

THE ADOLPHO LUTZ COLLECTION OF TABANIDAE (Diptera). II. Status of the names published without description *

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(With 6 text-figures)

Dr. Lutz listed by name in various publications a total of 42 species which he seems never to have described. A special effort was made to locate specimens of these species in his collection, with only partial success. In the case of 24 of these names, listed alphabetically below, neither specimens, drawings nor manuscript notes referring to them could be found. Twelve of these names were published only in the 1909 and/or 1911 lists and, as mentioned in Part I, the specimens may have been lost. Five names were published only in the 1921 paper, which was a list of identifications, without authors' names. At least one of these and perhaps others were probably not intended as new names. Two names were published only in 1915. The remaining five names were published in the 1918 list, one of them also in 1909. The names in the 1918 and 1921 lists are, I think, nearly all cases where Lutz inadvertently used a wrong name for specimens which he already had in his collection, either previously described or still awaiting description. It is quite possible that in a number of cases they were published later under different names, or that Dr. Lutz decided on further study that they were in reality the same as species described previously by others.

Acanthocera flavescens, 1911, Int. Hyg. -- Ausst. Dresden, p. 34, as n. sp. Lutz-Neiva. Perhaps an earlier name for *A. nigricorpus* Lutz, 1915.

Amphichlorops variegatus, 1909, Inst. Osw. Cruz em Manguinhos, p. 29. No locality, no description, 1911, Int. Hyg. -- Ausst. Dresden, p. 34, as n. sp. Lutz, no description.

Chrysops costalis var. *fenestra*, 1921, Bol. Inst. Osw. Cruz, 1 (1): 15. Guaratuba, Paraná; no description.

Chrysops fuscipennis, 1921, Bol. Inst. Osw. Cruz, 1 (1): 15. Guaratuba, Paraná. This is probably a lapsus for some other name; certainly not intended to be *C. fuscipennis* Ricardo, 1902, an African species.

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Diachlorus bi-punctata, 1909, Inst. Osw. Cruz em Manguinhos, p. 29. Not indicated as n. sp. No description. Lutz, in Lutz, Araujo and Fonseca, 1918. Mem. Inst. Osw. Cruz, 10: 168. No description, no authority; Assunción, Paraguay. In 1909, (Mem. Inst. Osw. Cruz 1 (1): 29) Lutz mentions a *Diachlorus* from Matto Grosso which he says does not agree with any of the species described as *Diachlorus*, but does agree with *Chrysops bipunctatus* Wied. Since Wiedemann did not describe a *Chrysops bipunctatus* but did describe a *Chrysops bimaculatus*, correctly placed by Lutz in *Diachlorus* later (1913), I feel that this name is almost certainly a lapsus for *bimaculatus*.

Diadlocera punctulata, 1921, Bol. Inst. Osw. Cruz, 1 (1): 15. No authority; in a list of 26 species taken by Dr. Ruy Tybiriça in Guaratuba, Paraná, Oct.-Dec. 1920. No description. Perhaps the same as specimens under a different MS name from this locality in the collection.

Erephopsis altivaga, 1911, Int. Hyg. — Ausst. Dresden, p. 33, as n. sp. Lutz. This may be an earlier name for a species found under a different unpublished name in the collection.

Erephopsis intermedia, 1921, Bol. Inst. Osw. Cruz, 1 (1): 15. Guaratuba, Paraná; no description.

Erephopsis nigricorpus, Lutz, in Lutz, Araujo and Fonseca, 1918, Mem. Inst. Osw. Cruz, 10: 168. Sta. Catarina. This is very probably a lapsus for *Esenbeckia nigricorpus* Lutz, 1909, also from Sta. Catarina.

Erephopsis pygmaea, 1915, Lutz, in Lutz and Machado, Mem. Inst. Osw. Cruz, 7 (1): 47. As n. sp., Januaria, Minas. No description.

Erephopsis scionoides, 1915, Lutz, in Lutz and Machado, Mem. Inst. Osw. Cruz, 7 (1): 47. As n. sp., Xiririque, Bahia. No description. Unnamed material of two species with "tipo" and "cotipo" labels found in the collection may refer to this and *E. pygmaea*, but since the locality labels do not agree with those published, though from the same general area, it is impossible to associate the names with this material.

Esenbeckia clari var. *nigricans*, Lutz in Lutz, Araujo and Fonseca, 1918, Mem. Inst. Osw. Cruz, 10: 166. Possibly a lapsus for *E. clari* var. *infusata* Lutz, 1909.

Laphriomyia miza, 1911, Int. Hyg. -- Ausst. Dresden, p. 34, as n. sp. Lutz. Probably a different name for *L. mirabilis* Lutz, 1911.

Leucotabanus ocellatus Lutz, in Lutz, Araujo and Fonseca, 1918, Mem. Inst. Osw. Cruz, 10: 167. Misiones, Argentina. No description.

Neotabanus pruinosus, 1909, Inst. Osw. Cruz em Manguinhos, p. 29. No description, 1911, Int. Hyg. -- Ausst. Dresden, p. 35, as n. sp. Lutz, no description.

Neotabanus pseudocomitans, 1909, Inst. Osw. Cruz, em Manguinhos, p. 29. No description, 1911, Int. Hyg. -- Ausst. Dresden, p. 35, as n. sp. Lutz, no description.

Neotabanus pseudotaeniotes, 1911, Int. Hyg. -- Ausst. Dresden p. 35, as n. sp. Lutz. The specific name was used by Kröber (1929) for a *Stenotabanus*.

Plesiophthalmus fenestratus, 1911, Int. Hyg. -- Ausst. Dresden, p. 35. Neither genus nor species were described and the generic name is preoccupied (FAIRCHILD, 1950).

Stenotabanus albidocinctus, 1921, Bol. Inst. Osw. Cruz, 1 (1): 15. Guaratuba, Paraná. This was probably intended for *T. albidocinctus* Bigot, which is a *Stenotabanus*.

Stictotabanus conspicuus, Lutz, in Lutz, Araujo and Fonseca, 1918, Mem. Inst. Osw. Cruz, 10: 167, 18. Misiones, Argentina; Sta. Catarina. No description.

