 10, Station 7, Lot 1127 [1 ♂ (USNM)], 2.x.1996, Transect 6, Station 6, Lot 1716 [1 ♀ (USNM)]; Reserva Etnica Waorani, Onkone Gare Camp, Transect Ent. at Rio Piraña Bridge, 216.3 m, 00°39'25.7"S 076°27'10.8"W (T.L. Erwin, M.C. Pimienta, et al.), fogging in terra firme forest, 18.x.2005, Transect 2, Station 9, Lot 3018 [1 ♀ (CSCA-FTC)].

Distribution (Map 2). Known only from Ecuador (Orellana Province).

Biology. Known only from the rainforest canopy, so adults likely oviposit in places where decaying vegetation accumulates in the canopy, e.g., in the crotches of major limbs to axils of branches. One particular sample (Lot 937, 10 October 1994) had 6 ♂ and 6 ♀, indicating that there is likely mating or courtship occurring in the canopy. Adults are fungal grazers, as confirmed by the presence of fungal spores in gut contents.

Remarks. Although specimens of both this species and its congener were largely collected in the same places, and are very similar, there were several characteristics that were consistent through relatively large series, i.e., the dorsocentral vitta extended posteriorly through the scutum without tapering, the brown marking on the scutellum being only a small basal mark, and in the more elongated conformation of the phallus.

***Physegeniopsis*, gen. nov.**

Type species. *Physegeniopsis ankhoidea*, sp. nov., by present designation.

Etymology. From *Physegenua*, a genus of Lauxaniidae + the Greek suffix *-opsis*, meaning like, having the appearance of; referring to its superficial likeness to *Physegenua*; feminine.

Diagnosis. This genus can be differentiated from other eurychoromyiines by the following characteristics. The setae of the head are normal-sized (i.e., for lauxaniids), with none reduced or absent, including strong inner and outer verticals, strong proclinate and diverging ocellars (except one species has tiny ocellars), strong cruciate postocellars, and 2 pairs of strong reclinate fronto-orbitals. The orbito-antennal spot is small or large, black pruinose. The eye is longer than high, with the gena and subgena together being slightly shorter to subequal to eye height. The subgena is large, bulging and conspicuous, and is slightly shorter than the gena. The face has large, paired, black pruinose spots ventrally. The area intersecting the lower parafacial and gena has a large pruinose black spot. The scutum is brown pruinose, with wide silvery gray dorsocentral vittae. The pleuron has a small black spot at the intersection of the lower anepisternum and upper katapisternum. The scutal chaetotaxy is strong (typical of lauxaniids), with the following being noteworthy: 0+3 dorsocentral setae, prescutellar acrostichal seta is present and strong. The fore tarsus is remarkably long, at 2 X (or slightly less) the length of the tibia. The anterior surface is slightly sharpened on the fore tibia, either cylindrical or slightly sharpened on the mid tibia, and slightly sharpened and expanded on the hind tibia; and each possesses a strong preapical dorsal seta.

Distribution. Bolivia, Brazil, Costa Rica, Ecuador.

Remarks. Like *Euryhendelimyia* and *Tauridion*, the chaetotaxy of the head and thorax is mostly normalized (i.e., strong). Species of this genus also share the presence of prescutellar acrostichal setae with these genera. Two of the species of this genus, and *Euryhendelimyia*, have strong ocellar setae. Like *Euryhendelimyia* and *Tauridion*, members of this genus have two fronto-orbital seta (although the anterior seta is diminutive in *Tauridion*), also sharing the condition of having 0+3 dorsocentral setae with these genera and *Choryeuromyia*. Unlike any other eurychoromyiines, the species of this genus have paired velvety black spots on the lower face, and the fore tarsus is very long, approaching or exceeding 2 X the length of the fore tibia (Fig. 3). The tibiae of species in this genus are at most sharpened on the anterior surface.

An additional undescribed species is known from Brazil (Minas Gerais. Sapucaí-mirim, Cidade Azul, 1400 m (L.Trav.F. & M. Kuhlmann, C. Ganz, S. Medeiros), 7.xi.1953 [3 ♀ (MZSP)]), but it is not described here because it is known only from 3 females in poor condition.

***Physegeniopsis albedo*, sp. nov.** (Figs. 3A, 6C, 8C, 11A, 15D, 19; Map 4)

Etymology. Named for the three children of the first author, Alex (“*al-*”), Becky (“*-be-*”), and Tony (“*-to*”).

Diagnosis. This species (Fig. 3A) can be differentiated from its congeners by the following characteristics. The frons is distinctly bicolored, with yellow fronto-orbital plates and an anteriorly tapering, brown pruinose frontal vitta. The ocellar setae are tiny, and hardly distinguishable from the surrounding ocellar setulae. The distance between antennal bases is about the same the width of one antennal socket. The face is diffuse brown, but sometimes has a paler boarder around the paired ventral spots. The orbito-antennal spot is small, much smaller than the genal spot. The brown coloration in the median part of the scutum is parallel sided and extends through the scutellum.

Adult, ♂, ♀. Body length 4.8–5.5 mm in ♂, 4.5–5.6 mm in ♀.

Head (Figs. 6C, 8C, 11A). 1.6–1.7 X higher than long, 1.1–1.2 X wider than high, 1.1–1.2 X wider than scutum; parallelogram-shaped in lateral view; eye 1.3–1.5 X longer than high; subgena and gena broad, together 0.8 X eye height. Vertex yellowish pruinose laterally, brown medially; strongly concave from dorsal view, rounded to slightly sharpened medially; inner vertical setae long (~0.7 mm), 2 X longer than outer, with distance between them about 1/2 that from inner vertical seta to central vertex. Ocellar triangle brown pruinose; small, slightly raised, placed well anterior of vertex; ocelli in small isosceles triangle, with anterior ocellus slightly larger than posterior. Ocellar setae tiny (not distinguishable from other ocellar setulae). Postocellar setae present, cruciate, subequal to outer vertical seta. Postocular area pale yellow to whitish pruinose, with row of postocular setulae. Frons silvery gray pruinose, except for wide dark brown pruinose frontal vitta tapering to lunule, and broadly yellow along eye margin; nearly 1.2–1.4 X wider than long at level above lunule; sides subparallel; frons flat; curving evenly into facial plane; with two strong reclinate fronto-orbital setae, anterior seta 0.6 X length of posterior seta; frons setulose anteriorly with middle-most setulae proclinate and convergent; with small dark brown pruinose orbito-antennal spot. Lunule straight. Antenna yellowish brown, except 2nd arisal segment black; antennal bases widely separated, distance slightly greater than antennal socket width; flat, no facial carina evident, scape slightly exposed, slightly shorter than pedicel; 1st flagellomere short, 1.4–1.7 X longer than high, with rounded apex; arista pubescent, long, 2.9–3.1 X longer than 1st flagellomere. Face distinctly bulging, visible in profile; broad from frontal view, ventral edge 0.7–0.9 X width of frons at level of lunule; with large paired black pruinose spots ventrally, otherwise diffuse brown, sometimes with paler boarder around paired spots; with antennal grooves; ptilinial suture straight, at 45° from lunule. Parafacial broad; pale yellowish pruinose, with large dark brown pruinose mark below orbito-antennal spot extending onto gena; with thin erect setulae on lower half. Gena pale yellow pruinose (except for part of parafacial mark extending below eye), postgena pale yellow pruinose; with thin erect setulae. Subgena enlarged, bulbous and conspicuous, 0.8 X height of gena; yellow pruinose. Clypeus bulbous, brown pruinose.

Maxillary palpus dark brown, large, knife-like; with few small setulae and strong distal setae. Prementum large, dark brown. Labellum large.

Thorax (Fig. 11A). Scutum slightly arched, slightly longer than wide; scutellum thick, with shallow median depression, with width at base 1.2–1.3 X greater than length; scutum and scutellum brown pruinose, except with wide silvery gray dorsocentral vittae through entire length and extending through scutellum, and pale yellowish laterally and at distal tip of scutellum. Pleural region yellowish gray pruinose, except black spot on lower anepisternum and upper katepisternum. Prosternum broad, lacking setulae. Chaetotaxy (all setae strong, >0.5 mm, except postpronotal, posterior notopleural, and katepisternal closer to 0.4 mm, and presutural supra-alar seta 0.2 mm): 0+3 dorsocentral setae, with anterior seta near suture and 2/3 length of posterior seta, middle seta at midpoint in position and size between them; prescutellar acrostichal seta present; 1 postpronotal seta; 2 notopleural setae, in anterior and posterior corners; 1 intra-alar seta; 1 pre- and 1 postsutural supra-alar setae; 1 postalar seta; 2 rows of fine acrostichal setulae between dorsocentral setal rows, row of setulae along dorsocentral area, and setulose outside dorsocentral row; proepisternal seta present; anepisternal seta along posterior edge of anepisternum, anepisternum otherwise with fine setulae centrally; anepimeron bare; 1 katepisternal seta present, katepisternum otherwise with several smaller fine setulae anterior of seta, and with several setulae ventrally near midline; 2 pairs scutellar setae, anterior one slightly shorter than posterior. *Legs*. Dark brown, except pale white in middle 1/3 to 1/2 of fore tibia, basal 3/4 to 4/5 of mid and hind tibiae, and tarsomere 1 of mid and hind tarsi. Fore femur with posterodorsal and posteroventral rows of setae, in addition to scattered setulae; ctenidium absent. Fore tibia slightly sharpened dorsally; apically with ventromedial comb of thickened brown setulae; preapical dorsal seta strong; with 1 ventral spur. Fore tarsus long, 2 X length of tibia. Mid femur with fine setulae. Mid tibia cylindrical; with fine setulae; preapical dorsal seta strong; with 1 strong spur. Hind femur with preapical dorsal seta; with fine setulae. Hind tibia slightly sharpened and expanded dorsally; with fine setulae; apically with ventromedial comb of thickened brownish setulae; preapical dorsal seta strong. *Wing*. Length 4.7–4.9 mm in ♂, 4.7–5.0 mm in ♀; 3.0–3.3 X longer than high. Hyaline, infuscated anteriorly; sapromyziform. Discal medial cell 1.9–2.1 mm long in ♂ and ♀; 4.4–5.1 X longer than crossvein dm-cu. Crossvein r-m located at midpoint of discal medial cell. Crossvein dm-cu straight. Vein R₄₊₅ ending at wing tip, subparallel with vein M₁. Vein A₁ long, nearly reaching wing margin. Anal lobe with vein A₂ present as crease. Halter yellow.

Abdomen. Tapering gradually after segment 3. Tergites brown pruinose from dorsal view, laterally grayish to grayish yellow pruinose in distinct even longitudinal stripe from syntergite 1+2 through tergite 6; setose, strongest laterally and along posterior edges of tergites; broad, wrapping around laterally to ventral position. In ♂, tergite 6 large, as long as preceding tergite. Sternites pale grayish; with sparse fine setae (except sternite 1), slightly longer posterolaterally. In ♂, sternites 1–2 slightly wider than long, sternites 3–5 slightly longer than wide, sternite 6 a membranous transverse strip. In ♀, sternites 3–6 as long as wide, with sternite 6 slightly larger than preceding sternites.

Male genitalia (Fig. 19). Syntergosternite 7+8 simple, transversely saddle-shaped, longest medially (3/5 medial length of tergite 6) and tapering laterally. Epandrium simple; setose, most dense directly above surstylus. Surstylus articulated with epandrium; bulging and thick only in basal 1/3, extending into tapering, thorn-like tip, curved medioventrally at sharp tip; setose, especially anterodorsally and along lateral part, bare at tip. Bacilliform sclerite strong, extending from inner basal part of surstylus and forming a thin anteriorly directed arc. Cercus simple, rounded, setose. Phallus broad; with sclerotized edges and membranous area medially; anteriorly tapering into anteromedial extension; flattened from lateral view; at 1/3 distance from base, with dorsal extension articulating with postgonite; medially with dorsal ridge; sclerotized edge with ventral spur 1/3 distance from tip just below tips of large, anteriorly-oriented hooks extending over gonopore; posterior edge thick and bilobed distally. Hypandrium a thin transverse strip; curved; bare. Postgonite small, thin, ribbon-like, curved dorsally from hypandrium to articulate with anterior-most dorsal extension of phallus. Ejaculatory apodeme moderately large; narrow with high medial ridge dorsoventrally.

Female terminalia. Syntergosternite 7 forming a complete ring, with spiracle embedded laterally. Tergite 8 broader than long, wrapping around abdomen to lateral edge of hypoproct; with pair of longer setae postero-laterally. Sternite 8 1.5 X broader than long; semicircular, with posterior part rounded; entirely sclerotized; with dense fine setae. Hypoproct simple, semicircular, setulose with short hair-like setae posteriorly; epiproct not evident; cercus simple, papillate, setulose. Spermathecae with configuration 2+2, with one pair fused; for separated pair each spermathecae oval, 0.12 mm long, 0.09 mm wide, for fused pair, 0.22 mm by 0.09 mm, with halves at slight angle to each other; surface rough; separated pair closely linked at bifurcation.

Immatures. Egg stage. Approximately 50 eggs were present in the relatively full abdomen. Fully mature eggs with length 0.72–0.80 mm, maximum width 0.20–0.23 mm; tapering anteriorly and posteriorly; anterior pole with large, distinct tubercle, with series of pores over surface; posterior pole with small tubercle; dorsal surface with series of 4 strongly flanged longitudinal ridges (Fig. 15D) with extensive pattern of transverse ribs between, and lateral surface with additional 2 finer longitudinal ridges closer together with fine transverse ribs between ridges; ventral surface nondescript, slightly flattened; subcylindrical in cross section, except for dorsal flanges.

Type material. Holotype ♂ (glue to paper point; excellent condition; Fig. 3A), deposited in INBC with the following labels: 1) “Est. Pitilla, 700m, 9km S / Sta. Cecilia, P.N. Guana- / caste, Prov. Guan. COSTA / RICA. C.Moraga, Jun 1991 / L-N-330200,380200”; 2) left side—“COSTA RICA / (barcode)”, right side—INBIO / CRI000 / 700266”; 3) “HOLOTYPUS ♂ / *Physegeniopsis* / *albeto* / Gaimari & Silva” (red label). Paratypes: **COSTA RICA. Alajuela Province.** 20 km S Upala (F.D. Parker), 11–15.v.1990 [1 ♀ (EMUS)], vi.1990 [1 ♀ (EMUS), 1 ♀ (USNM)], vii.1990 [1 ♂ (EMUS)], 29.vii.1990 [1 ♀ (USNM)], 14–17.ix.1990 [1 ♂ (EMUS)], 17.ix.1990 [1 ♀ (USNM)], 6.xi.1990 [1 ♂ (USNM), SDG dissection 1306], 6.i.1991 [1 ♀ (EMUS)], 21–30.iv.1991 [1 ♀ (CSCA)], 22–31.v.1991 [1 ♀ (EMUS)], 11–20.vii.1991 [1 ♀ (EMUS)], 16–24.vii.1991 [1 ♂ (CSCA)]. Parque Nacional Volcán Tenorio, Río Roble—3 cataratas, 900–1000 m (J.A. Azofeifa), 30.vi.2006, light trap, L_N_296900_426100, #86654, INB0004023162 [1 ♀ (INBC)]; Sector El Pilón, El Mirador, 800 m (J. Azofeifa), 18.vi.2004, light trap, L_N_297800_426100, #77286, INB0003851511 [1 ♂ (INBC)]. **Guanacaste Province.** Estación Pitilla, 9 km S Santa Cecilia, Parque Nacional Guanacaste, 700 m (C. Moraga), v.1991, L-N-330200,380200, INBIO CRI 000 450827 [1 ♂ (USNM)], 10–17.vi.1992, L-N 330200, 380200, INBIO CRI 000 819029 [1 ♀ (INBC)], 19–23.vi.1993, L N 330200_380200, #2897, INBIO CRI 001 869990 [1 ♂ (USNM), SDG dissection 1249], 6–17.ix.1993, L N 330200_380200, #2344, INBIO CRI 001 614819 [1 ♀ (INBC)], 614818 [1 ♀ (INBC)], 614836 [1 ♀ (USNM), SDG dissection 1248]. Estación Pitilla, 9 km S Santa Cecilia, Parque Nacional Guanacaste, 700 m (P. Ríos), 3–18.x.1991, L-N-330200, 380200, INBIO CRI 000 402577 [1 ♀ (USNM)], 6–28.i.1992, L-N-330200, 380200, INBIO CRI 000 553187 [1 ♀ (INBC)], 6–19.ix.1993, L N 330200_380200, #2345, INBIO CRI 001 614314 [1 ♀ (CSCA)], 614322 [1 ♀ (CSCA)], 9–20.i.1994, L N 330200_380200, #2561, INBIO CRI 001 844321 [1 ♂ (INBC)], 844197 [1 ♀ (CSCA)], v.1994, L N 330200_380200, #2895, INBIO CRI 001 877443 [1 ♀ (INBC)], vi.1994, L N 330200_380200, #2996, INBIO CRI 001 883928 [1 ♀ USNM)], vii.1994, L N 330200_380200, #3140, INBIO CRI 002 049452 [1 ♀ (USNM)], ix.1994, L N 330200_380200, #3206, INBIO CRI 002 005581 [1 ♀ (USNM), SDG dissection 1307], xi.1994, L N 330200_380200, #3295, INBIO CRI 002 110299 [1 ♀ (USNM)], xii.1994, L N 329950_380450, #4372, INBIO CRI 002 136868 [1 ♀ (INBC)], 136869 [1 ♀ (USNM)], i.1995, L_N_329950_380450, #4358, INBIO CRI 002 214325 [1 ♀ (USNM)], iv.1995, L_N_329950_380450, #4814, INBIO CRI 002 336151 [1 ♀ (INBC)], 336152 [1 ♀ (USNM)], 336184 [1 ♂ (INBC)]; Macizio Miravalles, Estación Cabro Muco, 1100 m (B. Hernández), 2.iv.2003, mercury vapor light, L N 299769 411243, #73578, INB0003710079 [1 ♀ (INBC)], INB0003710080 [1 ♀ (INBC)], (M.A. Zumbado), 28.iii-3.iv.2003, mercury vapor light, L N 299769 411243, #73960, INB0003720713 [1 ♀ (INBC)], INB0003720512 [1 ♀ (USNM)]. **Puntarenas Province.** Buen Amigo, San Luis Monteverde, A.C. Arenal, 1000–1350 m (Z. Fuentes), v.1994, L N 250850-449250, #2926, INBIO CRI001 893910 [1 ♀ (INBC)].

Distribution (Map 4). Known only from Costa Rica (Alajuela, Guanacaste and Puntarenas Provinces).

Biology. Adults are fungal grazers, as confirmed by the presence of fungal spores in gut contents. Larval biology unknown.

Remarks. Along with *Physegeniopsis ankhoidea*, this species has a distinct dark brown frontal vitta laterally flanked by a yellow fronto-orbital plate, and the face does not have any shiny brown areas. Unlike its congeners, the brown pruinose markings on the face in this species are diffuse, the orbito-antennal spot is small, and the ocellar setae are diminutive.

***Physegeniopsis ankhoidea*, sp. nov.** (Figs. 3B, 6D, 8D, 11B, 13D, 20; Map 5)

Etymology. From Egyptian, *ankh*, meaning life, but referring to the shape of the Egyptian symbol of the same name (also called the *crux ansata*) + the suffix *-oidea*, meaning like; referring to the ankh-shaped brown pattern on the face; a feminine adjective.

Diagnosis. This species (Fig. 3B) can be differentiated from its congeners by the following characteristics. The frons is distinctly bicolored, with yellow fronto-orbital plates and a thin, anteriorly tapering, brown pruinose frontal vitta. The ocellar setae are distinct, proclinate and diverging. The distance between antennal bases is about the same the width of one antennal socket. The face is yellow, with a distinct, central, ankh-shaped brown mark, which includes a wide, pale boarder around the paired ventral spots. The orbito-antennal spot is large, subequal to the genal spot. The brown coloration in the median part of the scutum is parallel sided and extends through the scutellum.

Adult, ♂, ♀. Body length 3.5–4.8 mm in ♂, 3.8–5.2 mm in ♀.

Head (Figs. 6D, 8D, 11B). 1.7–1.8 X higher than long, 1.1–1.2 X wider than high, 1.2–1.4 X wider than scutum; parallelogram-shaped in lateral view; eye 1.3–1.4 X longer than high; subgena and gena broad, together 0.8–0.9 X eye height. Vertex yellowish pruinose laterally, brown medially; strongly concave from dorsal view, rounded to slightly sharpened medially; inner vertical setae long (~0.7 mm), 2 X longer than outer, with distance between them about 1/2 that from inner vertical seta to central vertex. Ocellar triangle brown pruinose; small, slightly raised, placed well anterior of vertex; ocelli in small isosceles triangle, with anterior ocellus slightly larger than posterior. Ocellar setae slightly smaller than anterior fronto-orbital seta; proclinate and diverging. Postocellar setae present, cruciate, subequal to outer vertical seta. Postocular area pale yellow to whitish pruinose, with row of postocular setulae. Frons silvery gray pruinose, except for dark brown pruinose frontal vitta tapering to lunule, and yellow along eye margin; nearly 1.4–1.7 X wider than long at level above lunule; sides subparallel; frons flat; curving evenly into facial plane; with two strong reclinate fronto-orbital setae, anterior seta 0.6 X length of posterior seta; frons setulose anteriorly with middlemost setulae proclinate and convergent; with small dark brown pruinose orbito-antennal spot. Lunule straight. Antenna yellowish brown, except 2nd aristal segment black; antennal bases widely separated, distance slightly greater than antennal socket width; flat, no facial carina evident, scape slightly exposed, slightly shorter than pedicel; 1st flagellomere short, 1.5–1.6 X longer than high, with rounded apex; arista pubescent, long, 3.0–3.4 X longer than 1st flagellomere. Face distinctly bulging, visible in profile; broad from frontal view, ventral edge 0.7–0.8 X width of frons at level of lunule; with large paired black pruinose spots ventrally, with central ankh-shaped brown pruinose mark, otherwise pale yellowish; with antennal grooves; ptilinal suture straight, at 45° from lunule. Parafacial broad; pale yellowish pruinose, with large dark brown pruinose mark below orbito-antennal spot extending onto gena; with thin erect setulae on lower half. Gena pale yellow pruinose (except for part of parafacial mark extending below eye), postgena pale yellow pruinose; with thin erect setulae. Subgena enlarged, bulbous and conspicuous, 0.7–0.8 X height of gena; yellow pruinose. Clypeus bulbous, brown pruinose. Maxillary palpus dark brown, slender, slightly clavate; with few small setulae and distal setae. Prementum large, yellowish. Labellum large.

