

**GENERA OF THE SUBFAMILY TACHINISCINAE
(DIPTERA, TEPHRITIDAE), WITH DISCUSSION
OF THE POSITION OF *DESCOLEIA ACZÉL* AND
NOSFERATUMYIA, GEN. N. (TEPHRITOIDEA INCERTAE SEDIS)**

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Genera of the subfamily Tachiniscinae (Diptera, Tephritidae), with discussion of the position of *Descolea Aczél* and *Nosferatumyia*, gen. n. (Tephritoidea incertae sedis). — The subfamily Tachiniscinae is the sister-group of the other subfamilies of Tephritidae. This lineage has existed at least since the Upper Oligocene or Lower Miocene and is the earliest branch of the family Tephritidae. Unlike other Tephritidae, the members of the Tachiniscinae are believed to be parasitoids of other insects. Nine genera of the subfamily are recognized and are reviewed and described or briefly redescribed and illustrated. A key to identify these genera and an analysis of the phylogenetic relationships among them are provided. Two tribes, Tachiniscini and Ortalotrypetini, are recognized, although the later group may be paraphyletic. *Agnitrena* gen. n. (type species *A. igniceps* sp. n. from Argentina) is described, and *Bibundia fenestrata* (Grünberg), stat. n. is removed from synonymy with *B. hermanni* Bischof. The relationships of two genera of Tephritoidea incertae sedis also are discussed. *Descolea* Aczél shares certain apomorphies and plesiomorphies with both Pyrgotidae and Tephritidae, but no unambiguous synapomorphies with either one of them, and its familial position remains uncertain. *Nosferatumyia* gen. n. (type species *N. no* sp. n. from Madeira) described here from a single male, at least superficially resembles some members of the tribe Ortalotrypetini, but females, which have the most essential characters of tachiniscines, are unknown.

Keywords: Tephritoidea — Tephritidae — Tachiniscinae — new genera — new species.

INTRODUCTION

Species of the subfamily Tachiniscinae are rare in collections and are poorly known biologically, but they are important to understanding the phylogeny of the Tephritidae, as they appear to be the earliest branch of the family (Korneyev, 1999a, b). In this paper we describe or redescribe many of these little known flies, and analyze the phylogenetic relationships within the subfamily.

The family Tachiniscidae was established by Kertész (1903) for a single species, *Tachinisca cyaneiventris* Kertész, 1903 from Peru and Bolivia. Kertész correctly placed that family in the “Muscidae acalyptratae”, in spite of its tachinid-like appearance. In the same year, Bischof (1903) described another genus, *Bibundia*, with a single species, *B. hermanni* Bischof (from Central Africa), which he assigned to “Ortalidae”. A few years later, Grünberg (1906) published a very detailed and well illustrated description of *Tachinoestrus fenestratus* Grünberg based on a single female from Sierra Leone. Speiser (1907) proposed the replacement name *Anthophasia* for this generic name, preoccupied by *Tachinoestrus* Portschinsky, 1887. Later, Cogan (1980) synonymized both names with *Bibundia hermanni*. Malloch (1931) described one more monotypic tachiniscid genus, *Tachiniscidia*, with the type species *T. africana* Malloch from “Chirinda Forest, S. Rhodesia” (Zimbabwe).

The only host data recorded for these three genera, or any other Tachiniscinae, is the mention of “*Anthophasia robertsi* Cogan” (*nomen nudum*; listed by Cogan (1980) as an undescribed species of *Bibundia*) reared from pupae of *Bunaea alcinoe* Stoll and *Imbrasia obscura* Butler (Lepidoptera: Saturniidae) by Roberts (1969). The exact identity of the host species needs further investigation, as Cogan (1980: 555) stated that “A single specimen of a *Bibundia* species has been reared by Roberts (1969) from a caterpillar of a saturniid moth, *Imbrasia nictitans* Fabricius.” The latter name is a synonym of *Imbrasia epimethea* Drury (Geoff Martin, pers. comm.).

Subsequent to the original descriptions of the above three genera, Lopes (1934) published a new record of *Tachinisca cyaneiventris* from Brazil, and Hennig (1958: 580) noted that further studies were needed to clarify their position and prove the monophyly of the group. All these data were briefly summarized by Papavero (1967) and Cogan (1980) in the catalogs of Neotropical and Afrotropical Diptera. The only subsequent paper dealing with the taxonomy of Tachiniscidae (*s. lat.*), is an illustrated key to southern African acalyptrate fly families, which contains a figure of the head of *Tachiniscidia* (Barraclough, 1995: fig. 20).

The other taxa currently considered tachiniscines were originally described as fruit flies. “*Hexachaeta*” *isshikii* Matsumura was described from Honshu (Japan). Hendel (1927) established the genus *Ortalotrypeta* with two species from China (Sichuan), *O. gigas* Hendel and *O. idana* Hendel, which he considered related to *Acanthonevra* Macquart and allied genera of fruit flies. Later, Shiraki (1933) transferred *H. isshikii* to *Ortalotrypeta*, and Zia and Chen (Zia & Chen, 1938; Chen, 1948; Zia, 1955, 1963) and Wang (1988, 1989) described eight additional species from southeastern China and northern Vietnam. The genus *Cyaphorma* Wang, very close to *Ortalotrypeta*, was described to include one species, *C. shenonica* Wang, from China (Wang, 1989). Ito (1983) established the tribe Ortalotrypetini in his key to genera of Japanese Tephritidae. He included the single genus *Ortalotrypeta* to separate it from genera of the tribe Acanthonevrini.

Norrbom (1994) summarized the previously known information on the Ortalotrypetini. He transferred two species previously assigned to *Ortalotrypeta* into *Cyaphorma*, and described *O. ziae* from Taiwan and two new monotypic genera from the New World. One of them, *Neortalotrypeta* Norrbom, was based upon a poorly preserved female of *N. bicolor* Norrbom from Brazil; the second, *Protortalotrypeta*

Norrbom, surprisingly was represented by the fossil species *P. grimaldii* in amber from the Dominican Republic.

Norrbom (1994) analyzed the phylogenetic relationships among the Ortalotrypetini and showed that representatives of the tribe share several unique synapomorphies that clearly differentiate ortalotrypetines from Acanthonevrini and other tephritids with six scutellar setae: 1) opening of the oviscap (syntergosternite 7) dorsoapical rather than posteroapical, and the everted ovipositor has a characteristic “scorpion-tail” appearance; 2) eversible membrane of the ovipositor without taeniae, but with area of dense scales on the ventral side; 3) aculeus lance-like, with the cercal unit completely integrated into it (not separate as in Acanthonevrini). Later, Norrbom *et al.* (1999) transferred the monotypic genus *Ischyropteron* Bigot from Brazil to the tribe.

Korneyev (1994) discussed these and other characters of representatives of several primitive lineages of the Tephritidae, and accorded subfamilial status to the ortalotrypetines. Later, he discovered that the structures of the female terminalia that Norrbom (*loc. cit.*) considered synapomorphies of ortalotrypetines are present also in *Tachinisca*, and arrived at the conclusion that the “family Tachiniscidae” comprises aberrant ortalotrypetines (Korneyev, 1999a). He reduced their rank to the tribe Tachiniscini and placed them in the tephritid subfamily Tachiniscinae together with the tribe Ortalotrypetini (Korneyev, 1999b).

During 2001–2005, additional specimens of Tachiniscinae or possibly related taxa were examined in the following collections:

- AMNH American Museum of Natural History, New York, USA.
- HNHM Hungarian Natural History Museum, Budapest, Hungary.
- IML Instituto Miguel Lillo, Tucumán, Argentina.
- KBIN Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels, Belgium.
- KMMA Koninklijk Museum voor Midden-Afrika, Tervuren, Belgium.
- MLUH Martin-Luther-Universität in Halle an der Saale, Germany.
- MNHN Muséum National d'Histoire Naturelle, Paris, France.
- NHMW Naturhistorisches Museum Wien, Austria.
- UG Department of Environmental Biology, University of Guelph, Canada.
- ZMHB Zoologisches Museum der Humboldt-Universität zu Berlin, Germany.

These included the type specimens and additional previously unknown specimens of various described species, as well as specimens of two previously unknown species, all of which are figured and described or redescribed below.

The investigative responsibilities were distributed between the authors as follows: VAK described and figured the new taxa, *Tachinisca*, *Bibundia* and *Tachiniscidia*, while ALN provided the figures and redescrptions of *Ischyropteron* and *Neortalotrypeta*, and digital photographs of *Descoleia*.

Morphological terminology used here generally follows McAlpine (1981) and White *et al.* (1999). The following abbreviations are used for states of characters used in diagnoses or discussions: A = apomorphy, AA = autapomorphy, P = plesiomorphy, SA = synapomorphy, SP = symplesiomorphy.

SYSTEMATIC PART

Family TEPHRITIDAE

Subfamily TACHINISCINAE

Tachiniscidae Kertész, 1903: 355; Malloch, 1931: 334; Lopes, 1934: 518; Hennig, 1958: 577, 580; Papavero, 1967: 58.1; Cogan, 1980: 555; Barraclough, 1995: 111; Sabrosky, 1999: 296.

Tephritidae, Tachiniscinae: Korneyev, 1999a: 18; 1999b: 92.

Anthophasiinae Townsend, 1935: 82, 91.

Bibundiinae Townsend, 1935: 82, 91.

Type genus: *Tachinisca* Kertész, 1903.

DIAGNOSIS. Medium-sized to very large flies (3.7–20.0 mm). Head shape variable, with 0–3 frontal setae; ocelli developed or (in *Bibundia*) lacking; antenna short (most *Ortalotrypetini*) or long (most *Tachiniscini*); pedicellar notch developed or absent; arista short pubescent to bare. Thorax often with supernumerary setae (postpronotal, postsutural supra-alar, scutellar, anepisternal and anepimeral). Basal part of pleural wing process of anepimeron without button-like swollen sclerite (greater ampulla) (P). Wing with 3 costal breaks, before and after humeral crossvein and before apex of vein Sc (P); stout setae before subcostal break present (SA with other Tephritidae) or absent (reversal?), vein Sc bent anteriorly before apex, complete in most genera (P), weaker distally in some *Ortalotrypeta* (convergence with other Tephritidae?); vein R_1 evenly setulose dorsally over its entire length; vein R_{4+5} setulose at least to level of R-M. Mid tibia usually with anterodorsal seta(-e) on apical half and 2 subequal ventro-apical setae; hindtibia usually with dorsal seta(-e). Female abdominal sternites 4–6 without anteromedial apodemes (P). Male terminalia of various shape, each medial surstylus with 2 prensisetae (SP with Tephritidae; absent in *Tachiniscidia*). Female terminalia: oviscape with dorsoapical rather than posteroapical opening, and everted ovipositor with characteristic “scorpion-tail” appearance (SA); eversible membrane without taeniae, but with strong scales on ventral side (SA); aculeus lance-like, with cercal unit completely integrated into it (SA).

TRIBES INCLUDED. Tachiniscini Kertész, 1903; *Ortalotrypetini*, Ito, 1983.

DISCUSSION. The monophyly of the subfamily is indicated by the strongly modified structures of the ovipositor, which are unique to this group within the Tephritoidea (SA) (see Phylogenetic Relationships). The absence of the greater ampulla, which appears to be a synapomorphy of other Tephritidae (although sometimes weak or indistinct in some genera), indicates the sister group relationship of Tachiniscinae and the other subfamilies.

KEY TO TRIBES AND GENERA OF TACHINISCINAE AND SIMILAR GENERA

The following key also includes the genera *Descoleia* and *Nosferatumyia*, which might be confused with some genera of Tachiniscinae.

- 1 Costal vein incomplete, extending only to vein R_{4+5} or, at most, midway between apices of veins R_{4+5} and M. Tribe Tachiniscini 3
- 1* Costal vein complete, extending to apex of vein M 2

- 2 Head and femora without conspicuous setae. 1 pair of scutellar setae. Neotropical *Descolea*
- 2* Head with at least strong vertical setae. Setae on forefemur well-developed. 2–3 pairs of scutellar setae. Tribe Ortalotrypetini 6
- 3 More than 3 scutellar setae; anepimeral setae (2–3) on stump-like projection. Veins R₄₊₅ and M strongly divergent. Antenna elongate or very long: pedicel longer than wide. Medium-sized to large flies (body length more than 5 mm) 4
- 3* Only 3 scutellar setae; anepimeral seta directly on anepimeron. Veins R₄₊₅ and M almost parallel. Antenna short: pedicel as long as wide (Fig. 6). Small flies (body length less than 5 mm). Neotropical, fossil in amber from Dominican Republic *Protortalotrypeta*
- 4 Large (body length more than 12 mm) stout bee-like flies with heavily setose body and round, flattened black abdomen, often with metallic blue or purple sheen. Antenna moderately elongate, pedicel at most 4 times as long as wide 5
- 4* Medium-sized flies (body length less than 10 mm); body not heavily setose or setulose; abdomen elongate oval. Antenna long: pedicel very long, more than 10 times as long as wide (Fig. 20). Afrotropical . *Tachiniscidia*
- 5 Frontal setae and ocelli absent (Fig. 1). Afrotropical *Bibundia*
- 5* Frontal setae and ocelli present (Fig. 11). Neotropical *Tachinisca*
- 6 Postvertical (= paraverticall) seta almost as long as medial vertical seta. 3 pairs of scutellar setae. Usually 2–3 postpronotal setae (1 seta in *Ortalotrypeta singula* Wang). 1–2 postsutural supra-alar setae. East-Asian 7
- 6* Postvertical setula tiny, inconspicuous (Figs 32, 50) (unknown for *Ischyropteron*). 2 or rarely 3 pairs of scutellar setae. 1 postpronotal seta. 1 postsutural supra-alar seta. Western Palearctic or Neotropical 8
- 7 Scutum dark brown with yellow stripe or stripes. Wing dark brown except hyaline areas, without yellow areas. Cell r₄₊₅ completely brown *Cyaforma*
- 7* Scutum uniformly yellow to light brown. Wing with at least anterobasal yellow area. Cell r₄₊₅ with 1–2 hyaline spots *Ortalotrypeta*
- 8 Wing hyaline except pterostigma and apex distal to crossvein DM-Cu. Vein R-M proximal to middle of cell dm (Fig. 44). Thorax and abdomen yellow except for dark brown stripes on scutum (Fig. 45). Basal scutellar seta relatively close to apical seta, at midlength of scutellum. Oviscape as long as abdominal tergites 3–6 together. First flagellomere [according to original description] long, narrow. Neotropical . . . *Ischyropteron*
- 8* Wing predominantly dark brown, with hyaline spots or crossbands. Vein R-M distal to or at middle of cell dm. Thorax and abdomen mostly brown. Basal scutellar seta close to base of scutellum. Oviscape [not known in *Nosferatumyia*] shorter than abdominal tergites 4–6 together. First flagellomere short, at most 1.5 times as long as wide 9

- 9 Head elongate triangular in profile, with deep furrow in occiput and postgena. Vertical setae hair-like, inconspicuous. Ocellar seta lacking (Figs 66, 69). Palaearctic Region (Madeira; Caucasus?) *Nosferatumyia* gen. n.
- 9* Head almost round in profile; vertical setae strong; ocellar seta conspicuous (Figs 32, 50). Southern part of Neotropical Region 10
- 10 1 pair of orbital and 0–2 pairs of frontal setae (Fig. 50). Arista short pubescent throughout. Dorsocentral seta aligned with or closer to post-sutural supra-alar seta than to intra-alar seta *Neortalotrypeta*
- 10* 2 pairs of orbital and 0 frontal setae (Fig. 32). Arista bare except basal fifth. Dorsocentral seta aligned with intra-alar seta *Agnitrena* gen. n.

Tribe TACHINISCINI

Tachiniscidae Kertész, 1903: 355.

Tachiniscini: Korneyev, 1999b: 92.

Anthophasiinae Townsend, 1935: 82, 91.

Bibundiinae Townsend, 1935: 82, 91.

Type genus: *Tachinisca* Kertész, 1903.

DIAGNOSIS. Medium-sized to very large flies (3.7–20.0 mm). Wing with shortened costal vein not reaching vein M (SA); stout setae present before subcostal break, vein Sc sharply turned anteriorly before apex, complete. Mid tibia with anterodorsal setae on apical half (P). Male terminalia as described for subfamily; pre-sisetae absent in *Tachiniscidia*. Female terminalia: as described for subfamily; spermathecae (unknown for *Bibundia* and *Protortalotrypeta*) elongate oval or pear-shaped, pale, neither wrinkled, nor covered with scales or papillae.

Genera included. *Bibundia* Bischof, 1903; *Protortalotrypeta* Norrbom, 1994; *Tachinisca* Kertész, 1903; *Tachiniscidia* Malloch, 1931.

Bibundia Bischof, 1903

Bibundia Bischof, 1903: 41; Malloch, 1931: 334; Townsend, 1935: 91; Hennig, 1958: 580; Cogan, 1980: 555. Type species: *Bibundia hermanni* Bischof, 1903 (by monotypy).

Tachinoestrus Grünberg, 1906: 39; Speiser, 1907: 302; Malloch, 1931: 337; Townsend, 1935: 91; Cogan, 1980: 555 (synonymy). Preoccupied by *Tachinoestrus* Portschinsky, 1887. Type species: *Tachinoestrus fenestratus* Grünberg, 1906 (by monotypy).

Anthophasia Speiser, 1907: 302 (as replacement name for *Tachinoestrus* Grünberg); Malloch, 1931: 337; Townsend, 1935: 91; Roberts, 1969: 149; Cogan, 1980: 555 (synonymy). Type species: *Tachinoestrus fenestratus* Grünberg, 1906 (automatic).

DIAGNOSIS. Large, robust flies with black, bluish shining, heavily setulose and setose body, resembling carpenter bees, which can be recognized from other Tachiniscinae by the combination of: arista bare; costal vein not reaching apex of M (characters of Tachiniscini); pedicel without dorsal notch; frontal setae and ocelli lacking; more than 5 pairs of scutellar setae; anepimeron with long lateral projection; cell bm elongate; and abdomen uniformly setulose, without spurious setae (Figs 1–3).

REDESCRIPTION. *Head*. Ocelli lacking. Head broad. Sides of frons heavily sclerotized, shallow medial groove line slightly sunken, frontal and orbital plates indistinguishable. Frontal and often orbital setae indistinguishable. Lunule vertical, its upper surface posteriorly directed. Face with large, shallow antennal grooves almost reaching ventral margin and low, poorly delimited medial carina. Ptilinal fissure ending far below ventral margin of eye, almost at ventral margin of gena. Occiput on upper part almost flat, with acuminate postocular setulae forming 2 irregular rows, and numerous strong setulae on laterally, slightly curled on postgena. Postgena strongly incised under occipital foramen. Ocellar seta short, postocellar twice as long as ocellar, medial and lateral vertical setae strong, ca. as long as half eye height; no postvertical (= "paravertical") seta. Facial ridge with 2 vibrissa-like setae posterior to vibrissal angle, gena with 2-4 strong setae posteriorly. Antenna attached slightly above mid-height of eye; scape short, anterodorsally directed; pedicel 4 times as long as wide, without dorsal notch or seam, with shallow dorso-apical incision; 1st flagellomere short oval; arista 2-segmented, bare. Palpus well-developed, neither densely, nor very long setulose. Prementum moderately large, labella very large, fleshy.