Tabanus imitator Lutz and Neiva, 1909, Mem. Inst. Osw. Cruz, 1 (1): 30. Espirito Santo. No description.

Tabanus olivaceiventris, 1911, Int. Hyg. -- Ausst. Dresden, p. 35, as n. sp. Lutz. Probably a lapsus for *T. olivaceiventris* Macq.

Tabanus subapicalis, 1909, Inst. Osw. Cruz. em Manguinhos, p. 30. No locality, no description; 1911, Int. Hyg. -- Ausst. Dresden, p. 35, as n. sp. Lutz. No description.

Tabanus subcoeruleus, 1909, Inst. Osw. Cruz em Manguinhos, p. 30. No locality, no description. May be represented by specimens under *T. subviolaceus* in collection, some of which appear to be *T. basilaris* Kröber.

The remaining 18 names published without description by Lutz were represented in his collection by specimens, or in his notes by MS descriptions or identifiable drawings. They are discussed in detail below. Of these names, 12 proved to be synonyms of described species, 6 of earlier described species, 6 of species described later. Three species could not be identified with certainty, one being a mixture of several closely similar species the other two represented by specimens so badly preserved to be unrecognizable. Three species appear to be as yet undescribed and are described below, using the names selected by Lutz, except in one case where the name chosen by Dr. Lutz has proven to be a homonym. In another case the name selected by Lutz was a homonym of an earlier name, but a synonym of a later and also invalid name, so that a new name has been necessary. A list of these names and their disposition is given below, following the detailed consideration of each case.

Di cladocera macrospila Lutz, in Lutz, Araujo and Fonseca, 1918, Mem. Inst. Osw. Cruz, 10: 67, 168, Misiones, Argentina, and Rio Grande do Sul, Brasil, no description. There are two specimens under this name in the collection, T-589, labelled "Bonpland, Puerto Aguirre, Gob. Misiones, Argentina", and T-590, labelled "Santa Cruz, Rio Grande do Sul, F. R. Stieglmayr, 10 July 1892", the latter with a colored sketch showing a uniformly green eye. There is also a colored figure of T-590 among Dr. Lutz' MS notes, though no description accompanied it. The species was briefly described by BRÈTHES (1910) as *Dichelacera plagiata*, a fuller description appearing in 1921. BARRETTO (1950) also described and figured the species as *Catachlorops*

kröberi, though a subsequent opportunity to study Brèthes type convinced him that his species was the same as *plagiata*, as he wrote me (letter of 3 Dec. 1955). I have a specimen compared with Lutz' material and with Barretto's type.

Leptotabanus nigrovenosus Lutz and Neiva, 1914, Mem. Inst. Osw. Cruz, 6 (2): 72, in list of species from Xerem, Rio de Janeiro. Not listed as n. sp. No description. Lutz, in Lutz, Araujo and Fonseca, 1918, Mem. Inst. Osw. Cruz, 10: 168, in list of species from Sta. Catarina; no description. Lutz, 1921, Bol. Inst. Osw. Cruz, 1 (1): 15, in list of species from Guaratuba, Paraná; no description or authority.

Under this name in the collection were found the following specimens: T-932 labelled "Brasilien Fruhstorfer", lacking head and one wing; T-933 labelled "Sta. Catarina 12-IX-12" with sketch of eye pattern and "*?maletectus* Bigot" on reverse; T-934 to T-936, all labelled "Guaratuba, Paraná X-XII-920, Tybiriça". None of the specimens are well preserved. Comparison of the specimen from Sta. Catarina and of one of those from Guaratuba with the available descriptions shows the specimens to agree with the description of *Stenotabanus brunripes* (Kröber, 1929), and with my notes on a paratype in B. M. *Leptotabanus* is postoccupied by *Leptotabanus* Kröber, 1931 for a New Zealand species, and in any event the species fits very well into *Stenotabanus*.

KRÖBER's description and figures of *brunripes* fit very closely the specimen from Sta. Catarina, which was also the locality given for his species. The specimen from Paraná has the frontal callus smaller, though of the same shape, but I detect no other differences. The species is not *maletectus* Bigot, the type of which I have seen. Bigot's species has a more prominent frontal callus filling lower third of frons, lacks a true tubercle at vertex and has practically hyaline wings. It is also larger, 11 mm.

Stenotabanus tenuistria sp. n.

(Fig. 1)

Stenotabanus tenuistria Lutz and Neiva, 1914, Mem. Inst. Osw. Cruz, 6 (2): 74. Nomen nudum. Listed as n. sp. from State of Rio de Janeiro.

Tabanus tenuistria Lutz and Neiva, Surcouf, 1921, Gen. Insect., Tabanidae, p. 86. Listed as nomen nudum.

A small slender blackish species with unmarked wings, bicolored legs and banded abdomen with a faint slender middorsal stripe.

Female. Length 10 mm, of wings 8.5 mm. Eyes bare, dark with two narrow green bands. Frons about five times as high as basal width, slightly wider at vertex than at base, yellowish grey pollinose but with about the middle third becoming blackish when the light is from below or from one side. Basal callus black, protuberant, shiny, as wide as frons, about $\frac{1}{2}$ higher than wide, with a median upper ridge-

-like callus somewhat longer than height of basal callus. Vertex with a rounded shiny area surrounding a raised tubercle with clear vestiges of 3 ocelli. Subcallus yellowish grey pollinose, with a transverse band of darker, more yellowish pollinosity passing through the antennal bases and reaching the eye margins. Frontoclypeus and genae pale yellowish grey, sparsely pale and yellowish-haired. Antennae bright reddish orange, the first two segments thinly greyish pollinose and black-haired, the third wholly orange. Palpi yellowish orange, yellowish