Thorax (Fig. 11B). Scutum slightly arched, slightly longer than wide; scutellum thick, with shallow median depression, with width at base 1.2–1.4 X greater than length; scutum and scutellum brown pruinose, except with wide silvery gray dorsocentral vittae through entire length and extending through scutellum, and pale yellowish laterally and along outer edge of scutellum. Pleural region yellowish gray pruinose, except black spot on lower anepisternum and upper katepisternum. Prosternum broad, lacking setulae. Chaetotaxy (all setae strong, >0.5 mm, except postpronotal, posterior notopleural, and katepisternal closer to 0.4 mm, and

presutural supra-alar seta 0.2 mm): 0+3 dorsocentral setae, with anterior seta near suture and 2/3 length of posterior seta, middle seta at midpoint in position and size between them; prescutellar acrostichal seta present; 1 postpronotal seta; 2 notopleural setae, in anterior and posterior corners; 1 intra-alar seta; 1 pre- and 1 postsutural supra-alar setae; 1 postalar seta; 4 rows of fine acrostichal setulae between dorsocentral setal rows, row of setulae along dorsocentral area, and setulose outside dorsocentral row; proepisternal seta present; anepisternal seta along posterior edge of anepisternum, anepisternum otherwise with fine setulae centrally; anepimeron bare; 1 katepisternal seta present, katepisternum otherwise with several smaller fine setulae anterior of seta, and with several setulae ventrally near midline; 2 pairs scutellar setae, anterior one slightly shorter than posterior. *Legs*. Dark brown, except pale white in middle 1/2 of fore tibia, basal 3/4 to 4/5 of mid and hind tibiae, and tarsomere 1 of mid and hind tarsi. Fore femur with posterodorsal and posteroventral rows of setae, in addition to scattered setulae; ctenidium absent. Fore tibia slightly sharpened dorsally; apically with ventromedial comb of thickened brown setulae; preapical dorsal seta strong; with 1 ventral spur. Fore tarsus long, 2 X length of tibia (Fig. 3B). Mid femur with fine setulae. Mid tibia cylindrical; with fine setulae; preapical dorsal seta strong; with 1 strong spur. Hind femur with preapical dorsal seta; with fine setulae. Hind tibia slightly sharpened and expanded dorsally; with fine setulae; apically with ventromedial comb of thickened brownish setulae; preapical dorsal seta strong. *Wing* (Fig. 13D). Length 4.2–4.7 mm in ♂, 4.2–4.8 mm in ♀; 3.0–3.4 X longer than high. Hyaline, infuscated anteriorly; sapromyziform. Discal medial cell 1.6–1.9 mm long in ♂, 1.7–1.9 mm in ♀; 4.6–5.2 X longer than crossvein dm-cu. Crossvein r-m located at midpoint of discal medial cell. Crossvein dm-cu straight. Vein R₄₊₅ ending at wing tip, subparallel with vein M₁. Vein A₁ long, nearly reaching wing margin. Anal lobe with vein A₂ present as crease. Halter yellow.

Abdomen. Tapering gradually after segment 3. Tergites brown pruinose, except yellowish on lateral part of syntergite 1+2 and grayish pruinose on lateral part of tergite 3 and posterolateral part of tergite 3–5; setose, strongest laterally and along posterior edges of tergites; broad, wrapping around laterally to ventral position. In ♂, tergite 6 large, as long as preceding tergite. Sternites pale yellowish; with sparse fine setae (except sternite 1), slightly longer posterolaterally. In ♂, sternites 1–2 slightly wider than long, sternites 3–5 slightly longer than wide, sternite 6 a membranous transverse strip with small cluster of tiny setulae medially. In ♀, sternites 3–6 as long as wide, with sternite 6 slightly larger than preceding sternites.

Male genitalia (Fig. 20). Syntergosternite 7+8 simple, transversely saddle-shaped, longest medially (3/5 medial length of tergite 6) and tapering laterally. Epandrium simple; setose, most dense directly above surstylus. Surstylus articulated with epandrium; distinctly bulging and thick anterodorsally, extending into tapering, incurved tip; densely setose on anterodorsal bulge, and with few fine setae ventrolaterally; sharpened tip bare. Bacilliform sclerite strong, extending from inner basal part of surstylus and forming a short, anteriorly directed arc, with lateral wings anteriorly. Cercus simple, rounded, setose. Phallus broad; with sclerotized edges and membranous area medially; anterolateral edges tapering into anteromedial extension; at 2/5 distance from base, lateral edge with small spur articulating with postgonite, and with ventromedial extension; sclerotized edge with ventrolateral spur 1/5 distance from tip just below tips of large, anteriorly-oriented hooks extending over gonopore; posteriorly with bilobed sclerotized hood over distal tip. Hypandrium a thin transverse strip; bilobed, with lobes directed posteriorly; 4 X wider than length of lobe; bare. Postgonite small, thin, ribbon-like, curved dorsally from hypandrium to articulate with anterior-most lateral spur of phallus. Ejaculatory apodeme moderately large; narrow with high medial ridge dorsoventrally.

Female terminalia. Syntergosternite 7 forming a complete ring, with spiracle embedded laterally. Tergite 8 broader than long, wrapping around abdomen to lateral edge of hypoproct; with pair of longer setae posterolaterally. Sternite 8 1.5 X broader than long; semicircular, with posterior part rounded; entirely sclerotized; with dense fine setae. Hypoproct simple, semicircular, setulose with short hair-like setae posteriorly; epiproct not evident; cercus simple, papillate, setulose. Spermathecae with configuration 2+2, with one pair fused; for separated pair each spermathecae oval, 0.12 mm long, 0.09 mm wide, for fused pair, 0.22 mm by 0.09 mm; surface rough; separated pair closely linked at bifurcation.

Immatures. Unknown.

Type material. Holotype ♂ (double mounted on minuten; excellent condition; Fig. 3B), deposited in INBC with the following labels: 1) “Est. Pitilla, 9 km S. Sta. Cecilia, A. C. / Guanacaste, Prov. Guana, COSTA RICA. / 700 m. May 1994, P. Rios, Malaise, L N / 330200_380200 # 2896”; 2) left side—“COSTA RICA / (barcode)”, right side—“INBIO / CRI001 / 878329”; 3) “HOLOTYPUS ♂ / *Physegeniopsis* / *ankhoidea* / Gaimari & Silva” (red label). Paratypes: **COSTA RICA. Alajuela Province.** 20 km S Upala (F.D. Parker), 5–8.v.1990 [2 ♂ (USNM)], 11–15.v.1990 [2 ♂ (including SDG dissection 1308) (USNM)], vi.1990 [1 ♂ (EMUS)], 1–10.vii.1991 [1 ♂ (EMUS)], 7–9.viii.1990 [1 ♀, (USNM)], 16–25.ix.1990 [1 ♂ (EMUS)], 1–5.x.1990 [1 ♀ (USNM)], 1–10.x.1991 [1 ♀ (EMUS)], 13.xi.1990 [1 ♀ (USNM)], 25.xi–13.xii.1990 [1 ♀ (USNM)]. **Guanacaste Province.** 3 km SE Rio Naranjo (F.D. Parker), 15–22.x.1991 [1 ♀ (USNM), SDG dissection 1309], 24–31.x.1991 [1 ♀ (USNM)], 12.xi.1991 [1 ♀ (EMUS)], 14.xi.1991 [1 ♀ (USNM)], iv.1992 [3 ♂, 2 ♀ (USNM)], 20–30.iv.1992 [1 ♀ (USNM)], v.1992 [7 ♂, 1 ♀ (USNM)], 11.v.1992 [1 ♂ (EMUS)], 16–31.v.1992 [1 ♂ (USNM)], 1–5.vi.1992 [1 ♂ (EMUS)], 8–15.vi.1992 [1 ♀ (USNM)], 11–21.vi.1992 [1 ♂ (EMUS)], vii.1992 [1 ♀ (USNM)], 1–10.vii.1992 [1 ♀ (USNM)], 1–10.viii.1992 [1 ♀ (USNM)], 20–31.viii.1992 [1 ♀ (USNM)], 1–10.ix.1992 [1 ♀ (USNM)], 21–30.ix.1992 [1 ♂, 1 ♀ (EMUS)], 11–20.x.1992 [1 ♂ (EMUS)], 15–20.x.1992 [1 ♂ (EMUS)], 1–10.xi.1992 [1 ♂ (EMUS)], 1–15.xi.1992 [1 ♀ (USNM)], 21–28.iii.1993 [1 ♂ (EMUS)], 18–28.iv.1993 [3 ♂, 1 ♀ (USNM); 1 ♂, 1 ♀ (CSCA)], 12–14.v.1993 [3 ♂, 1 ♀ (USNM); 1 ♂ (CSCA)], 17.v.1993 [1 ♂, 1 ♀ (EMUS)], 21.v.1993 [1 ♂, 1 ♀ (EMUS)], 24–26.v.1993 [3 ♂, 2 ♀ (CSCA)], 1–15.vi.1993 [2 ♀ (EMUS)], 2.vi.1993 [1 ♂, 1 ♀ (CSCA)], 8–12.vi.1993 [1 ♂ (CSCA)], 14–16.vi.1993 [2 ♂ (EMUS)], 18–23.vi.1993 [1 ♀ (USNM)], 5–9.vii.1993 [1 ♂, 3 ♀ (EMUS)], 14–15.vii.1993 [1 ♂, 3 ♀ (USNM)], 17–19.vii.1993 [1 ♂, 6 ♀ (USNM); 1 ♀ (CSCA)], 21.vii.1993 [1 ♂, 1 ♀ (EMUS)], 23–27.vii.1993 [3 ♀ (CSCA)], 29–31.vii.1993 [1 ♂, 3 ♀ (EMUS); 1 ♀ (CSCA)], 4–6.viii.1993 [1 ♂, 2 ♀ (EMUS)], 8–12.viii.1993 [5 ♀ (EMUS)], 14–20.viii.1993 [1 ♂, 6 ♀ (CSCA)], 23.viii.1993 [1 ♀ (EMUS)], 24–30.viii.1993 [1 ♂, 1 ♀ (EMUS)], 15.ix.1993 [1 ♀ (EMUS)]; Santa Cruz, Vista del Mar, Torre Cocosna, 970 m (Y. Cardenas), 16.viii–8.ix.2000, Malaise trap, L_N_357490_235340, #58049, INBIO CRI 0003465671 [1 ♀ (INBC)]. **Heredia Province.** Santo Domingo, Santa Rosa, INBioparque, 1100 m (M. Solís), 27.viii.2003, light trap, L_N_217300_526300, #76561, INB0003832012 [1 ♂ (INBC)].

Distribution (Map 5). Known only from Costa Rica (Alajuela, Guanacaste and Heredia Provinces).

Biology. Adults are fungal grazers, as confirmed by the presence of fungal spores in gut contents. Larval biology unknown.

Remarks. Along with *Physegeniopsis albeto*, this species has a distinct dark brown frontal vitta laterally flanked by a yellow fronto-orbital plate, and the face does not have any shiny brown areas. The face in this species has a distinctive ankh-shaped mark medially. Like *Physegeniopsis hadrocara*, the orbito-antennal spot is distinct, and the ocellar setae are strong.

***Physegeniopsis hadrocara*, sp. nov.** (Figs. 3C, 6E, 8E, 11C, 21; Map 6)

Etymology. From Greek, *hadros*, meaning well-developed, bulky, stout + Spanish, *cara*, meaning face; a noun in apposition.

Diagnosis. This species (Fig. 3C) can be differentiated from its congeners by the following characteristics. The frons is uniformly brownish gray pruinose, with the fronto-orbital plates very large (the frontal vitta is thin and strongly tapering), and with a tear-drop shaped, black pruinose, median spot on the edge of the lunule. The ocellar setae are distinct, proclinate and diverging. The antennal bases are widely separated, by 3 X the width of an antennal socket. The face distinctly bulges beyond the distal tip of the 1st flagellomere, with the bulge being bilobed with a shallow, yellow pruinose groove medially. Above each black pruinose spot in the lower part of the face is a shiny black area. The orbito-antennal and genal spots are very large, and are separated only by a small whitish patch on the parafacial. The brown coloration in the median part of the scutum tapers both anteriorly and posteriorly, and ends at the posterior scutal edge.

Adult, ♂, ♀. Body length 4.4–4.5 mm in ♂, 5.0–5.2 mm in ♀.

Head (Figs. 6E, 8E, 11C). 1.6–1.7 X higher than long, 1.1–1.3 X wider than high, 1.2–1.3 X wider than scutum; parallelogram-shaped in lateral view (except for bulging face); eye 1.4–1.6 X longer than high; subgena and gena broad, together subequal to eye height. Vertex entirely brownish pruinose; strongly concave from dorsal view, sharpened medially; inner vertical setae long (~0.7 mm), 2 X longer than outer, with distance between them about 1/2 that from inner vertical seta to central vertex. Ocellar triangle brown pruinose; small, slightly raised, placed well anterior of vertex; ocelli in small isosceles triangle, with anterior ocellus slightly larger than posterior. Ocellar setae slightly smaller than anterior fronto-orbital seta; proclinate and diverging. Postocellar setae present, cruciate, subequal to ocellar seta. Postocular area pale yellow to whitish pruinose, with row of postocular setulae. Frons brownish gray pruinose, except for anteromedial dark brown pruinose spot, and yellow along eye margin; nearly 1.6–1.9 X wider than long at level above lunule; sides subparallel; frons flat; curving evenly into facial plane; with two strong reclinate fronto-orbital setae, anterior seta 0.6 X length of posterior seta; frons setulose anteriorly with middle-most setulae proclinate and convergent; with large dark brown pruinose orbito-antennal spot. Lunule straight. Antenna yellowish brown, except arista dark brown; antennal bases widely separated, distance 3 X antennal socket width; flat, no facial carina evident, scape slightly exposed, slightly shorter than pedicel; 1st flagellomere short, 1.3–1.5 X longer than high, with rounded apex; arista pubescent, long, 3.0–3.3 X longer than 1st flagellomere. Face distinctly bulging beyond distal tip of 1st flagellomere, visible in profile; bilobed with shallow groove medially; broad from frontal view, ventral edge 0.6–0.7 X width of frons at level of lunule; with large paired black velvety pruinose spots ventrally on each lobe, otherwise brown pruinose except medial groove pale yellow, and lacking pruinescence (showing shiny dark brown ground color) adjacent to velvety spots; with antennal grooves; ptilinal suture straight, at 45° from lunule. Parafacial broad; pale whitish pruinose, with large dark brown pruinose mark below orbito-antennal spot extending onto gena; with thin erect setulae on lower half. Gena pale whitish pruinose (except for part of parafacial mark extending below eye), postgena pale whitish pruinose; with thin erect setulae. Subgena enlarged, bulbous and conspicuous, 0.7 X height of gena; pale yellow pruinose. Clypeus bulbous, brown pruinose. Maxillary palpus dark brown, slender; with few small setulae and distal setae. Prementum large, dark brown. Labellum large.

Thorax (Fig. 11C). Scutum slightly arched, 1.2–1.3 X longer than wide; scutellum thick, with shallow median depression, with width at base 1.2–1.4 X greater than length; scutum and scutellum brown pruinose, except with wide very faint silvery gray dorsocentral vittae through entire length, and pale yellowish laterally and at distal tip of scutellum. Pleural region very lightly covered with pale silvery grayish pruinescence such that brown ground color visible from lateral view, except katepisternum fully yellowish gray pruinose, and with black spot on lower anepisternum and upper katepisternum. Prosternum broad, lacking setulae. Chaetotaxy (all setae strong, >0.4 mm, except postpronotal, posterior notopleural, katepisternal, and proepisternal closer to 0.3 mm, and presutural supra-alar seta <0.2 mm): 0+3 dorsocentral setae, with anterior seta near suture and 3/4 length of posterior seta, middle seta at midpoint in position between them, and subequal in size to posterior seta; prescutellar acrostichal seta present; 1 postpronotal seta; 2 notopleural setae, in anterior and posterior corners; 1 intra-alar seta; 1 pre- and 1 postsutural supra-alar setae; 1 postalar seta; 1 row of fine acrostichal setulae between dorsocentral setal rows, row of setulae along dorsocentral area, and sparsely setulose outside dorsocentral row; proepisternal seta present; anepisternal seta along posterior edge of anepisternum, anepisternum otherwise with fine setulae centrally, sometimes posterior-most setula enlarged up to 1/2 size of anepisternal seta; anepimeron bare; 1 katepisternal seta present, katepisternum otherwise with several smaller fine setulae anterior of seta, and with several setulae ventrally near midline; 2 pairs scutellar setae, anterior one slightly shorter than posterior. *Legs*. Dark brown, except pale white band just beyond middle of fore tibia, basal 4/5 of mid and hind tibiae, and tarsomere 1 of mid and hind tarsi. Fore femur with posterodorsal and posteroventral rows of setae, in addition to scattered setulae; ctenidium absent. Fore tibia distinctly sharpened dorsally; apically with ventromedial comb of thickened brown setulae; preapical dorsal seta strong; with 1 ventral spur. Fore tarsus long, 1.7–1.9 X length of tibia (Fig. 3C). Mid femur with fine setulae. Mid tibia slightly sharpened dorsally; with fine setulae; preapical dorsal seta strong; with 1 strong spur. Hind femur with preapical dorsal seta; with fine setulae. Hind tibia slightly sharpened and expanded dorsally; with fine

setulae; apically with ventromedial comb of thickened brownish setulae; preapical dorsal seta strong. *Wing*. Length 4.8–5.0 mm in ♂, 5.2–5.8 mm in ♀; 3.3–3.7 X longer than high. Hyaline, infuscated anteriorly; sapro-myziform. Discal medial cell 1.9–2.0 mm long in ♂, 2.0–2.3 mm in ♀; 4.6–5.7 X longer than crossvein dm-cu. Crossvein r-m located slightly beyond midpoint of discal medial cell. Crossvein dm-cu straight. Vein R₄₊₅ ending at wing tip, subparallel with vein M₁. Vein A₁ long, nearly reaching wing margin. Anal lobe with vein A₂ present as crease. Halter yellow.

Abdomen. Tapering gradually after segment 3. Tergites brown pruinose, except orangish on anterior 1/2 of syntergite 1+2, grayish on posterolateral parts of tergites 3–6 (note, 1 ♀ with tergites 4–6 brownish orange); setose, strongest laterally and along posterior edges of tergites; broad, wrapping around laterally to ventral position. In ♂, tergite 6 large, as long as preceding tergite. Sternites pale yellowish; with sparse fine setae (except sternite 1), slightly longer posterolaterally. In ♂, sternites 1–2 each slightly wider than long, sternites 3–5 slightly longer than wide, sternite 6 a membranous transverse strip. In ♀, sternites 3–6 as long as wide, with sternite 6 slightly larger than preceding sternites.

Male genitalia (Fig. 21). Syntergosternite 7+8 simple, transversely saddle-shaped, longest medially (3/5 medial length of tergite 6) and tapering laterally. Epandrium simple; setose, strongest setae directly above surstylus. Surstylus articulated with epandrium; thick only in basal 1/3, abruptly tapering to thorn-like tip, curved medioventrally at sharp tip; setose, with thickest setae anterolaterally, with small setae distally on dorsal surface, bare at tip. Bacilliform sclerite strong, extending from inner basal part of surstylus and forming an anteriorly directed arc, with lateral wings anteriorly. Cercus simple, rounded, setose. Phallus broad; with parallel-sided sclerotized edges and membranous area medially; anteriorly tapering into anteromedial extension; at 1/5 distance from base, dorsally extended to articulate with postgonite; sclerotized edge lacking ventral spur; with large, anteriorly-oriented hooks extending over gonopore; posterior edge thick, extending to single medial point beyond gonopore. Hypandrium a thin transverse strip; abruptly curved posteriorly at lateral ends; bare. Postgonite small, thin, ribbon-like, curved dorsally from hypandrium to articulate with anterior-most dorsal extension of phallus. Ejaculatory apodeme moderately large; narrow with high medial ridge dorsoventrally.

