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New African species of *Trixoscelis* Rondani (Diptera: Trixoscelididae), with a short discussion of related genera

By B. H. Cogan, London

Abstract

Trixoscelis, *Spilochroa*, *Stuckenbergiella*, *Zagonia* and *Neossos* are considered in relation to Griffiths' recent redefinition of the family Trixoscelididae. *Spilochroa* is synonymised with *Trixoscelis*, and *Neossos* is excluded from the family. Seven new species of *Trixoscelis* are described from Africa, and a key is given for the separation of all the known African species.

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Introduction

The genus *Trixoscelis* is one of six genera that have at various times been placed within the family Heleomyzidae or separately as a distinct family. Recently, Griffiths (1972:201), resurrected the family Trixoscelididae for the genus *Trixoscelis*, but due to lack of material, was unable to comment on related genera. Griffiths' reasons for erecting a separate entity would appear to be valid, although the rank of the taxon may be queried. His action in splitting the conglomeration of genera in the Heleomyzidae s. l. is to be applauded as a preliminary stage in the development of a working classification. On a world basis the family has been used as a repository for genera that often only have the possession of vibrissae and, sometimes, additional costal spines in common. Still further research is needed to produce a classification that will encompass the faunae of the Holarctic, Neotropical and Australian regions and it is to this end that the following investigation is directed.

Discussion of Genera

The apomorphic characters of the Trixoscelididae, as outlined by GRIFFITHS and based on *Trixoscelis*, with respect to the groundplan of his Anthomyzoinea, are as follows:

1) Subcosta becoming fused distally with vein r1.
2) Anal vein shortened, not reaching the wing margin.
3) 7th. abdominal spiracles lost in both sexes.
4) 7th. abdominal tergites and sternites in the female, fused and forming a complete ring.
5) 6th. tergites, in male, shortened, less than 1/4 length of 5 th. tergite.
6) 7th. and 8th. tergites lost in male.
7) Cerci of male minute and fused.

Of the six genera usually placed in the family Trixoscelididae, I have been able to study males and females of *Trixoscelis*, *Spilochroa*, *Zagonia* and *Neossos*. *Paraneossos* Wheeler has not been available, although the author of the genus compared it to *Neossos*, and my conclusions may apply to this genus also; the male of *Stuckenbergiella* is unknown. The genera are considered individually below, with respect to the seven apomorphic characters previously listed.

Genus *Trixoscelis* Rondani

Trixoscelis Rondani, 1856: 134. Type-species: *Geomyza obscurella* Fallén, 1823, by original designation.

By far the largest of the genera of this small group, with a number of species known from the Holarctic and Ethiopian Regions. The genus is represented in the Neotropical Region by species, the majority of which have previously been placed in the genus *Spilochroa* Williston, (see below). All the characters listed by GRIFFITHS for *Trixoscelis* have been found to be consistent in the material studied, with the single exception of character 7. The anal cerci in the male are usually small, but not invariably so, as may be seen in the figure of *T. lindneri* sp. n.

The structure of the distal portion of the aedeagus shows wide variation throughout the range of species in the genus, from a simple bifurcate organ to a highly complex and often heavily sclerotised structure. It is interesting to speculate whether the latter structure has any function concerned with the production or placement of a spermatophore. Spermatophore production is found, or has been proved to be present, in only a few families, mostly in the sub-order Nematocera. However, the aedeagus is sufficiently complex in some families of ‚higher flies' eg. Tephritidae, and as stated above in some *Trixoscelis* species, for the possibility of some spermatophore placement function to be considered.

A number of species have been studied, including all the Ethiopian species for which the male sex is known, and the majority of the common Palaearctic and Nearctic species; the following species are figured in this paper: *T. adnubila* sp. n., *T. coetzeei* sp. n., *T. dumbii* sp. n., *T. irrorata* sp. n., *T. lindneri* sp. n. and *T. namibensis* sp. n.

Genus *Spilochroa* Williston

Spilochroa Williston, 1907: 2. Type-species: *Heterochroa ornata* Johnson, 1895, by monotypy.

I do not consider the few species placed in this genus to be generically distinct from *Trixoscelis*, **syn. n.** The characters by which *Spilochroa* has been differentiated, wing pattern and weak buccal bristles, show nearly the same variation within *Trixoscelis*. The species probably form a small monophyletic group, the Neotropical species having been derived from the southern Nearctic Region. All the listed apomorphic characters are as for *Trixoscelis*, see fig 6., for the male and fig 1. for the female. The type-species of *Spilochroa*, *S. ornata* Johnson, has been studied.

Genus *Stuckenbergiella* Cogan

Stuckenbergiella Cogan, 1971: 689. Type-species: *Stuckenbergiella littoralis* Cogan, 1971, by original designation.

Only a single species of this genus is known and only the female sex has been discovered in two localities in Cape Province, South Africa. Characters 1—4 are the same as for *Trixoscelis*, and like the latter genus, 3 spermathecae are present (fig. 3). The paratype female was studied.

Genus *Zagonia* Coquillett

Zagonia Coquillett in BAKER, 1904: 27. Type-species: *Zagonia flava* Coquillett, 1904, by original designation.

A Nearctic genus of two species, which, apart from their pale yellow colouration are very similar to *Trixoscelis*. The male is very similar in characters 1—6 to *Trixoscelis*, the anal cerci are of normal size and discrete, while the telomeres are vestigial. The female terminal segments are most interesting as, in stained preparations, it is possible to see the weakly sclerotised areas at the point of fusion of the 7th. tergite and sternite; the 7th. spiracle has been lost (fig. 2). As in *Trixoscelis* the spermathecae are three in number. *Zagonia flavicornis* Melander was the only species studied.