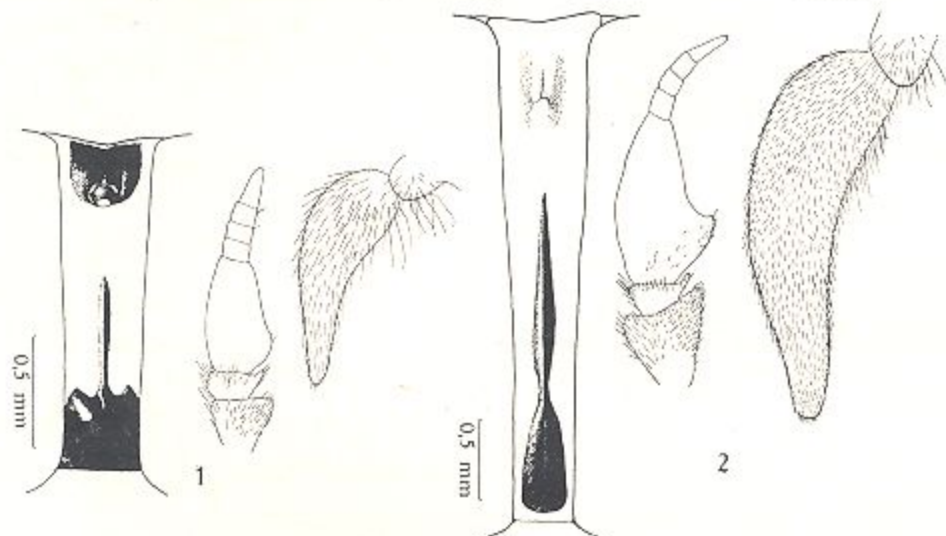


Fig. 1 — *Stenotobanus tenuistria* sp. n., holotype; fig. 2 — *Tabanus chalcotrinx* sp. n., holotype.

grey pollinose, black-haired. Proboscis short, blackish, the labella pollinose.

Mesonotum blackish brown, greyish pruinose in front, denuded, no trace of stripes, thinly yellowish brown pollinose and with sparse recumbent shining golden scale-like hairs and erect dark hairs. Scutellum concolorous. Pleura and sternum stell grey pollinose, sparsely yellowish white haired. Femora all blackish, black haired. Tibiae all bicolored, the basal third of fore tibiae, the basal two thirds of mid and hind tibiae ivory white, yellowish white haired, remainder black and black haired, as are tarsi, except the basitarsi of last two pairs of legs are somewhat reddish. Wings brownish hyaline, the stigma yellow; a small appendix on upper fork of third vein. Halteres with stem reddish brown, the knob blackish. Abdomen blackish brown in ground color, the sides of first two tergites somewhat reddish, iridescent greenish grey pruinose when viewed from behind, more intense on anterior tergites. Tergites 1 to 6 with narrow white hind margins widened at sides and expanded in the mid-line to form small narrow triangles which are extended forward by a vague lightening of the integument to form an ill-defined and slender whitish or greyish mid-

-dorsal line. The abdomen is mainly blackish haired, but there are indications of sparse yellowish white hairs along the middorsal stripe, more numerous on the hind borders of the tergites where this line crosses the incisures, and quite abundant, forming sparse tufts, on the postero-lateral angles of tergites 1 to 6. Beneath the sternites are blackish with narrow pale hind margins, sparsely dark-haired, but with complete pale-haired hind borders.

Holotype female, T-1603, Pacau, E. Minas, II-912, Paratypes: 2 ♀. T-1599 and T-1601, Bonito, 2-10 (Fazenda do Bonito, Serra da Bocaina, S. Paulo); 1 ♀, Angra dos Reis, Rio de Janeiro, 12-932, L. Travassos coll.; 2 ♀, T-1604 and T-1606, Itaguaí, Rio de Janeiro, I-909. Holotype and paratypes in Lutz Collection in Instituto Oswaldo Cruz, paratype to be deposited in M.C.Z., Cambridge, Mass.

The paratypes vary from 8 to 11 mm in length and in some the ground color of the abdomen is more brownish and the pollinosity of frons less yellow, perhaps due to fading.

Of described species, *tenuistria* seems to come nearest *St. albilinearis* Philip from eastern Peru. *Tenuistria* differs from the latter in slightly narrower frons, shorter callus, broader third antennal segment, orange rather than nearly black palpi, less fumose wings and in having a much narrower and fainter middorsal abdominal stripe. *Stenotabanus obscurus* Kröber (specimens from E. Peru) are also close, but in this species the frons is narrower and more convergent, the palpi paler and partly white haired, the antennal style dusky, the femora white haired in large part, the stigma brownish black, and there is no trace of a middorsal abdominal stripe.

Macrocormus trizonophthalmus, 1909, Inst. Osw. Cruz em Manginhos, p. 29, no description; 1911, Int. Hyg. --Ausst. Dresden, p. 35, as n. sp. Lutz, no description; Lutz, in Lutz, Araujo and Fonseca, 1918, Mem. Inst. Osw. Cruz, 10: 166, Puerto Bertoni, Paraguay, no description. Specimens under this name in the collection belong to several different species, including both *sorbillans* Wied. and *rubripes* Macq., though no specimen was found actually bearing an identification label. The name suggests that the eye of this species bore three bands, but no specimen with such an eye drawing was found, nor were there any MS notes under the name.

Macrocormus pseudosorbillans, 1909, Inst. Osw. Cruz em Manginhos, p. 29; 1911, Int. Hyg. --Ausst. Dresden, p. 35, as n. sp. Lutz, no description. Lutz, in Lutz, Araujo and Fonseca, 1918, Mem. Inst. Osw. Cruz, 10: 167, in list of species from region of Asuncion, Paraguay. Under this name in the Lutz collection there was a mixture of at least two species. The only specimen actually bearing a Lutz determination label was from Trinidad, B. W. I., and agrees with current interpretations of *sorbillans* Wied. In an old drawer, apparently brought intact from São Paulo, since none of the specimens or labels are later than 1907, are a number of old and much damaged specimens under the name labels *sorbillans* and *pseudosorbillans*. Here again, *pseudosorbillans* is