Female terminalia. Syntergosternite 7 forming a complete ring, with spiracle embedded laterally. Tergite 8 broader than long, wrapping around abdomen to lateral edge of hypoproct; with 2 pairs of longer setae posterolaterally. Sternite 8 1.5 X broader than long; semicircular, with posterior part rounded; entirely sclerotized; with dense fine setae. Hypoproct simple, semicircular, setulose with short hair-like setae posteriorly; epiproct not evident; cercus simple, papillate, setulose. Spermathecae with configuration 2+2, with both pairs fused; each pair 0.24 mm by 0.09 mm, with halves at slight angle to each other; surface rough.

Immatures. Unknown.

Type material. Holotype ♂ (glued to side of pin; good condition, but antennal flagellomeres missing; Fig. 3C), deposited in USNM (with permission from EMUS) with the following labels: 1) “COSTA RICA Guanacaste Province]. / 3 km SE R[io]. Naranjo / 1–15 May 1992 / F.D. Parker”; 2) “HOLOTYPUS ♂ / *Physegeniopsis* / *hadrocara* / Gaimari & Silva” (red label). Paratypes: **BOLIVIA. Santa Cruz Department**. 4 km N Bermejo, Refugio Los Volcanes, 1000 m, 18°06’S 63°36’W (A.R. Cline), 25–30.x.2007, ex. Malaise trap [3 ♂, 1 ♀ (CSCA), 1 ♂ (CSCA-FTC)]. **BRAZIL. Rio de Janeiro**. Itatiaia, Lago Azul (Trav., Barth, Albuquerque & Barros), 26.ix.1954 [1 ♂, 1 ♀ (MZSP)]; Petrópolis, Le Vallon, Alto da Mosella, 1.ii–8.iii.57, D. Albuquerque coll. [1 ♂ (MZSP)]. **São Paulo**. Salesópolis, Boracéia. (L. Trav. & Braz), 12–17.vi.1948 [1 ♀ (MZSP)]; (L.T.F., Carrera, Vanzolini, Oiticica & Pearson), 24–30.i.1952 [1 ♀ (MZSP)]. **COSTA RICA. Cartago Province**. Parque Nacional Tapantí, 1250 m (F.A. Quesada), 18–28.ii.1993, L-N-194000,560000, INBIO CRI001 211387 [1 ♂ (INBC)]. **Guanacaste Province**. 3 km SE Rio Naranjo (F.D. Parker), 14.xi.1991 [1 ♀ (EMUS)], 22.vi.1993 [1 ♂ (EMUS), SDG dissection 1304], v.1991 [1 ♀ (USNM), SDG dissection 1305]. **ECUADOR. Pichincha Province**. Bellavista Cloud Forest Reserve, 2200 m, 00°01’13”S 78°40’30”W (S. Luk), in building at light, 9–13.v.2009 [1 ♂ (DEBU)].

Distribution (Map 6). Known from Bolivia (Santa Cruz Department), Brazil (Rio de Janeiro and São Paulo States), Costa Rica (Cartago and Guanacaste Provinces) and Ecuador (Pichincha Province).

Biology. Adults are fungal grazers, as confirmed by the presence of fungal spores in gut contents. Larval biology unknown.

Remarks. Unlike its congeners, this species has broad grayish fronto-orbital plates with a thin frontal vitta, and the face has a shiny brown area above each of the lower facial spots. The lower face is also bilobed with a shallow, yellow groove medially separating the pruinose spots. Like *Physegeniopsis ankhoidea*, the orbito-antennal spot is distinct, and the ocellar setae are strong.

***Roryeuchomyia*, gen. nov.**

Type species. *Roryeuchomyia tigrina*, sp. nov., by present designation.

Etymology. Rearrangement of the letters in the stem of the genus name *Eurychoromyia*, indicating similarity to this enigmatic genus; feminine.

Diagnosis. As a monotypic genus, the diagnosis for the genus is identical to that of the single species.

***Roryeuchomyia tigrina*, sp. nov.** (Figs. 4A, 5E, 7E, 12A, 13E, 14C–D, 22; Map 3)

Etymology. From Latin, *tigrinus*, meaning of tigers, referring to the striped pattern on the face; a feminine adjective.

Diagnosis. This species (Fig. 4A) can be differentiated from other eurychoromyiines by the following characteristics. The frons is goldish pruinose, with distinct brown markings including a “W” shaped mark in the upper part, 2 marks laterally (on each side), and a central mark below. The fronto-orbital plates are indistinguishable from the frontal vitta, with a single reduced (~0.2 mm), reclinate fronto-orbital seta on the upper part. Other setae on the head are diminutive or absent, including: short inner and outer vertical setae; small, hair-like ocellar setae that are proclinate and diverging; and the postocellar setae are absent. The orbito-antennal spot is brown pruinose, concolorous with other brown spots on the frons and face. The eye is longer than high, with the subgena and gena combined being about 0.7 X the eye height. The subgena is enlarged, bulging and conspicuous, and only slightly shorter than the gena. The face is pale goldish pruinose, with distinct dark brown markings including a mark below each antenna, a single median mark, and a curved mark ventrally (reminiscent of a smiley face). The scutum and scutellum are goldish pruinose, but the scutum is also extensively marked with brownish pruinose spots and longitudinal marks. The scutal chaetotaxy is diminutive, with most setae 0.2 mm or smaller. The following chaetotaxy is noteworthy: 0+2 dorsocentral setae; prescutellar, intra-alar and supra-alar setae are absent. The pleural region is also goldish pruinose, except the anepisternum has two longitudinal brown pruinose stripes and the katepisternum has a central longitudinal brown mark. The fore and mid tibiae are slightly laterally flattened and expanded, and each has a preapical dorsal seta. The hind tibia is laterally flattened and strongly expanded, with a large bare area on this flattened expansion, and the hind tibia lacks a preapical dorsal seta.

Adult, ♂, ♀. Body length 4.0–4.5 mm in ♂, 4.6–5.0 mm in ♀.

Head (Figs. 5E, 7E, 12A). 1.1–1.3 X higher than long, 1.4–1.6 X wider than high, 1.1–1.2 X wider than scutum; parallelogram-shaped in lateral view; eye 1.2–1.4 X longer than high; subgena and gena broad, together 0.7 X eye height. Vertex goldish pruinose; strongly concave from dorsal view, rounded to slightly sharpened medially; inner and outer vertical setae subequal, short (~0.3 mm), widely spread, with distance between them subequal to distance from inner vertical seta to central vertex. Ocellar triangle brown pruinose; small, slightly raised, placed well anterior of vertex; ocelli in small equilateral triangle, with anterior ocellus slightly larger than posterior. Ocellar setae small, fine, hair-like; proclinate and diverging. Postocellar setae absent. Postocular area goldish pruinose, with few scattered small postocular setulae. Frons goldish pruinose, with distinct brown markings (centrally with W-shaped marking, with central brown mark below and 2 brown marks laterally); nearly 1.5–1.7 X wider than long at level above lunule; tapering anteriorly, with width at anterior ocellus 1.4–1.5 X wider than at lunule; frons flat to slightly depressed, with fronto-orbital plate indistinguishable from frontal vitta; at nearly 90° angle to facial plane; with single reduced (~0.2 mm) reclinate

fronto-orbital seta on the upper part of fronto-orbital area; anterolateral part of frons with scattered erect to proclinate thin setulae; with dark brown pruinose orbito-antennal spot. Lunule straight. Antenna yellowish brown, except 2nd aristal segment black; antennal bases widely separated, distance slightly greater than antennal socket width; small bump-like facial carina present between bases at very top of lunule, otherwise flat; scape fully exposed, slightly shorter than pedicel; 1st flagellomere short, 1.3–1.4 X longer than high, with rounded apex; arista bare, long, 5 X longer than 1st flagellomere. Face slightly bulging, visible in profile; broad from frontal view, ventral edge 1.1 X wider than frons at level of lunule; pale goldish pruinose, with distinct dark brown pruinose markings (mark below each antennal base, single central mark, and curved mark at bottom—reminiscent of a smiley face); lacking antennal grooves; ptilinial suture straight, at 45° from lunule. Parafacial broad; pale goldish pruinose, with dark brown pruinose mark below orbito-antennal spot; with thin erect setulae on lower half. Gena dark brown pruinose below eye, becoming yellowish posteriorly to postgena; with few thin erect setulae. Subgena enlarged, bulbous and conspicuous, 0.8 X height of gena; brown pruinose dorsally, yellow pruinose ventrally. Clypeus bulbous, pale goldish pruinose, with median dark brown pruinose line. Maxillary palpus small, dark brown, slender, slightly clavate; with few small setulae and distal setae. Prementum large, yellowish. Labellum large.

Thorax (Fig. 12A). Scutum slightly arched, length and width subequal; scutellum thick, slightly arched, with shallow median longitudinal depression, with width at base 1.4–1.6 X greater than length; scutum and scutellum goldish pruinose, but scutum extensively marked with brown pruinose spots and longitudinal marks. Pleural region mostly goldish pruinose, except anepisternum with two longitudinal brown pruinose stripes (one from anepisternal seta forward, the other along bottom of anepisternum) and katepisternum slightly darkened centrally. Prosternum broad, with few fine setulae. Chaetotaxy (all setae small, mostly 0.2 mm or smaller, except posterior dorsocentral, anterior scutellar, and anepisternal setae 0.3 mm and posterior scutellar seta 0.4 mm): 0+2 dorsocentral setae, with anterior seta 2/3 length of posterior seta, both in posterior 1/3 of scutum; prescutellar acrostichal seta absent; 1 fine small (<0.15 mm) postpronotal seta; 2 notopleural setae, in anterior and posterior corners; intra-alar and supra-alar setae absent; 1 postalar seta; 2 sparse uneven rows of fine acrostichal setulae between dorsocentral setal rows, 1 sparse uneven row of setulae in front of anterior dorsocentral seta, and 1 sparse uneven row outside dorsocentral row; proepisternal seta absent; 1 long (0.3 mm) fine anepisternal seta along posterior edge of anepisternum, anepisternum otherwise with long (up to 0.15 mm) fine setulae centrally, especially on central brown mark; anepimeron bare; 1 short (<0.2 mm) fine katepisternal seta, katepisternum otherwise with several smaller fine setulae anterior of seta, and with several setulae ventrally near midline; 2 pairs scutellar setae, anterior one 3/4 length of posterior one. *Legs*. Goldish yellow, except brown on proximal 1/3 of fore femur and distal 1/2 of each tibia (note, sometimes, brown areas more extensive), and tarsi pale white basally and darkening distally. Fore femur with posterodorsal and posteroventral rows of setae, in addition to scattered setulae; ctenidium absent. Fore tibia slightly laterally flattened and expanded; apically with ventromedial comb of thickened goldish setulae; preapical dorsal seta strong; with 1 ventral spur. Fore tarsus subequal in length to tibia. Mid femur with fine setulae. Mid tibia slightly laterally flattened and expanded; with fine setulae; preapical dorsal seta strong; with 1 strong spur. Hind femur with preapical dorsal seta; with fine setulae. Hind tibia (Fig. 4A, inset) laterally flattened and strongly expanded; with fine setulae, but bare through expanded flattened area; apically with ventromedial comb of thickened goldish setulae; preapical dorsal seta absent. *Wing* (Fig. 13E). Length 4.4–4.6 mm in ♂, 4.9–5.1 mm in ♀; 3.1–3.3 X longer than high. Hyaline, very slightly infuscated anteriorly; sapromyziform, with costal setulae finer than in typical lauxaniids, but present and distinct. Discal medial cell 1.7–1.8 mm long in ♂, 2.1–2.2 mm in ♀; 4.3–4.6 X longer than crossvein dm-cu. Crossvein r-m located just beyond midpoint of discal medial cell. Crossvein dm-cu straight. Vein R₄₊₅ ending at wing tip, subparallel with vein M₁. Vein A₁ long, nearly reaching wing margin. Anal lobe lacking signs of vein A₂. Halter yellow.

Abdomen. Tapering gradually after segment 3. Tergites yellowish to brownish pruinose, usually darkest along posterior edge of each; broad, wrapping around laterally to ventral position. Syntergite 1+2 with fine erect brownish setulae dorsally and laterally; tergites 3–6 with dense silvery hairs anterolaterally and dense

bronzy hairs posterolaterally. In ♂, tergite 6 large, as long as preceding tergite. Sternites pale white; with sparse fine setae (except sternite 1), slightly longer posterolaterally. In ♂, sternite 1 4 X wider than long, invaginated along anterior margin, sternite 2 2 X wider than long, sternites 3–5 as long as wide, sternite 6 a membranous transverse strip. In ♀, sternites 3–6 as long as wide, with sternite 6 slightly larger than preceding sternites.

Male genitalia (Fig. 22). Syntergosternite 7+8 simple, transversely saddle-shaped, longest medially (3/4 medial length of tergite 6) and tapering laterally. Epandrium simple; setose, most dense directly above surstylus. Surstylus articulated with epandrium; long and thin, except for dorsobasal extension; becoming spatulate distally, abruptly curving medioventrally in distal 1/3; with sparsely distributed fine setae dorsally, becoming densest just beyond middle, and with few fine setae ventrally. Bacilliform sclerite strong, extending from inner basal part of surstylus and forming a thin anteriorly directed arc, with small lateral wings anteriorly. Cercus simple, rounded, setose. Phallus broad; with sclerotized edges and membranous area medially; anterior end with edges tapering evenly and extending into short anteromedial extension; at 1/4 distance from base, lateral edges articulate with postgonite; at 1/3 distance from tip, sclerotized edge with ventral spur; with large, anteriorly-oriented hooks extending over gonopore. Hypandrium simple, rectangular, 2 X wider than long; bare. Postgonite small, thin, ribbon-like, curved dorsally from hypandrium to articulate with anterior part of phallus where it begins to taper. Ejaculatory apodeme simple, small, thin.

Female terminalia (Fig. 14C). Syntergosternite 7 forming a complete ring, with spiracle embedded laterally. Tergite 8 broader than long, wrapping around abdomen to lateral edge of hypoproct; with few longer setae posterolaterally. Sternite 8 2 X broader than long; semicircular, with posterior part rounded; entirely sclerotized; with dense fine setae. Hypoproct simple, semicircular, setulose with short hair-like setae posteriorly; with pair of thin longitudinal sclerotizations on ventral surface acting as an egg guide with sternite 8; epiproct not evident; cercus simple, papillate, setulose. Spermathecae (Fig. 14D) with configuration 2+2; each spermathecae round, 0.11 mm diameter, entirely smooth, closely linked at bifurcation.

Immatures. Unknown.

Type material. Holotype ♂ (glued to paper point; excellent condition; Fig. 4A), housed in USNM with the following labels: 1) "ECUADOR: Depto. Orellana, Reserva / Etnica Waorani, 1 km S. Onkone Gare / Camp, Transect Ent., 10 FEB 1996, / 00°39'26"S, 076°27'11"W, 220m, / T.L. Erwin et al., Trans. 9, Sta. 6 / Fogging in terra firme forest Lot 1486"; 2) "HOLOTYPUS ♂ / *Roryeuchomyia* / *tigrina* / Gaimari & Silva" (red label). Paratypes: **ECUADOR. Orellana Province**. Reserva Etnica Waorani, 1 km S. Onkone Gare Camp, Transect Ent., 220 m, 00°39'26"S 076°27'11"W (T.L. Erwin et al.), fogging in terra firme forest, 22.i.1994, Transect 2, Station 1, Lot 620 [1 ♀ (USNM)], 23.i.1994, Transect 10, Station 10, Lot 639 [1 ♂ (USNM)], 21.vi.1994, Transect 8, Station 7, Lot 706 [1 ♀ (EMUS)], 21.vi.1994, Transect 9, Station 6, Lot 715 [1 ♂, 1 ♀ (USNM)], 6.x.1994, Transect 10, Station 8, Lot 887 [1 ♀ (USNM)], 7.x.1994, Transect 8, Station 7, Lot 906 [1 ♀ (USNM), SDG dissection 1303], 10.x.1994, Transect 3, Station 8, Lot 937 [1 ♀ (USNM)], 10.x.1994, Transect 4, Station 2, Lot 941 [1 ♂, 1 ♀ (CSCA)], 8.ii.1995, Transect 9, Station 5, Lot 954 [1 ♀ (CSCA)], 30.vi.1995, Transect 8, Station 7, Lot 1077 [1 ♀ (USNM)], 8.ii.1996, Transect 7, Station 9, Lot 1469 [1 ♂ (CSCA)], 21.vi.1996, Transect 3, Station 10, Lot 1550 [1 ♂ (USNM), SDG dissection 1302], 22.vi.1996, Transect 6, Station 5, Lot 1575 [1 ♀ (USNM)], 22.vi.1996, Transect 6, Station 6, Lot 1576 [1 ♀ (USNM)], 3.x.1996, Transect 8, Station 1, Lot 1731 [1 ♀ (USNM)]; nr. Yasuni National Park, Tiputini Biodiversity Station, 220–250 m, 00°37'55"S 076°08'39"W (T.L. Erwin et al.), fogging in terra firme forest, 5.ii.1999, Transect 9, Station 6, Lot 2085 [1 ♂, 2 ♀ (USNM); 1 ♀ (CSCA)].

Distribution (Map 3). Known only from Ecuador (Orellana Province).

Biology. Known only from the rainforest canopy, so adults likely oviposit in places where decaying vegetation accumulates in the canopy, e.g., in the crotches of major limbs to axils of branches. Adults are fungal grazers, as confirmed by the presence of fungal spores in gut contents.

Remarks. Like *Choryeuromyia*, *Eurychoromyia* and *Eurystratiomyia*, the chaetotaxy of the head and thorax is diminutive, usually <0.3 mm for any given seta, if present. This species also shares a lack of prescutellar acrostichal setae with these genera. Like most eurychoromyiines (except *Euryhendelimyia*, *Physegeniopsis*

and *Tauridion*), this species has only a single fronto-orbital seta. Along with *Euryhendelimyia* and *Tauridion*, this species has a brown pruinose face and parafacial with distinctive, reticulated pale pruinose markings. Along with *Eurychoromyia* and *Eurystratiomyia*, this species shares the condition of having 0+2 dorsocentral setae. This species shares the condition of having a flattened and strongly expanded hind tibia with *Choryeuryomyia* and *Eurychoromyia*.

***Tauridion* Papp & Silva**

Tauridion Papp & Silva, 1995: 205. Type species, *T. shewelli* Papp & Silva (original designation).

***Tauridion shewelli* Papp & Silva** (Figs. 4B–C, 5D, 7D, 12B, 13F, 14E–F, 15A–C, E, 23; Map 7)

Tauridion shewelli Papp & Silva, 1995: 207. Type locality: Peru. Vilcanota.

Diagnosis. This species (Fig. 4B–C) can be differentiated from other eurychoromyiines by the following characteristics. The frons is flat, and brown and goldish pruinose in a distinct pattern consisting of a mostly brown upper part and a goldish lower part with brown setigerous spots at the base of each setula. The fronto-orbital plates are large, separated by a brown frontal vitta that is wider on the upper part and very thin through the lower part. The orbito-antennal spot is large and dark brown pruinose. The antennal bases are separated by a distance equal to 3 X the width of a single antennal socket. The setae of the head are mostly normal-sized (i.e., for lauxaniids), including: strong inner and outer verticals, small, fine, hair-like ocellars that are proclinate and diverging; strong cruciate postocellars; and 2 pairs of reclinate fronto-orbital setae in the upper part of the fronto-orbital plate, with the anterior seta small. The eye is slightly longer than high, with the gena and subgena together being slightly higher than the eye height. The subgena is large, bulging and conspicuous, and is about 0.8 X the height of the gena. The face is brown and goldish pruinose in an intricate pattern. The scutum is brown pruinose with two sets of distinct thin, gray pruinose vittae, one medial to and one lateral to the dorsocentral row. The scutal chaetotaxy is strong (typical of lauxaniids), with the following being noteworthy: 0+3 dorsocentral setae; prescutellar setae present and strong. The tibiae are each cylindrical with a strong preapical dorsal seta. The fore tarsus is long, at about 1.5 X the length of the tibia.

Adult, ♂, ♀. Body length 5.9–6.3 mm in ♂, 6.0–6.2 mm in ♀.

Head (Figs. 5D, 7D, 12B). 1.6–1.8 X higher than long, 1.2–1.3 X wider than high, 1.2–1.3 X wider than scutum; parallelogram-shaped in lateral view; eye 1.1–1.2 X longer than high; subgena and gena broad, together 1.1 X eye height. Vertex brownish pruinose; strongly concave from dorsal view, rounded; inner vertical seta 1.4 X length of outer vertical seta, widely spread, with distance between them subequal to distance from inner vertical seta to postocellar seta. Ocellar triangle brown pruinose; small, slightly raised, placed slightly anterior of vertex; ocelli in small equilateral triangle, with anterior and posterior ocelli subequal. Ocellar setae small, fine, hair-like; proclinate and diverging. Postocellar setae strong, subequal to outer vertical seta, cruciate. Postocular area goldish pruinose, with two rows and scattered small postocular setulae. Frons brown and goldish pruinose in distinct pattern (upper part mostly brown except for paired goldish spots lateral to anterior ocellus and lateral to fronto-orbital setae; lower part goldish with brown setigerous spots at base of each setula); 1.6–1.8 X wider than long at level above lunule; slightly narrower at level of anterior ocellus; frons flat curving forward into facial plane, with fronto-orbital plates broad and separated by brown frontal vitta; frontal vitta wide posteriorly and very thin anteriorly; with two reclinate fronto-orbital setae, placed on upper part of frons; posterior fronto-orbital seta strong, subequal to outer vertical seta; anterior fronto-orbital seta weak, subequal to ocellar seta; frons densely setulose, with those in the anterior half medio-clinate; with dark brown pruinose orbito-antennal spot. Lunule straight. Antenna yellowish brown, except 2nd aristal segment black; antennal bases widely separated, distance 3 X greater than antennal socket width; area between antennal bases bulging forward, descending evenly into face; scape fully exposed, slightly shorter than pedicel; 1st flagellomere short, 1.4–1.6 X longer than high, with rounded apex; arista micropubescent, long, 3.5–3.8 X longer than 1st flagellomere. Face slightly bulging, visible in profile; broad from frontal view, ventral edge 0.6 X width of frons at level of lunule; brown and goldish pruinose, intricately patterned; lacking

antennal grooves; ptilinal suture straight, at 45° from lunule. Parafacial broad; brown and goldish pruinose; with thin erect setulae on lower half. Gena dark brown pruinose below eye, becoming yellowish posteriorly to postgena; with few thin erect setulae. Subgena enlarged, bulbous and conspicuous, 0.7–0.8 X height of gena; brown pruinose. Clypeus bulbous, dark brown pruinose. Maxillary palpus small, dark brown, slender, slightly clavate; with few small setulae and distal setae. Prementum large, brownish. Labellum large.