Thorax. Very broad; anepisternum strongly produced laterally behind anterior spiracle; anepimeron with laterally produced process bearing setae. 3-4 latero-clinate proepisternal setae; 3-5 postpronotal, 2(-3) presutural and 5-6 postsutural supra-alar setae; posterior portion of scutum with 9-10 pairs of strong subequal setae forming transverse row slightly posterior to intra-alar and postalar setae and including dorso-central and acrostichal setae; scutellum flat, longitudinally wrinkled, setulose, with 9-11 pairs of strong subequal setae. Pleura with 3-5 strong presutural and 5-6 postsutural anepisternal setae; anepimeron with 3 strong setae on lateral projection; katapisternum with 1 strong posterodorsal seta and row of posteroventral setae along midcoxa.

Wing. Mostly dark brown, apically narrowed, with costal vein ending at wing apex, midway between apices of veins R_{4+5} and M; R_{4+5} setulose only to R-M. Alula very large; calypters large, microtrichose; upper calypter smaller than lower. Legs robust; midcoxa with 5-7 strong setae; tibiae with longitudinal rows of spurious setae: 2 (antero- and posterodorsal) on fore- and midlegs, and one (anterodorsal) on hindleg.

Abdomen. Abdominal tergites fused: tergite 1 narrow, with visible suture separating it from broad syntergite 2-5; margins of tergites folded onto ventral side, with rudiments of sutures visible only on ventral side. Tergite 6 of female separate, hidden beneath posterior margin of syntergite 2-5. Sternites transverse, very broad, without erect setae; sternite 5 of male and 6 of female with strong postero-marginal setae laterally.

Male terminalia. Lateral surstylus flat, produced posteriorly; medial surstylus short, with 2 well developed prenisetae near base of lateral surstylus; epandrium strongly setulose; phallus with very narrow glans with 2 long semitubular filaments of acrophallus, but without flagellum-like dorso-apical projection.

Female terminalia. Oviscape short, with dorsal opening, long setulose; not dissected.

REMARKS. *Bibundia* forms a monophyletic group with the other two recent species of the tribe Tachiniscini (*Tachinisca* and *Tachiniscidia*) (see Phylogenetic Relationships).

SPECIES INCLUDED. This genus includes two nominal species, which were synonymized by Cogan (1980). Besides differences in body coloration and wing pattern, they appear to consistently differ in scutellar characters, and we consider them valid species, which can be differentiated with the following key.

KEY TO SPECIES OF *BIBUNDIA*

- 1 Scutellum yellow to reddish-yellow, bare, except for a few setulae anterolaterally and posterior margin long setose. Cameroon, D. R. Congo (Zaire) *B. hermanni*
- 1* Scutellum black, covered with numerous appressed black setulae over whole disc. Sierra Leone *B. fenestrata*

Bibundia hermanni Bischof, 1903

(Figs 1–2, 4–5)

Bibundia hermanni Bischof, 1903: 41; Cogan, 1980: 555.

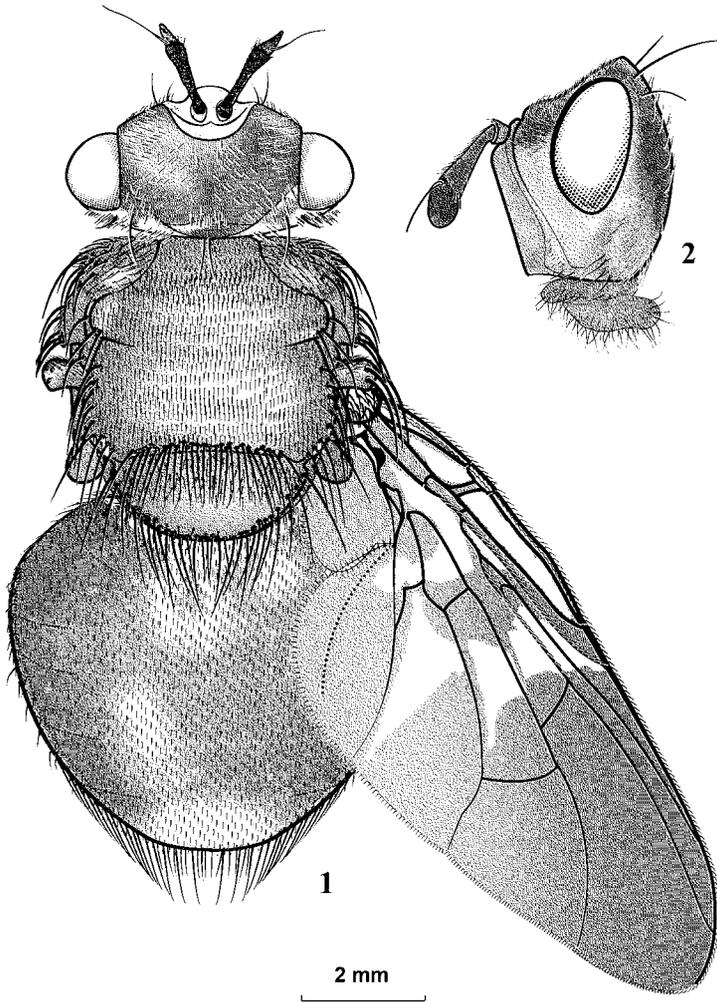
Anthophasia ? robertsi: Roberts, 1969: 149, *nomen nudum* (attributed to Cogan).

MATERIAL. Type material. *Bibundia hermanni*: Holotype ♂: “Bibundia”, “Kamerun”, “Coll. Hende!”, “Holotype / *Bibundia hermanni* Bisch. / det. B. H. Cogan, 1973” (NHMW).

Non-type material. **Democratic Republic of the Congo** (Zaire): “coll. Mus. Congo / Kwango, Kiniati-Yasa / 8-I-1953 / R. P. J. Ruelle”, “Verbeke det. 1963 / *Anthophasia / fenestrata / Grünberg*”, 1 ♀ (KMMA); Coll.Mus.Congo / Mayidi / - 1942 / Rév. P. Van Eyen” “*Anthophasia / fenestrata / Grünb. / d. Steyskal '61*”, “*Bibundia / hermanni / Bischof / 1903 ♂ / Det. A. E. Whittington 1998*”, 1 ♂ (KMMA); “Coll.Mus.Congo / Lulua: Kapanga / III.1934 / G.F. Overlaet”, “Kapanga / Katanga / III.1934 / F.G. Overlaet”, “*Bibundia / hermanni / Bischof / 1903 / Det. A.E. Whittington 1998*”, sex? [abdomen destroyed] (KMMA).

REDESCRIPTION MALE. *Head.* Ratio (length: height: width) = 1:1.3:2.0. Frons 1.8 times as wide as long, shining black, black setulose; frons ratio (length: width) = 0.56. One or two orbital setae on posterior 1/3 of frons slightly longer than surrounding setulae. Eye ratio (height: length) = 1.8. Parafacial (maximum): eye length ratio = 0.5; eye: gena height ratio = 2.0. Lunule exposed, without visible setulae; face yellow to reddish yellow, as high as distance between anterior tentorial pits, with yellow, sparsely white microtrichose carina, shiny yellow, shallow antennal groove 3 times as high as wide; fronto-facial fissure mostly inside antennal groove. Facial ridge short setulose on ventral half, half as wide as parafacial, with 1–2 long vibrissa-like setae posterior of vibrissal angle and slightly shorter than largest genal seta. Parafacial yellow, densely whitish microtrichose. Gena reddish to brownish yellow, with thin black setulae, and 2–4 strong setae. Vertex black. Occiput brown, subshining, with numerous black setulae on upper half, and light brown to whitish on lower half. Antenna with short brownish-yellow, black setulose scape, dark-brown, black setulose pedicel and dark brown, sagittally flattened 1st flagellomere; arista 0.8 times as long as pedicel, yellow on basal half, remainder black. Clypeus reddish-brown, horseshoe-like, flat, completely hidden in parastomal cavity. Proboscis moderately short, with prementum shining black and labella wide, long yellow setulose. Palpus mostly black, yellowish on basal 0.3, widened to apex, 0.75 times as wide as 1st flagellomere, black setose, with 7–8 strong antero-ventrally directed setae at most as long as palpus wide and some shorter setae.

Thorax. Robust, mostly shining black to brown, with black setae and setulae; scutellum reddish-brown to reddish-yellow. Scutum 0.9 times as long as wide at presutural supra-alar setae, black setulose. Proepisternum dark brown, very low (much



FIGS 1-2

Bibundia hermanni Bischof, holotype. 1, habitus, dorsal; 2, head, left lateral.

lower than postpronotal lobe), not ridge-like, on ventral portion with 8-10 short reclinate black setae. Anepisternum strongly produced laterally, dark brown, wrinkled, covered with sparse whitish microtrichia not hiding underlying shining cuticle, bare on anteroventral portion and densely black setulose and setose posterior to postpronotal lobe; 4-5 reclinate presutural and 5 postsutural setae. Katepisternum and anepimeron dark brown, black setulose, with ventral katepisternal setulae as long as postpronotal seta.

Wing. Brown, with hyaline alula and hyaline spots: one in cell r_1 posterior to pterostigma, one each in cells r_{2+3} and br proximal to crossvein R-M, and larger spots in cell dm and antero basal portion of cell cu_1 ; basicostal and costal cells grayish or

yellowish in holotype, brownish in specimens from Congo; and short hyaline cross-band from basal half of br and medial portions of cells bm and bcu; 2nd costal section (cell c) 4 times as long as 3rd costal section (pterostigma) and 1.3 times as long as 4th section (cell r_1); 2nd section of vein M 1.6 times as long as 1st section, 2.3 times as long as 3rd section and 1.1 times as long as 4th section. Veins brown. Calypters light brown, upper darker, with blackish, on posterior part brownish, fringe; lower lighter but larger, with numerous brownish microtrichia on disc and margins. Halteres yellow to brownish yellow.

Legs. Dark brown to black, black setose and setulose. Fore tarsomeres 1 and 2 with brushes of appressed reddish setulae.

Abdomen. Wider and longer than thorax, tergites shining black, except apex of tergite 5 reddish-yellow; black setulose. Sternites brownish-yellow to brown, transverse, black setulose; sternite 5 reddish, with 4–5 longer marginal setae laterally.

Terminalia. As on Figs 4–5; lateral surstylus L-shaped, flattened; epandrium produced posteriorly, densely yellowish setulose. Hypandrium with 2 separated vanes of phallopodeme; wall of phallic guide with button-like field of mechanoreceptive (trichoid) sensilla.

FEMALE. Similar to male; tergite 6 separate, almost completely hidden underneath tergite 5. Oviscape short, black; covered with fine, slightly curly, yellowish setulae; opening dorso-apical; aculeus strongly acute at apex; not dissected.

MEASUREMENTS. Body length 19–21 mm. Wing length 17–19 mm.

Bibundia fenestrata (Grünberg, 1906), stat. n. (Fig. 3)

Tachinoestrus fenestratus Grünberg, 1906: 39.

Anthophasia fenestrata: Malloch, 1931: 337; Cogan, 1980: 555 (as synonym of *hermanni*).

Anthophasia ? robertsi: Roberts, 1969: 149, *nomen nudum*.

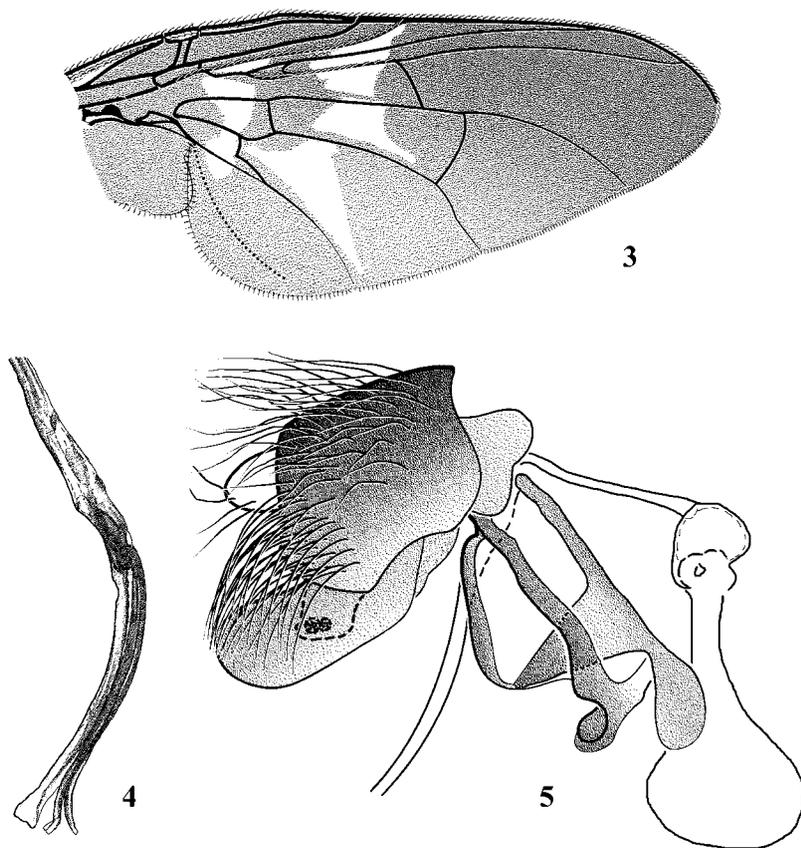
MATERIAL. Type material. *Tachinoestrus fenestratus*: Holotype ♀: “Sierra Leone / Staudinger” [blue, handwritten], “14215” [white, printed], “Type” [red, printed], “Sitzungs Ber Ges. naturf. Fr. Berlin 1906, nr.2, p.39” [white, handwritten difficult to read] (ZMHB).

Non-type material. **Sierra Leone**: “Sierra Leone”, “*Platystogaster latus* n. spec.”, 1♂ (MLUH).

REDESCRIPTION MALE. *Head.* Coloration and shape as described for *B. hermanni*. Head ratio (length: height: width) = 1:1.3:2.0. Frons 1.5–1.6 times as wide as long, shining black, black setulose; frons ratio (length: width) = 0.6–0.7. Eye ratio (height: length) = 1.7–1.8. Parafacial (maximum length): eye length ratio = 0.6; eye: gena height ratio = 1.5. Antenna as described for *B. hermanni*, with 1st flagellomere oval, approximately as long as wide, with ventral edge almost straight.

Thorax. As in *B. hermanni*, robust, mostly shining black to brown, with black setae and setulae; but scutellum shining black, with longitudinal oblique wrinkles; entire surface covered with numerous appressed setulae.

Wing. Brown, with brownish alula and hyaline spots: one in cell r_1 posterior to pterostigma, one each in cells r_{2+3} and br proximal to crossvein R-M, and larger spots in cell dm and anterobasal portion of cell cu_1 ; basicostal and costal cells brown; basal



FIGS 3-5

Bibundia fenestrata (Grünberg) (Sierra Leone, MLUH) (Fig. 3) and *B. hermanni* Bischof (Congo, KMMA) (Figs 4-5). 3, wing; 4, glans of phallus; 5, male genitalia, right lateral.

half of cells br, bm and bcu brown; 2nd costal section (cell c) 4.2 times as long as 3rd costal section (pterostigma) and 0.7 times as long as 4th section (cell r_1); 2nd section of vein M 1.8 times as long as 1st section, 3.3 times as long as 3rd section and 0.8 times as long as 4th section. Veins brown. Calypters brown, upper dark brown, with blackish fringe; lower grayish-brown. Halter brownish yellow, with brownish knob.

Legs and abdomen. As described for *B. hermanni*. Sternites brownish-yellow.

Terminalia (not dissected). *In situ* similar to that in *B. hermanni*, densely yellowish setulose.

FEMALE. Similar to male. Oviscape short, black; covered with fine yellowish setulae; not dissected.

MEASUREMENTS. Body length 18-19 mm. Wing length 16-17.5 mm.

REMARKS. The type specimens of *B. fenestrata*, from Sierra Leone, differ from the known specimens of *B. hermanni*, from Central Africa, in scutellar coloration and setation. It is not clear if there is a cline or if these specimens represent two different

subspecies or species, but we prefer to consider both nominal species as valid until additional studies clarify their status.

Protortalotrypeta Norrbom, 1994

Protortalotrypeta Norrbom, 1994: 2; Norrbom *et al.*, 1999: 13, 33, 40, 206; Korneyev, 1999b: 93. Type species: *Protortalotrypeta grimaldii* Norrbom, 1994 (by original designation).

DIAGNOSIS. Rather small flies with brownish-yellow, moderately setose body, which can be recognized from other Tachiniscinae by the combination of: arista bare; costal vein not reaching apex of M (characters of Tachiniscini); pedicel short; 5 frontal setae; only 3 pairs of scutellar setae; and cell bm not elongate (Figs 6–10).

REDESCRIPTION. *Head.* Ocelli present. Head higher than long, almost round in frontal view. Frons longer than wide, with well-expressed frontal and orbital plates. Frons setulose. Frontal setae (fr) moderately long, inclinate, 5 in number; anterior fr slightly posterodorsal to level of antennal base. Orbital plates short, restricted to posterior 1/3 of frons length, with 2 reclinate setae. Face with shallow antennal grooves reaching ventral 1/4 of face and low, poorly delimited medial carina. Occiput flat, with acuminate, moderately long postocular setulae forming 1 regular row, rest of occiput not visible. Medial vertical seta as long as eye width and 1.8 times as long as lateral vertical seta; no postvertical (= “paravertical”) seta. Vibrissa not developed; gena with rather short genal seta and setulae. Antenna attached at level of middle of eye height; scape short, anteriorly directed; pedicel as long as wide, dorsal notch or seam not clearly visible; 1st flagellomere elongate oval; arista bare. Palpus and proboscis not visible in holotype.

Thorax. Moderately wide; with anepisternum and katepisternum not strongly produced behind anterior spiracle; anepisternum with moderately long suture (phragma); anepimeron without laterally produced process. Proepisternum low, not ridge-like, without strong setae. Postpronotal lobe with 2 strong setae and numerous setulae. Scutum with 1 presutural and 2 postsutural supra-alar, 1 postalar and 1 intra-alar setae; posteriorly with 1 acrostichal and 1 intrapostalar setae forming transverse row slightly posterior to intra-alar and postalar setae, and 1 dorsocentral seta slightly in front of them, aligned with postalar seta; scutellum slightly convex, setulose, with 3 pairs of strong subequal setae; apical setae crossing. Anepisternum with 2 setae posterior of phragma. Anepimeron with 1 seta and no stump-like process. Katepisternum with 1 posterodorsal seta.

Wing. Mostly brown, with hyaline spots. Costal vein ending at wing apex, beyond apex of vein R_{4+5} , but not reaching vein M; R_{4+5} and M not divergent; R_{4+5} setulose to R-M. Alula and calypters not visible.

Legs. Mid tibia with anterodorsal seta on apical half, with row of posterodorsal setae, and 2 spur-like ventro-apical setae.

Abdomen. Broad elliptic, tergites 1–5 of normal appearance. Tergite 6 of female not visible.

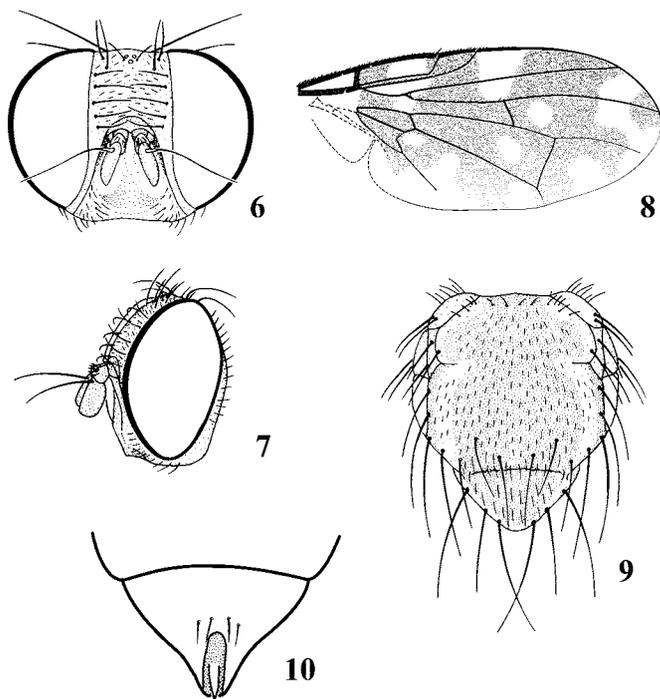
Female terminalia. Oviscape short, with dorso-apical opening; eversible membrane probably with area of denser scales on ventral surface; aculeus with acute apex, base not visible; spermathecae not visible.