represented by specimens from Pará and Maranhão, with heavily tinted wings, *sorbillans* by larger reddish specimens with nearly clear wings; but none have locality labels. These latter agree with a homotype of *T. rubripes* Macq. in my collection. Specimens which I identified in 1937 as *pseudosorbillans* by comparison with specimens then so named in Dr. Lutz' collection are the same as his *pseudosorbillans* above. I believe from the scanty evidence that Lutz had both *sorbillans* Wied. (there is a specimen in his collection from Murtinho, Matto Grosso as well as Amazonian material) and *rubripes* Macquart before him, but considered *rubripes* to agree better with Wiedemann's description. The two are similar, but *sorbillans* averages smaller 14-17 mm (Wiedemann and Kröber give 15 mm), yellower and with more strongly brownish wings. *Rubripes* is larger 18-20 mm, darker red, the light hairs whitish rather than yellow and the wings only faintly tinted. The ranges of the two species overlap, as I have seen material of *sorbillans* Wied. from Trinidad; Venezuela; the Amazon basin; Satipo, Peru; eastern Colombia; Guyaramerin, northern Bolivia; Maracaju and Murtinho, Matto Grosso. *Rubripes* I have seen from Annapolis, Goyaz; Maracaju, Matto Grosso; Sommerfeld, Paraguay; Ribeirão Preto and Guatapara, São Paulo. Specimens differing only slightly have been from the vicinity of Villavicencio in eastern Colombia.

***Tabanus chalcothrix* sp. n.**

(Fig. 2)

Macrocormus badius, 1909, Inst. Osw. Cruz em Manguinhos, p. 29, no locality, no description; 1911, Inst. Hyg. - - Ausst., Dresden, p. 35, as n. sp., no description, Lutz and Neiva, 1914, Mem. Inst. Osw. Cruz, 6 (2): 74, State of Rio de Janeiro, no description. Not *Tabanus badius* Summers, 1912 Australia.

A large reddish brown species with coppery hairs, red legs lightly tinted wings with a long appendix on fork of third vein and moderately narrow frons with a club-shaped brown callus.

Female. Length 18 mm, of wing 15 mm. Eyes bare, blackish, with indications of two narrow green bands, though no attempt made to revive the pattern. Frons about eight times as high as basal width, a little less than twice as wide at vertex as at base, pale orange brown pollinose. Basal callus reddish brown, rugose, nearly as wide as frons, tapering above into a slender spindle-shaped ridge which extends about two-thirds the distance to vertex. Tubercle at vertex represented by an elongate shiny patch. Subcallus pollinose, same color as frons. Frontoclypeus and genae paler orange grey pollinose, both with long coppery hairs. Antennae wholly reddish orange, the first and second segments densely short black haired above, red haired below. Third segment as figured, with rather numerous short black hairs on, and basal to, the acute dorsal angle. Palpi orange grey, with short dark red to coppery hairs. Proboscis pest destroyed.

Mesonotum reddish brown, obscurely striped, greyish pollinose and with remnants of yellowish red hairs. Scutellum with apex brighter red, apparently originally clothed with reddish yellow hairs. Pleura and sternum brownish grey pollinose, with reddish brown to coppery red hairs, darker above, becoming almost golden on sternum and coxae. Legs bright reddish brown, wholly copper red-haired, the fore tarsi very slightly darker. No marked hind tibial fringe. Halteres orange yellow. Wings yellowish hyaline, all veins obscurely brown margined, the upper fork of third vein with a long appendix and first posterior cell narrowed towards margin. Abdomen bright reddish brown, thinly greyish pruinose on first few tergites, elsewhere subshiny, clothed with dark copper red hairs which become lighter, more golden on sides and posterior borders of all except last segment. Beneath the abdomen is slightly paler, more pruinose, wholly orange yellow-haired except for the black-haired terminal segment.

Holotype female, Benjamin Constant, Minas, Brasil, 2-10. In the Lutz Collection of the Instituto Oswaldo Cruz, Rio de Janeiro; 1 ♀, paratype, no. T-856, same data as holotype; 1 ♀, paratype, No. T-2609, Xerem, (Rio de Janeiro). The paratype from Xerem in Inst. Osw. Cruz, the other to be deposited in Mus. Comp. Zool., Cambridge, Mass. The paratypes are both slightly larger than the holotype, the one from Minas having the abdominal hairs very dark, nearly black, except on the posterior and lateral margins of the tergites.

I was able to find three specimens labelled with this name in the Lutz collection, two unnumbered and one from Xerem, No. T-2609. One bears a label apparently reading "K. 10 de Jupia, Foret 25 Jun. 13". and bears a colored sketch of the eye showing two green bands on a black ground. The specimen is intact though somewhat faded and rubbed. So far as I can determine, it agrees closely with a homotype of *Tabanus rubripes* Macq. in my collection, and with specimens standing under *Macrocornus sorbillans* Wied. in the Lutz collection. The other specimens, labelled "B. Constant, Minas 2-10" and T-2609, labelled "Xerem", are different but agree with each other and with a third unnamed specimen, T-856 also labelled "B. Constant Minas 2-10". A fourth specimen unnumbered, is labelled "Macrocornus castaneus, Ubatuba I-09" in Lutz' hand, but is so badly preserved that its identity with the others is uncertain.

The specimens from Minas and Xerem agree well with KRÖBER'S description and figure (1930) of what he calls *Tabanus (Macrocornus) testaceus* Macq. However, his interpretation is based on a specimen from Brasil in B. M. which he erroneously took to be Macquart's type. The true type is however, in Paris and from Cayenne (FAIRCHILD, 1956). Its condition precluded certain identification, although I noted its resemblance to *Tabanus indecisus* Big., and seriously doubt its being the same as the species discussed by KRÖBER or the specimens being considered here. In any event, *testaceus* Macq. is preoccupied by *Tabanus testaceus* Forskal, 1775 from Arabia. Lutz' name is also unfortunately occupied

by *T. badius* Summers, 1912 (= *nigrimanus* Wlk.) from Australia, and cannot be used.

Tabanus anonymous, 1909, Inst. Osw. Cruz em Manguinhos, p. 30 no description, no locality; 1911, Int. Hyg. - - Ausst., Dresden, p. 35, as n. sp. Lutz-Neiva.