Thorax (Fig. 12B). Scutum strongly arched, slightly longer than wide; scutellum thick, with shallow median depression, with width at base 1.4–1.6 X greater than length; scutum brown pruinose with two sets of distinct thin gray pruinose vittae (1 medial to and 1 lateral to dorsocentral area) extending through length of scutum, and gray pruinose laterally; most setulae in gray areas with brown setigerous spots at bases; scutellum silvery gray pruinose, with large posteriorly directed brown pruinose triangle. Pleural region brown and gray pruinose: proepimeron gray in dorsal 1/3 and ventral 1/3 and brown in middle 1/3; anepisternum gray except brown ventrally, on a large spot at base of anepisternal seta, and setigerous spots at bases of setulae; katapisternum brown except for gray longitudinal stripe below katapisternal setae; remainder brown. Prosternum broad, lacking setulae. Chaetotaxy (all setae strong, >0.5 mm, except proepisternal, postpronotal, posterior notopleural, anterior katapisternal closer to 0.4 mm, and presutural supra-alar seta 0.25 mm): 0+3 dorsocentral setae, with anterior seta at midpoint between middle seta and suture and 1/2 length of posterior seta, middle seta at midpoint in position and size between them; prescutellar acrostichal seta present; 1 postpronotal seta; 2 notopleural setae, in anterior and posterior corners; 1 intra-alar seta; 1 pre- and 1 postsutural supra-alar setae; 1 postalar seta; 6 uneven rows of fine acrostichal setulae between dorsocentral setal rows, scattered setulae along dorsocentral area, and setulose outside dorsocentral row; proepisternal seta present; anepisternal seta along posterior edge of anepisternum, anepisternum otherwise with fine setulae centrally; anepimeron bare; 2 katapisternal setae present, anterior seta slightly smaller than posterior, katapisternum otherwise with several smaller fine setulae anterior of seta, and with setulae ventrally to midline; 2 pairs scutellar setae, anterior one slightly shorter than posterior. *Legs*. Dark brown, except yellow band through middle of each tibia and basal 2/3 of tarsomere 1 of each tarsus. Fore femur with strong posterodorsal, posterior and posteroventral rows of setae, in addition to scattered setulae; ctenidium absent. Fore tibia cylindrical; apically with ventromedial comb of thickened brown setulae; preapical dorsal seta strong; with 1 ventral spur. Fore tarsus long, 1.5 X length of tibia. Mid femur with fine setulae. Mid tibia cylindrical; with fine setulae; preapical dorsal seta strong; with 1 strong spur. Hind femur with strong preapical dorsal seta; with fine setulae. Hind tibia cylindrical; with fine setulae; apically with ventromedial comb of thickened brownish setulae; preapical dorsal seta strong. *Wing* (Fig. 13F). Length 6.1–6.9 mm in ♂, 6.3–6.7 mm in ♀; 3.2–3.5 X longer than high. Hyaline, infuscated anteriorly; sapromyziform. Discal medial cell 2.7–3.1 mm long in ♂, 2.8–3.0 mm in ♀; 5–6 X longer than crossvein dm-cu. Crossvein r-m located slightly beyond middle of discal medial cell. Crossvein dm-cu straight. Vein R₄₊₅ ending at wing tip, subparallel with vein M₁. Vein A₁ long, nearly reaching wing margin. Anal lobe with vein A₂ present as crease (Fig. 13F, inset). Halter yellow.

Abdomen. Tapering gradually after segment 3. Tergites brown pruinose, except grayish pruinose in posterolateral corners of each tergite; setose, strongest laterally and along posterior edges of tergites; broad, wrapping around laterally nearly to ventral position. In ♂, tergite 6 large, as long as preceding tergite. Sternites pale white; with sparse fine setae (except sternite 1), slightly longer posterolaterally. In ♂, sternite 1 2 X wider than long, invaginated along anterior margin, sternite 2 slightly wider than long, sternites 3–5 slightly longer than wide, sternite 6 a membranous transverse strip. In ♀, sternites 3–5 as long as wide, sternite 6 slightly wider than long, shorter than sternites 3–5.

Male genitalia (Fig. 23). Syntergosternite 7+8 simple, transversely saddle-shaped, longest medially (1/2 medial length of tergite 6) and tapering laterally. Epandrium simple; setose, most dense directly above surstylus. Surstylus articulated with epandrium; thorn-like, thick basally and abruptly curving to point; setose dorsally, with few setae distally, and with few fine setae ventrally. Bacilliform sclerite strong, extending from inner basal part of surstylus and forming a small anteriorly directed arc with a median squarish pad, and basally with large sclerotized lateral pads; basal pad with posteriorly directed sclerotized extension above sur-

stylus. Cercus simple, rounded, setose. Phallus broad; with sclerotized edges and membranous area medially; anteriorly tapering into anteromedial extension; at 1/3 distance from base, with dorsolateral extension articulating with postgonite; sclerotized edge with ventrolateral spur near tip; with medioventral spur 1/10 of distance from tip; with large, anteriorly-oriented hooks extending over gonopore. Hypandrium bilobed, with lobes directed posteriorly, 2 X wider than length of lobe; bare. Postgonite small, stout, curved dorsally from hypandrium to articulate with anterior-most dorsolateral extension of phallus. Ejaculatory apodeme large; with spoon-like excavation posteroventrally and high medial ridge anteroventrally.

Female terminalia (Fig. 14E). Syntergosternite 7 forming a complete ring, with spiracle embedded laterally. Tergite 8 broader than long, wrapping around abdomen to lateral edge of hypoproct; with few longer setae posterolaterally. Sternite 8 1.5 X broader than long; semicircular, with posterior part rounded; entirely sclerotized; with dense fine setae. Hypoproct simple, semicircular, setulose with short hair-like setae posteriorly; epiproct not evident; cercus simple, papillate, setulose. Spermathecae (Fig. 14F) with configuration 2+2; each spermathecae oval, 0.15 mm long, 0.09 mm wide, entirely smooth, closely linked at bifurcation.

Immatures. Egg stage (Fig. 15A–C). Approximately 50 eggs were present in the relatively full abdomen. Fully mature eggs with length 0.90–0.95 mm, maximum width 0.21–0.23 mm; subparallel throughout, only tapering slightly anteriorly and posteriorly; anterior pole with large, distinct tubercle, with series of pores over surface; posterior pole with small tubercle; dorsal surface with series of 4 flanged longitudinal ridges with extensive pattern of transverse ribs between, and lateral surface with additional 2 finer longitudinal ridges closer together with fine transverse ribs between ridges; ventral surface nondescript, slightly flattened; subcylindrical in cross section, except for dorsal flanges.

Type material. Holotype ♂ (pinned, in fair condition, some setae broken; Fig. 4B), housed in HNHM, with the following labels: 1) “Peru / Vilcanota”; 2) “N. genus / Det. Shewell 1979”; 3) “Holotype / Tauridion / shewelli / Papp & Silva.”

Additional material examined. **BOLIVIA. La Paz Department**. Cumbre Alto Beni, vicinity of Caranavi, 1685 m, 15°40'19"S 67°29'35"W (S.D. Gaimari & M. Hauser), 15–21.iv.2004, Malaise trap [1 ♀ (CSCA)]. **COSTA RICA. Puntarenas Province**. Coto Brus, Estación Biológica Las Alturas, 1500 m (M.A. Zumbado), 19–21.ix.1991, L-S-822500, 591800, INBIO CRI000 592994 [1 ♀ (INBC)]. **ECUADOR. Napo Province**. Huahua (=Guagua) Sumaco, km 45 on Hollin-Loreto Rd. (M. & J. Wasbauer, H. Real), 22.xii.1989, Malaise trap [1 ♀ (CSCA)]. **Orellana Province**. Reserva Etnica Waorani, 1 km S. Onkone Gare Camp, Transect Ent., 220 m, 00°39'26"S 076°27'11"W (T.L. Erwin et al.), fogging in terra firme forest, 22.i.1994, Transect 2, Station 2, Lot 621 [1 ♂ (USNM)], 10.x.1994, Transect 4, Station 9, Lot 948 [1 ♂ (USNM)], 11.ii.1995, Transect 4, Station 7, Lot 1026 [1 ♂ (EMUS)], 12.ii.1995, Transect 5, Station 3, Lot 1042 [1 ♂ (CSCA)], 23.vi.1996, Transect 9, Station 8, Lot 1608 [1 ♂ (CSCA)], 26.vi.1996, Transect 7, Station 9, Lot 1589 [1 ♂ (USNM)], 1.x.1996, Transect 4, Station 3, Lot 1693 [1 ♀ (USNM)], 3.x.1996, Transect 7, Station 2, Lot 1722 [1 ♂ (USNM), SDG dissection 1226]; nr. Yasuni National Park, Tiputini Biodiversity Station, 220–250 m, 00°37'55"S 076°08'39"W (T.L. Erwin et al.), fogging in terra firme forest, 8.ii.1999, Transect 4, Station 3, Lot 2032 [1 ♀ (CSCA)]. **Pichincha Province**. Tinalandia (Reserve), E. Alluriquin, 700 m (G.B. Fairchild), 4–8.v.1976, flight trap [1 ♀ (FSCA), SDG dissection 1227].

Distribution (Map 7). Known from Costa Rica (Puntarenas Province), Ecuador (Napo, Orellana and Pichincha Provinces), Bolivia (La Paz Department) and Peru (border of Nuno and Cusco Regions).

Biology. Most specimens are from the rainforest canopy, so adults likely oviposit in places where decaying vegetation accumulates in the canopy, e.g., in the crotches of major limbs to axils of branches. Adults are fungal grazers, as confirmed by the presence of fungal spores (Fig. 15E, inset) in gut contents (Fig. 15E).

Remarks. Like *Euryhendelimyia* and *Physegeniopsis*, the chaetotaxy of the head and thorax is mostly normal-sized (i.e., strong). This species also shares the presence of prescutellar acrostichal setae with these genera. This is the only eurychoromyiine species with distinct setigerous spots at the bases of setulae on the frons. Like *Euryhendelimyia* and *Physegeniopsis*, this species has two fronto-orbital seta (although the anterior seta is diminutive in this species), also sharing the condition of having 0+3 dorsocentral setae with these genera and *Choryeuromyia*. Along with *Euryhendelimyia* and *Roryeuchomyia*, this species has a brown pruinose face

and parafacial with distinctive, reticulated pale pruinose markings. This species shares the condition of having cylindrical tibiae with *Euryhendelimyia*.

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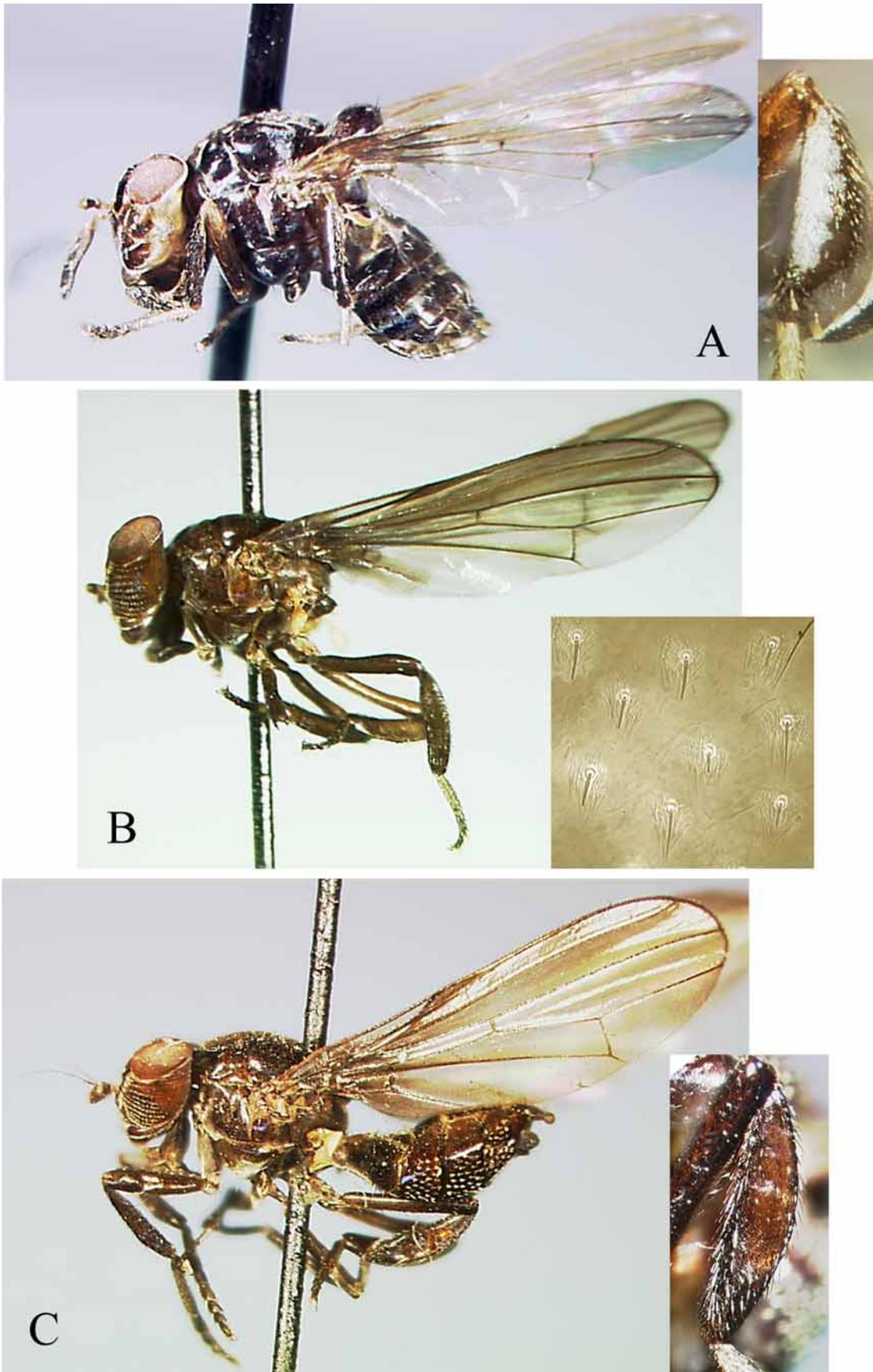


FIGURE 1. Lateral habitus of types of eurychoromyiine species. A) *Choryeuromyia xenisma*, sp. nov., holotype ♀ (inset, closeup of hind tibia). B–C) *Eurychoromyia mallea* Hendel: B) lectotype ♂ (inset, closeup of abdominal setulae of paralectotype female under compound microscopy, from dissection of Hennig); C) paralectotype ♀ (inset, closeup of hind tibia).



FIGURE 2. Lateral habitus of types of eurychoromyiine species. A) *Euryhendelimyia schlingeri*, sp. nov., holotype ♂ (in pre-dissection state). B–C) *Eurystratiomyia* species: B) *Eurystratiomyia epacrovitta*, sp. nov., holotype ♂; C) *Eurystratiomyia erwini*, sp. nov., holotype ♂.

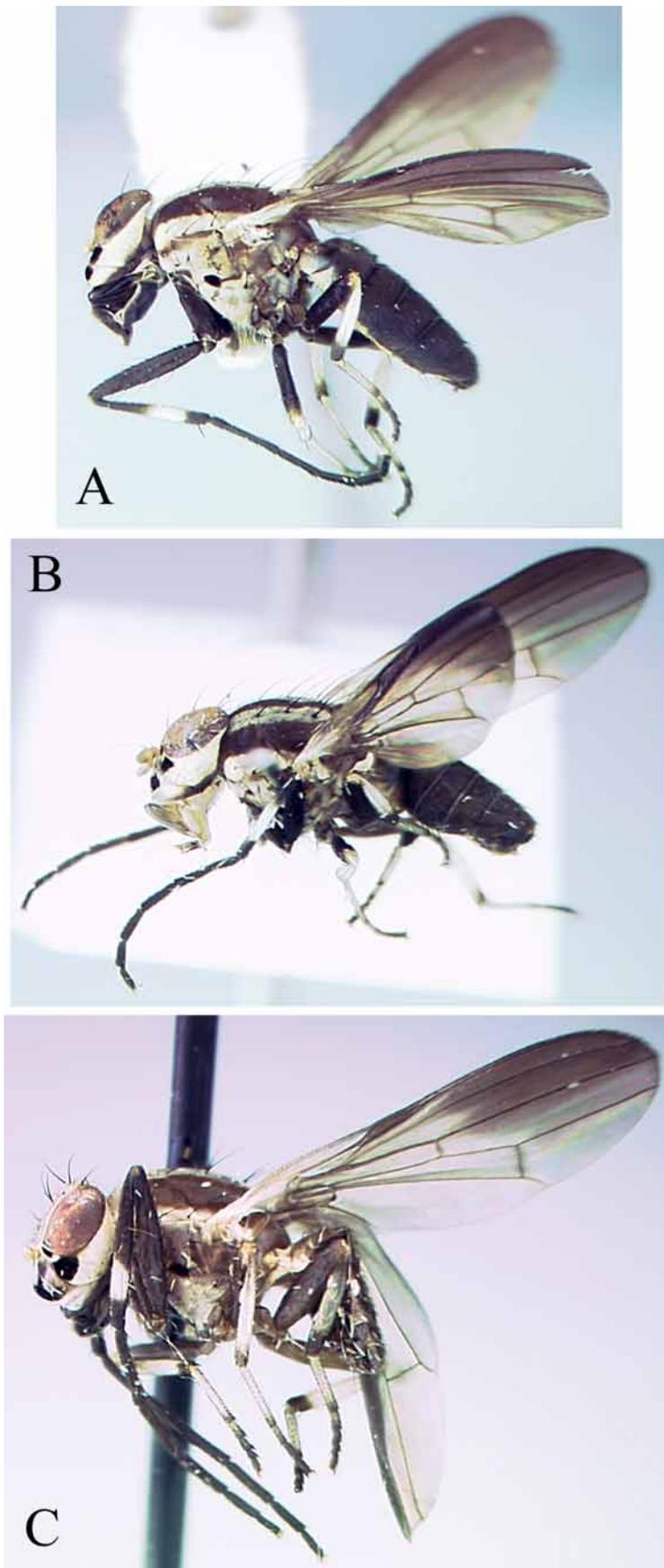


FIGURE 3. Lateral habitus of types of eurychoromyiine species in the genus *Physegeniopsis*. A) *Physegeniopsis albeto*, sp. nov., holotype ♂. B) *Physegeniopsis ankhoidea*, sp. nov., holotype ♂. C) *Physegeniopsis hadrocaro*, sp. nov., holotype ♂.