REMARKS. *Protortalotrypeta* appears to be the sister group of *Bibundia*, *Tachinisca* and *Tachiniscidia* (see Phylogenetic Relationships).

Protortalotrypeta grimaldii Norrbom, 1994 (Figs 6–10)

Protortalotrypeta grimaldii Norrbom, 1994: 4; Norrbom *et al.*, 1999: 206; Korneyev, 1999b: 93.

MATERIAL. Holotype ♀: **Dominican Republic**: El Valle region, in 0.7 x 0.7 x 2.0 cm piece of amber (early Miocene or late Oligocene age) (AMNH).



FIGS 6–10

Protortalotrypeta grimaldii Norrbom, holotype. 6, 7, head, frontal and lateral; 8, wing; 9, mesonotum; 10, oviscape, dorsal. Modified from Norrbom (1994).

REDESCRIPTION (FEMALE ONLY). *Head*. Ratio (length: height: width) = 1:1.7:2.4. Frons 0.85 times as wide as long, with lunule not deeply incised, brownish yellow; frontal vitta brown setulose; frons ratio (length : width) = 1.2. Two orbital setae on posterior one-third of frons. Eye ratio (height: length) = 1.6. Parafacial: eye length ratio = 0.05; parafacial linear on lower 3/4; eye: gena height ratio = 21.0. Lunule exposed, without setulae; face brownish yellow, 0.8 times as high as distance between anterior tentorial pits, with shallow antennal grooves. Facial ridge as wide as parafacial; setulose on ventral half, vibrissal angle with short setulae. Gena with thin brownish setulae. Occiput with 15 black, acuminate postocular setulae. Antenna with 1st flagellomere dark brown, 1.3 times as wide as pedicel and twice as long as wide; arista twice

as long as 1st flagellomere. Proboscis obscured by air bubble. Palpus not well exposed; apparently not constricted at base.

Thorax. With black setae and setulae. Scutum 1.1 times as long as wide at pre-sutural supra-alar setae, brown; scutellum black setulose on posterior 2/3 of disc. Proepisternum not ridge-like, without strong setulae.

Wing. Brown, with pattern of hyaline spots as in Fig. 7; 2nd costal section (cell c) twice as long as 3rd costal section (pterostigma) and 0.5 times as long as 4th section (cell r1); 2nd section of vein M 1.7 times as long as 1st section, 2.3 times as long as 3rd section and 1.2 times as long as 4th section. Calypters white, lower calypter long white microtrichose on both disc and margin; halter yellow.

Abdomen. Tergites entirely light brown. Oviscape short, 0.24 times as long as mesonotum.

Male. Unknown.

Measurements. Body length 3.7 mm.

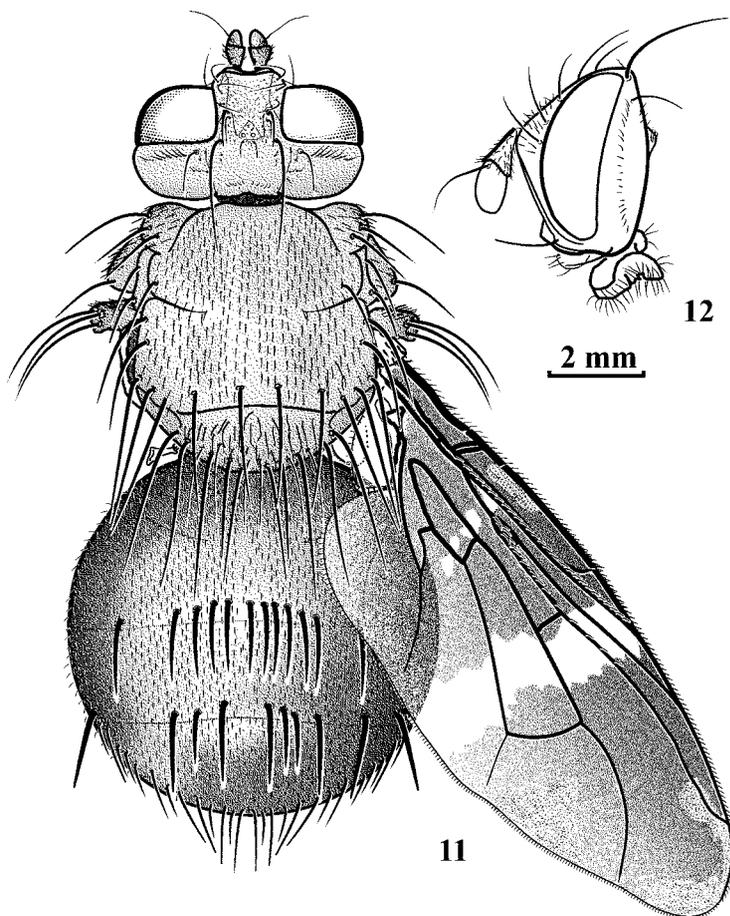
***Tachinisca* Kertész, 1903**

Tachinisca Kertész, 1903: 355; Malloch, 1931: 334, 335; Lopes, 1934: 518; Hennig, 1958: 580; Papavero, 1967: 58.1; Korneyev, 1999a: 18, 19; 1999b: 93. Type species: *Tachinisca cyaneiventris* Kertész, 1903 (by monotypy).

DIAGNOSIS. Large, robust flies with yellowish-brown head, yellow-brown, ventrally black thorax, and black, violet–blue shining abdomen, and heavily setulose and setose body, which can be recognized from other Tachiniscinae by the combination of: arista bare; costal vein not reaching apex of M (characters of Tachiniscini); pedicel without dorsal notch; facial ridge with long vibrissa; anteriormost of 3 frontal setae ventral to level of base of antenna; more than 5 pairs of scutellar setae; anepimeron with long lateral projection; cell bm elongate; and abdomen bearing spurious setae on margins of tergites and sternites (Figs 11, 12).

REDESCRIPTION. *Head.* Higher than long, almost round in frontal view. Ocelli present, anterior ocellus often reduced. Frons longer than wide, with well-expressed frontal and orbital plates. Frontal setae (fr) long, inclinate and slightly reclinate, 3 in number; anterior fr opposite or slightly below level of antennal base. Lunule appressed, its surface dorsally directed. Face with shallow antennal grooves almost reaching ventral margin and low, poorly delimited medial carina. Ptilinal fissure ending at level of eye ventral margin. Occiput on upper part almost flat, with acuminate postocular setulae forming 1 regular row, and lateral setulae neither very long nor dense. Ocellar setula very short, postocellar seta 5–7 times as long as ocellar, medial and lateral vertical setae strong, ca. as long as or longer than eye height; no postvertical (= “para-vertical”) seta. Vibrissa well developed, gena with 1 strong genal seta posteriorly. Antenna attached at level of upper 2/3 of eye height; scape short, anterodorsally directed; pedicel 1.5–2.2 times as long as wide, without dorsal notch or seam, with shallow dorso-apical incision; 1st flagellomere short oval; arista 2-segmented, bare. Palpus well-developed, neither densely, nor very long setulose. Prementum moderately large, labella very large, fleshy.

Thorax. Very broad; anepisternum produced laterally behind anterior spiracle; anepisternal phragma complete; anepimeron with laterally produced process bearing



FIGS 11–12

Tachinisca cyaneiventris Kertész. 11, habitus, dorsal; 12, head, left lateral.

setae. 2–3 strong lateroclinate proepisternal setae and 6–7 finer and shorter setulae; 4–5 large and 3–4 small postpronotal, 1 presutural and 2 postsutural supra-alar, 1 postalar and 1 intra-alar setae; scutum posteriorly with 1 acrostichal, 1 dorsocentral and 1 intrapostalar setae forming transverse row slightly posterior to intra-alar and postalar setae; scutellum flat, setulose, with 6–7 pairs of strong subequal setae. Pleura with 4 (1 separate and 3 forming vertical row) strong presutural and 4–5 postsutural anepisternal setae; anepimeron with 3 strong setae on lateral projection; katepisternum with 1 strong posterodorsal seta and row of 7–8 posteroventral setae along midcoxa.

Wing. Mostly dark brown, apically narrowed, with costal vein ending at wing apex, midway between apices of veins R_{4+5} and M; R_{4+5} setulose only to R-M; M fading towards tip and curved posteriorly, so R_{4+5} and M strongly divergent. Alula very large; calypters moderately large, microtrichose; upper calypter approximately as large as lower.

Legs. Robust; mid- and hindcoxa with strong setae; tibiae with longitudinal rows of spurious setae.

Abdomen. Abdominal tergites partially fused, but seams not visible except laterally; tergite 1 narrow; lateral margins of other tergites extending onto ventral side; posterior margins of tergites 3–5 with rows of strong, spur-like, erect setae. Tergite 6 of female separate, hidden beneath posterior margin of syntergite 2–5, with conspicuous apodeme. Sternites transverse, posterior margins of sternites 3–5(–6) with strong, spur-like, erect setae.

Male terminalia. Lateral surstylus flat, produced posteriorly; medial surstylus short, with 2 well developed prenisetae near base of lateral surstylus; epandrium strongly setulose; phallus with very narrow glans with 2 short semitubular filaments of acrophallus, and long flagellum-like dorso-apical projection.

Female terminalia. Oviscape short, with dorsoapical opening, long setulose; eversible membrane with numerous thicker, triangular scales on ventral side, and smaller, needle-like scales on dorsal surface; aculeus with bulbous anterodorsal dilation, which bears no setulae, and acute apex and ventral lobes (8th sternites); 3 elongate pear-shaped, non-sculptured spermathecae with spermathecal ducts separate to vagina.

REMARKS. *Tachinisca* is most closely related to *Bibundia* and *Tachiniscidia* (see Phylogenetic Relationships).

Tachinisca cyaneiventris Kertész, 1903

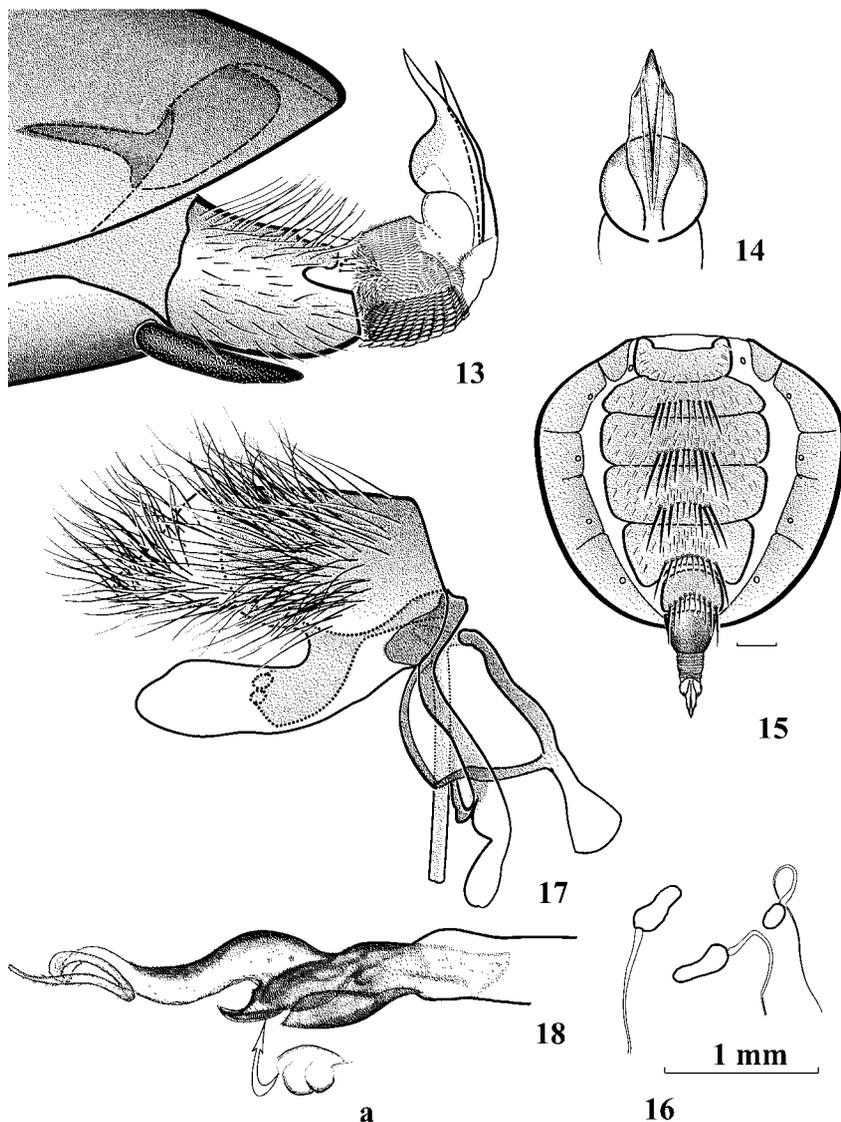
(Figs 11–18)

Tachinisca cyaneiventris Kertész, 1903: 357; Malloch, 1931: 334; Lopes, 1934: 518; Hennig, 1958: 580; Papavero, 1967: 58.1; Korneyev, 1999a: 18, 19; 1999b: 93.

MATERIAL. Type material. Syntypes 5 ♀: “Peru / Vilcanota”, “Bolivia / Songo”, “Bolivia / Cillutincara”, “*cyaneiventris* Kertész”, “Typus” [red label] (HNHM).

Non-type material. **Bolivia:** “Bolivien / Staudinger” 3♂, 3♀ (F. Hendel det.) (NHMW) (1♂ and 1♀ dissected); “Bolivien / Staudinger”, 1♂ (“*Tachinisca cyaneiventris* Kertész F. Hendel det.” (USNM USNM00213279); Buena Vista, 04.1934 (A.L.Melander Collection), 1♂ (USNM USNM00213276). **Ecuador:** Tungurahua: Baños, 35 km. E, 29 May 1975, 1♂ (A. Langley & J. Cohen) [Peace Corps — Smithsonian Institution Aquatic Insect Survey] (A. L. Norrbom det.) (USNM USNM00213280). **Peru:** Junín: Chanchamayo, 29.05.1948 2♀ (J. M. Schunke) (*Tachinisca cyaneiventris* Kertész det. Steyskal '61) (USNM USNM00213277, USNM 00213278).

REDESCRIPTION MALE. *Head.* Ratio (length: height: width) = 1:1.4:1.8. Frons 0.78 times as wide as long, shining black, black setulose; frons ratio (length: width) = 1.3. Two long orbital setae on posterior 1/3 of frons almost as long as lateral vertical seta. Eye ratio (height: length) = 2.6. Parafacial (maximum): eye length ratio = 0.3; eye: gena height ratio = 9.0–10.0. Lunule exposed, without visible setulae; face yellow to reddish yellow, as high as distance between anterior tentorial pits, with shallow antennal groove. Facial ridge short setulose on ventral half, half as wide as parafacial; vibrissal angle with 1 vibrissa as long as frontal setae. Parafacial sparsely whitish microtrichose. Gena reddish yellow, with thin black setulae, and strong genal seta slightly shorter than vibrissa. Vertex yellow, except ocellar tubercle black. Occiput brownish yellow, with black or brown setulae. Antenna with short, yellow, black setulose scape, dark-brown, black setulose pedicel, and dark brown, sagittally flattened 1st



FIGS 13-18

Tachinisca cyaneiventris Kertész, female (13-16) and male (17-18) abdomen and terminalia. 13, apex of abdomen and ovipositor, lateral; 14, aculeus, posteroventral; 15, female abdomen, ventral; 16, spermathecae; 17, epandrium, lateral; 18, glans of phallus, lateral (a — semitubular sclerites of acrophallus).

flagellomere, almost as long as pedicel; arista twice as long as pedicel, yellow on basal one-third, remainder slightly darker red brown. Proboscis moderately short, with prementum shining black and labella broad, long yellow setulose. Palpus yellow, apically often darkened, slightly widened to apex, 0.6 times as wide as 1st flagellomere, black setose.

Thorax. Robust, with black setae and setulae. Scutum 0.9 times as long as wide at presutural supra-alar setae, yellow, often with 4 brownish vittae; scutellum yellow to reddish-yellow. Proepisternum brown, low (as high as postpronotal lobe), not ridge-like, ventrally with 2 longer and 3-5 shorter and weaker black setulae. Anepisternum strongly produced laterally, brownish yellow, matt, bare anteroventrally and densely black setulose and setose on the rest. Anepimeron yellow. Katepisternum black setulose, with ventral katepisternal setae longer and thicker than postpronotal setae.

Wing. Brown, with grayish alula, broad transverse hyaline crossband from basal margin of cell r_1 to or almost to posterior margin in cell cu_1 , and small aligned grayish spots in base of cell r_1 , middle of cell br , apex of cell bm , and base of cell cu_1 , irregular pale brown mark at apex of vein R_{2+3} and/or wing apex, and pale brown triangular incisions in middle of cell m and anal lobe; 2nd costal section (cell c) 4 times as long as 3rd costal section (pterostigma) and 1.3 times as long as 4th section (cell r_1); 2nd section of vein M 1.1 times as long as 1st section, as long as 3rd section and 0.65 times as long as 4th section; last (4th) section curved posteriorly. Veins brown. Calypters yellowish, white fringed; halter with yellow base and dark brown apical half and knob.

Legs. Dark brown to black, black setose and setulose. Forecoxa with 4-6 marginal anteroventral setae, midcoxa with 5-7 strong setae; hindcoxa with 4 strong setae; hindfemur with subapical ventral incision and 2 strong anteroventral setae in front of it; 2 longitudinal rows of spurious setae (antero- and posterodorsal) on fore- and midlegs, and one (anterodorsal) on hindleg.

Abdomen. Wider and longer than thorax, tergites shining brown to violet or greenish; black setulose. Sternites brownish-yellow to brown, transverse, black setulose; sternites 2-5(-6) with 4-5 pairs of thick erect marginal setae.

Terminalia. As in Figs 17-18; lateral surstylus L-shaped, flattened; epandrium produced posteriorly, densely yellowish setulose. Phallapodeme with separate vanes; button-like field of mechanoreceptive (trichoid) sensilla present on membrane at phallobase.

FEMALE. Similar to male; tergite 6 separate, almost completely hidden underneath tergite 5. Oviscape short, black; opening dorso-apical; aculeus as in Figs 13-14.