Genus *Neossos* Malloch

Neossos Malloch, 1927: 90. Type-species: *Neossos marylandicus* Malloch, 1927, by original designation.

A problematical genus, in all characters but that pertaining to the anal cerci, the male of *Neossos* shows the same apomorphic characters as undoubted Trixoscelididae (fig. 8). However the female abdomen has the 7th. sternite and tergite free and the 7th. abdominal spiracle present (figs 4, 5). These two characters are plesiomorphic with regard to the groundplan, whilst the presence of only two spermathecae is an apomorphic character not attributable to the Trixoscelididae. The inclusion of *Neossos* is in doubt, and I feel that it is probably necessary to exclude it from the small group of genera that now constitute the family. *Neossos* must belong to one of the segregates of the Heleomyzidae s. l., but until more work has been carried out on the female abdominal structures of Heleomyzidae, its family position will remain obscure. The type-species *Neossos marylandicus* Malloch was studied.

New African *Trixoscelis* species

During the course of the British Museum (N.H.), South western Africa Expedition, at the beginning of 1972, a number of species of the genus *Trixoscelis* were collected. Some species were previously undescribed, and others were valuable as they enabled additional comments and corrections to be made to descriptions originally published in my revision of the African Heleomyzidae (1971).

Since returning from south western Africa, I have received two additional small collections from the area, the first made by Dr. L. LYNEBORG and the second by Professor E. LINDNER, both collections from the environs of the Namib Desert Research Station at Gobabeb.

The genus *Trixoscelis* is particularly interesting as an inhabitant of the desert areas of south western Africa. Although a species is known from Natal and one from the marginally wetter areas of SWA and Zambia, the genus appears to have undergone its most extensive speciation in the African deserts. Four of the six new species described here were collected in the Namib and Pro-Namib areas.

Biological information is almost totally lacking for the African species; the larvae of some Palaearctic species have been recorded from birds nests, but it is doubtful if this habitat is exploited in the region under consideration. As adults, *Trixoscelis* species are nocturnally active and are often attracted to lights; during the day adult flies may be swept from tussock grasses.

In 1971 I commented upon the fact that very few of the species described from Africa are known from more than one locality, and those that are, have often been based on females and may have been the result of incorrectly associated specimens. With the exception of the following two examples, this statement still holds true and would suggest that large numbers of species still await discovery. The series of *T. uniformis* Cogan, recently collected has extended the known range to SWA, and *T. coetzeei* sp. n., the species previously recorded as *T. ?frontalis* Fallén, is recorded from southern Angola, SWA, and, probably, Zambia.

Key to the African species of *Trixoscelis*

1 Cross-veins distinctly clouded 2
— Cross-veins unmarked, although the wing membrane may be strongly infumated 7
2 Costal and marginal cells hyaline 3
— Costal and marginal cells strongly infumated: mesonotum with a distinct, brown, median vitta 5
3 Wing surface covered with pale brown microtrichia that give an irridescent effect when viewed at an angle 4
— Wing surface not obviously microtrichiate 6
4 Buccae 1/3 vertical height of eye; microtrichia sufficiently dense to give wing a dusted appearance; thorax and abdomen greyish brown; antennal segment III black on external face . . . . . *pallida* Cogan
— Buccae 1/2 vertical height of eye; microtrichia much less dense, only apparent at certain angles; dc's irrorate; antennae pale yellow, slightly darkened on segment III . . . . . *adnubila* **sp. n.**
5 Antennae darkened on segment III; only a single bristle at the vibrissal angle *nubila* Cogan

— Antennae totally yellow, at least 2, often 3—4 strong bristles on the vibrissal angle . . . . . *irrorata* **sp. n.**

6 Median vitta on mesonotum broad, covering the area between the **dc**'s; wing markings dark and distinct . . . . . *peregrina* Cogan

— Median mesonotal vitta narrow; wing markings not strongly defined *phylacis* Séguy

7 Cinereous species with predominantly yellow antennae and pale legs; width of buccae approximately 1/5 vertical height of eye; buccal and post-buccal bristles weak 8

— Cinereous to shiny black species with predominantly dark antennae and pale to dark legs; width of buccae greater than 1/5 vertical height of eye . 10

8 Antennal segments totally yellow, or at most with a brown area on the dorsal half of segment III; latter segment just longer than wide; mesopleuron lacking a distinct dorsal longitudinal vitta . . . . . *jonesi* Cogan

— Antennal segments darkened, external face of segment III black . . 9

9 A pair of indistinct, brown, mesonotal vittae between the **dc**'s and a dorsal mesopleural longitudinal vitta present; grey dusted species; larger species, wing 2,4 mm long; male genitalia as fig. 14 . . . *coetzeei* **sp. n.**

— Thorax without vittae, mesonotum yellowish-grey dusted; pleura generally less dusted and appear darker; palpi reduced to narrow straps; smaller species, wing 2,5 mm long; male genitalia as fig. 21 . . . . *dumbii* **sp. n.**

10 Dark species, both sexes with dark brown to black legs 11

— Pale species, with pale brown or testaceous yellow tibiae and mid and hind femora 17

11 Shiny black species, silvery-grey dusting confined to small areas on parafacial region and between antennae; wing hyaline, with reduced costal spines (female only) . . . . . *nigra* Cogan