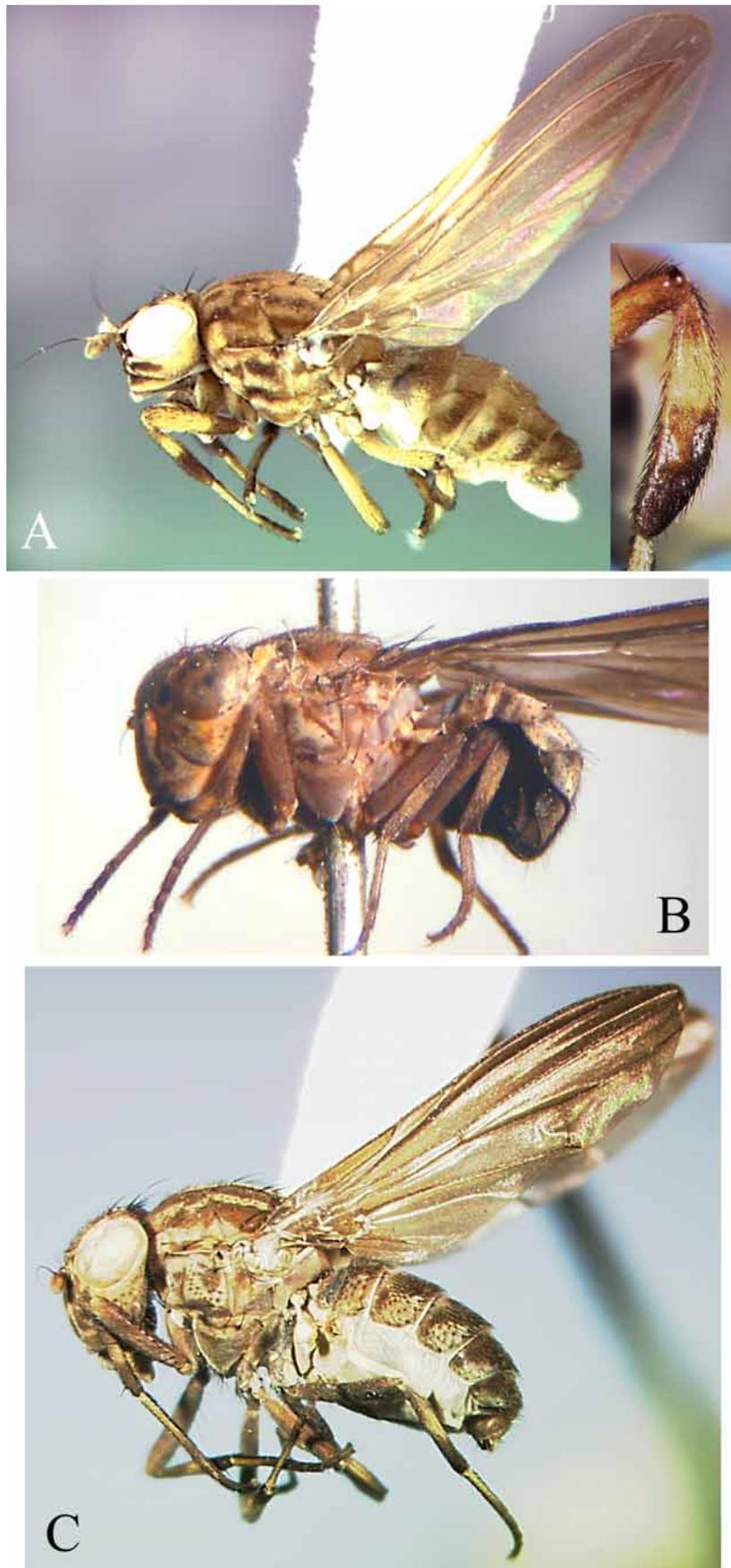


FIGURE 4. Lateral habitus of types (and one non-type) of eurychoromyiine species. A) *Roryeuchomyia tigrina*, sp. nov., holotype ♂ (inset, closeup of hind tibia). B–C) *Tauridion shewelli* Papp & Silva: B) holotype ♂; C) non-type ♂.

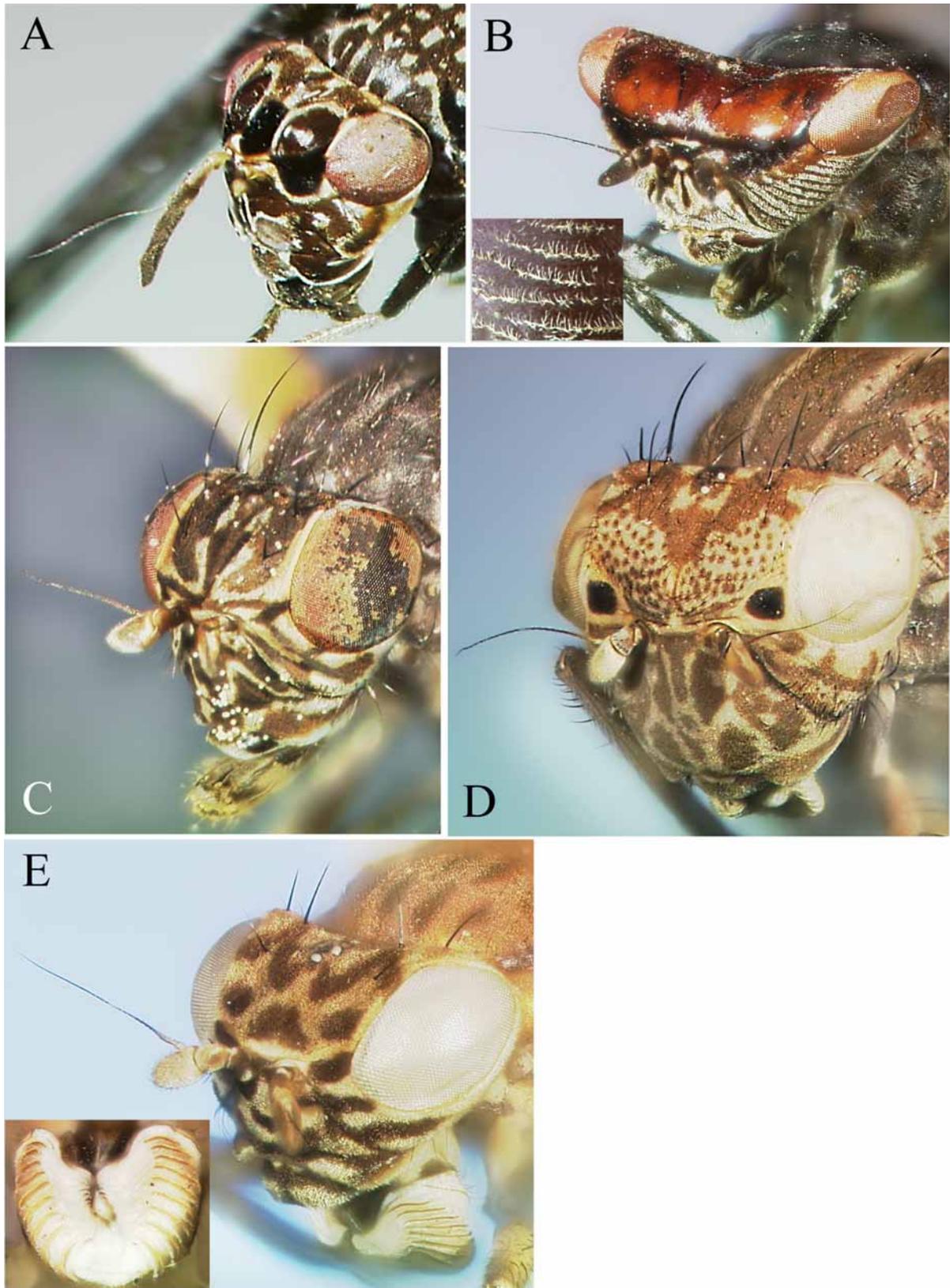


FIGURE 5. Heads of eurychoromyiine species, oblique view. A) *Choryeuromyia xenisma*, sp. nov. B) *Eurychoromyia mallea* Hendel (inset, closeup of striped pattern of pale white hairs on gena). C) *Euryhendelimyia schlingeri*, sp. nov. D) *Tauridion shewelli* Papp & Silva. E) *Roryeuchomyia tigrina*, sp. nov. (inset, close-up of labellum).

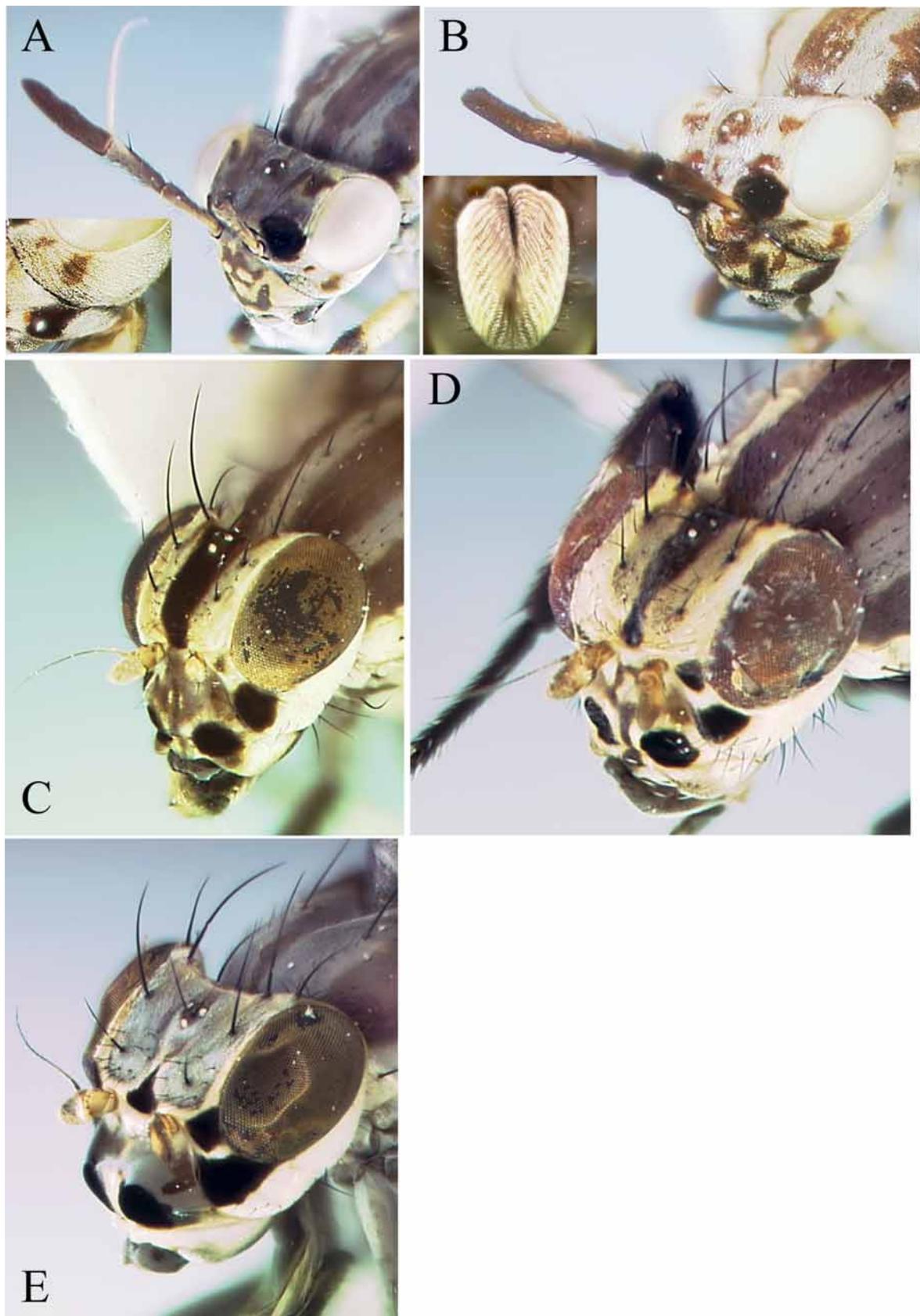


FIGURE 6. Heads of eurychromyiine species, oblique view. A) *Eurystratiomyia epacrovitta*, sp. nov. (inset, closeup of gena). B) *Eurystratiomyia erwini*, sp. nov.. C) *Physegeniopsis albeto*, sp. nov. D) *Physegeniopsis ankhoidea*, sp. nov. E) *Physegeniopsis hadrocarra*, sp. nov.

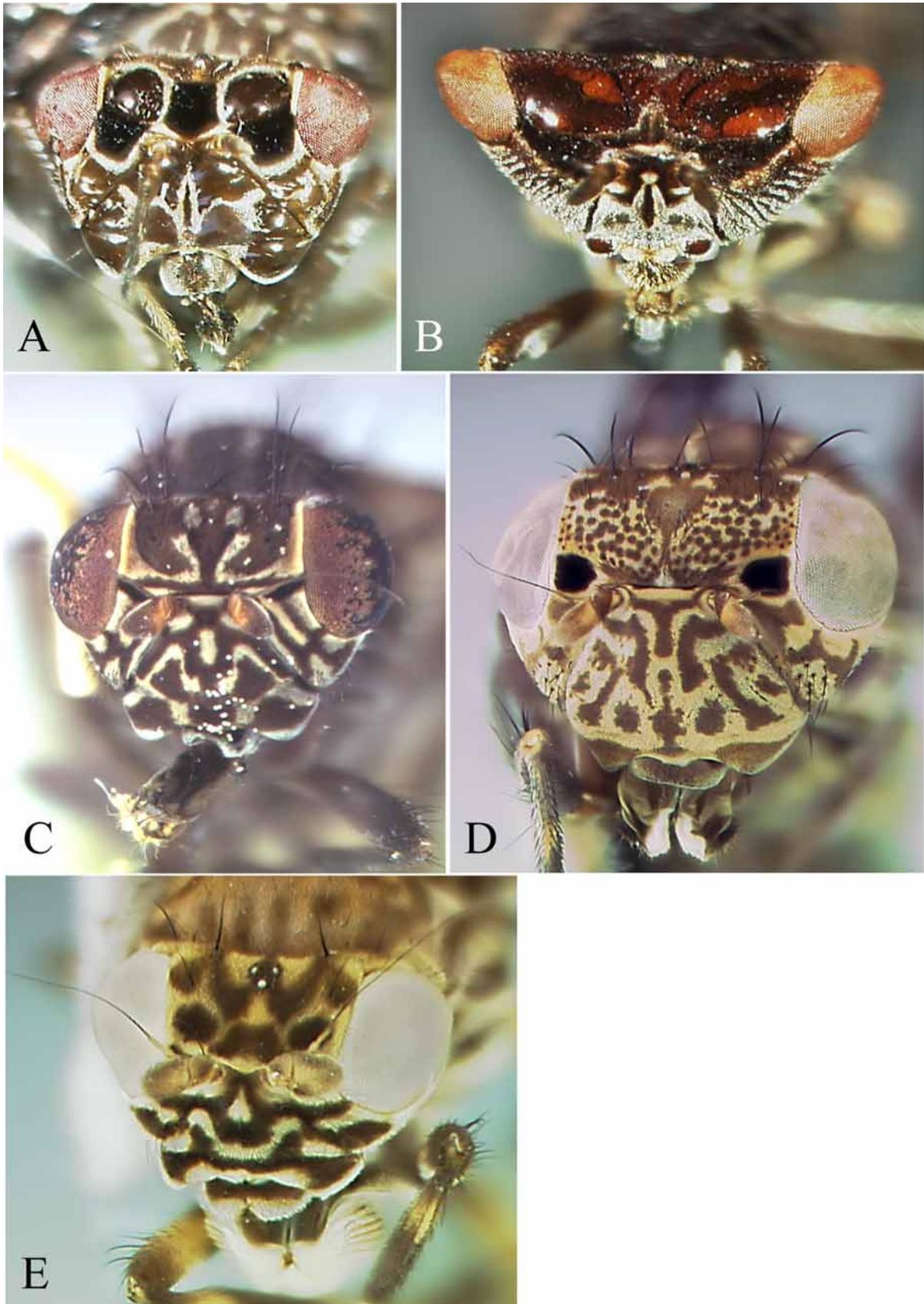


FIGURE 7. Heads of eurychoromyiine species, anterior view. A) *Choryeuromyia xenisma*, sp. nov. B) *Eurychoromyia mallea* Hendel. C) *Euryhendelimyia schlingeri*, sp. nov. D) *Tauridion shewelli* Papp & Silva. E) *Roryeuchomyia tigrina*, sp. nov.

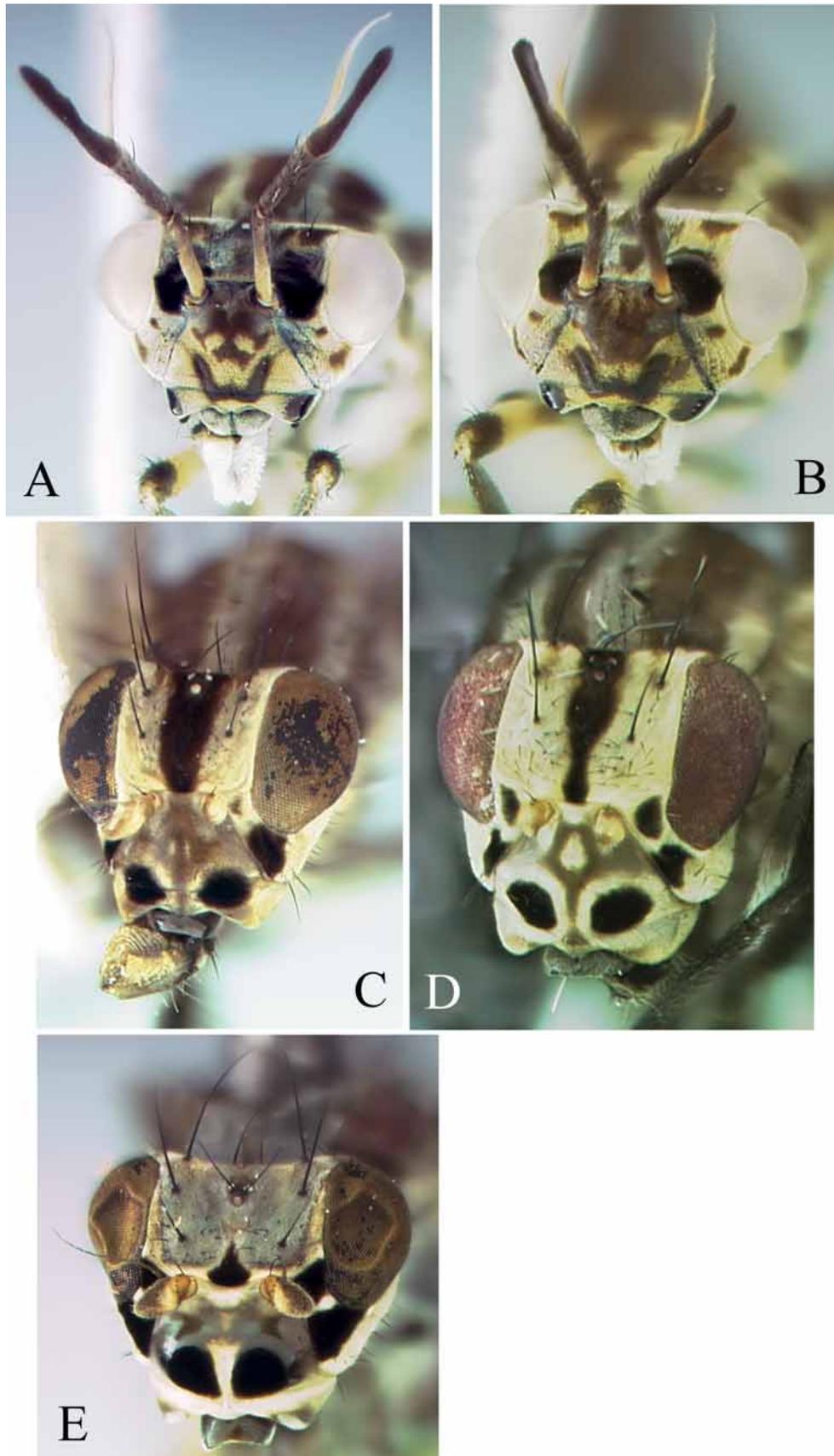


FIGURE 8. Heads of eurychoromyiine species, anterior view. A) *Eurystratiomyia epacrovitta*, sp. nov. B) *Eurystratiomyia erwini*, sp. nov. C) *Physegeniopsis albeto*, sp. nov. D) *Physegeniopsis ankhoidea*, sp. nov. E) *Physegeniopsis hadrocara*, sp. nov.

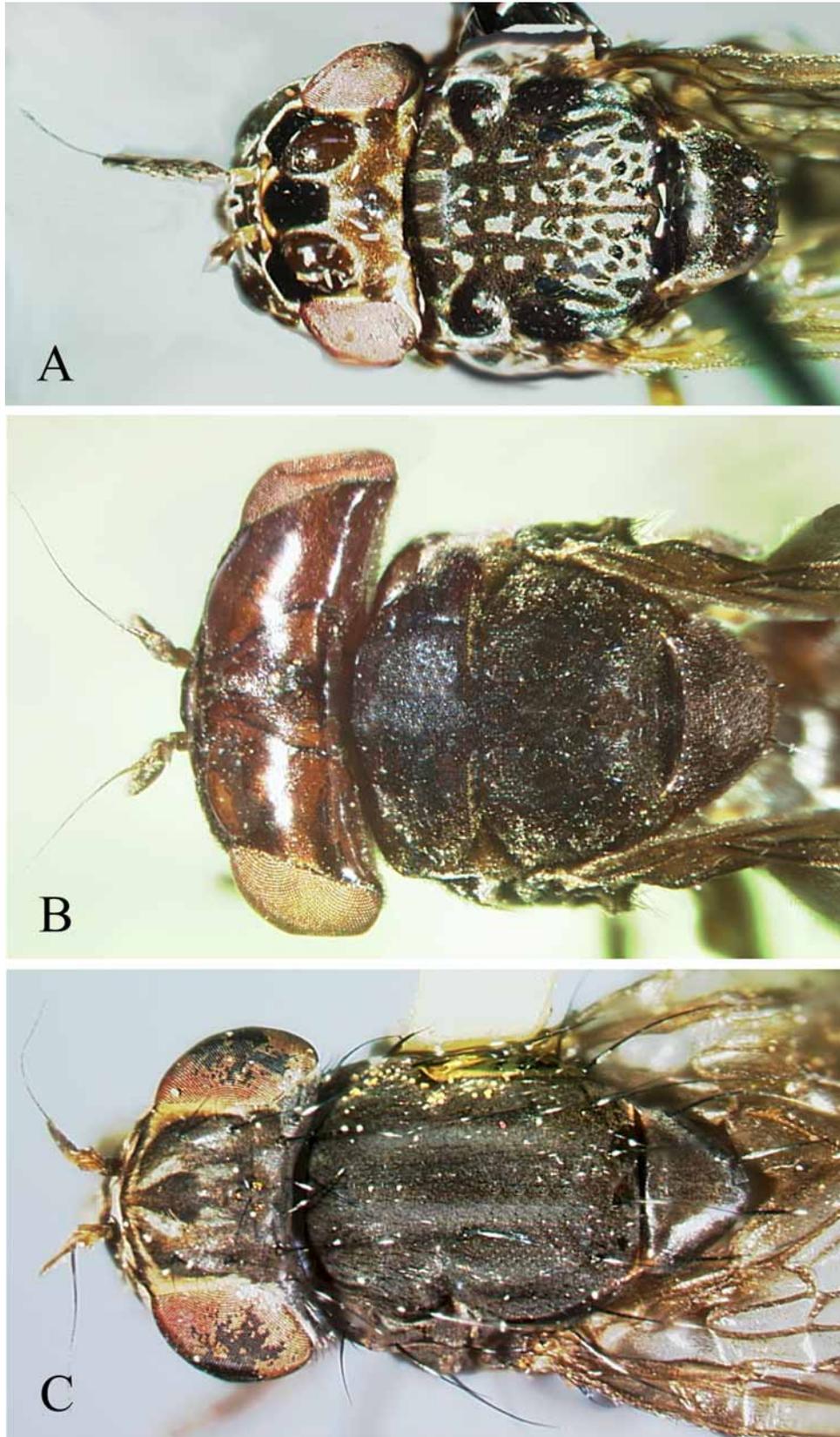


FIGURE 9. Head and thorax of eurychoromyiine species, dorsal view. A) *Choryeuromyia xenisma*, sp. nov. B) *Eurychoromyia mallea* Hendel. C) *Euryhendelimyia schlingeri*, sp. nov.