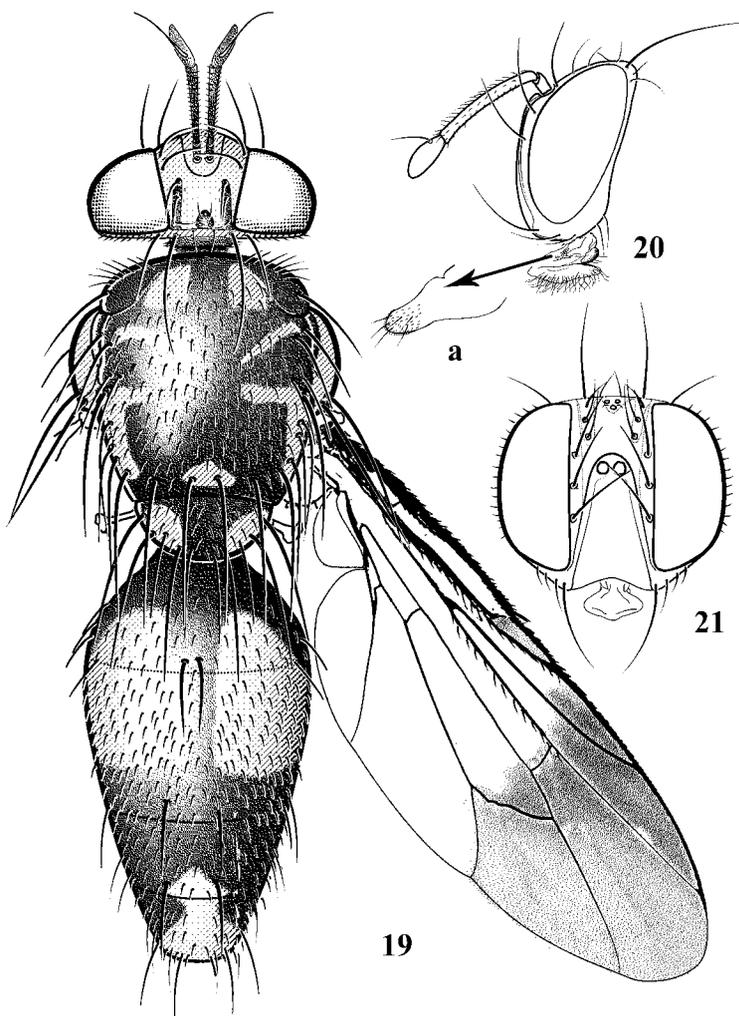
MEASUREMENTS. Body length 14-18 mm. Wing length 15-20 mm.

Tachiniscidia Malloch, 1931

Tachiniscidia Malloch, 1931: 335-336; Hennig, 1958: 580; Cogan, 1980: 555; Barraclough, 1995: 111. Type species: *Tachiniscidia africana* Malloch, 1931 (by original designation).

DIAGNOSIS. Medium-sized, wasp-like flies with yellow and brown, long, moderately setose body, which can be recognized from other Tachiniscinae by the combination of: arista bare; costal vein not reaching apex of M (characters of Tachiniscini); pedicel very long and without dorsal seam or notch; facial ridge with long vibrissa; anteriormost of 3 frontal setae ventral to level of base of antenna; palpus very small; 3 pairs of long and 2 pairs of shorter scutellar setae; and cell bm elongate (Figs 19, 22).

REDESCRIPTION. *Head.* Ocelli present. Head higher than long, almost round in frontal view. Frons longer than wide, with well-expressed frontal and orbital plates.



FIGS 19-21

Tachiniscidia africana Malloch, ♂ (Congo, KMMA). 19, habitus, dorsal; 20, head, left lateral (a — palpus, enlarged); 21, same, anterior (antennae not shown).

Frons bare, except setae and a few setulae on frontal and orbital plates. Frontal setae long, inclinate and slightly reclinate, 3 in number; anterior fr distinctly ventral to, and posterior fr slightly posterodorsal to level of antennal base. Orbital plates long, almost reaching anterior margin of frons, with 2 reclinate and 1 inclinate setae. Face almost flat, slightly convex in profile, without antennal grooves or medial carina; fronto-facial sutures reaching bases of antennae and apparently fused in upper portion. Ptilinal fissure ending at level of ventral margin of eye. Occiput flat, with acuminate, moderately long postocular setulae forming 1 regular row; laterally with very sparse and fine setulae. Postgena strongly incised under occipital foramen, and with strong but short

setulae. Ocellar setula slightly longer than ocellar triangle and as long as posterior (inclinate) orbital and postocellar setae; medial vertical seta as long as eye length and 1.5 times as long as lateral vertical seta; no postvertical (= "paravertical") seta. Vibrissa well developed; gena with 1 strong genal seta and 2 shorter setae posteriorly. Antenna attached at level of upper 3/4 of eye height; scape slightly longer than wide, antero-dorsally directed; pedicel 10–11 times as long as wide, without dorsal notch or seam; 1st flagellomere elongate oval; arista 2-segmented, bare. Palpus rudimentary, short setulose. Prementum small, labella large, elongate.

Thorax. Broad; with anepisternum and katepisternum produced laterally behind anterior spiracle, with anterior portion directed almost anteriorly and posterior portion of katepisternum and meron directed posteriorly and transverse midcoxa attached to ventral margin of such ridge; anepisternum with very short suture; anepimeron with small laterally produced process bearing setae. Proepisternum low, not ridge-like, with 3 strong laterocline proepisternal setae dorsally and cluster of 5–7 thicker black and 2–3 finer white setulae at ventral margin. Anterior spiracle slit-like, oblique, clamped between swollen postpronotal lobe and anepisternum. Postpronotal lobe with 1 strong seta and numerous seta-like setulae. Scutum with 1 presutural and 2 postsutural supra-alar, 1 postalar and 1 intra-alar setae; scutum posteriorly with 1 acrostichal, 1 dorso-central and 1 intrapostalar setae forming transverse row slightly posterior to intra-alar and postalar setae; scutellum slightly convex, setulose, with 3 pairs of strong subequal setae and 2 pairs of shorter setae inserted between them. Anepisternum strongly produced laterally, with deep groove posterodorsal to base of forecoxa (on anterodorsal border of katepisternum); finely and sparsely setulose medially, fused with notopleuron without visible border; anepisternal suture short, hardly reaching middle height of sclerite; 1 strong anterior and 2 strong posterior presutural and 2–3 postsutural anepisternal setae. Anepimeron with 2 strong setae mounted on small lateral projection. Katepisternum with 1 strong laterocline seta on ventral one-third on lateral surface, seta and row of 15–16 smaller setae and several rows of smaller setulae on anterior surface along midcoxa. Katepimeron deeply sunken. Katatergite densely and long white microtrichose. Narrow but well-sclerotized metathoracic postcoxal bridge developed.

Wing. Mostly hyaline, with apex dark brown and not narrowed; wing membrane longitudinally twice-folded in apical half, through crossvein R-M and cell r_{4+5} and through crossvein DM-Cu and cell m. Costal vein ending anterior to wing apex, at apex of vein R_{4+5} ; R_{4+5} setulose over almost its entire length. Alula and calypters moderately large; upper calypter much shorter and narrower than lower.

Legs. Foreleg short and weak, midleg robust, hindleg moderately developed; forefemur with row spinulose posteroventral setae and smaller spinulose setulae on distal one-fourth on posterodorsal and anteroventral surfaces; midfemur thicker than fore- and hindfemur, with bare anterobasal and ventro-apical area; anterior surface at middle with row strong setae and strong antero- and posteroventral setulae at apical one-third; hindfemur without incisions, with row of anterodorsal, anteroventral and posteroventral setae; tibiae with longitudinal rows of spurious setae: posterodorsal row of and one posteroventral seta at middle of foretibia, two rows (anteroventral and posteroventral) on midtibia, and 2 (dorsal and posterodorsal) on hindtibia; and transverse row of spurious dorso-apical setae on hindtibia.

Abdomen. Elongate elliptic, almost cylindrical, with tergites gradually extending onto ventral side; tergites 1–5 fused at middle, with partially visible seams; posterior margins of tergites 3–5 with 2–3 pairs of strong, spur-like, erect setae. Tergite 6 of female separate, hidden beneath posterior margin of tergite 5. Sternites transverse, posterior margins of sternites 2–4(–5) with one pair of strong erect setae, tergite 5 of male and tergites 5–6 of female with 2 or 3 pairs of long setae.

Male terminalia. Surstyli completely reduced; no prenisetae developed; proctiger bilobate; gonites large; bottom of hypandrium everted; phallus with very narrow glans without semitubular filaments of acrophallus or flagellum-like dorso-apical projection.

Female terminalia. Oviscape short, with dorsoapical opening; eversible membrane with numerous thicker, triangular scales on ventral side, and smaller scales on dorsal surface; aculeus with bulbous anterodorsal dilation, bearing setulae on ventral side anterior of acute apex; ventral lobes (8th sternites) not expressed; 3 elongate pear-shaped, non-sculptured spermathecae with spermathecal ducts separate to vagina.

REMARKS. *Tachiniscidia* appears to form a monophyletic group with *Bibundia* and *Tachinisca* (see Phylogenetic Relationships).

Tachiniscidia africana Malloch, 1931

(Figs 19–30)

Tachiniscidia africana Malloch, 1931: 336; Cogan, 1980: 555; Barraclough, 1995: 111.

MATERIAL. Type material. Holotype ♂: [Zimbabwe: “Chirinda Forest / S. Rhodesia / October 1926”, “392”] (“Rhodesia Museum”; not located).

Non-type material. Democratic Republic of the Congo (=Zaire): “Bosanga (Budgala)”, 21.11.1927, 1 ♂ (A. Collart) (*Tachiniscidia africana* Mall. det. H. Oldroyd 1927; R. Det. N. 5486) (dissected; wing on slide D1-23) (KMMA); “N’Guli” 1 ♀ (Rodhain) (dissected) (KMMA); “Arebl, Bodo-Moto, 07.1925, 1 ♀ (H. Schouteden) (KMMA).

REDESCRIPTION MALE. *Head.* Ratio (length: height: width) = 1:1.8:2.3. Frons 0.7 times as wide as long, with lunule deeply incised in it, yellow, with orbital plates brown to black and frontal plates brown anteroventrally and at bases of setae; frons ratio (length: width) = 1.6. Two long and one short orbital setae on posterior half of frons; anterior seta almost as long as frons width, middle seta 0.7 times as long. Eye ratio (height: length) = 1.8. Parafacial (maximum): eye length ratio = 0.1; on lower 3/4 parafacial linear; eye: gena height ratio = 10.0. Lunule completely exposed, without setulae; face yellow to reddish yellow, 1.4 times as high as distance between anterior tentorial pits, without trace of antennal grooves. Facial ridge bare, twice as wide as parafacial; with 1 vibrissa as long as medial vertical seta and longer than frontal setae. Parafacial matt. Gena yellow, with thin brownish setulae, strong genal seta 2/3 times as long as vibrissa and 2, rarely 3, thick but short black setae above it. Vertex yellow, except ocellar triangle and vertical plates black; vertical ridge well-expressed. Occiput brown, except dorsal half of medial occipital sclerite, orbit and postgena yellow; more than 25 black, thickened, acuminate postocular setulae; cervical and some thickened postgenal setulae yellowish white; a few fine whitish setulae at sides of occipital foramen. Antenna with brownish scape 1.2 times as long as wide, with transverse row of black setulae along apicodorsal margin; brown to black, long and densely setulose pedicel, with bare, sparsely microtrichose longitudinal area along dorsomedial surface;



FIG. 22

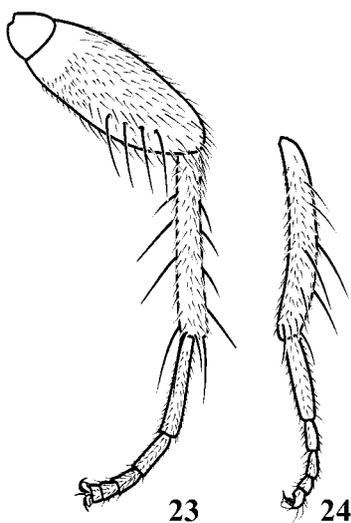
Tachiniscidia africana Malloch, ♂ (Congo, KMMA). Habitus, left lateral.

1st flagellomere dark brown, 1.5 times as wide as pedicel and 2.5 times as long as wide; arista 0.6 times as long as pedicel, yellow on basal half, remainder black. Proboscis with prementum reddish, convex and bearing 1-2 pairs of short setulae; labella moderately wide, short, but densely white setulose. Palpus yellow, narrowed to apex, 0.4 times as wide as 1st flagellomere, black setose.

Thorax. Robust, with black setae and setulae. Scutum 1.1 times as long as wide at presutural supra-alar setae, shining black, with 3 pairs of yellow areas (mesally to postpronotal lobe, anterior to transverse suture, and above wing base); scutellum with black medial area and pair of large posterolateral yellow spots, long black setulose on posterior 2/3, bare and shining at base. Proepisternum brown and yellow, lower than postpronotal lobe, not ridge-like, ventrally with 2 longer and 3-5 shorter and weaker setulae. Anepisternum brownish-black, white microtrichose on anterior one-fourth, the rest shining light yellow, strongly contrasting with rest of pleuron. Anepimeron reddish-brown, with long black setulae anteriorly and short white microtrichia posteriorly. Katepisternum densely whitish microtrichose and black setulose, dark brown, with large yellow anteroventral spot. Postnotum black, sparsely white microtrichose.

Wing. Largely hyaline, yellowish anterobasally, pterostigma and apex distal to crossvein R-M brown; cell m gray microtrichose; 2nd costal section (cell c) twice as long as 3rd costal section (pterostigma) and 1.3 times as long as 4th section (cell r₁); 2nd section of vein M twice as long as 1st section, 3.8 times as long as 3rd section and 1.1 times as long as 4th section. Veins brown. Calypters white, lower calypter long white microtrichose on both disc and margin; halter yellow.

Legs. Yellow, black setose and setulose; mid- and hindfemora apically dark brown; mid- and hindtibiae and tarsi brown to brownish yellow. Forecoxa with 3 marginal lateroventral setae, midcoxa with 4 strong lateral setae and brush of shorter posteroventral setulae; hindcoxa with 1 anterolateral and 1 posterolateral setae, both weak; forefemur with 5–6 long spinulose posteroventral setae; midfemur 2 times as thick as fore- and 1.5 times as thick as hindfemur, with 4–5 strong setae anteriorly; hindfemur with 7 anterodorsal, 3 anteroventral and 3 posteroventral setae, at basal third, at middle and at apical third; foretibia with posterodorsal row of shorter setae and one posteroventral seta at middle; hindtibia with 3–4 unequal spurious dorso-apical setae in longitudinal row.



FIGS 23–24

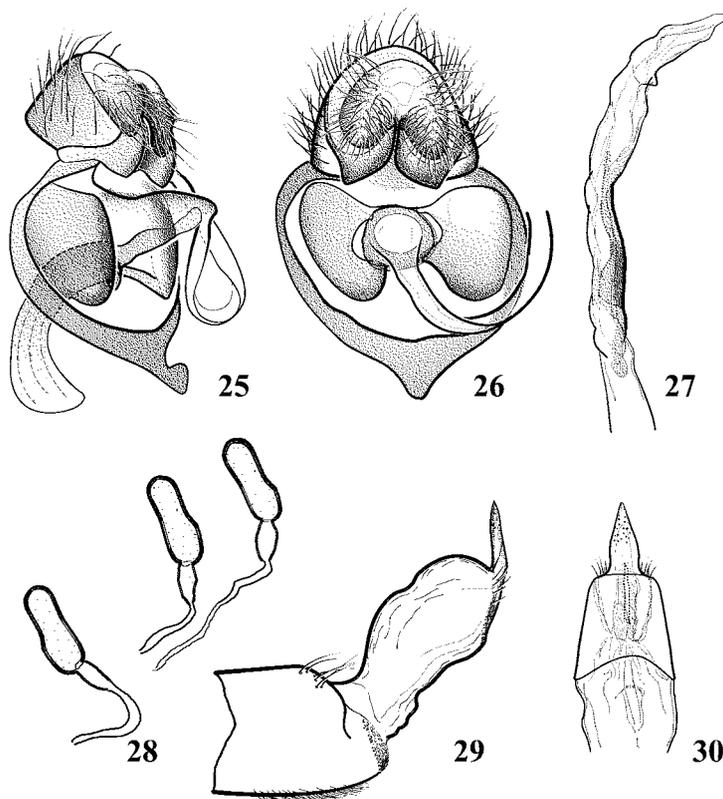
Tachiniscidia africana Malloch (Congo, KMMA). 23, midfemur, tibia and tarsus; 24, hindtibia and tarsus.

Abdomen. Narrower and longer than thorax, tergites shining brownish-black, with 2 large yellow spots: pair laterally on tergites 2 and 3 and unpaired medial spot on tergites 4 and 5. Sternites brownish-yellow to brown, transverse, densely black setulose; pleural membrane very narrow.

Terminalia. As in Figs 25–27; surstyli reduced. Hypandrium as in Figs 25–26; phallapodeme with vanes separate; membrane at basiphallus everted, without button-like field of sensilla.

FEMALE. Similar to male; tergite 6 separate, almost completely hidden underneath tergite 5. Oviscape short, brown; covered with fine, brownish setulae; opening dorso-apical; aculeus with 4–5 rather long trichoid sensilla on distal part of tergite 8, with strongly narrowed and acute tip, as in Figs 29–30.

MEASUREMENTS. Body length 8–9 mm. Wing length 7–7.5 mm.



Figs 25–30

Tachiniscidia africana Malloch (Congo, KMMA). 25, male genitalia, left lateral; 26, same, posterior; 27, glands of phallus; 28, spermathecae; 29, ovipositor, lateral; 30, aculeus, anterodorsal.

Tribe ORTALOTRYPTETINI

Trypetinae, Ortalotryptetini Ito, 1983: 33; Norrbom, 1994: 2; Wang, 1996: 113; Norrbom *et al.*, 1999: 13.

Ortalotryptetinae, Ortalotryptetini Korneyev, 1994: 16.

Tachiniscinae, Tachiniscini Korneyev, 1999a: 18; 1999b: 93.

Type genus: *Ortalotrypeta* Hendel, 1927.

DIAGNOSIS. Medium-sized or moderately large flies (5.5–10.5 mm). Head with receding face and swollen postgena; short postocular setulae forming 1 regular row poorly differentiated from occipital setulae; postgena deeply incised below occipital foramen, with 1 longer postgenal seta and shorter setulae. Vibrissa not developed. Thoracic sclerites non-modified. Anterior spiracle vertical. Anepisternum not produced laterally, setulose medially and posteriorly; anepisternal phragma complete; only 1–2 postsutural anepisternal setae well developed. Anepimeron with 1 seta, not mounted on projection. Katepisternum with 1 strong laterocline posterodorsal seta and row of 5–6 reclinate setae anterior to midcoxa. Katepimeron not modified. Postnotum at most

sparsely and short microtrichose or bare. Metathoracic postcoxal area unsclerotized. Wing with complete costal vein reaching vein M (P); stout setae before subcostal break present or absent; vein Sc sharply turned anteriorly before apex, often constricted or broken; vein R₄₊₅ setulose to apex or to level of R-M. Alula small; calypters moderately narrow, subequal. Legs unmodified. Mid tibia with 1 anterodorsal seta on apical half and 2 subequal ventro-apical setae; hindtibia usually with dorsal seta(-e). Abdomen elongate elliptic, tergites not extending onto ventral side and not fused. Tergite 6 of female separate, not hidden beneath tergite 5. Male terminalia usually short oval, each medial surstylus with 2 prenisetae (SP).

GENERA INCLUDED. *Cyaphorma* Wang, 1989; *Ischyropter* Bigot, 1889; *Agnitrena* Korneyev, gen. n.; *Neortalotrypeta* Norrbom, 1994; *Ortalotrypeta* Hendel, 1927.

REMARKS. Our phylogenetic analysis (see Phylogenetic Relationships) indicates that *Ischyropter* may be the sister group of all other Tachiniscinae (i.e., the Tachiniscini plus the other four genera of Ortalotrypetini). But because this hypothesis is based on a single synapomorphy and many characters could not be scored for *Ischyropter* because the head is lost in the only known specimen, until there is additional evidence to support this relationship, we prefer to maintain the current classification and continue to tentatively include *Ischyropter* in the Ortalotrypetini.

Agnitrena Korneyev, gen. n.