— Uniformly dusted species, often with wing membrane infumated . . 12

12 Wing membrane strongly infumated 13

— Wing membrane hyaline 14

13 Very dark species, thorax blackish-grey, legs dark brown; palpi dark *fuscipennis* Cogan

— Less darkened species, thorax grey, palpi pale at base *intermedia* Cogan

14 Mid metatarsus much darker than the remaining tarsal segments, or the mid tibia; male genitalia as fig. 18 (male only) . . . *lindneri* **sp. n.**

— Mid metatarsus concolorous with the mid tibia, and tarsal segments 2—4 15

15 Antennae dark, apart from a small area at base of internal surface of segment III; palpi dark; male genitalia with strong bristles on the surstyli, but without broad flattened bristles . . . . . *subobscura* Cogan

— Antennal segment III with large pale area at the base of the internal face; palpi pale; male genitalia with broad flattened bristles on the surstyli . 16

16 Width of the incrassate hind metatarsus of male twice that of the hind tibia; surstyli with a number of long bristles as well as flattened bristles *hessei* Cogan

— Width of the incrassate hind metatarsus of male only equal to that of the distal part of the tibiae; surstyli without numbers of long bristles *problematica* Cogan

17 Antennal segments I & II darkened, III predominantly so 18
— Antennal segments completely yellow . . . . *namibensis* **sp. n.**
18 Thoracic vittae absent, or represented by a pale shadow 19
— Distinct thoracic vittae present 21
19 Larger species, wing length male 2,5 mm, female 3,3 mm 20
— Smaller species, wing 1,9 mm; male genitalia as fig. 10
flavipalpis Cogan
20 Second hind tarsal segment of male, pale . . . . *uniformis* Cogan
— Hind metatarsus and second segment darkened; male genitalia as fig. 11
deserticola **sp. n.**
21 Mesothoracic vittae fused posteriorly, quite diffuse between the **dc**'s; palpi totally pale (female only) . . . . . *brincki* Cogan
— Thoracic vittae discrete along their length, two pairs of vittae plus a median vitta; palpi dark, at least basally . . . *stuckenbergi* Cogan

Trixoscelis uniformis Cogan

Trixoscelis uniformis Cogan, 1971: 679.
Material; SWA (W 32), Windhoek Race-Course, 5. II. 1972. Swept low vegetation, 8 ♂, 9 ♀.
SWA (W 33), Windhoek, Hoffnung Farm, 7. II. 1972. Lucerne field, 15 ♂, 4 ♀.

Originally described from a single male from South Africa, Cape Province, I am now able to record a further long series of both sexes. Very similar to *T. flavipalpis* Cogan, as stated in the original description, and now found to be even closer in external characters than was previously thought. However, the male genitalic characters are still sufficiently distinct for the species to be readily distinguished.

Some minor modifications of the original description are necessary, as follows; palpi variable in their degree of darkening, many specimens have totally pale palpi; the epistomal edge is invariably dark. Similarly, the series shows variation in the degree of darkening of the second hind tarsal segment of males, some specimens having the second segment darkened on the dorsal surface. Re-studying the type-series of *T. flavipalpis*, has shown that the apparently narrower buccae in this species may be due to the rather teneral nature of the specimens.

Trixocelis jonesi Cogan

Trixoscelis jonesi Cogan, 1971: 682.
Material: SWA (W 33), Windhoek, Hoffnung Farm, lakeside vegetation, 7. II. 1972, 1 ♀, same data, lucerne fields, 4 ♂, 8 ♀.

Described from a small series of three specimens, to which a further 13 specimens may now be added from the environs of Windhoek. This additional series enables me to modify slightly my original description.

Some specimens, particularly females, have the dark brown area below the point of aristal insertion, extended to cover the complete disc of segment III. In recently captured specimens, the darkening of the legs is more extensive than originally described, although the mid and hind legs remain predominantly pale yellow, with only the lightest grey dusting on the femora. The thoracic vittae in the line of the dc's, is rarely developed beyond a shadow, but is more noticeable in some specimens.

Trixoscelis deserticola sp. n.

Holotype ♂, South West Africa, 2315 Ca, Namib Desert Park, Kuiseb River at Gobabeb, 400 m. 12. II. 1974. L. LYNEBORG, Riverine forest and sand. In BM (NH).

Paratypes, same data as holotype, 3 ♀; South West Africa (W 23), Homeb, 10 mls. ESE Gobabeb, 23.—25. I. 1972, 1 ♂, 2 ♀; South West Africa (W 18), Sossusvlei, Diamond Area No. 2, 20.—21. I. 1972, 1 ♀.

Probably most closely related to *T. intermedia* Cogan, as shown by the similar male genitalia, but abundantly distinct in body colouration, with thorax and abdomen grey, predominantly pale legs and unmarked wings.

Male, female: Head, antennae reddish-yellow, darkened extensively on the outer face of segments and internally at the apex of segment III, and dorsally at the base of the arista. Face and buccae silvery-white, buccae 0,4 × the vertical height of the eye; palpi pale yellow.

Thorax grey dusted, no trace of mesonotal vittae; pleura silvery-grey. Legs pale yellow, extensively darkened with grey dusting on the fore femora; fore tarsi darkened apically, on last segment of the mid tarsi and hind tarsi of male, completely; male hind metatarsus incrassate and blackish-brown, second segment half its length and darker than the remaining tarsal segments. Wing membrane hyaline, veins pale yellowish brown, additional costal spines relatively short, at longest approximately 1,5 × the width of the costa, wing ♂ 2,5, ♀ 3,3 mm. in length.