Stictotabanus anonyms Lutz and Neiva, 1909, Mem. Inst. Osw. Cruz, 1 (1): 30, as n. sp. no description, in list of species from Espirito Santo. Lutz and Neiva, 1914, Mem. Inst. Osw. Cruz, 6 (2): 73, no description, in list of species from region of Serra dos Orgãos.

A MS description of the species was found in Dr. Lutz' notes. It was based on two specimens taken in Bauru (N. W. São Paulo) in Oct. 1906. A specimen in the collection, T-1440 bears a red "Tipo" label and "Bauru 18-10-906". The head, minus antennae, was pinned separately. Two others, T-2003 and T-2033 bear the same locality and date, and all agree with the MS description. There are also about 25 other specimens of the same species from various localities in Minas Gerais, Goyaz, and Matto Grosso. A specimen in my collection from Maracaju, Matto Grosso, which I compared with Lutz "Tipo" also agrees closely with a Goyaz specimen which I found to agree with the type of *T. rubrithorax* Macq. It also agrees with a type of *Dudaella punctulipennis* End. in U. S. National Museum.

Tabanus nigristigma, 1909, Inst. Osw. Cruz em Manguinhos, p. 30, no description; Lutz and Neiva, 1909, Mem. Inst. Osw. Cruz, 1 (1): 30, in list of species from Espirito Santo; 1911, Int. Hyg. - - Ausst. Dresden, p. 35 as n. sp. Lutz-Neiva.

Leucotabanus nigristigma, Lutz, in Lutz, Araujo and Fonseca, 1918, Mem. Inst. Osw. Cruz, 10: 168, in list of species from Sta. Catarina; Lutz, 1921, Bol. Inst. Osw. Cruz, 1 (1): 15, in list of species from Guaratuba, Paraná.

Lutz' MS description of this species was based on five badly preserved females from Minas, collected by Soledade. Under this name in the collection there are four specimens, two of which, Nos. T-1451 and T-1452, are labelled "Tipo" and "Cotipo" respectively, all without locality, which may have been part of the material on which the description was based. A fifth specimen, T-1453, is labelled "Morro do Trombudo, Santa Catarina, XII-IX-12." All five specimens agree with the MS description, but are the same as *Leucotabanus sebastianus* Fairchild, 1941, described from Rio de Janeiro. It is a pity Dr. Lutz did not publish this species, as his name is eminently appropriate.

Tabanus fuscovittatus, 1909, Inst. Osw. Cruz, em Manguinhos, p. 30, no description, no locality; 1911, Inst. Hyg. - - Ausst. Dresden, p. 35, as n. sp. A specimen, T-1081, is labelled "Tipo" and bears a colored sketch of the all-green eye, but no locality label. It is much damaged and denuded, but seems to agree best with *T. fuscofasciatus* Macq., a variable species. Other specimens under this name in the collection are of several species, all in poor condition and mostly without locality.

Tabanus interpunctus, Lutz, in Lutz, Araujo and Fonseca, 1918, Mem. Inst. Osw. Cruz, 10: 167, listed, without description, as a new species in a list of species from the region of Asuncion, Paraguay. There are seven specimens in the collection, T-1032 labelled "Museum Paris, Paraguay, Asuncion, Dr. Laveran, 1904"; T-1033 labelled "Museum Paris, Chaco de Santa Fé, Las Garzas, bords du Rio das Garzas, 25 Kil a l'o. d'Ocampo, E. R. Wagner, 1903"; T-1034 to T-1039 labelled "Paraguay, Assunção. IX-XI-1915." KRÖBER (1929) seems to have had the present species before him when he described his *Hybostraba ornativentris*, but thought that he was dealing with the earlier *Tabanus druyvesteijni* Szilady, described from Trinidad and Panama. The latter, together with *T. ferrifer* Wlk. are synonyms of *T. nebulosus* De Geer (PHILIP, 1925). Specimens from Central America and northern South America, south at least to Salobra, Matto Grosso, agree with the types of *nebulosus* De Geer and *ferrifer* Walk., and with the description of *druyvesteijni* Szil. Specimens from Paraguay and Argentina are much darker with slightly different antennae, dark femora and more heavily spotted wings. A syntype of *ornativentris* Kröb. in the British Museum from E. Bolivia agrees with a specimen in my collection from the same area in being intermediate between the dark, heavily spotted southern form and the paler, faintly spotted northern form. Since Kröber's material included Paraguayan and Argentinian material, his name should be used, I believe in a subspecific sense. All specimens I have seen from Paraguay and Argentina have blackish femora, heavily spotted wings and the males have dark-haired palpi. The abdominal spots tend to be paler, more whitish, but there seem to be no structural differences in either sex.

Tabanus melleiventris, 1911, Int. Hyg. -- Ausst. Dresden, p. 35, no description. There is a specimen in the collection, No. T-976, labelled "Alcobaça IX-08" and "Tipo". It lacks antennae and is exceedingly moldy and dirty. There is also a MS description among Lutz' notes, referring to a specimen from Obidos, Pará. The specimen does not disagree with the MS description, but its condition precludes positive identification and makes it unwise to describe the species on such incomplete material.

Tabanus mucronatus sp. n.

(Fig. 3)

Tabanus mucronatus, 1911, Int. Hyg. — Ausst. Dresden, p. 35, no description. There is a specimen in the Lutz collection, T-1057, without locality, labelled "Tipo", and the following other specimens: T-1473 and T-1475, labelled "Peixe-boi, Pará, 1-07"; T-1058, labelled "Peixe-boi X-02"; T-1207 labelled "Peixe-boi"; T-1059, no locality; six unnumbered females, Peixe-boi, Jan. 1907. I have also 4 ♀, Pyrenopolis, Goyaz X-1936, 1 ♀, Cuyaba, Matto Grosso III-19-35 and 1 ♀, Rio Canaticu, Pará, 1936. There is also a MS description of the species among Lutz' notes, but

it contains no reference to specimens or localities. The species is quite characteristic and I have been unable to identify it with any described species, so that Lutz' name is used here in a new description.

A medium-sized cocoa brown species with the fore border of the wing strongly brownish, the abdomen markedly pointed in most specimens and with a middorsal row of narrow grey connected triangles.