Type species: *Agnitrena igniceps* Korneyev, sp. n. (by present designation).

DIAGNOSIS. Medium-sized flies, which can be recognized from other Tachiniscinae by the combination of: arista pubescent (only basally); costal vein complete (characters of Ortalotrypetini); head yellow to orange and body black, with no frontal setae, 2 pairs of orbital setae, conspicuous ocellar and vertical setae, but inconspicuous postvertical setula, 1 postpronotal and 1 postsutural supra-alar setae, and dorsocentral seta aligned with intra-alar seta (Figs 31-43).

DESCRIPTION. *Head*. Slightly higher than long. Frons slightly longer than wide, sparsely setulose, with frontal plates not expressed. Frontal setae absent. Orbital plates short, extending to posterior 0.3 of frons length, with 2 strong reclinate setae. Lunule completely hidden underneath frontal flap of ptilinal fissure. Face almost flat, oblique in profile, with small, shallow antennal grooves on upper one-third; fronto-facial sutures reaching ventral margin of antennal grooves. Ptilinal fissure ending slightly below level of ventral margin of eye. Ocellar seta slender, shorter than ocellar triangle; medial vertical seta 1.2 times as long as horizontal diameter of eye and 1.6 times as long as lateral vertical seta; postvertical (= "paraverticlar") setula tiny, as long as occipital setulae. Postocellar seta absent. Postocular setulae acuminate, weak, poorly differentiated from occipital setulae. Gena with 1 strong seta posteroventrally. Antenna attached at level of upper 5/6 of eye height; scape very short, anteriorly directed; pedicel as long as wide, with dorsal cleft; 1st flagellomere oval; arista 2-segmented, very short microtrichose on basal 1/5. Palpus elongate oval, slightly widened towards apex, setulose. Prementum small, not strongly convex; labella small, capitate.

Thorax. Proepisternum high, ridge-like, with 2-3 laterocline proepisternal setae twice as long as surrounding setulae. Postpronotal lobe with 1 strong seta.



FIG. 31

Agnitrena igniceps sp. n. Holotype male, habitus, left lateral.

Scutum completely black, with 1 presutural and 1 postsutural supra-alar, 0 intrapostalar, 1 postalar and 1 intra-alar setae; 1 acrostichal seta aligned with intra-alar and postalar setae; 1 dorsocentral seta aligned with intra-alar; scutellum slightly convex, setulose, with 2 pairs of strong subequal setae in male and 3 in female; 1 anepisternal seta. Two pairs of approximated scapular setae, both aligned with dorsocentral row of setulae.

Wing. Largely dark brown with 2 hyaline crossbands on apical half and other hyaline markings. R_{4+5} setulose to level of DM-Cu. Costal vein with small "costal spines" proximal to subcostal break, less than 2 times as large as surrounding setulae.

Legs. Mid tibia with anterodorsal seta on apical half, with row of posterodorsal setae, and with 2 large spur-like ventro-apical setae; hindtibia with anterodorsal row of 3–4 setae.

Male terminalia. Epandrium suboval, with moderately short and wide surstyli and 2 prensisetae.

Female terminalia. Oviscape short, with large dorso-apical opening. Eversible membrane with large ventral area of dark scales; aculeus with short, bulbous, non-setulose, anterodorsal dilation, apical portion with smooth edges; ventral lobes (8th sternites) well-expressed; 3 spermathecae spherical or subspherical, with basal apodeme, and with elongate, slender base; surface with minute, acute projections; spermathecal ducts separate to vagina.

REMARKS. This genus is very similar to *Neortalotrypeta* in the shape and coloration of the head and body and venation of the wing, but differs by its chaetotaxy (0 frontal, 2 orbital, and 1 postocellar setae, and 3 scutellar setae in female; whereas *Neortalotrypeta bicolor* has 1–2 weak frontals, 1 orbital, very weak postocellar seta, and 2 scutellar setae in the female, and sometimes 1–2 orbital setae), more posterior location of the dorsocentral seta, and mostly bare arista.

ETYMOLOGY. The generic name is an anagram of Argentina, the country of origin of the type species. Its gender is considered feminine.

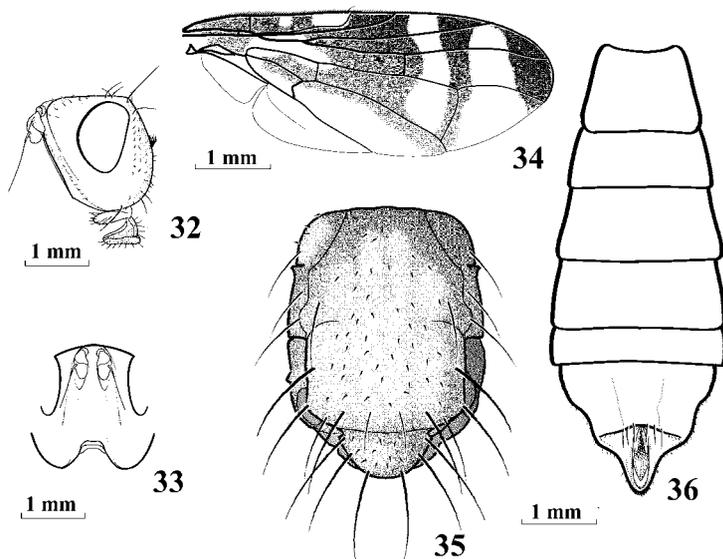
Agnitrena igniceps Korneyev, sp. n.

(Figs 31–43)

MATERIAL. Holotype ♂: **Argentina**: “La Rioja / Rep. Argentina”, “R. I. Sc. N. B. 24.236 / Coll. M. Bequaert” (dissected; microvial with abdomen in glycerol pinned underneath the specimen) (KBIN). Paratype ♀: labels as on the holotype (dissected; microvial with abdomen in glycerol pinned underneath the specimen) (KBIN).

DIAGNOSIS. Medium-sized flies with reddish-yellow head and black body.

DESCRIPTION. *Head*. Reddish yellow; head ratio: 1:1.05:1.2. Setae black. Frons as long as wide, black setulose. 2 orbital setae on posterior one-fourth of frons, 0.65 times as long as medial vertical seta. Eye ratio (height: length) = 1.5. Parafacial (maximum): eye length ratio = 0.6; eye: gena height ratio = 0.5. Facial ridge with only small setulae on ventral half. Antenna short, length less than half height of face; 1st flagellomere short, rounded, 1.5 times as long as wide and slightly longer than pedicel. Palpus yellow, black setulose. Proboscis brown. Thorax dark brown to black. Setae black. Mesonotum 2.0 mm long, scutum 1.3 times as long as wide at presutural supra-alar setae.



FIGS 32–36

Agnitrena igniceps sp. n. 32, head, left; 33, same, anterior; 34, wing; 35, female mesonotum; 36, female abdomen.

Thorax. Nonmicrotrichose, except 4 vittae on scutum. Scutellum very slightly convex, setulose dorsally, nonmicrotrichose; apical setae crossed. Proepisternum with 2–3 black setae twice as long as surrounding black setulae. Pleura nonmicrotrichose. Katatergite and anatergite short and sparsely microtrichose; subscutellum and mediotergite bare.

Legs. Dark brown to black.

Wing. 2.6 times as long as wide, with brown basal half, except hyaline bases of cells br and bm, hyaline spot in apical half of costal cell, large spot in cells r_1 and br on both sides of RS, slightly extending into anterior margins of bm and dm and connected basally to posterobasal hyaline area, hyaline crossband extending from cell r_1 into apical portion of cell dm, and broad hyaline band from apex of vein R_{2+3} to posterior margin in cell m. Posterior half of cell bcu and all of cell cua_1 except brown anterior margin along vein Cu_1 hyaline. Anal lobe and alula completely hyaline. Crossvein R-M at distal 3/5 of cell dm; 2nd costal section (cell c) twice as long as 3rd costal section (pterostigma) and as long as 4th section (cell r_1); 2nd section of vein M 1.2 times as long as 1st section, 1.5 times as long as 3rd section and as long as 4th section. Cell bcu with posteroapical lobe shorter than broadest width of cell.

Abdomen. Tergites nonmicrotrichose, black setose, normal in width. Female tergite 6 exposed, 0.5 times as long as tergite 5. Oviscape 1.2 mm long, 0.5 times as long as mesonotum.

Male terminalia. As in Figs 37–39.

Female terminalia. As in Figs 40–43.

Measurements. Body length 7.5–8.0 mm. Wing length 5.0–6.0 mm.

REMARKS. The paratype female is strongly compressed, with the mesonotum broken, and some mesonotal setae poorly visible, but the scutellum clearly has three pairs of setae, whereas the holotype male has only two pairs.

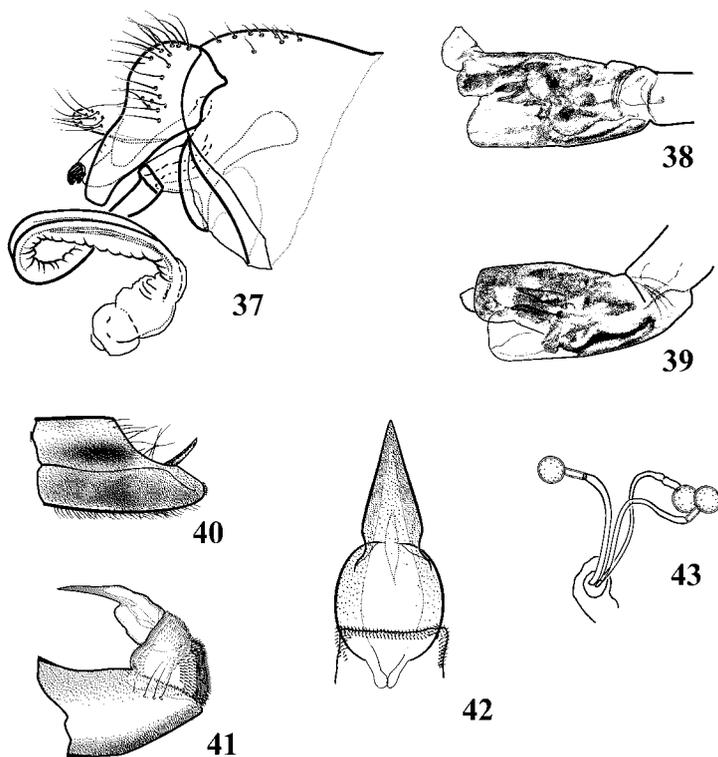
ETYMOLOGY. The species name is derived from the Latin “*ignis*”, fire, and “*caput*”, head.

Cyaforma Wang, 1989

Cyaforma Wang, 1989: 358; 1996: 113; Norrbom, 1994: 10; Korneyev, 1994: 16; Norrbom *et al.*, 1999: 13, 129. Type species: *Cyaforma shenonica* Wang, 1989 (by original designation).

DIAGNOSIS. Medium-sized flies which can be recognized from other Tachiniscinae by the combination of: arista pubescent; costal vein complete (characters of Ortalotrypetini); body brownish or blackish, moderately setose; (2-)3 pairs of frontal setae; 1-2 pairs of orbital setae; ocellar and vertical setae conspicuous; postvertical seta strong; usually 2 postpronotal and 2 postsutural setae; and wing largely blackish brown, with hyaline spots or marginal marks.

REDESCRIPTION. *Head.* As high as or slightly higher than long. Frons almost as long as wide, with well-expressed frontal and orbital plates. Frontal setae (fr) moderately long, inclinate, (2-)3 in number. Orbital plates long, extending to middle of frons length, with 1-2 reclinate seta(-e). Lunule narrow, vertical. Face slightly convex in profile, with large, shallow antennal grooves extending to ventral margin and low, not



FIGS 37-43

Agnitrena igniceps sp. n. 37, male genitalia, right lateral; 38-39, glans of phallus, lateral and ventral; 40, ovipositor at rest, left lateral; 41, same, everted; 42, aculeus, anterodorsally; 43, vagina and spermathecae.

sharply delimited, ventrally widened medial carina; fronto-facial sutures reaching bases of antennal grooves and usually in narrow groove between lower margin of antennal groove and anterior tentorial pit. Ptilinal fissure ending slightly below level of ventral margin of eye. Ocellar seta strong, more than twice as long as ocellar triangle and as long as anterior orbital and postocellar setae; medial vertical seta as long as eye length and 1.5 times as long as lateral vertical seta; postvertical (= "paravertical") seta as long as lateral vertical seta. Postocellar seta weak, 1/4 times as long as ocellar seta. Postocular setulae acuminate, weak, poorly differentiated from occipital setulae. Gena with 1 strong genal seta on genal ridge. Antenna attached at level of upper 3/5 of eye height; scape very short, anteriorly directed; pedicel as long as wide, with dorsal notch and seam; 1st flagellomere elongate oval; arista 2-segmented, short pubescent. Palpus parallel-sided, setulose, not widened towards apex. Prementum small, labella large, fleshy.

Thorax. Thoracic sclerites unmodified. Proepisternum high, ridge-like, with 1-2 strong laterocline proepisternal setae dorsally and additional thinner setulae. Postpronotal lobe with 2-3 strong setae. Scutum partially or completely black, with 1

presutural and 1–2 postsutural supra-alar, 1 postalar and 1 intra-alar setae; 1 acrostichal and 0–1 intrapostalar setae slightly posterior to levels of intra-alar and postalar setae; 1 dorsocentral seta aligned with postsutural supra-alar setae; scutellum slightly convex, setulose, with 3 pairs of strong subequal setae. Anepisternum not produced laterally, setulose medially and posteriorly; (1-)2 strong postsutural anepisternal setae. Anepimeron with 1 seta (not mounted on projection). Katepisternum with 1 strong laterocline posterodorsal seta and row of 5–6 reclinate setae anterior to midcoxa. Katepimeron not modified. Postnotum at most sparsely and short microtrichose or bare. Metathoracic postcoxal area unsclerotized.

Wing. Largely blackish brown, with a few hyaline spots or marginal marks. Costal vein ending at apex of vein M; R_{4+5} setulose at least to level of DM-Cu. Alula and calypters moderately narrow, subequal.

Legs. Not modified; midtibia with erect posterodorsal seta and 2 subequal spurious ventro-apical setae; hindtibia with anterodorsal row of 3–5 setae. Abdomen elongate elliptic, tergites not extending onto ventral side and not fused. Tergite 6 of female separate, not hidden beneath tergite 5. Sternites subquadrate.

Male terminalia. Epandrium suboval, with moderately short and wide surstyli and 2 prensisetae.

Female terminalia. Oviscape short, with dorso-apical opening; eversible membrane with numerous thicker, triangular scales on ventral side and smaller scales on dorsal surface; aculeus with short, non-bulbous anterodorsal dilation, bearing setulae on ventral side anterior to acute apex; ventral lobes (8th sternites) well-expressed; 3 mushroom-like, sparsely spinulose spermathecae with spermathecal ducts separate to vagina.

Measurements. Body length 6.5–8.5 mm; wing length 7–9 mm.

SPECIES INCLUDED. *Cyaforma macula* (Wang, 1988), *C. shenonica* Wang and *C. tonkinensis* (Zia, 1955), all occurring in southern China and northern Vietnam.

REMARKS. Norrbom (1994) and Wang (1996) recently published phylogenetic analysis, keys and review of species, which need not be repeated here.

***Ischyropteron* Bigot, 1889**

Ischyropteron Bigot, 1889a: xxix; Foote, 1967: 57.29; 1979: 97; 1980: 33; Norrbom *et al.*, 1999: 13, 162; Korneyev, 1999b: 93. Type species: *Ischyropteron nigricaudatum* Bigot, 1889 (by monotypy).

Calopteromyia Bigot, 1889b: xciii (unnecessary replacement name for *Ischyropteron* Bigot). Type species: *Ischyropteron nigricaudatum* Bigot, 1889 (automatic).

Ischyropteron: Hendel, 1914a: 93; 1914b: 49; Aczél, 1950: 258 (incorrect spelling for *Ischyropteron* Bigot).

DIAGNOSIS. Medium-sized flies, which can be recognized from other Tachiniscinae by the combination of: costal vein complete; body yellow with brown markings on head and brown stripes on scutum; 1 postpronotal and 1 postsutural supra-alar setae; 2 pairs of scutellar setae (basal seta lacking); and abdomen and oviscape elongate (Figs 44–49).

REDESCRIPTION (FEMALE). *Head* [now missing in the holotype; the following based on Bigot's original description, translated]. Conical, with frons prominent and face oblique; frons with a few long setae; gena bare; bases of antennae approximated; 1st flagellomere long and narrow, apically rounded, with bare arista; palpus elongate, slightly widened apically.

Thorax. Proepisternum without large setae. Thorax yellow with dark brown markings on scutum, with following setae (well developed unless otherwise indicated): 1 postpronotal, 2 notopleural, 1 presutural and 1 postsutural supra-alar, 1 weak intrapostalar, 1 postalar and 1 intra-alar setae; 1 weak acrostichal seta aligned near level of intra-alar and postalar setae; 1 dorsocentral seta aligned anterior to intra-alar and postalar setae, but closer to their levels than to level of postsutural supra-alar setae; scutellum with 2 pairs of strong subequal scutellar setae, basal seta relatively close to apical seta, at midlength of scutellum, apical setae divergent (broken on holotype, but base as stout as basal seta, so probably at least subequal to it in length); 2 anepisternal setae, upper seta 0.6 times as long as lower; 1 anepimeral seta. Katepisternal seta absent. Scapular setae undifferentiated. Scutellum flattened.

Wing. With hyaline base and brown apex. R_{4+5} setulose to level of DM-Cu. Costal vein with "costal spines" undifferentiated or absent.

Legs. Unusually long and slender. Mid tibia without anterodorsal setae, but with row of 3-4 small posterodorsal setae and 2 spur-like ventro-apical setae.

Abdomen. Long, narrow; with syntergite 1+2 0.8 times as long as tergites 3-6; tergite 6 exposed, 3/5 times as long as tergite 5 and sternite 6 times as long as sternite 5.

Terminalia. Oviscape longer than tergites 3-6 together, flattened dorsoapically, with large dorsoapical opening. Eversible membrane without taeniae, but entirely covered by scales, which are single-toothed, dark, large, projecting, and very dense basoventrally, becoming shorter, paler and less dense, but still monodentate medially, and becoming shorter and multidentate apically. Aculeus long, with short, swollen anterodorsal portion; apical portion with very finely serrate edges; ventral lobes (8th sternites) well-expressed; 3 spherical spermathecae (Fig. 49); spermathecal ducts separate to vagina.

Male. Unknown.

REMARKS. This genus remained enigmatic even after a detailed redescription of the holotype (which was already headless at that time) by Foote (1979). Dissection of the genitalia of the holotype by ALN has shown that it belongs in the Tachiniscinae (Norrbon *et al.*, 1999).