Abdomen, uniformly pale grey dusted, producing an irridescent effect when viewed from the posterior aspect. Male genital capsule less densely dusted and pale yellowish-grey; posterior telomeres curved and elongate, anterior surstyli broad and with a single strong spine (fig. 11).

Trixoscelis namibensis sp. n.

Holotype ♂, South West Africa (W 23), Homeb, 10 mls. ESE Gobabeb, 23.—25. I. 1972. General sweeping. In BM (NH).

Paratypes, same data as holotype, 26 ♂, 23 ♀. SWA, Gobabeb, 2.—9. II. 1970. LINDNER leg., 1 ♂, 1 ♀. South West Africa (W 18), Sossusvlei, Diamond Area No. 2, 20.—21. I, 1972. General sweeping. 3 ♀. South West Africa, 2315 Ca, Namib Desert Park, Kuiseb River at Gobabeb, 400 m. 12. II. 1974. L. LYNEBORG, Riverine forest and sand, 4 ♂, 2 ♀. In Stuttgart and BM(NH).

Very similar to *T. irrorata* sp. n. in body form and colouring, but lacks the strongly irrorate thoracic and orbital bristles, and the infumated crossveins. The male genital capsule is very much less spinose and the telomeres differ as in fig. 12.

Male, female: Head, antennae reddish-yellow, slightly darker on segment III, centrally and below the point of aristal insertion; orbital bristles arise from very small irrorations; the grey dusting of vertex, occiput and ocellar region extending anteriorly to a line between the posterior orbital bristles and the ocellar prominence. Face greyish-white, buccae grey posteriorly, grading to pale yellow anteriorly. Only one strong bristle at the vibrissal angle with 2—3 small bristles additional; bucca 0,3 × the height of the eye.

Thorax, uniformly grey to silvery-grey, depending on the angle of the thorax to the light source; **dc**'s narrowly irrorate; mesonotal setulae few in number the acrostichals in two irregular rows. Scutellum paler grey than thorax. Legs yellow lightly grey dusted on femora, particularly the fore femora. Male hind metatarsus incrassate, varying in degree of darkening, but only darkened on the dorsal half

of the segment; second tarsal segment yellow. Wing membrane hyaline, less densely microtrichiate and with costal spines shorter than in *T. irrorata*, only a few spines more than 1,5 times the width of the costa. Wing length 2,7 mm. Abdomen, dark silvery-grey dusted, with the posterior edges of the segments less heavily dusted, showing the pale yellowish ground colour. Male genital capsule lightly dusted, even less so on the epandrial edge, devoid of long bristles; surstyli as in fig. 13.

Trixoscelis coetzeei sp. n.

Holotype ♂, South West Africa (W 29), Kahn River, 5 mls. N. Usakos, 30.—31. I. 1972. General sweeping. In BM(NH).

Paratypes, same data as holotype, 1 ♂, 1 ♀; Angola (A 15), R. GIRAUD, 10 mls. NE Moçamedes, 27.—29. II. 1972, 1 ♀. In BM(NH).

The single specimen that I previously recorded as *T. ?frontalis* Fallén, differs from the type series in some minor points. This specimen from Chilanga, Zambia, has the antennal segment III pale on the inner and outer face on the basal third, and the fore tibiae are darkened apically. In view of these differences the specimen, a female, has not yet been included in the type series.

Comparison of the male genitalia of this species with *T. frontalis* Fallén, from the Palaearctic Region, shows them to be closely related but specifically distinct. Originally recorded from Zambia and with the type series from SWA and southern Angola, this is the most widespread and the most northerly of the southern *Trixoscelis* fauna. All the specimens of the type series were swept from tussock-grasses growing in dry river beds.

Male, female: Head, antennae dark, blackish-brown, lightened dorsally on segments I & II, and yellow on the basal third of the internal face of segment III. Face and buccae greyish-white, latter narrow 0,16 ×, the vertical height of eye; anterior frons to level of ocellar triangle, orange-yellow, posterior frons and vertex darkened and grey dusted. Palpi pale yellow.

Thorax, grey dusted, with dusted brown vittae along the dorsal edge of the pleura, and with a pair of vittae just mesad to the **dc**'s, mesonotal setulae reduced in size and number, two irregular rows in the acrostichal line. Legs pale, darkened on the fore and hind femora, the former almost black; fore tarsi darkened, and a single apical segment of the mid and hind tarsi of the female; male hind metatarsus incrassate and dark brown, second segment undifferentiated. Haltere with stem yellow and knob white. Wing membrane hyaline, veins pale brown, additional costal spines very short, at longest only slightly longer than width of costa; wing 2,4 mm. in length.

Abdomen, grey dusted, dark brown fasciae on segments 1—5, broadly interrupted, medially. Genital capsule grey dusted, pale apically; genitalia as figs. 14, 15.

Trixoscelis irrorata sp. n.

Holotype ♂, South West Africa (W 23), Homeb, 10 mls. ESE Gobabeb, 23.—25. I. 1972. In BM (NH).

Paratypes, same data as holotype, 5 ♂, 12 ♀; South West Africa (W 18), Sossusvlei Diamond Area No. 2, 20.—21. I. 1972, 7 ♂, 24 ♀; South West Africa (W 17), Sesriem Farm, Maltahoe Distr., 19.—20. I. 1972, General sweeping. 2 ♀.