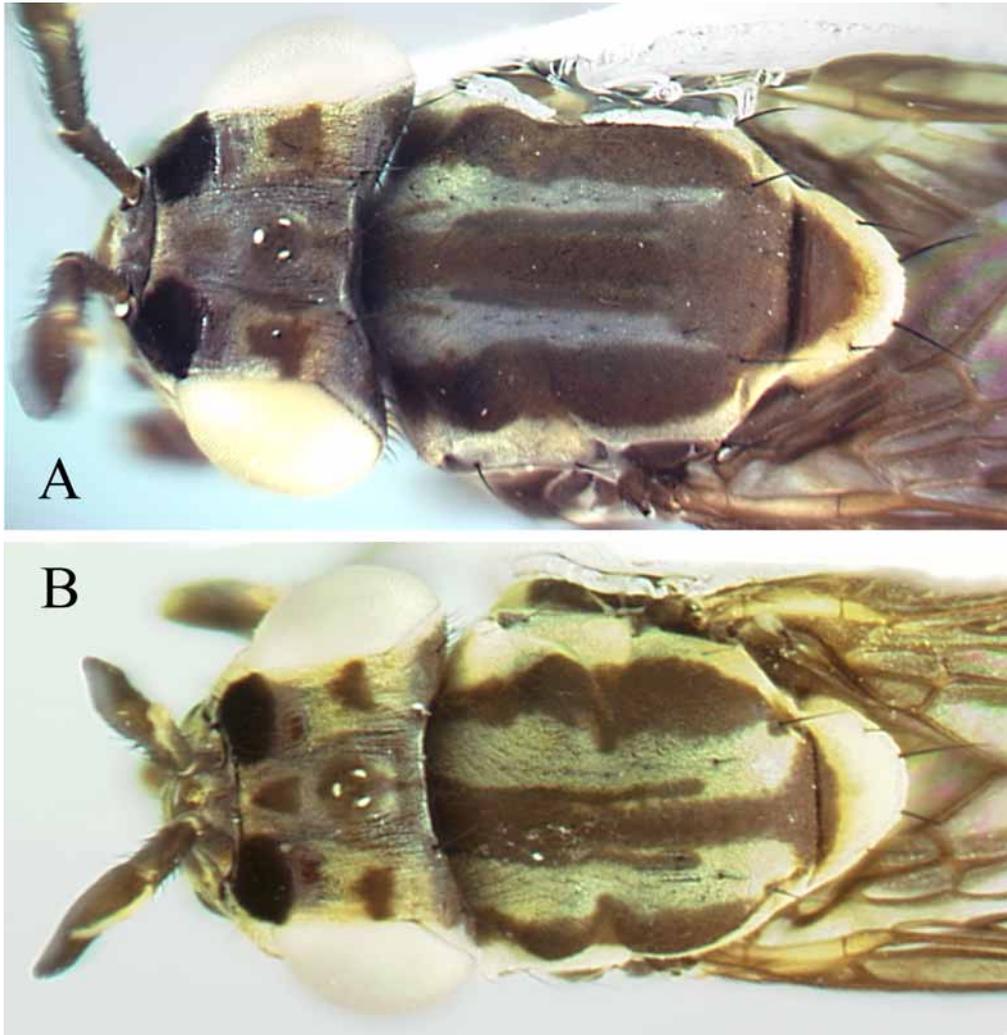


FIGURE 10. Head and thorax of eurychoromyiine species in the genus *Eurystratiomyia*, dorsal view. A) *Eurystratiomyia epacrovitta*, sp. nov. B) *Eurystratiomyia erwini*, sp. nov.

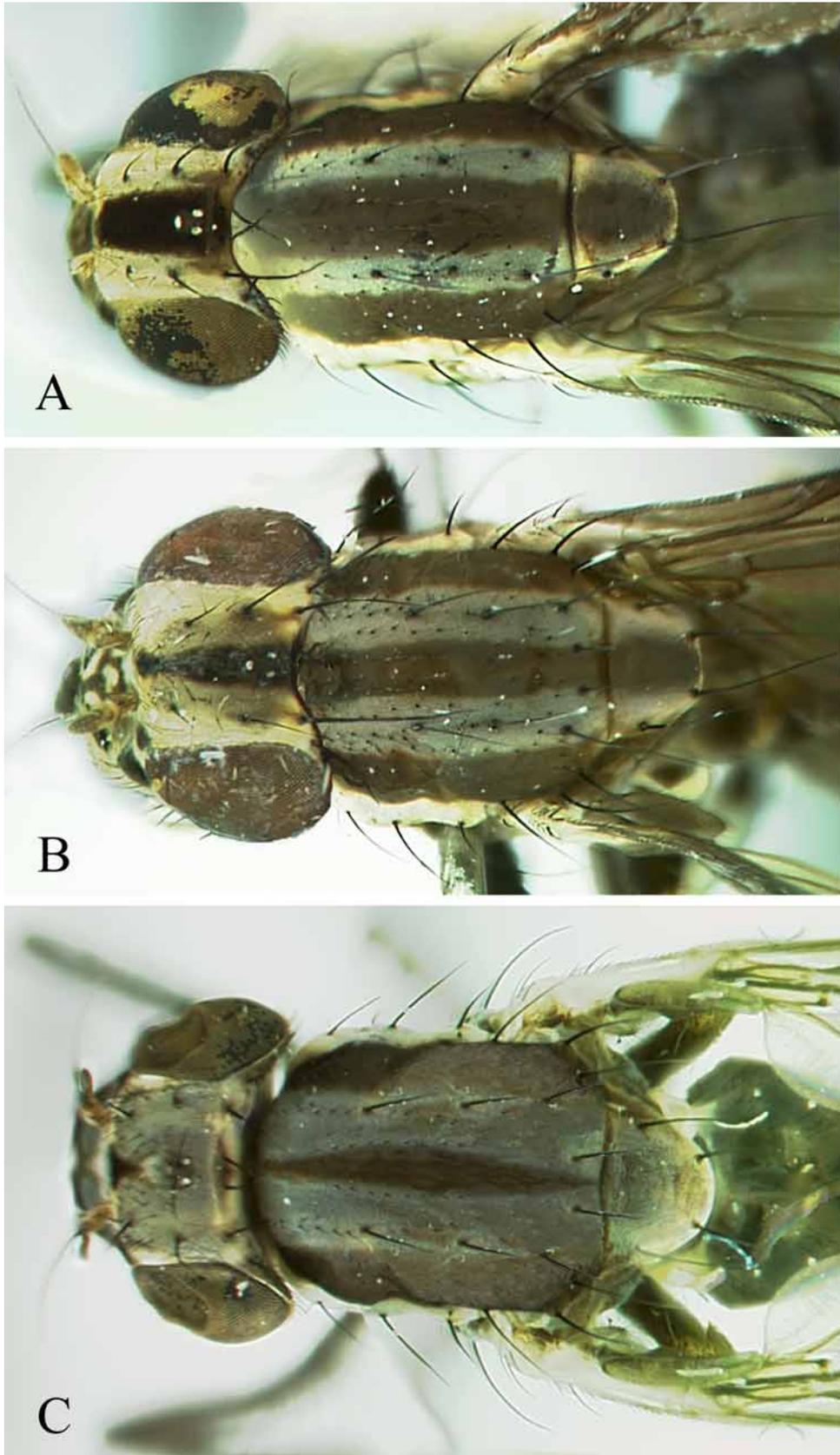


FIGURE 11. Head and thorax of eurychoromyiine species in the genus *Physegeniopsis*, dorsal view. A) *Physegeniopsis albedo*, sp. nov. B) *Physegeniopsis ankhoidea*, sp. nov. C) *Physegeniopsis hadrocara*, sp. nov.

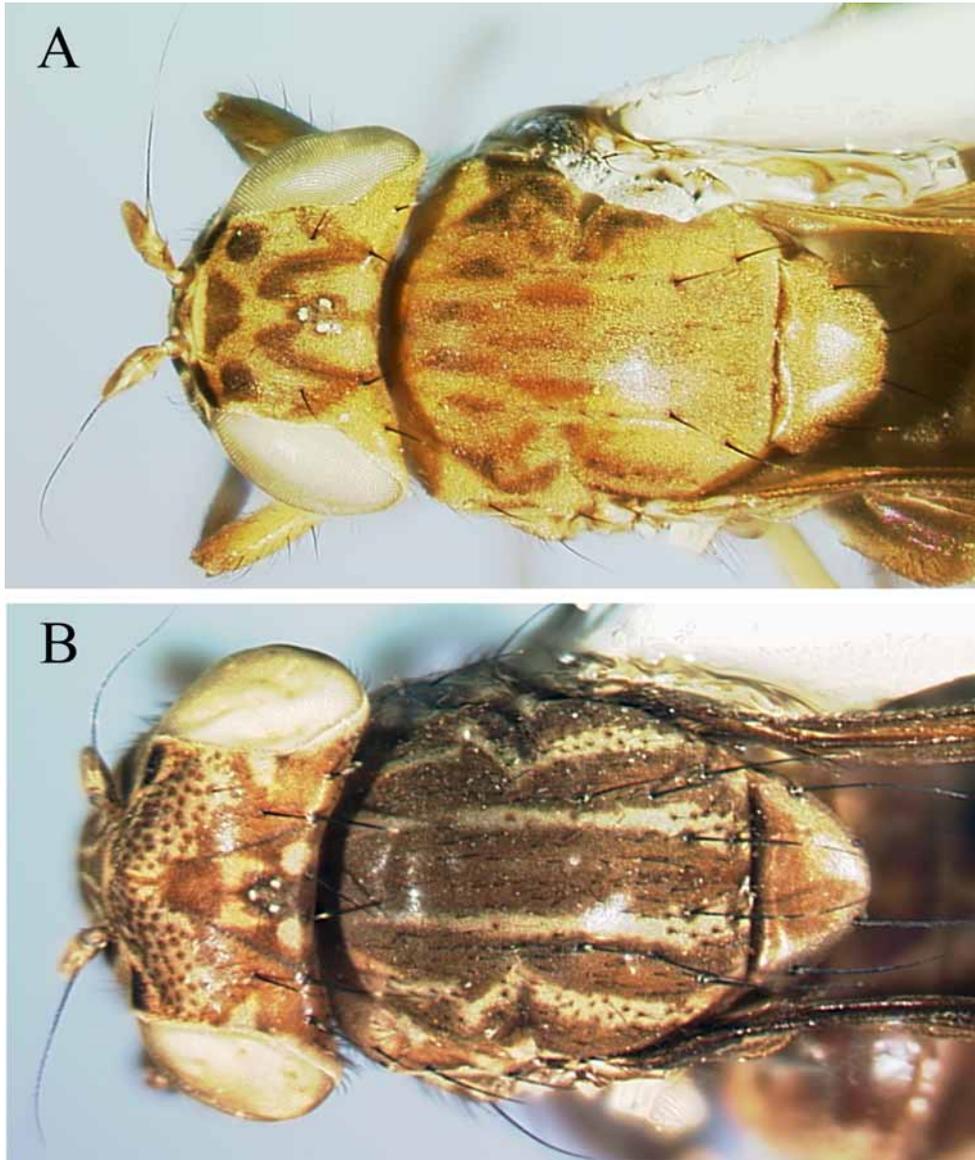


FIGURE 12. Head and thorax of eurychoromyiine species, dorsal view. A) *Roryeuchomyia tigrina*, sp. nov. B) *Tauridion shewelli* Papp & Silva.

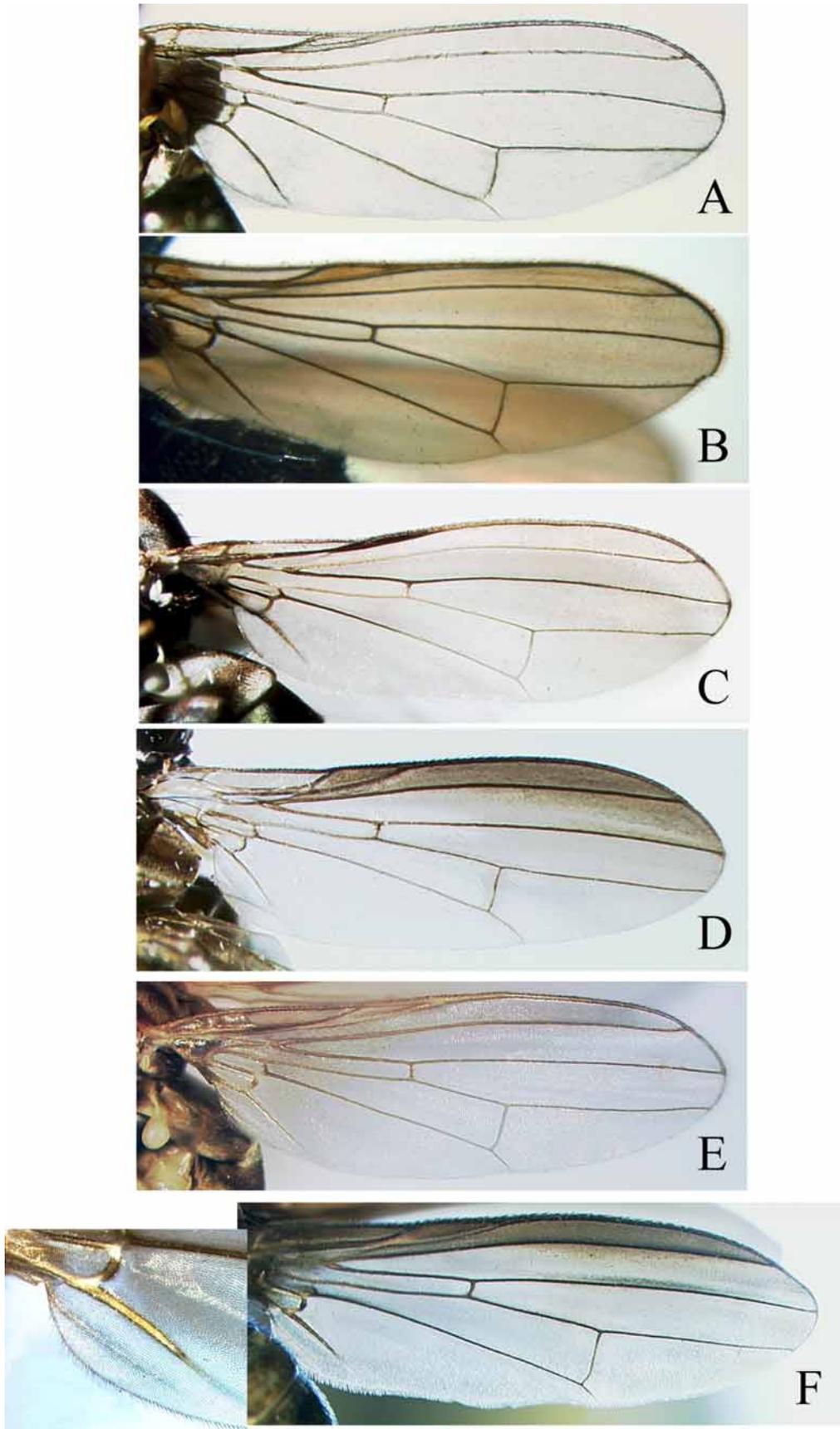


FIGURE 13. Wings of eurychoromyiine species. A) *Choryeuromyia xenisma*, sp. nov. B) *Eurychoromyia mallea* Hendel. C) *Eurystratiomyia erwini*, sp. nov. D) *Physegeniopsis ankhoida*, sp. nov. E) *Roryeuchomyia tigrina*, sp. nov. F) *Tauridion shewelli* Papp & Silva (inset left, closeup of anal lobe).

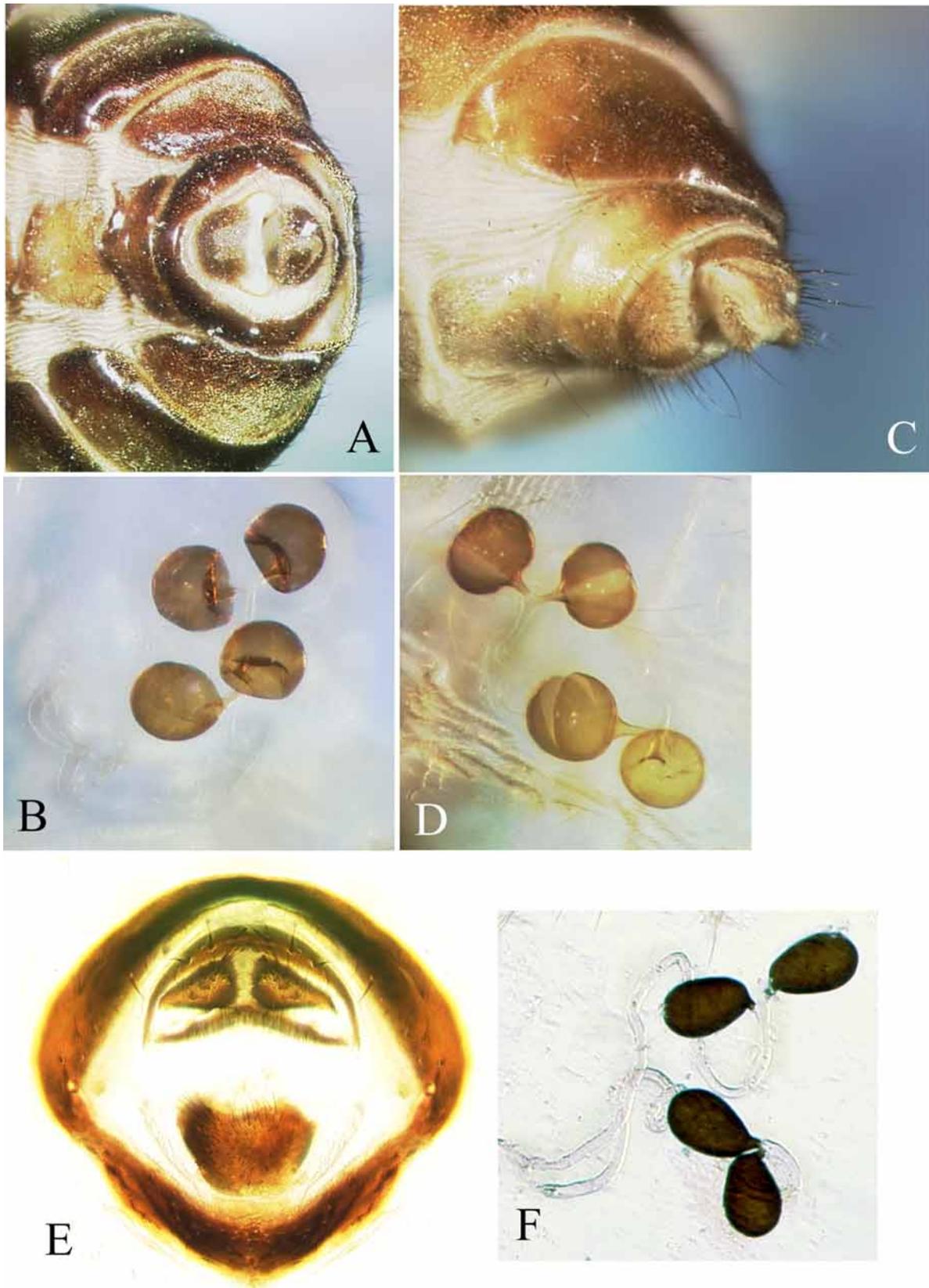


FIGURE 14. Female terminalia and spermathecae of eurychoromyiine species. A–B) *Eurystratiomyia erwini*, sp. nov.: A) distal segments of abdomen, ventral view; B) spermathecae. C–D) *Roryeuchomyia tigrina*, sp. nov.: C) distal segments of abdomen, ventral oblique view; D) spermathecae. E–F) *Tauridion shewelli* Papp & Silva: E) female terminalia, posterior view; F) spermathecae.