Female. Length 13 mm, of wing 11.5 mm. Eyes bare, apparently without bands, dark greenish black. Frons about five times as high as wide, nearly parallel sided, light yellowish grey pollinose, brownish around median callus. Frontal callus orange brown, shiny, nearly as wide as frons, somewhat wider than high, extending above in a protuberant ridge which widens into a laceolate median callus. Vertex with an irregular roughened bare patch occasionally showing vestiges of ocelli. Subcallus, frontoclypeus and genae yellowish grey pollinose, the last with whitish beard. First two antennal segments dark reddish brown, black-haired, the first segment greatly produced above, overhanging the second and base of third segments. Second segment with a moderate dorsal tooth. Third segment bright reddish brown, the dorsal angle nearly a right angle, the basal plate longer than style. Palpi rather slender, evenly tapered to an acute apex, light yellowish, pale grey pollinose, with black hairs dorsally and longer white hairs beneath. Proboscis longer than palpi, the labella slender, subequal to theca, both light greyish brown pollinose.

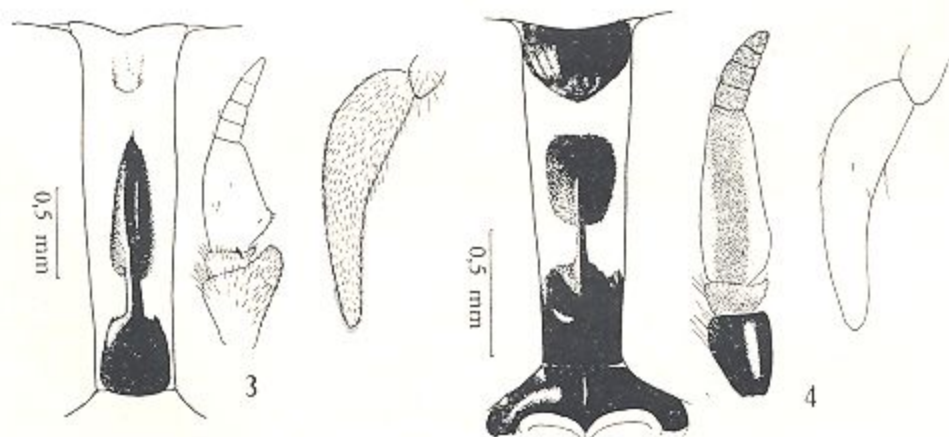


Fig. 3 — *Tabanus macronatus* sp. n., holotype; fig. 4 — *Stenotabanus liokyion* n. n., the hairs on palpus lost.

Mesonotum light cocoa brown in ground color, greyish pollinose with vestiges of pale pollinose stripes, apparently with mixed black and pale hairs, though these now mostly lost. Scutellum concolorous, pale haired, but with a small and inconspicuous tuft of black hairs on prescutellum. Notopleural lobes black haired, remainder of pleura,

sternum, and coxae pale pollinose and white-haired. Wings with basicosta setose, venation normal, no appendix at fork of third vein. Costal cell yellowish, marginal cell brownish, lighter in the middle, the brown extending to wing apex, intensified at apices of veins. Stigma yellowish, inconspicuous. Remainder of wing greyish hyaline. Legs reddish brown in ground color, the apical half of fore tibiae, fore femora and all tarsi darker. All legs pale haired, except for dark hairs on apical third of fore tibiae and tarsi. No hind tibial fringe.

Abdomen cocoa brown in ground color, greyish pruinose on first segment, thinly brown pollinose elsewhere except for the pale posterior margins of all tergites and narrow whitish pollinose dorsal triangles reaching nearly or wholly the length of the tergites on first to fifth tergites. The tergites are dark-haired except over the median triangles, the hind marginal bands, and the sides of tergites one to four, which are whitish-haired. Beneath the abdomen is paler, grey pollinose and wholly pale haired. The abdomen is markedly pointed, due to progressive narrowing and arching of tergites three to six, especially pronounced on the last two or three segments.

Holotype female, No. T-1475, Peixe-boi, Pará, I-07, in the Lutz Collection at the Instituto Oswaldo Cruz. This specimen lacks hind legs. Paratypes: 1 ♀, T-1473, same data as holotype; 1 ♀, T-1057, labelled "Tipo" but without locality and lacking mid-legs and one antenna; 3 ♀, Pyrenopolis, Goyaz, X-36. Paratypes in the Lutz Collection, Instituto Oswaldo Cruz and in M. C. Z.

Tabanus multimaculatus, 1909, Inst. Osw. Cruz em Manguinhos, p. 30, no description; 1911, Int. Hyg. -- Ausst. Dresden, p. 35, as n. sp. There is a MS description among Dr. Lutz' notes based on various females collected at Obidos, in the State of Pará. Among a number of specimens from various localities in the Amazon valley, there is one from Obidos, T-960, collected by Ducke in 1914. This and others agree with the MS description. In addition, a specimen in my collection from Educandos, Pará, was compared by me in 1937 with specimens then under *multimaculata* in Dr. Lutz' collection. All this material agrees closely with a homotype of *T. guyanensis* Macq. in my collection.

Tabanus pseudolitigiosus, 1909, Inst. Osw. Cruz em Manguinhos, p. 30, without description; 1911, Int. Hyg. -- Ausst. Dresden, p. 35 as n. sp.

In Dr. Lutz' collection there are two specimens of different species labelled as "Tipo". There is also a MS description among his notes, referring to material from the State of Pará, though without referring to any specific specimens or a definite locality. One of the specimens above No. T-1926 labelled "Arapinanga, 6-XII-07, Pará." agrees closely with this MS description. It is, however, the species later described by KRÖBER (1930) as *T. (Phaeotabanus) semiflavus*, but which was shown by PHILIP (1952) to be the same as *T. fervens* Linn. The other specimen labelled "Tipo" is No. T-1451 a, labelled "Colhido a Bordo do P. abangoas no Estreito do Breves, 15-VIII-10", a locality above Belém on the Ama-

zon river. This specimen, though much faded, agrees well with *Phaeotabanus prasiniventris* Kröber, 1929, also described from the narrows of Breves.