An attractively marked species, easily distinguished from other Afrotropical *Trixoscelis* by the strongly irrorate **dc** and orbital bristles, the golden yellow dusting

on the face and buccae, and the presence of at least two pairs of strong bristles on the vibrissal angle. Probably most closely related to *T. namibensis*, another species that is apparently confined to the Namib and Pro-Namib regions. *T. irrorata* was taken at light, and swept from very sparse vegetation during the day.

Male, female: Head, antennae orange yellow, segment III rounded and darkened at the point of aristal insertion; face and buccae golden yellow dusted, frons orange-yellow, rounded and swollen anteriorly, almost devoid of setulae; orbital strips silvery white, bristles arising from small brown patches, 2—3 minute setulae between the anterior and posterior orbital bristles; vertex, occipital region and post orbital area densely grey dusted laterally and ventrally, grading into the gold of the buccae; ocellar prominence grey with a pale silvery halo surrounding it. Buccal bristles strong, 1—2 pairs of additional bristles on the vibrissal angle, as well as the vibrissa, plus 2—4 weaker and shorter bristles in the same series; palpi pale yellow; buccae at widest, 0,4 × the height of the eye.

Thorax, grey dusted, pale only on the legs. **Dc** bristles irrorate; a slight shadow of a vitta along the line of each **dc** series, and posterior to the humeral prominence; mesonotal setulae well developed; yellowish-grey dusting of the mesonotum grades laterally into the darker grey of the ventral pleura; mesopleural bristles well developed, and with 8—11 small associated setulae. Legs yellow darkened by grey dusting on the fore femora, and very slightly on the hind femora; male hind metatarsus swollen, and this segment plus the second segment, dark brown. Haltere pale yellow; wing membrane with a dense covering of minute microtrichia, giving a very pale yellow colouration; both anterior and and posterior cross-veins narrowly infumated, other veins pale yellow; costal spines strong, 2—3 times the thickness of the costal vein. Wing length 3,2 mm.

Abdomen, dark silvery grey dusted on all but the posterior edges of the segments, on which the ground colour is apparent as irridescent areas; male genital capsule reddish-brown and covered in short, spinous bristles (fig. 12).

Trixoscelis adnubila sp. n.

Holotype ♂, S.Africa (S 13), Die Panne N.R., Cape Province, 5.—6. I. 1972. In BM (NH).
Paratype ♂, data as for holotype. Both specimens were swept from vegetation in a dry gulley.

In my original key to species (1971: 671), this species would trace to *T. nubila* and, in fact, may represent the male of that species which was described from female specimens. However, some of the observed differences recorded below, are beyond the range normally attributable to sexual dimorphism and I consider the species to be distinct.

Male: Head, antennae bright yellow, darkened on the disc of segment III on the outer face and very slightly on the inner face. Buccae very broad, half the height of the eye.

Thorax, grey dusted, each of the **dc**'s arising from a diffuse dark brown patch, the basal patches almost coalescing in the **dc** line to form a pair of vittae. Scutellar disc brown dusted. Legs pale yellow, all femora darkened to some degree, the fore femora markedly so; apical tarsal segments pale brown, the hind metatarsus dark brown and incrassate, the second segment pale and undifferentiated. Wing membrane opaque due to microtrichial 'dusting', not as heavily as *T. pallida*; posterior

cross-vein dark brown with a narrow area of wing membrane infumated, anterior cross-vein only indistinctly infumated. Wing 2,5 mm. in length.

Abdomen, grey dusted, posterior edge of each segment pale; genital capsule yellowish-grey; genitalia as in figs. 19, 20.

Trixoscelis lindneri sp. n.

Holotype ♂, S.W.A., Gobabeb, 2.—9. II. 1970, LINDNER leg. In Stuttgart.

The single specimen, a male, was sent to me by Professor LINDNER, after whom I have pleasure in naming this species. This species is without thoracic markings, neither wing nor mesonotal, and is predominantly dark grey with dark brown legs. The male periandrium has characteristic tufts of bristles inserted above the base of the telomeres (fig. 18).

Male: Head, antennae orange yellow with a smoky darkening of all three segments, particularly on the external face of segment III. Anterior frons reddish-yellow, posterior frons and vertex dark grey dusted. Face pale greyish-brown, buccae broad, vertical height of eye, pale yellow anteriorly grading to dark grey posteriorly. Palpi yellow.

Thorax, uniformly dark grey, almost black on the ventral pleura; mesonotal setulae sparse, scattered. Legs dark brown, except on 'knees' and ventrally on the mis-tibia, which are a paler orange-brown; both hind metatarsus and second segment incrassate, the latter half the length of the metatarsus. Wing hyaline, veins pale brown, wing 2,9 mm. in length; additional costal spines relatively short the longest spines 1,5 times the width of costal vein. Halteres greyish-yellow.

Abdomen, uniformly dark grey dusted; genitalia as fig. 18; anal cerci large.

Trixoscelis dumbii sp. n.

Holotype ♂, N.Nigeria, Zaria, Dumbi Wood, 8. II. 1973. J. C. DEEMING. In BM (NH).
Paratypes, 2 ♂, 2 ♀, same data as holotype. To BM(NH) and I. A. R. Samaru.

This Nigerian species is included here with other African species for the sake of completeness, despite the fact that its affinities would appear to be with the southern Palaearctic fauna. Its small size, yellowish-brown and grey colouring and unmarked wings distinguish this species from all others previously recorded from Africa. It would appear from its general habitus to belong to the *frontalis* group of species, but the male genitalia place it closer to the *obscurella* group of Palaearctic species, despite the absence of any wing markings.