Ischyropteron nigricaudatum Bigot, 1889

(Figs 44-49)

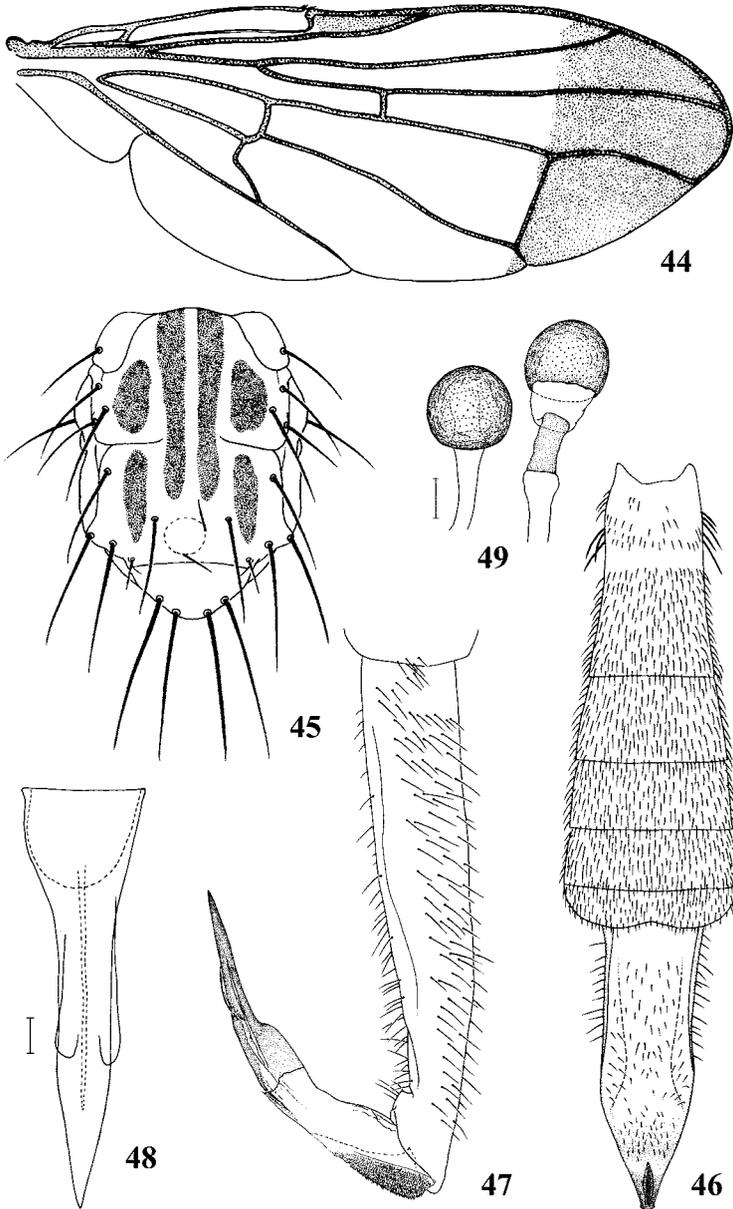
Ischyropteron nigricaudatum Bigot, 1889a: xxix; 1889b: xciii; Hendel, 1914b: 49; Foote, 1967: 57.29; 1979: 97; 1980: 33; Norrbom *et al.*, 1999: 162; Korneyev, 1999b: 93.

MATERIAL. Holotype ♀: **Brazil**: Rio de Janeiro: Theresopolis (UMO).

REDESCRIPTION (FEMALE). *Head* [according to Bigot, 1889]. Frons at each side above with one diffuse brown spot, face dark yellow, and gena with one brown spot

below ventral margin of eye. Antenna long, dirty yellow, with the base slightly infuscated. Palpus pale yellow.

Thorax. Nonmicrotrichose except side of scutellum, ventral part of propleuron and anteroventral corner of anepisternum below spiracle, and posterior part of katater-



FIGS 44-49

Ischyropteron nigricaudatum Bigot. 44, wing; 45, mesonotum; 46, female abdomen; 47, ovipositor, right; 48, aculeus apex, posterovenral; 49, spermathecae (2 of 3).

gite; yellow except scutum with 2 pairs of dark brown vittae, submedial vitta extended posterior to level of supra-alar seta, sublateral vitta widely interrupted at transverse suture, presutural part broader and more ovoid than postsutural part. Scutum 1.3 times as long as wide at presutural supra-alar setae. Setae black; setulae relatively long, slender, mostly brown dorsally, yellow on propleuron, anepisternum posterior to phragma, on most of katepisternum, and on anepimeron below anepimeral seta. Mesonotum 3.66 mm long. Proepisternum with numerous small subequal setulae.

Wing. 2.7 times as long as wide, mostly hyaline, pterostigma pale brown, entire apex distal to crossvein DM-Cu brown. Microtrichose except most of cells bc, bm, and bcu, posterior 2/3 of cell c, large basal area in cell a_1 , and smaller basal areas in cells r_1 , r_{2+3} , br, and dm. Veins brown. R_1 densely setulose dorsally, without gap at level of apex of Sc, ventrally with a few setulae near apex. R_{4+5} densely setulose dorsally to beyond level of apex of R_{2+3} , bare ventrally. Other veins nonsetulose. Crossvein R-M at 2/5 length of cell dm and basal to level of apex of vein R_1 ; 2nd costal section (cell c) 1.6 times as long as 3rd costal section (pterostigma) and as long as 4th section (cell r_1); 2nd section of vein M 0.66 times as long as 1st and 3rd section and 0.8 times as long as 4th section. Cell bcu with posteroapical lobe approximately 2/3 times as long as broadest width of cell. Anal lobe and alula hyaline.

Legs. Mostly microtrichose, yellow, fore- and hindtarsi brown, first tarsomere gradually paler basally; midleg with first tarsomere yellow, slightly brownish apically. Forefemur without large ventral setae except one brown seta at apical 2/3. Mid tibia without outstanding anterodorsal setae, but with row of 3-4 small posterodorsal setae, and with 2 large ventroapical spurlike setae. Hind femur with long, slender anterodorsal seta at apical 2/3, another at apical 3/4 on left leg only, and a similar dorsal seta at apical 3/4; apical 1/3 with row of weak anteroventral setae.

Abdomen. Elongate; tergites and sternites entirely yellow, nonmicrotrichose, evenly and densely pale brown setulose except for medial transverse bare area on syntergite 1+2. Syntergite 1+2 with cluster of 4-5 dark brown setae basolaterally.

Terminalia. Oviscape 3.6 mm long, approximately as long as mesonotum, without enlarged dorsal preapical setae; when dried (Fig. 46), dorsal side collapsed and convex, with lateral margins curving inward, but in dissected preparation flattened tubular; basal phragma broad but very short. Aculeus 1.37 mm long, straight, not dorsally or ventrally curved; tip elongate, slightly sagittate, very finely serrate (serrations barely visible at 100x). 3 spermathecae (Fig. 49) spherical, with elongate, slender, weakly sclerotized base; surface slightly rugose, with minute denticles; each spermatheca on separate spermathecal duct approximately 1.4 mm long.

Male. Unknown.

Measurements. Body length [according to Bigot, 1889] (without oviscape) 8.0 mm. Wing length 11.2 mm, width 4.2 mm.

REMARKS. There has been some confusion regarding the presutural supra-alar, dorsocentral and acrostichal setae (Foote, 1979, 1980), which are all present, although the pin of the holotype is in the area of the acrostichals and they are now protruding at odd angles from the margin of the hole.

Neortalotrypeta Norrbom, 1994

Neortalotrypeta Norrbom, 1994: 4; Norrbom *et al.*, 1999: 13, 172; Korneyev, 1999b: 93. Type species: *Neortalotrypeta bicolor* Norrbom, 1994 (by original designation).

DIAGNOSIS. Medium-sized flies, which can be recognized from other Tachiniscinae by the combination of: arista pubescent; costal vein complete (characters of Ortalotrypetini); head yellow to orange and body black; frontal setae weak; 1 pair of orbital setae; ocellar and vertical setae conspicuous, but postvertical setula inconspicuous; 1 postpronotal and 1 postsutural setae; and dorsocentral seta aligned midway between postsutural supra-alar and postalar setae or more anteriorly (Figs 50-56).

REDESCRIPTION (FEMALE). *Head.* As high as to slightly higher than long. Frons almost as long as wide, with poorly expressed frontal and orbital plates, setulose. Frontal setae (fr) weak, inclinate, 1-2 in number, or absent. Orbital plates long, extending 2/5 of distance from posterior ocelli to anterior margin of frons medially, with 1 strong reclinate seta. Face convex in profile, with distinct antennal grooves extending ventrally almost to mid height of face, and with sharply margined medial carina, very broad on ventral 3/5 (Fig. 51); fronto-facial sutures reaching bases of antennal grooves. Ptilinal fissure ending slightly below level of ventral margin of eye. Ocellar seta slender, twice as long as ocellar tubercle; medial vertical seta 0.6 times as long as horizontal diameter of eye and 1.5 times as long as lateral vertical seta; postvertical setula minute, as long as occipital setulae. Postocellar seta absent. Postocular setulae acuminate, weak, poorly differentiated from occipital setulae. 1 strong genal seta on posteroventral part of gena. Antenna attached at level of upper 3/5 of eye height; scape very short, anteriorly directed; pedicel as long as wide, with dorsal cleft; 1st flagellomere oval; arista 2-segmented, short pubescent. Palpus elongate ovoid, dorsal margin slightly concave, setulose. Prementum small, not strongly convex; labella large, capitate.

Thorax. Proepisternum less than twice as high as long, convex, with numerous subequal setulae. Postpronotal lobe with 1 strong seta. Scutum with 1 presutural and 1 postsutural supra-alar, 0 intrapostalar, 1 postalar and 0-1 intra-alar setae; 1 acrostichal seta aligned slightly anterior or posterior to intra-alar and postalar setae; 1 dorsocentral seta aligned slightly posterior to postsutural supra-alar seta to midway between postsutural supra-alar and postalar setae; scutellum slightly convex, setulose, with 2 pairs of strong subequal setae; 1 anepisternal seta.

Wing (Fig. 52). Mostly dark brown, with 5 hyaline marks. R₄₊₅ setulose to level of DM-Cu. Costal vein with small "costal spines" proximal to subcostal break, less than 2 times as large as surrounding setulae.

Legs. Mid tibia with 1 anterodorsal seta and 1-2 posterodorsal setae on apical half, and with 2 large spur-like ventro-apical setae; hindtibia with anterodorsal row of 4-7 setae.

Abdomen. Sternites broad, subquadrate.

Terminalia. Oviscape short, with large dorsoapical opening. Eversible membrane with large ventral area of dark scales; aculeus (Fig. 54) with short, non-bulbous anterodorsal dilation, strongly dorsally curved basal to tip; tip elongate, slightly

sagittate, very finely serrate; ventral lobes (8th sternites) well-expressed; 3 spermathecae spherical or subspherical, with basal apodeme, and with elongate, slender base; surface with minute, acute projections; spermathecal ducts separate to vagina.

Male. Unknown.

Neortalotrypeta bicolor Norrbom, 1994

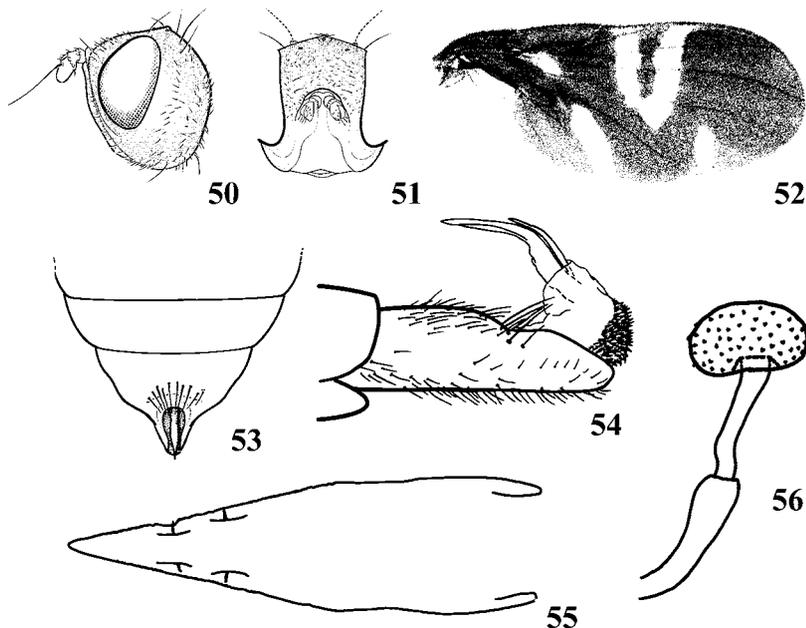
(Fig. 50–56)

Neortalotrypeta bicolor Norrbom, 1994: 6; Norrbom *et al.*, 1999: 172.

MATERIAL. Type material. Holotype ♀: **Brazil:** [Mato Grosso do Sul:] “Corumbá” “April” [1882 (H. H. Smith), “S. W. Williston Collection”, “Holotype *Neortalotrypeta bicolor* desig. Norrbom” [red label] (AMNH).

Non-type material. **Argentina:** Salta: 45 km. S of Salta, La Vina, site with dry, sparse altiplano vegetation, 29.02.1992, 1 ♀ (S. A. Marshall) (UG) (USNM00214861) (right wing detached and mounted on slide); Chaco de Santiago del Estero, La Palisa, boros du Rio Saladado, 25 km NE of Dicaño, 1903, 2 ♀ (E. R. Wagner) (MNHNP).

REDESCRIPTION (FEMALE). *Head.* Yellow to orange; head ratio: 1:1:1.1–1.2. Setae black. Frons as long as wide, black setulose. Anterior frontal seta ca. one-third as long as medial vertical seta and ca. 1.5 times as long as ocellar tubercle. 1 orbital seta 0.7 times as long as medial vertical seta at posterior one-fourth of frons length. Eye ratio (height: length) = 1.4–1.5. Parafacial (maximum): eye length ratio = 0.2; eye: gena height ratio = 0.45. Facial ridge with only small setulae on ventral half. Antenna short,



FIGS 50–56

Neortalotrypeta bicolor Norrbom. 50, head, left; 51, same, anterior; 52, wing; 53, tergites 5–6 and ovipositor; 54, ovipositor, lateral; 55, aculeus tip; 56, spermatheca (one of the three). 51, 53–56: Modified from Norrbom (1994) of holotype except 50 (composite of holotype and La Vina female) and 52 (La Vina female).

length less than half height of face; 1st flagellomere short, rounded, 1.5 times as long as wide and ca. as long as pedicel. Palpus yellow to orange, black setulose. Proboscis brown.

Thorax. Dark red brown to black. Setae black. Mesonotum 3.04 mm long, scutum 1.25 times as long as wide at presutural supra-alar setae. Small medial and 2 slightly larger lateral scapular setae present. Postpronotal lobe, anterior 2/3 of anepisternum, and most of presutural and medial postsutural areas of scutum nonmicrotrichose. Scutum completely dark red brown to black, nonmicrotrichose except notopleuron, bordering transverse suture, and postsutural lateral margin to level of intra-alar seta in holotype, nonmicrotrichose except postsutural lateral margin to level of supra-alar seta and on posterolateral corner in La Vina female; dorsocentral seta aligned slightly posterior to postsutural supra-alar seta (La Vina female) or almost midway between supra-alar and postalar setae (holotype). Scutellum very slightly convex, setulose dorsally, microtrichose in holotype, with large posteromedial bare area in La Vina female; apical setae crossed (at basal fifth in holotype). Intra-alar seta absent on the La Vina female. Proepisternum with numerous small subequal setulae. Pleura microtrichose in both specimens except for large bare area on anepisternum (in La Vina female bare except small anteroventral area below spiracle and broadly along posterior margin, microtrichia extending slightly anterior to phragma, and in holotype triangular posterodorsal area tapering along dorsal margin ca. 2/3 distance to anterior corner). Subscutellum microtrichose, mediotergite mostly bare except lateral margins.

Wing. 2.75 times as long as wide, mostly brown, with following hyaline marks: alula; spot in cells r_1 and br bordering RS basal to fork; two transverse bands extending from costa into cell dm on either side of crossvein R-M, one originating in pterostigma, the other in cell r_1 , separated (holotype and La Palisa females) or connected posteriorly forming V-shaped mark (La Vina female) (Fig. 52); elongate band in basal half of cell cu_1 extending to posterior margin; and spot or short band subbasally in cell m, reaching or isolated from posterior margin. Crossvein R-M at distal 3/5 of cell dm; 2nd costal section (cell c) 1.6 times as long as 3rd costal section (pterostigma) and 0.8 times as long as 4th section (cell r_1); 2nd section of vein M 1.5 times as long as 1st section, twice as long as 3rd section and 0.8 times as long as 4th section. Cell bcu with posteroapical lobe almost as long as broadest width of cell. Anal lobe completely brown.

Legs. Dark brown to black.

Abdomen: Tergites entirely microtrichose, normal in width.

Terminalia. Oviscape 1.0-1.37 mm long, 0.45-0.48 times as long as mesonotum.

Measurements. Body length 7.5-8.25 mm. Wing length 6.78.1 mm.

REMARKS. The holotype and the La Vina females have 1-2 setulae that appear to be frontal setae; they are only slightly longer than the medial setulae on the frons but are inclinate. One of the La Palisa females has one seta on one side only, and the other female does not have frontal setae. The La Vina female has well-developed medial and lateral vertical setae, and 1 strong orbital seta (these setae are missing on the holotype, although the alveoli are large).

***Ortalotrypeta* Hendel, 1927**

Ortalotrypeta Hendel, 1927: 55; Shiraki, 1933: 314; Zia & Chen, 1938: 13; Chen, 1948: 77, 84, 119; Zia, 1955: 66, 68; 1963: 631, 633, 637; Ito, 1984: 51; Hardy, 1977: 66; Foote, 1984: 108; Wang, 1989: 358; 1996: 115; Norrbom, 1994: 10; Korneyev, 1994: 16; 1999b: 93; Norrbom *et al.*, 1999: 13, 129. Type species: *Ortalotrypeta gigas* Hendel, 1927 (by original designation).

DIAGNOSIS. Medium-sized to large flies (body length 5.5–10.5 mm; wing length 6.5–9 mm) with yellow to orange body, very similar to *Cyaforma* in head and body shape and chaetotaxy (including long ocellar and postvertical setae, usually 2-3 strong postpronotal setae (1 in *O. singula*), 2 or more postpronotal setae, intrapostalar seta usually present, 1 dorsocentral seta aligned near postsutural supra-alar seta, and 3 pairs of scutellar setae), wing venation and structure of male and female terminalia, but differing as follows. Thorax and abdomen yellow to pale brown. Wing hyaline with yellowish and milky white areas and pattern of fused dark yellow and brown bands and spots. Vein R₄₊₅ setulose to DM-Cu level or almost to apex.

SPECIES INCLUDED. *Ortalotrypeta gansuica* Zia, 1938, *O. gigas* Hendel, 1927, *O. idana* Hendel, 1927, *O. idanina* Zia, 1963, *O. isshikii* (Matsumura, 1916), *O. singula* Wang, 1989, *O. tibeta* Wang, 1989, *O. trypetoides* Chen, 1948, and *O. ziae* Norrbom, 1994, mostly from southern China, but also from Japan and Nepal.

REMARKS. Norrbom (1994) and Wang (1996) provided the most comprehensive treatments of this genus, with detailed diagnosis, keys and review of species.

TAXA OF UNCLEAR FAMILIAL POSITION

The monotypic genus *Descoleia* Aczél was described from a single female of the type species from Argentina. It was originally placed in the subfamily Toxurinae of Pyrgotidae (Aczél, 1956b), currently ranked as the tribe Toxurini of Pyrgotinae, because of its head shape, which is similar to that in most Pyrgotidae, and its well-developed ocelli (P) and its wing venation, in which it is similar to both Tephritidae and Toxurini. The study of a recently discovered male specimen, however, shows that *Descoleia* does not possess synapomorphies of the other members of the subfamily Pyrgotinae. Further studies of all the subfamilies and tribes of Pyrgotidae show that it cannot be assigned to any taxon within that family. It does, however, have some characters in common with both Pyrgotidae and Tephritidae (including Tachiniscinae). Its status and that of another enigmatic genus, *Nosferatumyia* Korneyev, gen. n., are discussed below.

***Descoleia* Aczél, 1956**

Descoleia Aczél, 1956a: 167; 1956b: 3; Steyskal, 1967: 56.2. Type species: *Descoleia teretrura* Aczél, 1956 (by original designation).