Tabanus scriptipennis, 1909, Inst. Osw. Cruz em Manguinhos, p. 30, no description; Lutz and Neiva, 1909, Mem. Inst. Osw. Cruz, 1 (1): 30, in list of species from Espirito Santo; 1911, Int. Hyg. -- Ausst. Dresden, as n. sp. Lutz-Neiva. There is a MS description among Lutz' notes and three specimens which are apparently the specimens referred to in this description, labelled "Minas, Soledade 1908". There are also two specimens from Espirito Santo of later date which may be the same. The Minas specimens are too badly preserved to form the basis of a new description, or to be identified with certainty, though they are apparently related to *scythropus* Schiner, *maculipennis* Kröb., and other small species placed variously by KRÖBER (1934) in *Stypommisa* End. and *Dudaella* Strand.

Tabanus subniger Lutz and Neiva, 1909, Mem. Inst. Osw. Cruz, 1 (1): 30, without description, in list of species from Espirito Santo. *Neotabanus subniger*, 1911, Int. Hyg. -- Ausst. Dresden, p. 35, as n. sp. Lutz-Neiva. Not *T. subniger* Coq., 1906, N. America. Among Dr. Lutz' MS notes there is a description of this species based on two specimens taken by Dr. Soledade. What appear to be these specimens were found in the Lutz collection, though not under this name. Specimen T-1610 is labelled "Dr. Soledade 1908" and T-1611 is labelled "Espirito Santo Dr. Soledade 1908". The first is intact though much denuded, the second lacks antennae, abdomen and much of the wings. The species was described subsequently as *Stenotabanus stigma* by KRÖBER (1929), but this name became a homonym of *Tabanus stigma* Fab., 1805 upon BEQUAERT's transference (1940) of FABRICIUS' species to *Stenotabanus*. Since there seems to be no available synonym for this and Lutz' name is unavailable, unless the species proves but a variant of the apparently very similar *St. obscuremarginatus* Kröb., the name *Stenotabanus liokylon* nom. nov. is hereby proposed for *St. stigma* Kröber, 1929. Kröber's description is adequate, but his figure somewhat schematic, so a figure of Lutz' specimen is provided here (fig. 4). Both specimens have been remounted on double mounts, as their pins were in bad condition.

Tabanus subviolaceus sp. n.

(Fig. 5)

Tabanus subviolaceus, 1911, Int. Hyg. -- Ausst. Dresden, p. 35, no description; listed as n. sp. Lutz-Neiva. Specimens under this name in the collection belong to three distinct species. Two of these are represented by specimens from the Amazon region, the third by a specimen from S. Paulo and two without locality. To which species Lutz intended to apply the name it is now impossible to tell. The two specimens without locality and the one from

São Paulo are fairly well preserved and seem to represent an undescribed species related to *T. basilaris* Kröb. They are described below, using the name selected by Lutz.

A large dark brown species, the proboscis unusually long, the palpi slender and flattened, the wings basally strongly infuscated, the legs and abdomen almost entirely black-haired.

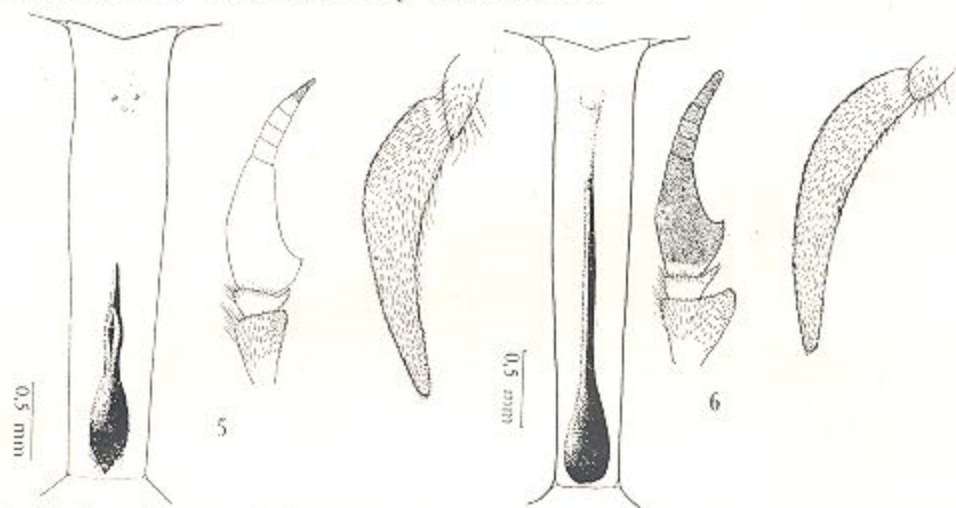


Fig. 5 — *Tabanus subviolaceus* sp. n., holotype; fig. 6 — *Tabanus miles* Wied., specimen labelled "Tito" of tiro Lutz.

Female. Length 19 mm, of wing, 16 mm. Eyes bare, no pattern evident, probably unicolorous in life. Frons about $5\frac{1}{2}$ times as high as basal width, nearly parallel sided, dull orange brown pollinose. Frontal callus reddish, flattened, rugose, much narrower than frons, merging above into an indistinct ridge reaching half-way to vertex. Vertex with a slightly denuded patch and vestiges of a small tubercle. Subcallus slightly sunken, dark reddish brown pollinose. Frontoclypeus and genae dark reddish brown, slightly dull greyish pollinose, with sparse dark brown hairs. First two antennal segments yellowish brown, black-haired, the third segment long and slender, reddish brown, the terminal annulus dusky. Palpi nearly black, black haired, long, flattened and acutely pointed. Proboscis equalling head height, the short labella and long theca black, dark brown pollinose.