Male, female: Head, antennae pale, yellowish-brown, darkened extensively on segment III; face yellowish-white, buccae silvery-white, 0,3 × the vertical height of the eye. Frons yellow, orbital strips dusted yellowish-grey, the latter extending onto the vertex and occipital region. Palpi pale yellow, greatly reduced in size.

Thorax, yellowish-grey dusted on mesonotum and scutellum, lacking any trace of vittae; mesonotal setulae very reduced in size; pleura less densely dusted, darkened on the dorsal half of the sternopleuron; a single short mesopleural bristle with a number of short hairs around its base. Legs pale yellow, extensively darkened on the fore femur and tarsi, and in the male on the hind metatarsus and second segment, the former segment is incrassate, the latter less so and half the length of the metatarsus. Females with only the fore femora, tarsi and apices of

the tibiae darkened. Both sexes have a well developed apical mid-tibial spine. Halteres pale yellow. Wings unmarked, membrane hyaline, veins brown; additional costal spines very short, only the longest spines equal in length to the width of the costal vein. Wings 2,0 mm. in length.

Abdomen, totally yellowish-grey dusted with an indistinct brownish-grey median dorsal vitta, broader on the anterior than the posterior segments. Male genitalia as figs. 21, 22.

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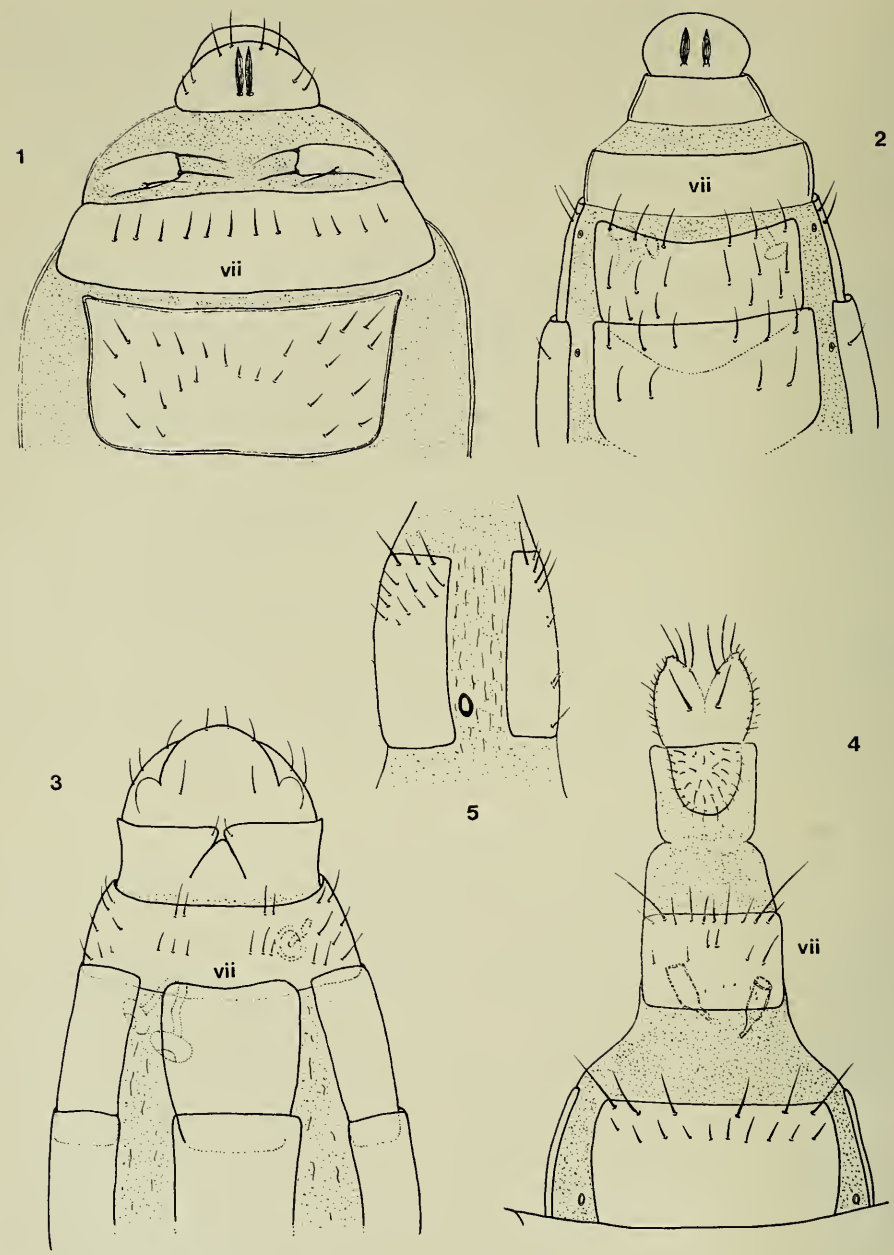
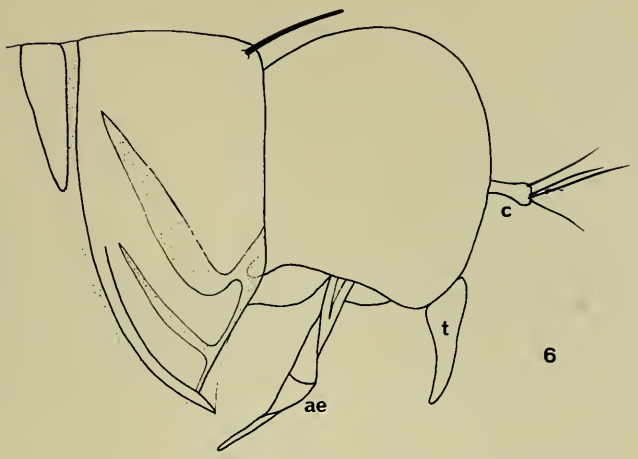
Author's address:

Br. H. Cogan, Department of Entomology, British Museum (Natural History), Cromwell Road, London S.W. 7



Figs. 1—5. Abdomen of female *Trixoscelis (Spilochroa) ornata* Johnson (1: ventral), *Zagonia flavicornis* Melander (2: ventral), *Stuckenbergiella littoralis* Cogan (3: ventral), *Neossos marylandicus* Malloch (4: ventral, 5: lateral view of 7th. tergite and sternite).
The following abbreviations apply to all figures; ae = aedeagus, c = cerci, t = telomere.
Only diagnostic bristles are included on figures; membranous areas are stippled.



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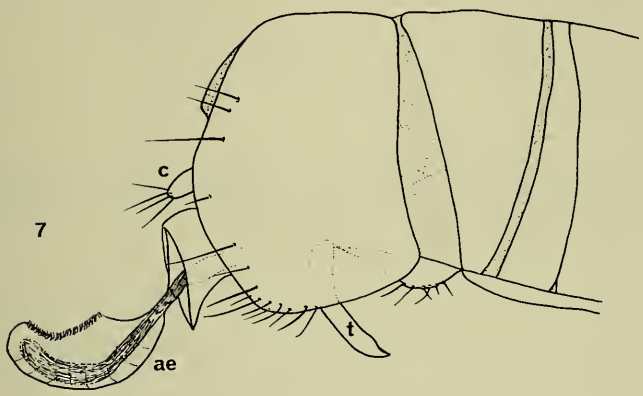

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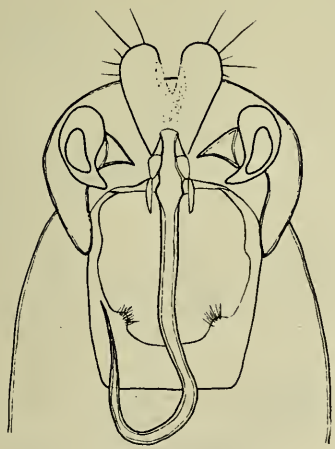

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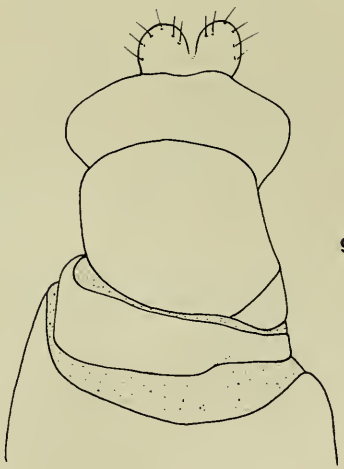