DIAGNOSIS. Large (body length 10.5–11.4 mm; wing length 10.0–10.3 mm) flies, somewhat resembling *Agnitrena* and *Nosferatumyia* in head shape (fronto-facial margin protruded, face (in profile) receding, postgena bulging, pedicel with a deep notch), absence of greater ampulla, vein Sc sharply turned anteriorly before apex, complete, and body chaetotaxy (no supernumerary postpronotal or postsutural supra-

alar setae), but differing as follows. Head without long setae; ocelli present; face with long antennal grooves; antenna with elongate oval 1st flagellomere; arista very short pubescent on distal half; palpus narrow, parallel-sided; proboscis small, capitate. Scutum narrowed anteriorly, reddish-yellow, with 2 notopleural, 1 postsutural supra-alar and 1 postalar setae; presutural supra-alar, acrostichal, dorsocentral, intra-alar and intrapostalar setae lacking. Scutellum with 1 (apical) pair of marginal setae. Pleural setae (proepisternal, anepisternal, katepisternal and anepimeral) lacking. Wing brown with 2 broad yellowish crossbands not reaching posterior margin. Vein R_{4+5} setulose to level of R-M.

REMARKS. *Descolea teretrura*, the only known species of this genus, resembles Ortalotrypetini in head shape (with strongly receding face, swollen postgena, and small eye) (see Tab. 1, character #3) and lack of well differentiated postocular setae (#6), and a number of plesiomorphic characters (e.g., well-developed ocelli, greater ampulla lacking, sharply bent subcostal vein, and moderately long lobe of cell *bcu*). But because it lacks the unambiguous synapomorphies of the Tachiniscinae (judging from original figures (Aczél, 1956b: figs 9–10), it has a finely spinulose eversible membrane with well-developed taeniae, and an elongate aculeus, which is everted through an apical rather than dorso-apical opening of the oviscapae) and of the Tephritidae (no frontal setae, no subcostal spines), it is doubtful that it belongs in the Tachiniscinae. On the other hand, *Descolea* also lacks the only unambiguous synapomorphy of other Pyrgotidae (including Toxurini), the family and tribe to which it was originally assigned: the medial surstylus of *D. teretrura* bears 2 prenisetae, which are absent in all other Pyrgotidae (except *Toxopygota*, a genus of unresolved position). *Descolea* lacks this single synapomorphy of other Pyrgotidae and thus belongs to an unresolved trichotomy with other Pyrgotidae and Tephritidae.

***Descolea teretrura* Aczél, 1956**

(Figs 57–65)

Descolea teretrura Aczél, 1956a: 167; 1956b: 3; Steyskal, 1967: 56.2.

MATERIAL. Type material. Holotype ♀: **Argentina**: [“San Pedro de Colalao (Rep. Argentina, Prov. de Tucumán, I.1948 (IML)”)] (not examined).

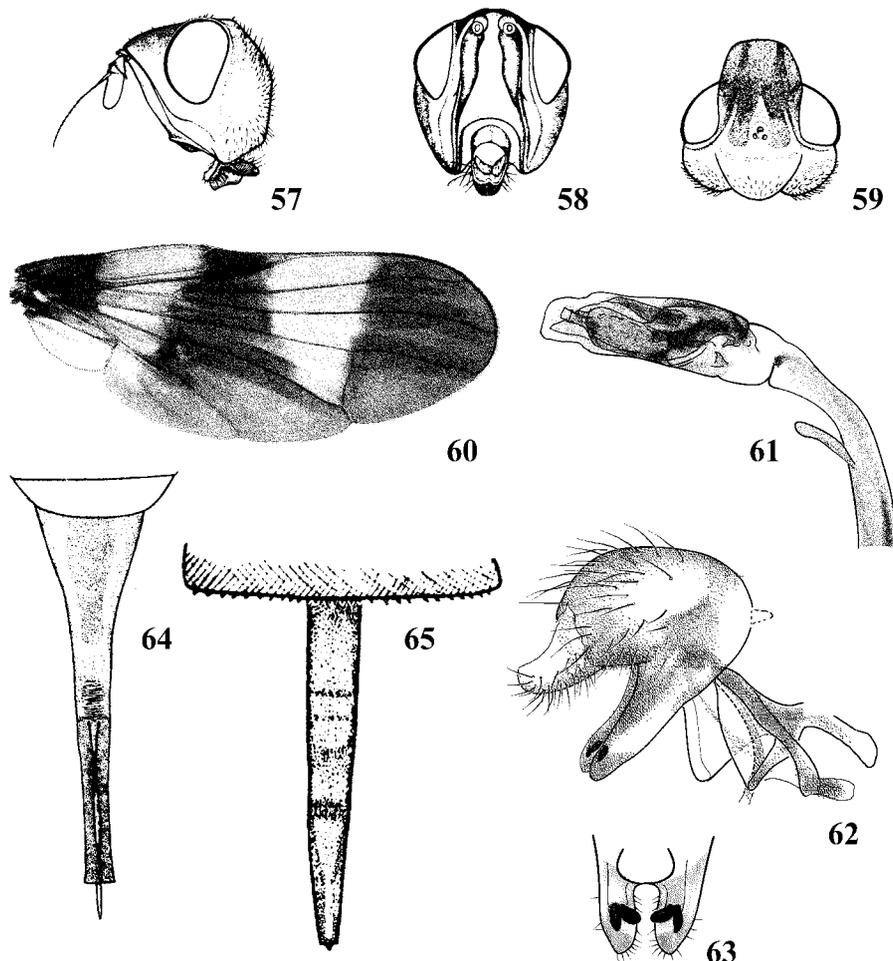
Non-type material. **Argentina**: Catamarca, La Rodeo, 1500 m, 08.1929, 1♂ (R. Galbano) (IML) (one wing detached and mounted on slide; genitalia dissected and kept in a microvial with glycerol pinned beneath the specimen).

REMARKS. The female of this species was described in detail by M. Aczél (1956b) and needs no redescription. Male terminalia as in Figs 61–63. Epandrium elongate, setulose. Medial and lateral surstyli moderately long, medial surstylus with 2 pairs of prenisetae near apex of lateral surstylus. Glans mostly sclerotized, with small membranous basolateral lobe.

***Nosferatumyia* Korneyev, gen. n.**

Type species: *Nosferatumyia no* Korneyev, sp. n. (by present designation).

DIAGNOSIS. Moderate-sized flies with black body, which can be recognized from the combination of: head elongate triangular in profile, with deep furrow in occiput and postgena; vertical setae hair-like, inconspicuous; frontal and ocellar seta lacking; pedi-



FIGS 57-65

Descolea teretrura Aczél. 57, head, left lateral; 58, same, anterior; 59, same, dorsal; 60, wing; 61, glans of phallus; 62, male genitalia, right lateral; 63, surstyli, posterodorsal; 64, ovipositor, dorsal, semi-everted; 65, tip of aculeus, enlarged. 57-59, 64-65: Modified from Aczél, 1956b.

cel with dorsal notch; 2 pairs of scutellar setae; greater ampulla absent; and medial surstylus with well-developed prenisetae (Figs 66-74).

DESCRIPTION (MALE). *Head.* Almost opisthognathic with small round eyes, well-developed ocelli, occiput forming wide collar separated from orbits and vertex by deep furrow. With 1 inconspicuous ocellar, 1 orbital, 1 vertical (possibly medial vertical), no frontal and postvertical setae. Face long receding, with deep but short antennal grooves. Antenna with short, deeply incised pedicel, round 1st flagellomere, and bare 2-segmented arista.

Thorax. With 1 scapular (lateral, in line with dorsocentral), 1 postpronotal, 0 presutural and 1 postsutural supra-alar, 1 postalar, 1 intra-alar, 0 intrapostalar, 1 dorso-

central aligned with intra-alar seta, ? acrostichal (holotype pinned in medial posterior part of mesonotum), and 2 pairs of scutellar setae, 2 notopleural, 1 anepisternal, 0 katepisternal and 0 anepimeral setae. Proepisternal ridge long setose. Notopleural callus moderately produced. Anepimeron setulose, without pronounced greater ampulla. Thoracic spiracles oval, with short marginal fringe, without setae or setulae. Metathoracic postcoxal area unsclerotized.

Wing. With costal vein reaching apex of vein M, with 3 breaks (proximal of humeral crossvein, distal to humeral crossvein, and at apex of vein Sc), uniformly setulose without enlarged setulae before apex of vein Sc ("costal spines"), vein Sc bent at blunt angle and constricted before apex; vein R₁ setulose on entire length, straight at level of pterostigma; vein R₄₊₅ bare; cell bcu with very short posteroapical lobe; vein A₁+Cu₂ straight, almost reaching wing margin. Anterior calypter slightly longer than posterior.

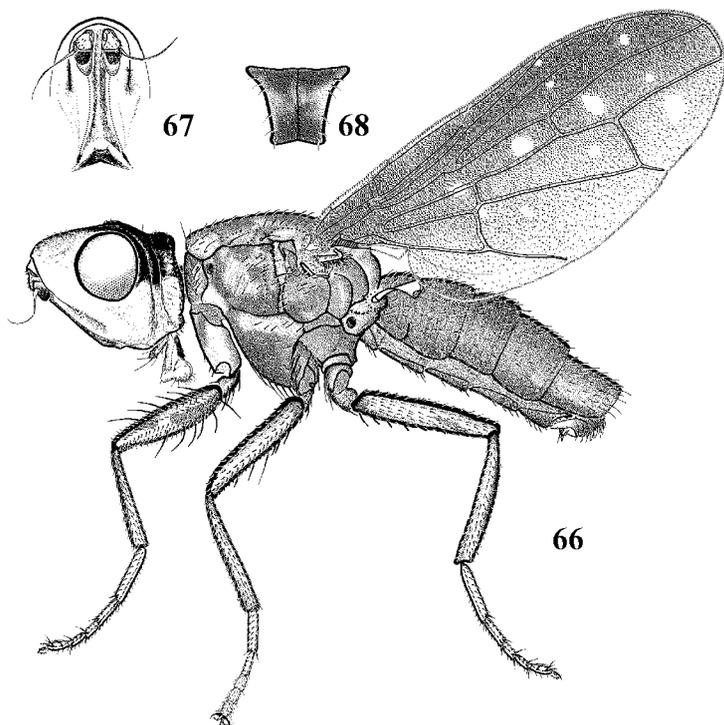
Legs. Moderately short, forefemur with 2 rows of long setae; midfemur with 1 row of short anterior setae; hindleg with 5–6 moderately long anteroventral setae on basal half and no erect dorso-apical setae; midtibia with semi-erect short dorso-apical setulae and 2 equal ventro-apical setae twice as thick as surrounding setulae and half as long as tibia width. Tarsi with 2 rows of enlarged setulae and 2 apicolateral setae on ventral side; claws large, as long as last tarsomere width; empodium microtrichose apically.

Abdomen. Elongate oval, nonpetiolate. Abdominal sternites 1 and 2 separate.

Terminalia. Epandrium elliptic, with elongate, posteroventrally directed lateral surstylus, and medial surstylus bearing 2 prenisetae.

Female. Unknown.

REMARKS. *Nosferatumyia* resembles *Ortalotrypetini*, perhaps superficially, in head shape, short antenna and antennal groove, shape of vein Sc, and various plesiomorphies (e.g., costal vein extended to vein M, absence of the greater ampulla, epandrium setulose, and surstyli with prenisetae). Since females of *N. no* remain unknown, it is not clear if the genus possesses spherical or mushroom-shaped spermathecae, or the "scorpion-like" ovipositor typical of *Tachiniscinae*. It fits the diagnosis of the *Platystomatidae* + *Pyrgotidae* + *Tephritidae* complex of families (Korneyev, 1999a) in having a swollen apical glans on the phallus, the anepimeron setulose, and vein R₁ entirely setulose. It clearly differs from *Platystomatidae* by its lobate cell bcu and low notopleural callus (plesiomorphies), sharing these characters with *Pyrgotidae* and *Tephritidae* (including *Tachiniscinae*). Like most *Pyrgotidae* and *Tachiniscinae*, *Nosferatumyia* has no greater ampulla (plesiomorphy), and further differs from most *Tephritidae* by lacking frontal setae and by the absence of enlarged setae on the costal vein before the subcostal break (plesiomorphies; rarely, in some genera of *Tephritidae* have either one or the other character secondarily lost). The male terminalia (medial surstylus with 2 prenisetae; plesiomorphy) differentiate *Nosferatumyia* from the vast majority of *Pyrgotidae*, which have no prenisetae (synapomorphy of *Teretrurinae* and *Pyrgotinae* (*Pyrgotini* + *Toxurini*)), except for the Neotropical genus *Descoleia* (see above) and the Afrotropical genus *Toxopyrgota* Hendel. The latter two genera and many other *Pyrgotidae* are also similar to *Nosferatumyia* and the *Ortalotrypetini* in head shape. Another fly that somewhat resembles



FIGS 66–68

Nosferatumyia no sp. n., holotype (MLUH). 66, habitus, left lateral; 67, face, anteroventral; 68, prosternum, antero-ventral view.

Nosferatumyia is *Tanaodema porrecta* Hardy from Papua New Guinea. It has a similarly elongate head shape (but occiput unconstricted) and set of setae, short antenna with lobate pedicel, round 1st flagellomere and bare arista, dark brown wing with hyaline spots, and brown and yellow marked body. *Tanaodema* Hardy (1987) was originally described in the tribe Trypetini (Tephritidae: Trypetinae), but its relationships have remained obscure since then.

Studies of further specimens, especially females, are needed to clarify the familial position of *Nosferatumyia*. It could possibly belong to the Ortalotrypetini, but only if the female possesses the apomorphic tachiniscine type of ovipositor. As *Nosferatumyia* also lacks frontal setae and costal spines (synapomorphies of most Tephritidae), it is more reasonable to consider it a genus of unresolved familial position.

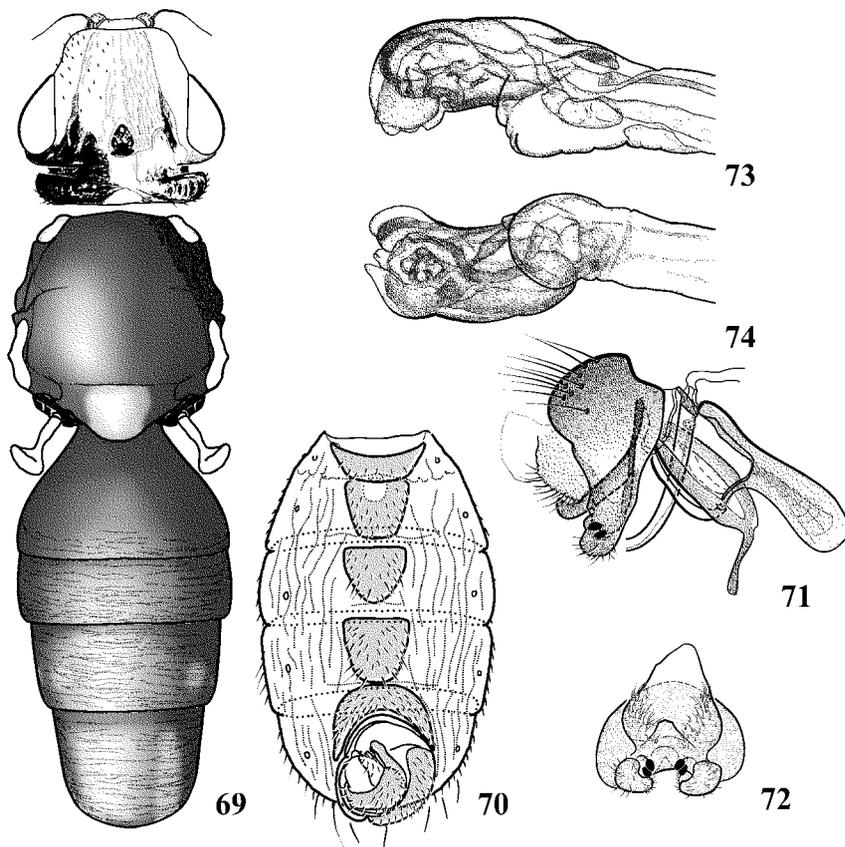
ETYMOLOGY. The genus name is derived from “nosferatu” (which means “non-dead” in Latin, according to Bram Stoker’s “Dracula”), referring to its dark coloration, weird head shape, and possible nocturnal activity; combined with Greek “myia”, fly.

Nosferatumyia no Korneyev, sp. n.

(Figs 66–74)

MATERIAL. Holotype ♂: [Portugal] “23”, “Madeira” (MLUH).

DIAGNOSIS. Medium-sized bicolored dark brown and yellow fly with dark brown hyaline-spotted wings.



FIGS 69–74

Nosferatumyia no sp. n., holotype (MLUH). 69, habitus, dorsal (setae, legs and wings not shown); 70, male abdomen, ventral; 71, male genitalia, right lateral; 72, epiandrium, ventral; 73–74, glans of phallus, lateral and ventral.

DESCRIPTION (MALE). *Head*. Dull brownish yellow, with shining black vertical plate, ocellar tubercle, and two large areas on dorsolateral portion of occiput, separated by shining yellow medial area. Head ratio (length: height: width) = 1:0.65:0.84. Frons 1.2 times as wide as long, shagreened, dull brown, except posterior portion blackish, with very short brownish setulae; frons ratio (length: width) = 0.8. Frontal plates not expressed. Eye ratio (height: length) = 1.0. Parafacial (maximum): eye length ratio = 0.61; eye: gena height ratio = 1.0. Lunule slightly exposed, without visible setulae; face reddish yellow, very narrow and high, 8 times as high as wide at dorsal branches of

fronto-facial fissure (ventralmost ends of antennal grooves) and 4 times as high as distance between anterior tentorial pits, with brown carina, matt yellow, deep antennal grooves 2 times as high as wide and half as high as fronto-facial fissure length. Facial ridge bare, almost as wide as parafacial; ptilinal fissure reduced to very shallow fold ventrally, separating facial ridge and parafacial only lateral to dorsal half of face. Gena light brownish yellow, with thinner cuticle on genal grooves, and dark brown to black and thicker on ventral margin, with a few short and fine yellowish setulae. Occiput wrinkled, subshining, largely black on upper half, and yellow dorsomedially and on lower half. Antenna mostly yellow. Scape very short, with a few tiny yellowish setulae. Pedicel orange-yellow with short black and light brown setulae; pedicellar notch shallow; medial lobe conspicuously longer than lateral lobe; strong dorsal seta absent. 1st flagellomere dark brown, light microtrichose, round, 1.3 times as long as wide; arista bare, completely yellow. Clypeus black, microtrichose, mostly hidden in parastomal cavity. Proboscis capitate; prementum shining black, straight, semitubular, with 10–12 short yellowish setae on each side; labella very short, yellowish setulose. Palpus mostly black, yellowish on basal 0.2, half as wide as 1st flagellomere, blackish setose, with three apical setae as long as palpus and 7–8 shorter setulae, as long as palpus width.

Thorax. Robust, mostly subshining black or brown, shagreened or wrinkled, with black setae and setulae. Postpronotal lobe, posterolateral margin of scutum, discal portion of anepisternum, dorsal portion of katepisternum, and medial portion of scutellum yellow. Scutum 1.2 times as wide as long, black setulose. Prosternum subshining black, trapezoidal; proepisternum shining black, conspicuously produced, ridge-like, dorsally with 4–5 black setae as long as postpronotal seta. Anepisternum shining, covered with sparse, appressed black setulae; posterior margin with 1 black seta, in the holotype almost completely broken off. Katepisternum and anepimeron black setulose, with ventral katepisternal setulae as long as postpronotal seta.