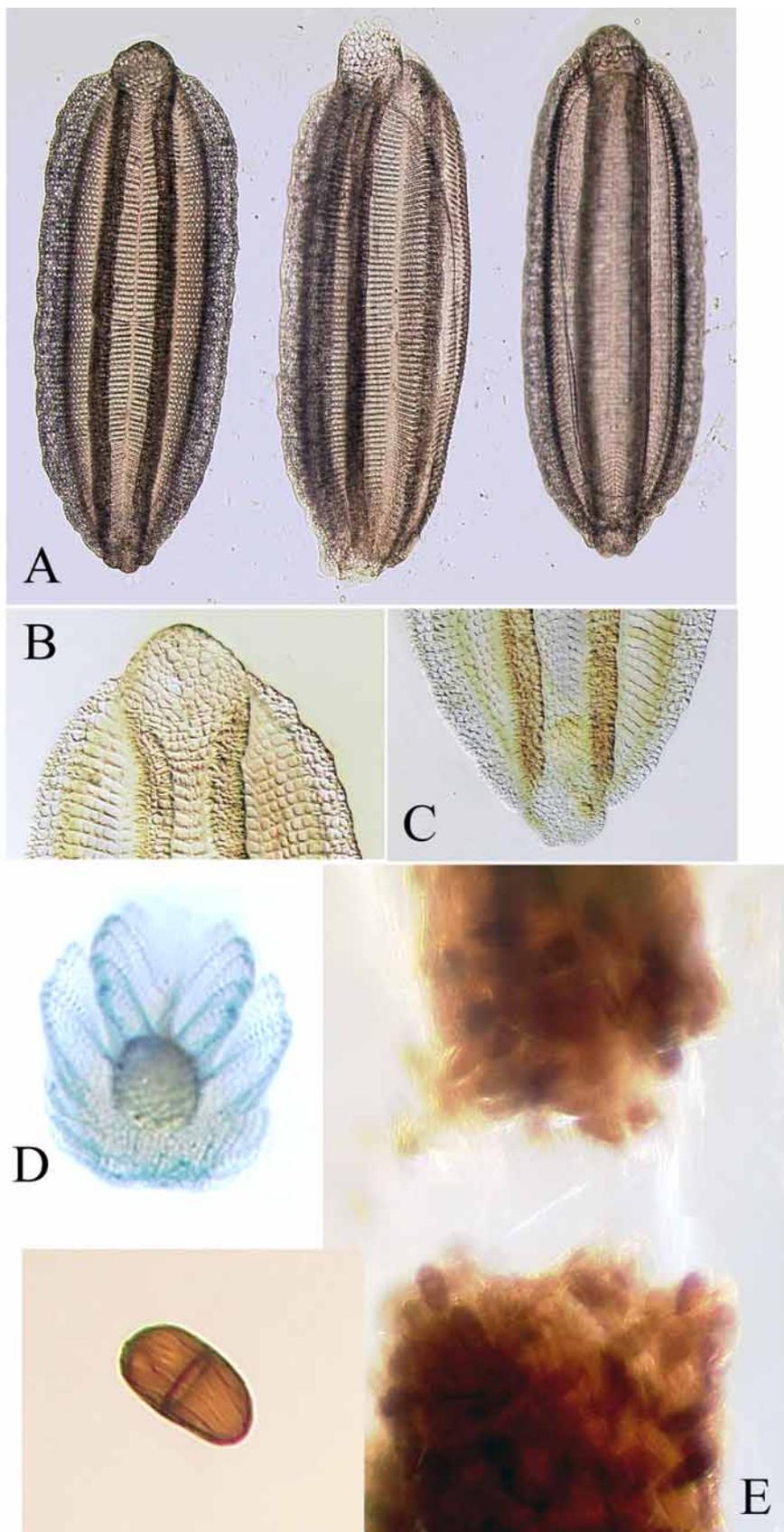


FIGURE 15. Eggs of *Tauridion shewelli* Papp & Silva and *Physegeniopsis albeto*, sp. nov., and gut contents of *Tauridion shewelli*. A–C) eggs of *Tauridion shewelli*: A) whole eggs (posterior end at top), from left: dorsal view, lateral view, ventral view; B) closeup, posterior end; C) closeup, anterior end. D) egg of *Physegeniopsis albeto*, sp. nov., anterior view showing dorsal flanges. E) gut contents of *Tauridion shewelli* consisting of fungal spores (inset left, closeup, single spore).

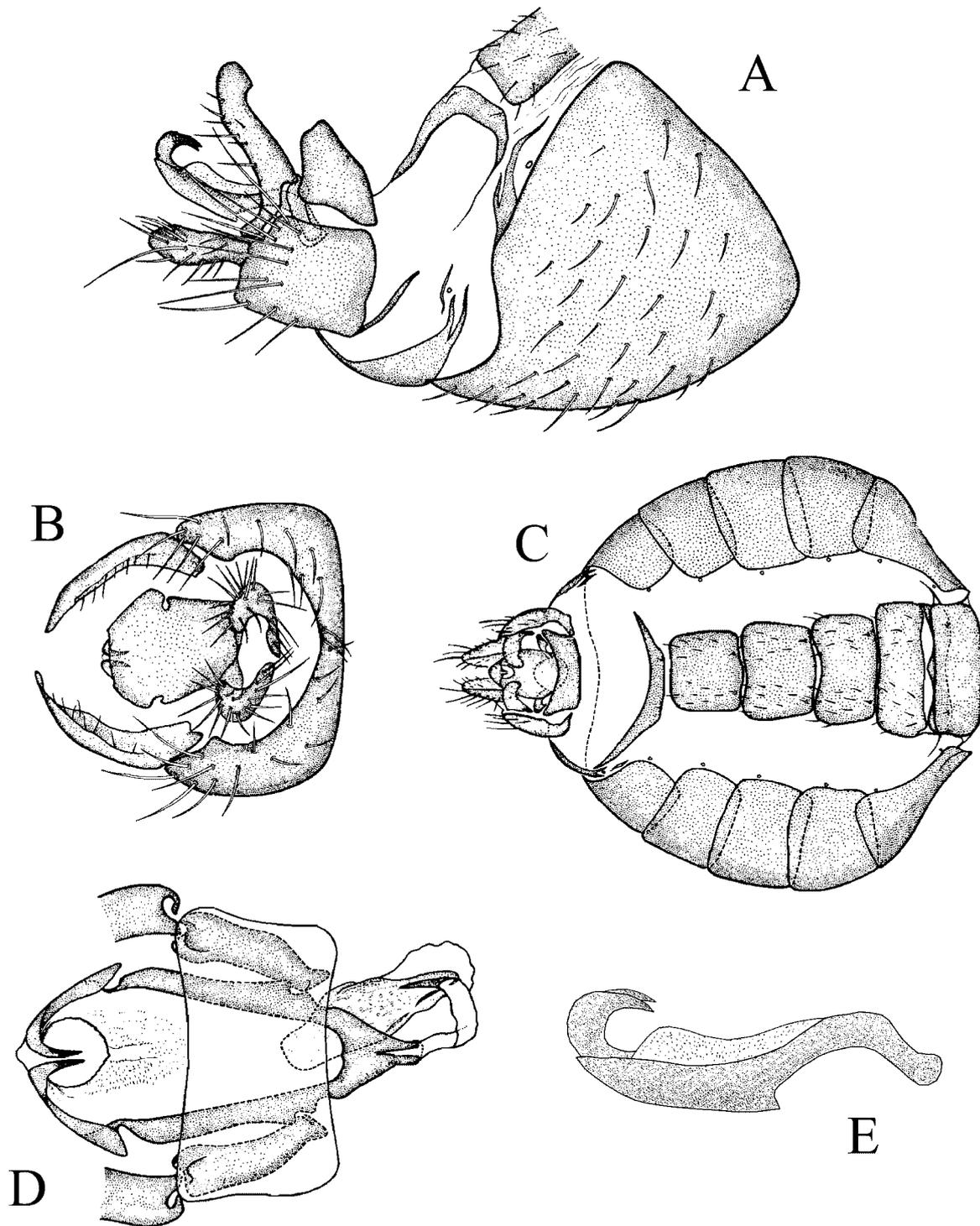


FIGURE 16. Male abdomen and genitalia of *Eurychoromyia mallea* Hendel. A–D from McAlpine (1968), reproduced with the permission of the Minister of Public Works and Government Services Canada, 2008. A) abdomen, lateral view, with genitalia *in situ*. B) genitalia, dorsal view. C) abdomen, ventral view, with genitalia *in situ*. D) phallus complex, ventral view. E) phallus, lateral view (redrawn from A to magnify).

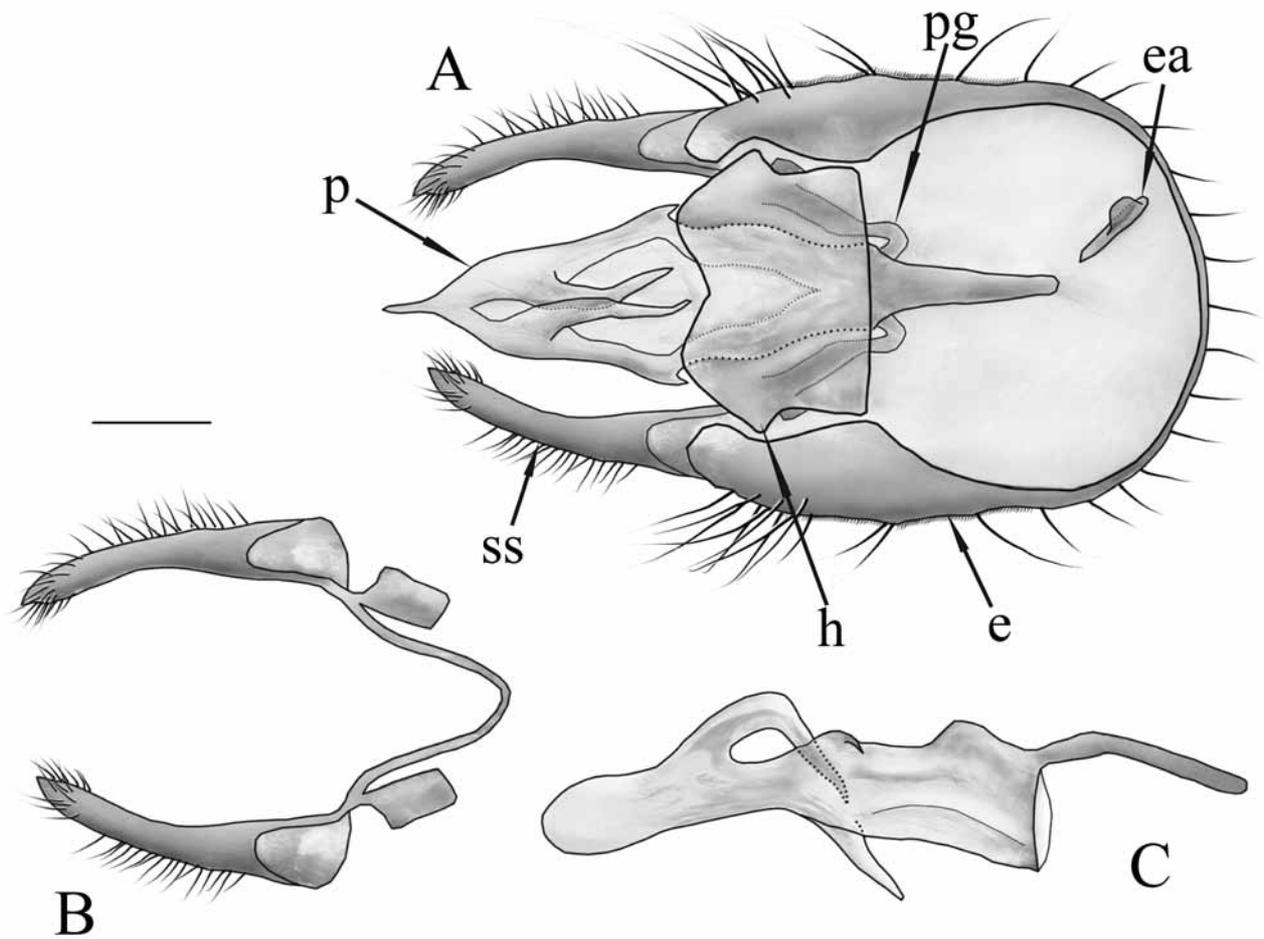


FIGURE 17. Male genitalia of *Euryhendelimitya schlingeri*, sp. nov. Measure bar = 0.2 mm. A) genital complex, ventral view; e = epandrium, ea = ejaculatory apodeme, h = hypandrium, p = phallus, pg = postgonite, ss = surstylus. B) surstyli and bacilliform sclerite. C) phallus, lateral view.

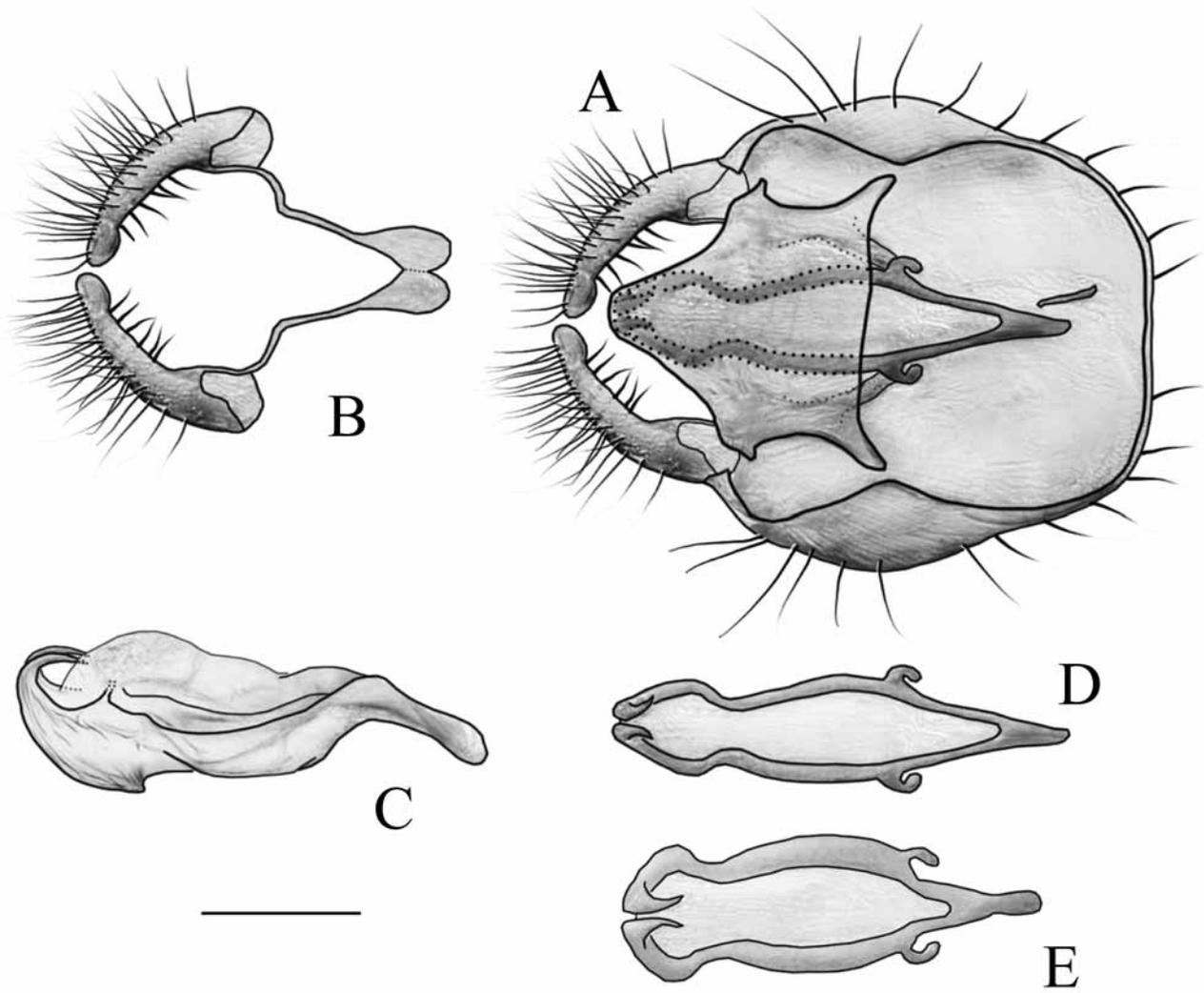


FIGURE 18. Male genitalia of *Eurystratiomyia* species. Measure bar = 0.2 mm. A–D) *Eurystratiomyia erwini*, sp. nov.: A) genital complex, ventral view; B) surstyli and bacilliform sclerite; C) phallus, lateral view; D) phallus, ventral view. E) *Eurystratiomyia epacrovitta*, sp. nov.: phallus, ventral view.

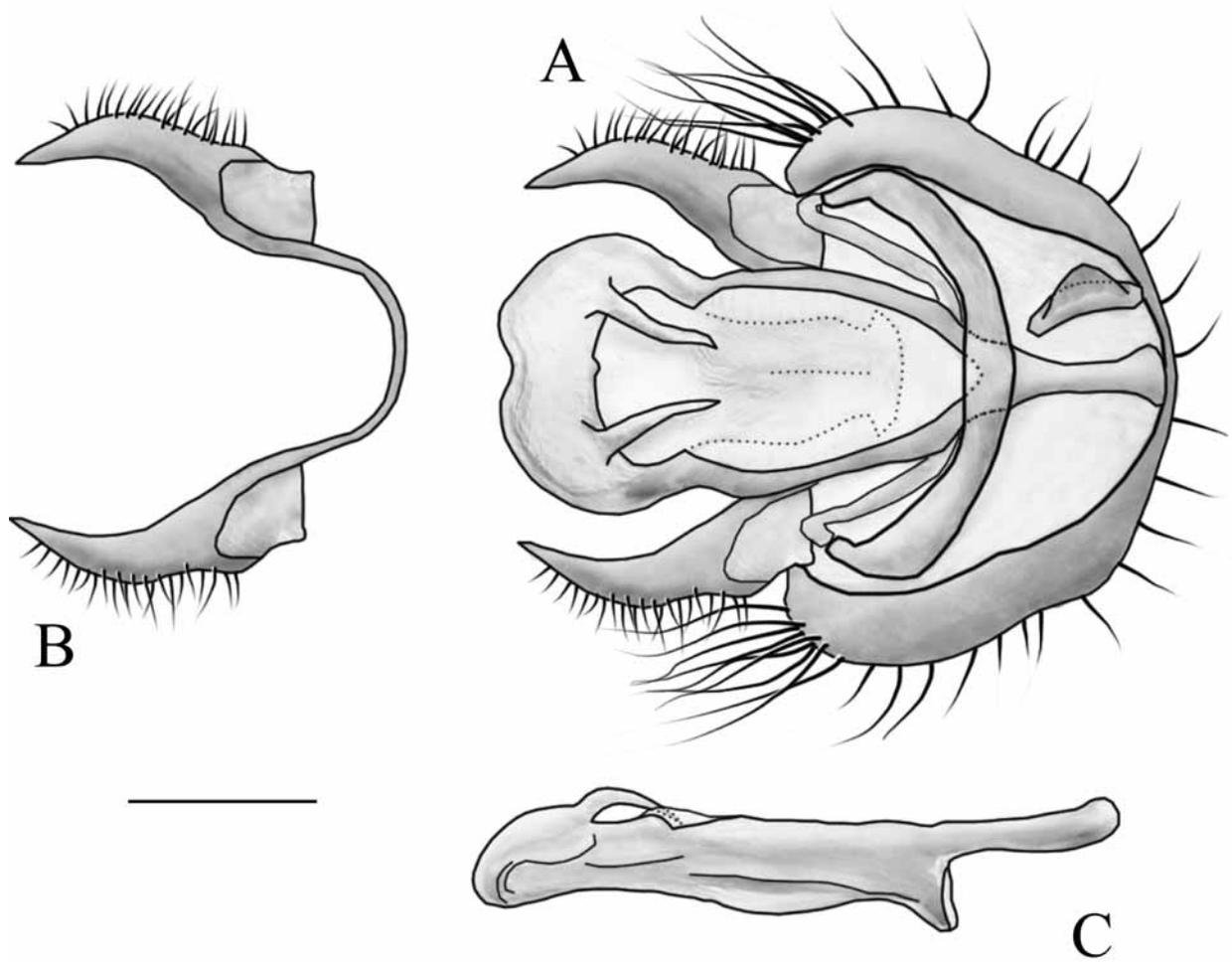


FIGURE 19. Male genitalia of *Physegeniopsis albeto*, sp. nov. Measure bar = 0.2 mm. A) genital complex, ventral view. B) surstyli and bacilliform sclerite. C) phallus, lateral view.