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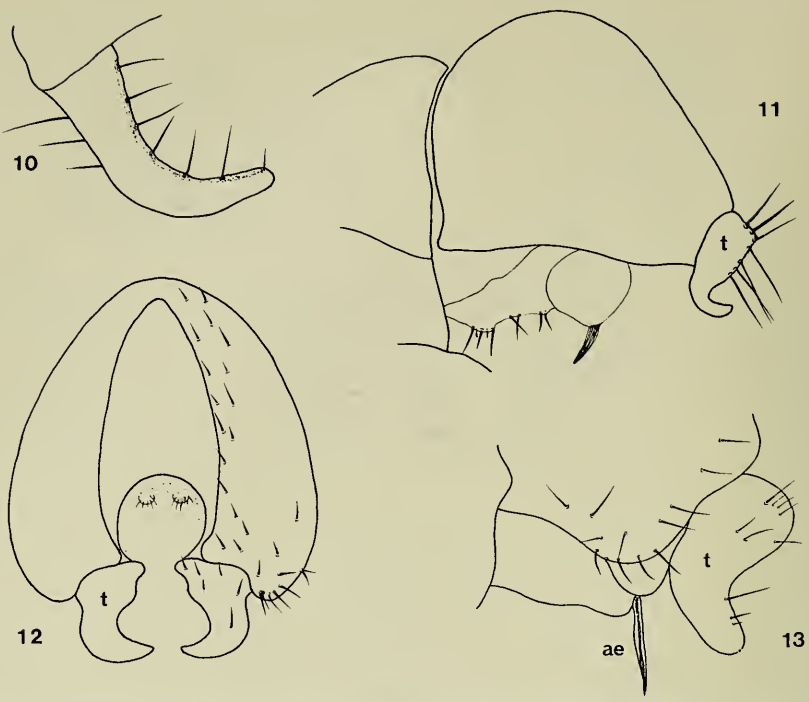
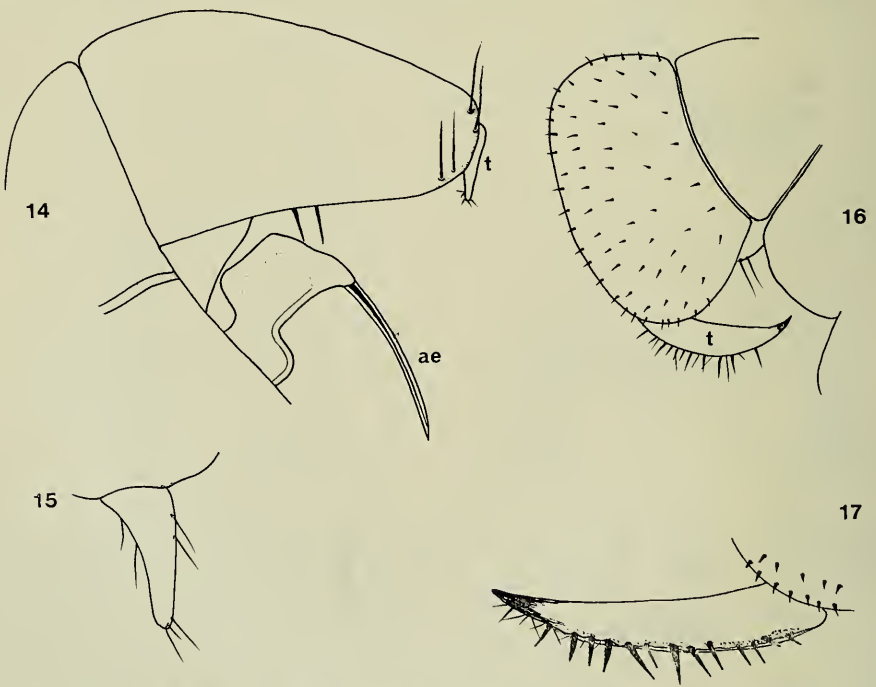
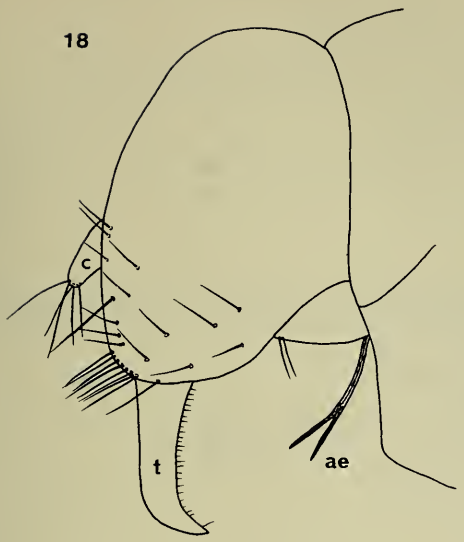
Figs. 6—9. Postabdomen of male *Trixoscelis (Spilodiroa) ornata* Johnson (6: left lateral), *Zagonia flavicornis* Melander (7: right laterial), *Neossos marylandicus* Malloch (8: ventral, 9: dorsal).

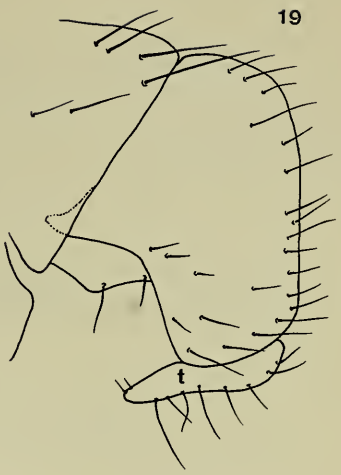


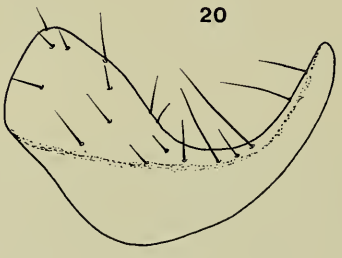
Figs. 10—13. Postabdominal structures of male *Trixoscelis flavipalpis* Cogan (10: right telomere), *T. deserticola* sp. n. (11: left lateral), *T. namibensis* sp. n. (12: posterior view, 13: left lateral).

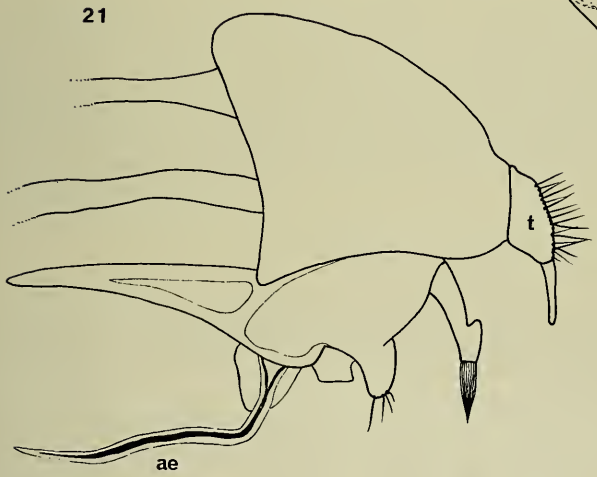


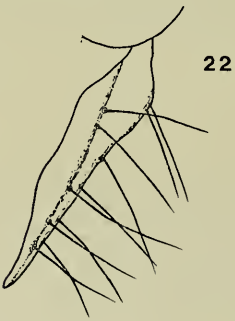
Figs. 14—17. Postabdominal structures of male *Trixoscelis coetzeei* sp. n. (14: left lateral, 15: left telomere), *T. irrorata* sp. n. (16: right lateral, 17: right telomere, inner surface).











Figs. 18—22. Postabdominal structures of male *Trixocelis lindneri* sp. n. (18: right lateral), *T. adnubilia* sp. n. (19: left lateral, 20: left telomere inner surface ventral view), *T. dumbii* sp. n. (21: left lateral, 22: left telomere, inner surface).