Wing. Surface, including anal lobe and alula, brown, with following ovoid hyaline spots: 1 small spot in cell r_1 posterior to apex of R_1 ; 2 small spots in cell r_{2+3} posterior to apices of R_1 and R_{2+3} ; 1 larger spot in subapically in cell br; 1 larger subbasal and 1 small medial spot in cell r_{4+5} ; small spot extending from cell br into cell bm; small subapical spot in cell dm; larger medial spot in cell m; and 2 small spots in anterobasal third of cell cu_1 . 2nd costal section (cell c) 2.6 times as long as 3rd costal section (pterostigma) and 1.15 times as long as 4th section (cell r_1); 2nd section of vein M 1.1 times as long as 1st section, twice as long as 3rd section and as long as 4th section. Veins brown. Calypters dirty white, with dense yellowish marginal setulae; anterior calypter slightly longer than posterior. Halteres brownish yellow.

Legs. Mostly yellow, black setose and setulose. forecoxa with 2 black markings: dorsobasally and apicoventrally. Femora all covered with dense black setulae; forefemur with 2 rows of setae: 5–6 shorter setae dorsally and 8–9 longer setae (as long or longer than femur width) ventrally. Fore- and midfemora with 2, and hindfemur with 3 black spots. Tibiae each with elongate black spot dorsally. Fore- and hindtarsomeres 1 with brush of appressed whitish-yellow setulae.

Abdomen. 1.3 times as long as thorax. Tergites shining black, with transverse wrinkles, black setulose. Tergite 5 with 2 reddish posterolateral spots and 3–4 pairs of

TAB. 1

Characters and states used in phylogenetic analysis of Tachiniscinae.

1. Body shape (dorsal view) – 0) slender to moderately broad; 1) extremely stout. State 1 is rare within Tephritoidea (e.g., some Platystomatidae and a few other genera of Tephritidae such as *Xarnuta*) and is clearly derived within Tephritidae and Tachiniscinae.
2. Metallic color – 0) entire body nonmetallic; 0) at least abdomen metallic blue or violet. Metallic body color is extremely rare within other Tephritidae (only in several species of *Trirhithrum* and Adramini) and Pyrgotidae and is derived within the Tachiniscinae.
3. Head shape, lateral view - 0) anterior margin not strongly receded, eye large, gena and postgena narrow; 1) anterior margin strongly receded, eye small, gena and postgena broad. A receding anterior margin occurs in some Pyrgotidae and Trypetinae (Tephritidae), but this state is probably derived within each family. It is rare in Ulidiidae and Platystomatidae.
4. Facial ridge - 0) with only small setulae; 1) with one to several larger setae. Vibrissa-like setae are absent in most Tephritoidea except Piophilidae (Korneyev, 1999a).
5. Postvertical seta - 0) smaller than or approximately as large as postocellar seta; 1) much larger than postocellar seta. State 1 is derived within Tephritidae (Korneyev, 1999b).
6. Postocular setae - 0) well differentiated from postgenal setulae; 1) poorly differentiated from postgenal setulae. State 1 occurs in many Pyrgotidae and a few genera of Tephritidae, but this state is probably derived at least within Tephritidae.
7. Pedicel length – 0) short; 1) elongate (at least 1.5 times as long as wide). State 1 occurs in some Pyrgotidae, but is believed to be derived within that family.
8. Arista – 0) pubescent; 1) bare. State 1 occurs sporadically in Platystomatidae, Pyrgotidae and other Tephritidae but is derived within Tephritidae (Korneyev, 1999b).
9. Number of postpronotal setae - 0) 1; 1) 2; 2) 3. Nonadditive. One seta is plesiomorphic within the Tephritidae (Korneyev, 1999b), although state 1 occurs in most Blepharoneurinae.
10. Number of postsutural supra-alar setae - 0) 1; 1) 2. State 1 occurs in a few other genera of Tephritidae but is derived within the family (Korneyev, 1999b).
11. Intrapostalar seta - 0) present; 1) absent. Although the intrapostalar seta is absent in many Tephritidae, it is present in most Tephritoidea (Korneyev, 1999a), thus state 1 is derived within the family.
12. Dorsocentral seta - 0) aligned with or closer to level of postalar seta than to level of postsutural supra-alar seta; 1) approximately midway between postalar seta and postsutural supra-alar seta or with or closer to postsutural supra-alar seta (if 2 postsutural supra-alar, the more posterior one). In species of Platystomatidae with one dorsocentral seta it is usually located relatively posteriorly. A posterior position is more common among the other basal lineages of Tephritidae (Blepharoneurinae, Phytalmiinae) and also occurs in some Trypetinae.
13. Number of marginal scutellar setae - 0) 3; 1) 2; 2) 1 (apical); 3) more than 3. *Ischyropteron* could be coded as another state if its more basal seta is interpreted as the medial seta (i.e., the basal rather than medial seta lost). The presence of 3 setae was considered plesiomorphic within Tephritidae by Korneyev (1999b).
14. Anepisternal seta(e) – 0) not on lobe-like projection; 1) on lobe-like projection. Within the Tephritoidea state 1 is unique to *Bibundia*, *Tachinisca* and *Tachiniscidia*.
15. Mid tibia - 0) without anterodorsal seta on apical half; 1) with anterodorsal seta(e) on apical half. State 1 is very rare in other Tephritidae (Korneyev, 1999b) and related families.
16. Costa apex – 0) extended to apex of vein M; 1) not extended to vein M. State 0 occurs in all genera of Ulidiidae, Platystomatidae, Pyrgotidae and other Tephritidae that we examined (except *Campylocera* Macquart and allied genera (Pyrgotidae), which are not related to Tachiniscinae).
17. Veins R_{4+5} and M – 0) at most slightly divergent; 1) strongly divergent. State 0 occurs in all genera of Ulidiidae, Platystomatidae, Pyrgotidae and other Tephritidae that we examined, except *Diasteneura* Hendel (Pyrgotidae).
18. Basal section of vein Cu_1 (between fork with Cu_2 and crossvein BM-Cu) – 0) shorter than BM-Cu; 1) at least as long as BM-Cu. State 0 occurs in all genera of Ulidiidae, Platystomatidae, Pyrgotidae and other Tephritidae that we examined.
19. Apical section of vein Cu_1 (distal to DM-Cu) – 0) less than half as long as crossvein DM-Cu; 1) subequal to DM-Cu. State 0 occurs in most genera of Ulidiidae, Platystomatidae, Pyrgotidae and other Tephritidae that we examined.
20. Abdominal tergites – 0) not fused; 1) at least partially fused. State 1 is extremely rare in other Tephritoidea (e.g., *Dacus*, Tephritidae) and is clearly derived within the Tachiniscinae.
21. Oviscape (syntergosternite 7) opening - 0) apical; 1) dorsoapical. State 1 is unique to the Tachiniscinae within the Tephritoidea (Korneyev, 1999a, b).
22. Eversible membrane scales - 0) similar dorsally and ventrally; 1) with large ventral area of small dark scales. Various patterns of scales occur within the Tephritoidea, particularly within the Tephritidae, but that in state 1 is unique to the Tachiniscinae.
23. Eversible membrane - 0) basal taenia present; 1) basal taenia absent. Taenia are present in most Tephritoidea (Korneyev, 1999a). They are absent in most Pyrgotidae, but are present in *Descolea*.

TAB. 2

Character matrix for phylogenetic analysis of relationships within Tachiniscinae. Parentheses indicate states that are uncommon in a taxon, but all taxa with more than one state were coded as polymorphic in the analysis. *Descolea* and *Nosferatumyia* were not included in the analysis, but their character states are scored here for comparison.

Taxa	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
<i>Dirioxa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Agnitrena</i>	0	0	1	0	0	1	0	0	0	0	1	0	0,1	0	1	0	0	0	0	0	1	1	1
<i>Neortalotrypeta</i>	0	0	1	0	0	1	0	0	0	1	1	1	1	0	1	0	0	0	0	0	1	1	1
<i>Ischyropteron</i>	0	0	?	?	?	?	?	?	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1
<i>Cyaforma</i>	0	0	1	1,0	1	1	0	0	1	1,0	0,1	1	0	0	1	0	0	0	0	0	1	1	1
<i>Ortalotrypeta</i>	0	0	1	1	1	1	0	0	1(0)	1	0(1)	1	0	0	1	0	0	0	0	0	1	1	1
<i>Protortalotrypeta</i>	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	1	0	0	0	0	1	1	1
<i>Bibundia</i>	1	1	1	1	0	0	1	1	1	1	0	0	3	1	1	1	1	1	1	1	1	1	1
<i>Tachinisca</i>	1	1	0	1	0	0	1	1	1	1	0	0	3	1	1	1	1	1	1	1	1	1	1
<i>Tachiniscidia</i>	0	0	0	1	0	1?	1	1	0	1	0	0	3	1	0	1	1	1	1	1	1	1	1
<i>Descolea</i>	0	0	1	0	0	1	0	0	0	0	1	?	2	0	0	0	0	0	0	0	0	0	0
<i>Nosferatumyia</i>	0	0	1	0	0	1?	0	1	0	0	1	0	1	0	0	0	0	0	0	0	?	?	?

black marginal setae. Sternites 1–5 transverse wrinkled, brown setulose; sternite 5 reddish, with 4–5 longer marginal setae laterally. Sternites 6 and 7 shining reddish-yellow. Sternite 8 and epandrium black, with dense setae almost as long as marginal setae on tergite 5.

Terminalia. As in Figs 70–74.

Measurements. Body length 6.4 mm. Wing length 4.3 mm.

Female. Not known.

ETYMOLOGY. The specific epithet is from the Latin exclamation “no”, meaning negation. It is used in the sense of the exclamation in reference to the extremely uncommon shape of the head and is considered a noun in apposition.

REMARKS. Judging from the labels, the type specimen was collected about the middle of the nineteenth century. Given the high level of development on Madeira and the fact that this species has never been rediscovered since then, despite extensive collecting there for Diptera (see article by Smit, this volume), it is possible that it is extinct. However, VAK has seen a second specimen that apparently belongs to this genus in the collection of Zoological Institute, St. Petersburg (Russia). It was collected in Azerbaijan in nineteenth century, but was damaged and is not available for study at this time. The possibility that these specimens could be mislabeled should also be noted.

PHYLOGENETIC RELATIONSHIPS

To analyze the phylogenetic relationships among the genera of Tachiniscinae, we prepared a character matrix (see Tabs 1 and 2) that was analyzed using PAUP (heuristic search, stepwise addition, addition sequence random, 500 replicates, branch swapping tree bisection reconnection, all characters unordered and unweighted). This analysis included only the nine genera that clearly belong to the subfamily (*Agnitrena*, *Bibundia*, *Cyaforma*, *Ischyropteran*, *Neortalotrypeta*, *Ortalotrypeta*, *Protortalotrypeta*, *Tachinisca*, and *Tachiniscidia*). We also scored the character states of *Descolea* and *Nosferatumyia*, genera of uncertain familial position, in Tab. 2 for purposes of comparison, but they were not included in the PAUP analysis. Their possible relationships are discussed under each genus in the taxonomic section. Characters selected for the PAUP analysis were those that we observed to vary among the genera of Tachiniscinae, but not extensively within them, or that appeared to be putative synapomorphies for the subfamily. Autapomorphies for individual genera were excluded. In the selection of characters and to score a hypothetical outgroup, we referred to the analysis of character polarities by Korneyev (1999a, b). For characters not included in that analysis, we considered the character state distributions in the related families Ulidiidae, Platystomatidae, and Pyrgotidae as well as in other Tephritidae. The hypothetical outgroup has the same character states, at least for the characters used in the PAUP analysis, as *Dirioxa pornia* (Walker), which belongs to the Phytalmiinae, another basal lineage of the Tephritidae, giving us some additional confidence that we have correctly scored the outgroup. Additional comments on polarity are provided in Tab. 1 for each character as appropriate. Taxa polymorphic for a character were scored as such in the PAUP analysis, although we tried to indicate the relative frequency of a

state in the table (more common state listed first, rare states in parentheses). Analysis of the matrix resulted in a single most parsimonious tree (Fig. 75) of 38 steps ($ci = 0.7895$, $ri = 0.8182$, $rci = 0.6459$).

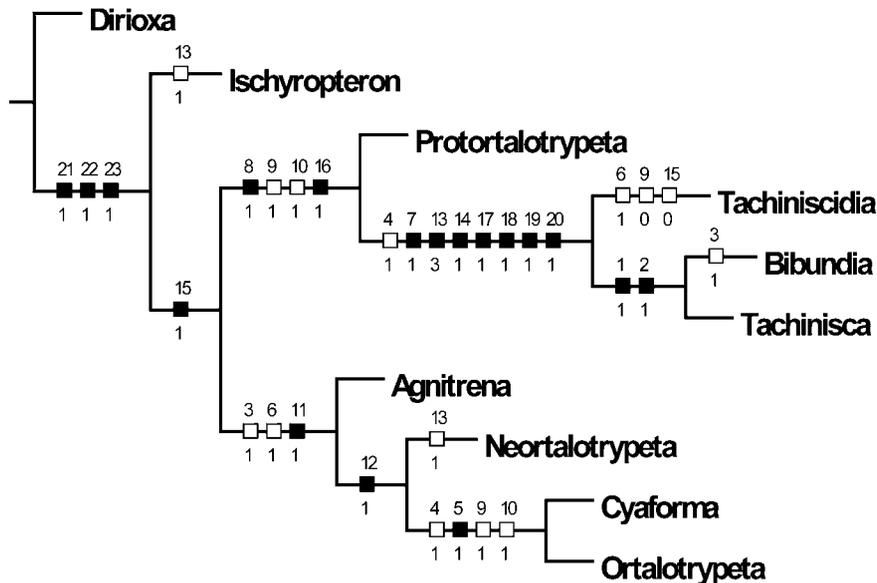


FIG. 75

Phylogenetic relationships among genera of Tachiniscinae. See Tabs 1 and 2 for character list and matrix. All characters plotted with fast optimization. Hollow squares represent homoplasy.

The monophyly of the Tachiniscinae is supported by several well-defined synapomorphies of the female terminalia: opening of ov scape dorso-apical (#21); and eversible membrane with ventral area of denser scales (#22) and without taenia (#23). The first two characters are unique to this group within the Tephritoidea; the latter is found, probably due to convergence, in most Pyrgotidae, but not in *Descoieia*. This hypothesis assumes that the frontal setae, considered a synapomorphy of Tephritidae by Korneyev (1999a), are secondarily lost in *Agnitrena* and *Bibundia*. The lack of the greater ampulla in Tachiniscinae indicates its sister group relationship with the other subfamilies of Tephritidae (although it is weak or indistinct in some genera, presence of the greater ampulla appears to be a synapomorphy of the other subfamilies). As indicated by the occurrence of *Protortalotrypeta grimaldii* in Dominican amber, the tachiniscine lineage has existed at least since the late Oligocene or early Miocene. The widespread distribution of the group, despite its small number of species, also reflects its age and basal position in the phylogeny of the Tephritidae.

Within the Tachiniscinae two tribes have been recognized: the Tachiniscini, which includes five species in four genera; and the Ortalotrypetini, with five genera and 16 species (Korneyev, 1999a; Norrbom *et al.*, 1999). The Tachiniscini, which include the fossil *Protortalotrypeta* and the extant *Tachinisca* from the Neotropics, and

Bibundia and *Tachiniscidia* from the Afrotropics, is a clearly monophyletic group supported by two unambiguous synapomorphies: arista bare (#8) and costal vein reduced apically (#16). Within this group, the fossil genus *Protortalotrypeta* is the sister group of the other three genera, which share seven unambiguous synapomorphies: pedicel elongate (#7); more than three pairs of scutellar setae (#13.3); anepisternal setae on lobe-like projection (#14); veins R_{4+5} and M divergent (#17); vein Cu_1 with elongate basal and apical sections (#18, #19), and abdominal tergites at least partially fused (#20). The large number of frontal setae (5) in *Protortalotrypeta* is an autapomorphy; the three genera of its sister group have no more than three frontal setae. The relationships among *Tachiniscidia*, *Bibundia* and *Tachinisca* are not as clear, although the latter two genera are probably more closely related. They have extremely stout bodies (#1) that at least partially have a metallic sheen (#2). Other possible synapomorphies may be the more than four pairs of scutellar setae, vein R_{4+5} setulose only to crossvein R-M, and the similar shape of the male terminalia (lateral surstylus stout and strongly posteriorly projected). There is no strong evidence of a closer relationship between the two Afrotropical genera, *Bibundia* and *Tachiniscidia*; the only possible synapomorphy for them may be their longer pedicels, but this structure is only slightly longer in *Bibundia* than in *Tachinisca*. Autapomorphies for these genera include: the spinulose abdominal segments in *Tachinisca*; the loss of frontal setae, and reduction of orbital setae in *Bibundia*; and the bare, deeply incised frons, face without antennal grooves, very long pedicel, short palpus, almost horizontal slit of anterior thoracic spiracle, keel-like protruding anepisternum and katapisternum, narrowed posterior half of thorax, sclerotized metathoracic postcoxal bridge, thickened midfemur, reduced surstyli, and simple tubular glans of the phallus in *Tachiniscidia*.

The monophyly and relationships of the Ortalotrypini are not as well resolved as those among the Tachiniscini, and the group may be paraphyletic. *Ischyropteron*, which could only be partially scored in our matrix because of the headless condition of the unique holotype female of *I. nigricaudatum* from Brazil, was placed as the sister group of all other Tachiniscinae in our analysis (Fig. 75), due to its lack of anterodorsal setae on the midtibia (#15; such setae are present in all of the other genera except *Tachiniscidia*).

The remaining four genera, the Neotropical *Neortalotrypeta* and *Agnitrena* and the East Asian *Ortalotrypeta* and *Cyaforma*, share several putative synapomorphies: head shape (receding face, small eye, swollen postgena and occiput; #3); postocular setae poorly differentiated (#6); and intrapostalar seta absent (#11; variable in *Cyaforma* and *Ortalotrypeta*) and are recognized as a monophyletic clade in our analysis (Fig. 75). In this hypothesis, one character, the anterior position of the dorso-central seta (#12) supports a closer relationship between *Neortalotrypeta* and the *Ortalotrypeta/Cyaforma* clade. *Ortalotrypeta* and *Cyaforma* are recognized as a monophyletic clade, although the only unambiguous synapomorphy is the large postvertical seta (#5). The other character states shown as possible synapomorphies for these two genera on our tree could possibly instead be synapomorphies with the Tachiniscini, but that hypothesis is slightly less parsimonious than that in Fig. 75. These characters are also difficult to interpret because they vary within *Ortalotrypeta* and *Cyaforma*, and two of them also vary within the Tachiniscini. All *Cyaforma* and all but one species of

Ortalotrypeta have additional postpronotal setae as in the Tachiniscini (except *Tachiniscidia*), and all *Ortalotrypeta* species and most *Cyaforma* species have enlarged, sometimes vibrissa-like, setae on the facial ridge (#4), as in *Bibundia*, *Tachinisca* and *Tachiniscidia*, and 2 postsutural supra-alar setae (#10) as in all Tachiniscini.

Although any biogeographic analysis of the Tachiniscinae should take note of the limited cladistic support for the lower branches of the phylogeny, particularly for the Ortalotrypetini, and of the high degree of extinction that likely occurred within the subfamily, it is noteworthy that all of the most basally branched genera in our analysis (Fig. 75) are Neotropical. In this regard the Tachiniscinae are similar to the subfamily Blepharoneurinae (Norrbom & Condon, 1999), but quite different from the subfamilies Dacinae and Trypetinae, which are most diverse in the Old World tropics, and the subfamily Tephritinae, which is nearly cosmopolitan.

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