Mesonotum dark brown, thinly brown pollinose, black-haired except for sparse tufts of yellowish hairs on pronotal lobes and scattered pale hairs on anterior fourth of mesonotum. There is also a faint middorsal pale integumental line, and a pair of paler dorsolateral stripes ending in small indistinct patches at the suture above the notopleural lobes. Scutellum brown, black-haired. Pleura and sternum brown, black haired. Legs very dark brown, wholly black-haired, the hind tibiae with long and dense fringe. Wings with venation normal, no appendix on fork of third vein. Costal cell and both basal cells heavily brown tinted, this

color continuing in decreasing intensity along the veins to the fork of third vein, where a small cloud is formed, and to apex of discal cell, where the apical cross-veins are faintly clouded. The remainder of the wing is greyish hyaline. Abdomen dark reddish brown, somewhat whitish pruinose, giving in certain lights a somewhat purple appearance. Hairs of abdomen above largely black, but with a small patch of white hairs beneath scutellum, and very obscure reddish yellow hairs in small median patches on tergites one to five. Beneath the sternites are paler, reddish, with mixed black and yellow hairs, the latter forming incomplete hind-marginal fringes on all but the last sternite.

Holotype female, labelled "28.2.35".

Paratypes: 1 ♀, labelled "10.2.38" and "Kopf klein"; 1 ♀, labelled "S. Paulo, Interior, G. Rosenfeld." Holotype and one paratype in Lutz Collection, Instituto Oswaldo Cruz, one paratype to be deposited in M.C.Z. The holotype and paratype without locality may have been collected by Zikan, as the labels are similar to those written by him.

T. basilaris Kröber differs from *subviolaceus* in being essentially black and white in coloration. The median triangles on abdomen are larger, conspicuous, white haired and there are tufts of white hairs laterally on tergites 2 to 4. The frons is broader, the callus larger, and the palpi shorter and broader. The antennae are of the same shape as in *subviolaceus*, but wholly black. Both species are structurally similar to *T. xenorhynchus* Fchld., but the latter has much more extensively dark marked wings and conspicuously white-haired scutellum.

Tabanus tiro, 1909, Inst. Osw. Cruz em Manguinhos, p. 30, no authority, no locality; 1911, Int. Hyg. -- Ausst. Dresden, p. 35, as n. sp. Lutz-Neiva; 1914, Mem. Inst. Osw. Cruz, 6 (2): 73, Serra dos Orgãos, as n. sp. Among Dr. Lutz' notes there is a MS description of this species, based on various females brought by Dr. Soledade from the state of Minas Gerais between Theophilo Ottoni and the margins of the Rio Doce. In this description, Lutz gives the length as 14 mm and says his species differs in size and in various unspecified details from the description of *T. miles* Wiedemann. A specimen, T-1612, labelled "Minas 08/Soledade leg./E. Rio Doce e /Th. Ottoni." and with a red "tipo" label seems certainly to have been part of the material on which the MS description was based. Two other specimens, T-1613 and T-1614 are labelled "Raiz da Serra, Petropolis 5-IX-915 and 14-IX-915 and were under *tiro* in the collection. All three specimens are close to 15 mm in length, hence slightly larger than the measurement given by Lutz. The specimen above labelled "Tipo" is quite faded and very denuded, so that little of the abdominal pattern remains. The specimens from Petropolis are in good condition and agree very well with Wiedemann's description of *T. miles*. KRÖBER (1930) gives a redescription of *miles*, based at least in part on the presumed type in Berlin, though he mentions material from Espirito Santo and S. Paulo as well. His accompanying figure and some of the statements in his redescription seem, however, to refer to another species with pale median triangle on fifth tergite and more

slender antennae. A specimen, T-1078 from Esp. Santo 1-10-911 in the Lutz collection agrees well with Kröber's figure. This specimen stood under the name *T. vestitus* Wied. in Lutz' collection, though it does not agree well with Wiedemann's description, having the femora reddish instead of black. Though certainty can only be realized through comparisons with Wiedemann's type, I believe that *tiro* is the same as *miles*. Wiedemann's clear description may be supplemented by the accompanying figure of frons, antenna and palpus (fig. 6). Lutz stated in his MS description that the eyes were greenish black, without stripes, and the two specimens from Petropolis have notes stating that the eyes are black.

Disposition of the names treated above is summarized below.

1. *Dicladocera macrospila* = *Dichelacera plagiata* Brèthes, 1919 and *Catachlo-rops kroberi* Barr., 1950.
2. *Leptotabanus nigrovenosus* = *Stenotabanus brunripes* Kröber.
3. *Stenotabanus tenuistria* = *Stenotabanus tenuistria* sp. n.
4. *Macrocornus trizonophthalmus*. Not certainly recognized.
5. *Macrocornus pseudosorbillans* = *Tabanus sorbillans* Wied.
6. *Macrocornus badius* = *Tabanus chalcothrix* sp. n. Not *Tabanus badius* Summers.
7. *Tabanus* and *Stictotabanus anonymous* = *Tabanus rubrithorax* Macq., = *Dudaella punctulipennis* End.
8. *Tabanus* and *Leucotabanus nigristigma* = *Leucotabanus sebastianus* Fchld.
9. *Tabanus fuscovittatus* = *Tabanus fuscofasciatus* Macq.
10. *Tabanus interpunctus* = *Tabanus nebulosus* ssp. *ornativentris* Kröb.
11. *Tabanus melleiventris* = Condition of specimen precludes identification or description.
12. *Tabanus mucronatus* = *Tabanus mucronatus* sp. n.
13. *Tabanus multimaculatus* = *Tabanus guyanensis* Macq.
14. *Tabanus pseudolitigiosus* = *Phaeotabanus prasiniventris* Kröb.
15. *Tabanus scriptipennis*, near *fervus* Hine and species placed in *Stypommisa* and *Dudaella* by Kröber, but too badly preserved for certain placement or description.
16. *Tabanus subniger* = *Stenotabanus stigma* Kröber, 1929, not *Stenotabanus stigma* Fab., 1805. Since *subniger* is preoccupied by *T. subniger* Coq., 1906, the name *Stenotabanus liokylon* nom. nov. is proposed for *Stenotabanus stigma* Kröber.
17. *Tabanus subviolaceus* = *Tabanus basilaris* Kröb. and *Tabanus subviolaceus* sp. n.
18. *Tabanus tiro* = *Tabanus miles* Wied.

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