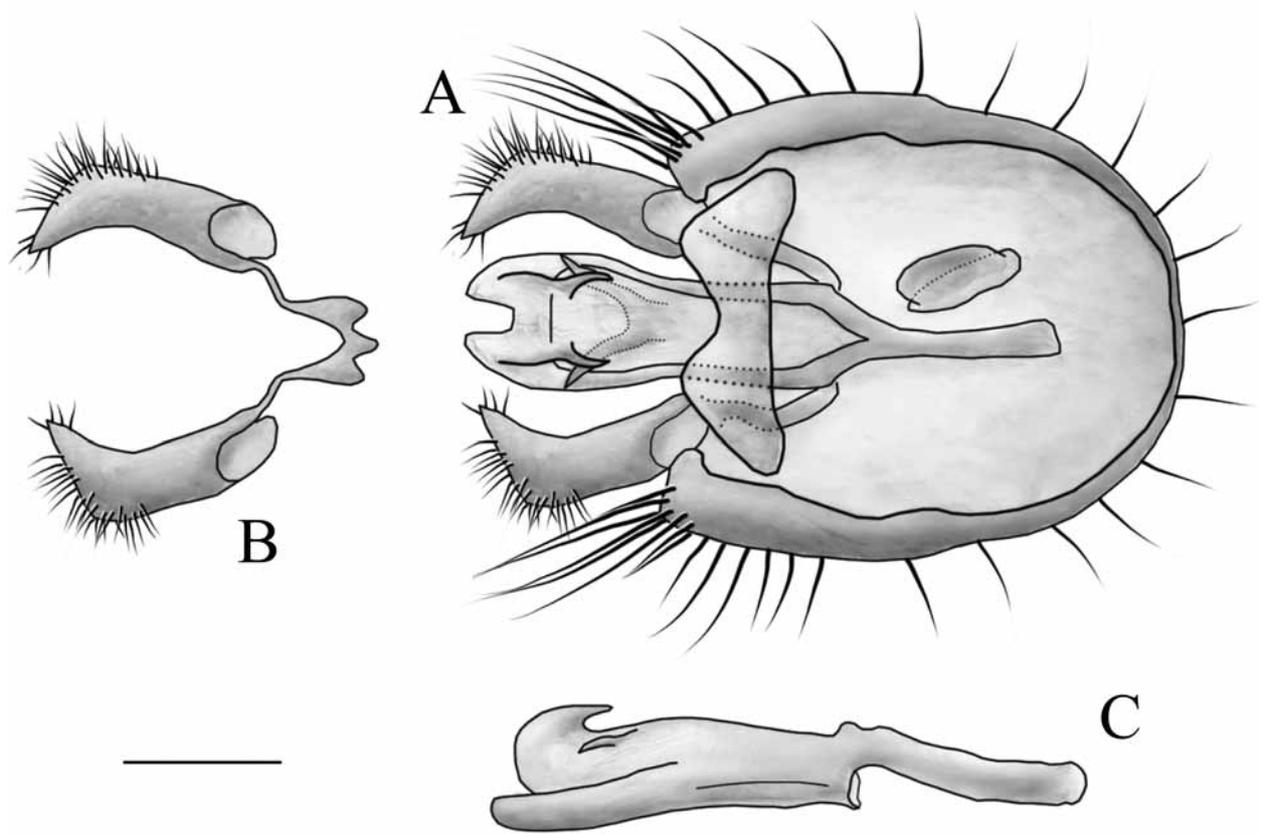


FIGURE 20. Male genitalia of *Physegeniopsis ankhoidea*, sp. nov. Measure bar = 0.2 mm. A) genital complex, ventral view. B) surstyli and bacilliform sclerite. C) phallus, lateral view.

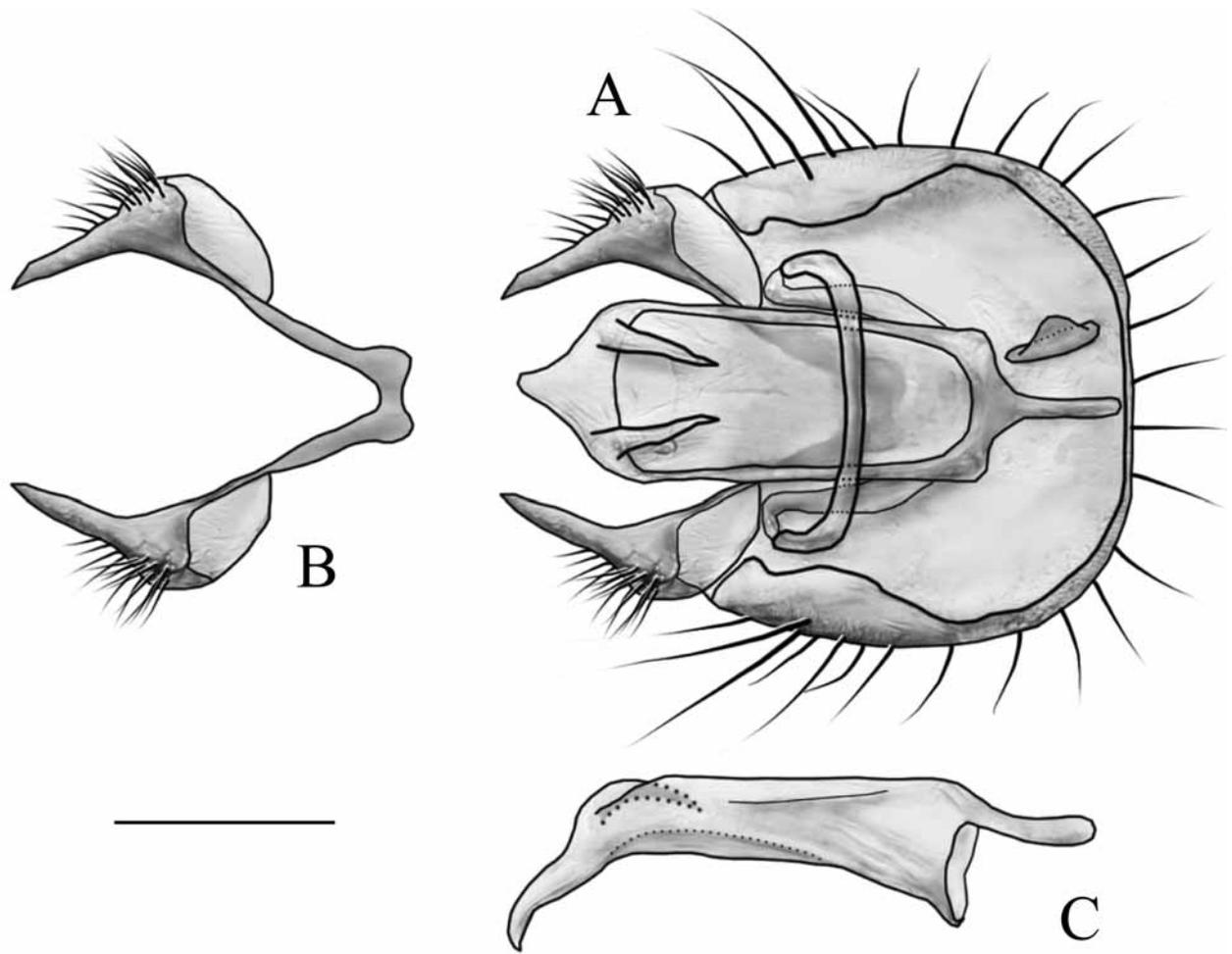


FIGURE 21. Male genitalia of *Physegeniopsis hadrocara*, sp. nov. Measure bar = 0.2 mm. A) genital complex, ventral view. B) surstyli and bacilliform sclerite. C) phallus, lateral view.

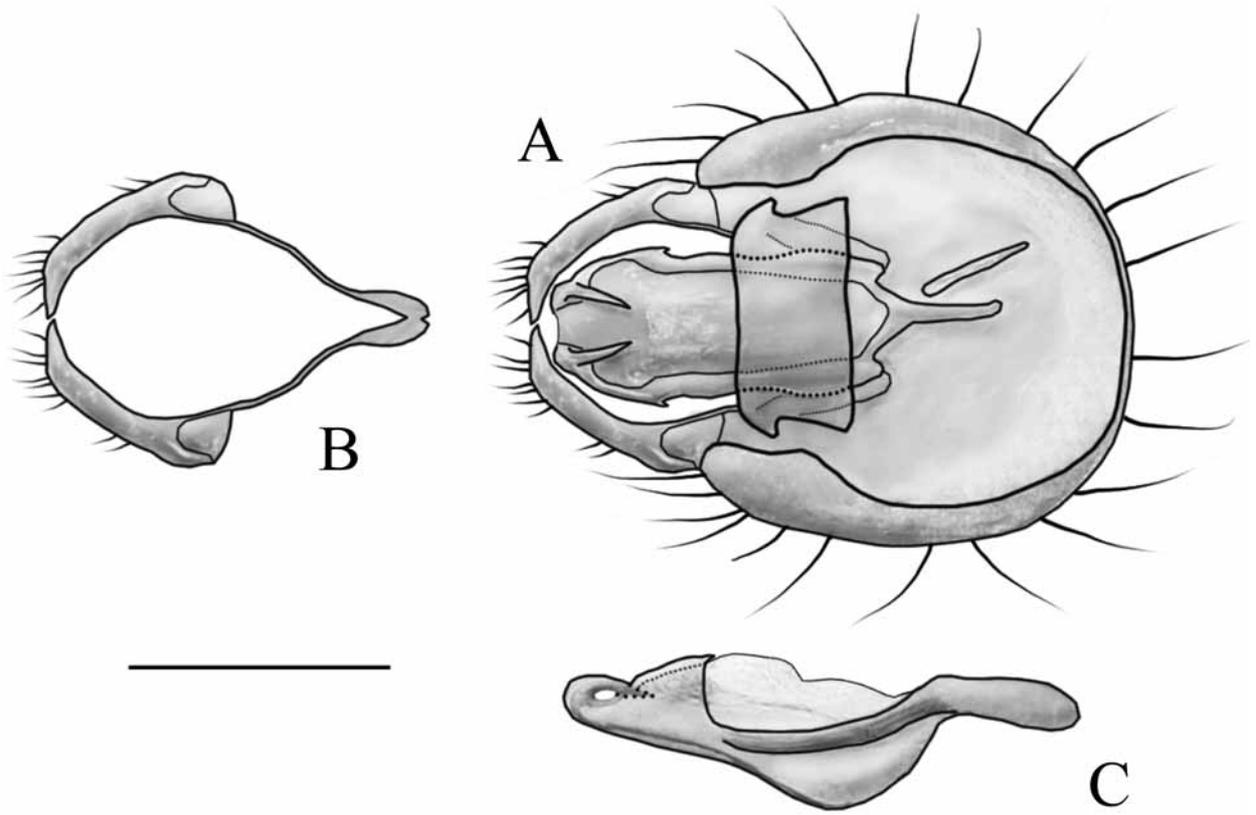


FIGURE 22. Male genitalia of *Roryeuchomyia tigrina*, sp. nov. Measure bar = 0.2 mm. A) genital complex, ventral view. B) surstyli and bacilliform sclerite. C) phallus, lateral view.

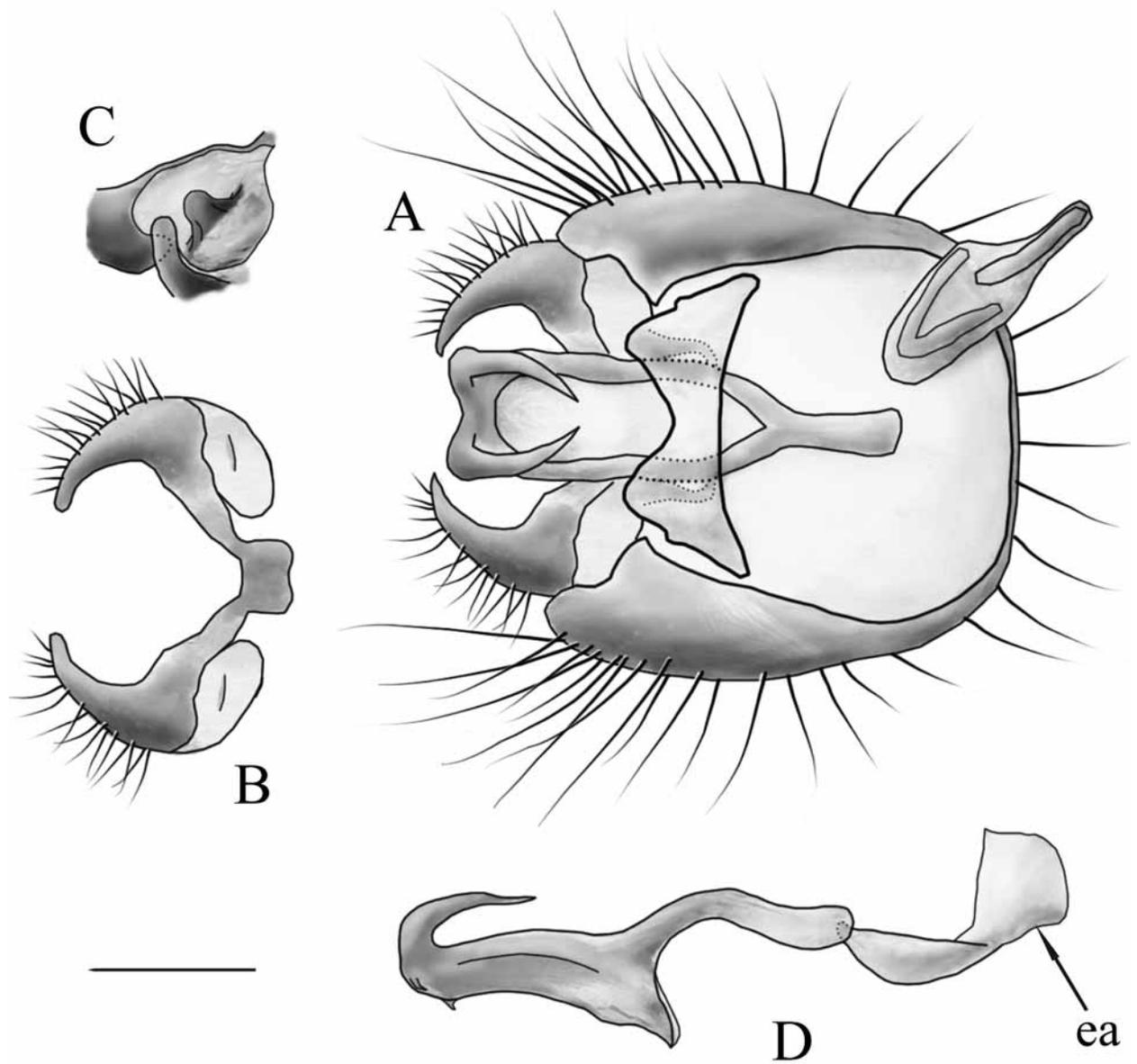
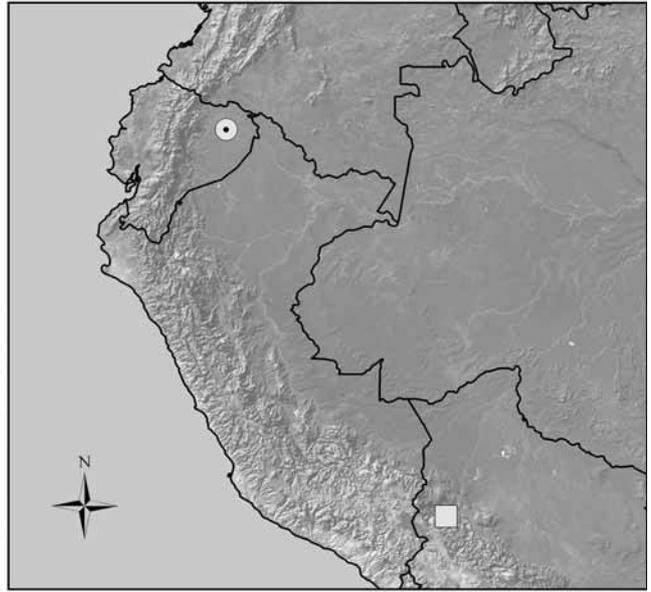


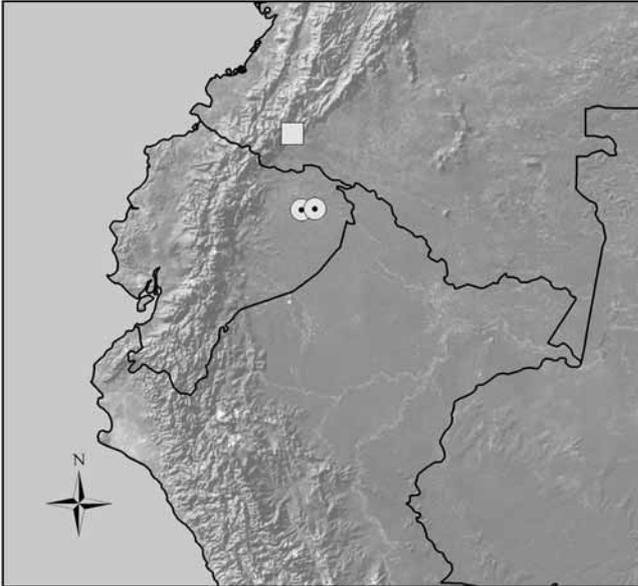
FIGURE 23. Male genitalia of *Tauridion shewelli* Papp & Silva. Measure bar = 0.2 mm. A) genital complex, ventral view. B) surstyli and bacilliform sclerite. C) posterior projection of basal lobe of surstylus. D) phallus and ejaculatory apodeme, lateral view; ea = ejaculatory apodeme.



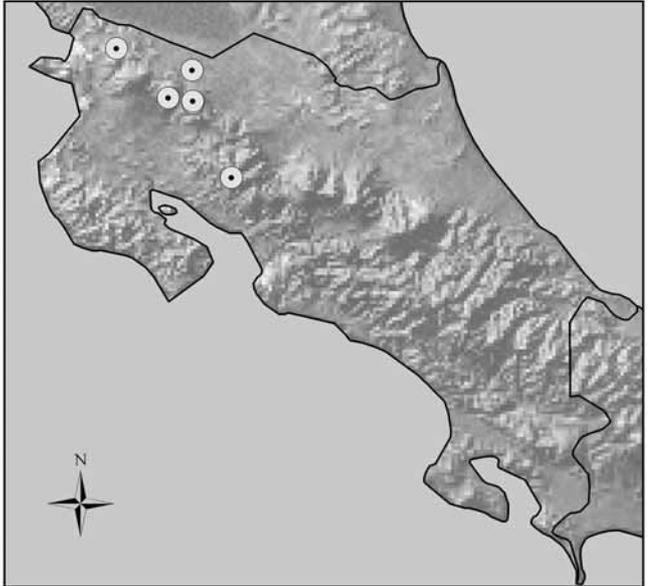
MAP 1. Distribution of *Choryeuromyia xenisma*, sp. nov..



MAP 2. Distribution of *Eurychoromyia mallea* Hendel (square) and *Eurystratiomyia erwini*, sp. nov. and *E. epacrovitta* sp. nov. (both species, circle with dot).



MAP 3. Distribution of *Euryhendelimyia schlingeri*, sp. nov. (square) and *Roryeuchomyia tigrina*, sp. nov. (circle with dot).



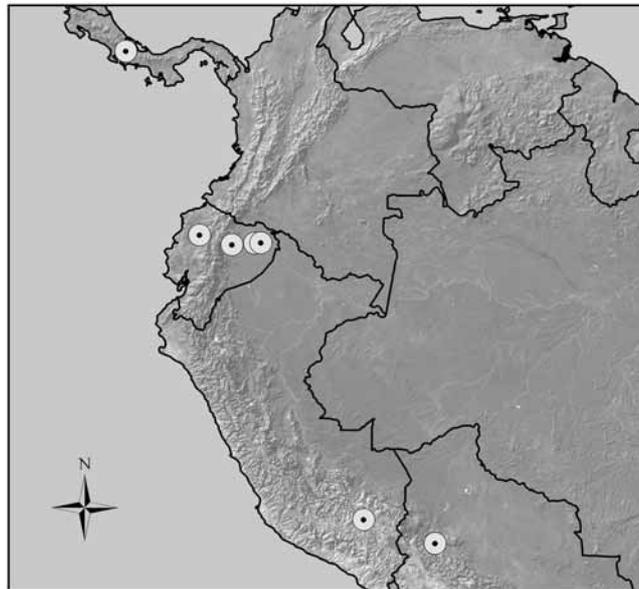
MAP 4. Distribution of *Physegeniopsis albeto*, sp. nov.



MAP 5. Distribution of *Physegeniopsis ankhoidea*, sp. nov.



MAP 6. Distribution of *Physegeniopsis hadrocara*, sp. nov.



MAP 7. Distribution of *Tauridion shewelli* Papp & Silva.

About the authors

Stephen Gaimari is currently the Program Supervisor for the Entomology Laboratory at CDFA's Plant Pest Diagnostics Center in Sacramento, California, also serving as Co-Curator for the California State Collection of Arthropods. He has worked for CDFA since 2001, prior to which he was in the Entomology Department at the Smithsonian Institution's National Museum of Natural History for nearly three years. Steve received his PhD in Entomology in 1998 at the University of Illinois at Urbana-Champaign, his MS in Entomology in 1993 from Washington State University, and his BA in Biology in 1990 from Clark University in Worcester, Massachusetts. Steve grew up in Nashua, New Hampshire. His primary research interest is systematics of acalyprate flies, particularly Lauxanioidea (Lauxaniidae, Chamaemyiidae, Celyphidae) and Odiniidae. Beyond acalyprates, he also works with some asiloid families (Therevidae, Scenopinidae).

Vera C. Silva has been an active dipterist for many years. Her particular interests are in the dipteran families Lauxaniidae and Sepsidae from the Neotropical region. In connection with this work she has visited most major American museums, The Natural History Museum (London), Muséum National d'Histoire Naturelle (Paris), Naturhistorisches Museum (Wien), Hungarian Natural History Museum (Budapest), and others. She is an Assistant Professor at UNESP, a public University in Brazil. Her publications include 15 papers in various journals and 10 book chapters.