

A preliminary check list of the Tabanidae (Diptera) of Costa Rica

By

G. B. Fairchild*

(Received for publication January 11, 1961)

Records of horseflies (Tabanidae) from Costa Rica are not numerous in the literature, and no list of the species reported seems to have been published. At the suggestion of Dr. Rodrigo Zeledón, I have here brought together the available references in the literature together with records of specimens from Costa Rica in my notes and collection, with the hope that it may stimulate others to make collections of these insects and record their observations.

The first notice of Tabanidae from Costa Rica appears to be in the *Biologia Centrali Americana* in 1886, where OSTEN SACKEN (51) records the presence of two species and describes two others as new, all collected by Rogers. Nearly a generation later, Prof. JAMES S. HINE of Ohio State University took up the study of Central American Tabanidae, and in a series of papers from 1906 to 1925, reported the presence of 17 species from Costa Rica, many collected by Pablo Schild at Higuito, San Mateo. Nine of these were described as new species. Following HINE, Herr OTTO KRÖBER of Hamburg worked extensively on the Neotropical Tabanidae, publishing nearly forty papers on them between 1925 and 1934. Scattered through his publications are references to about 21 species from Costa Rica, of which 12 species were described as new. Much of his material was also collected by Pablo Schild. FAIRCHILD (10-23), though dealing primarily with the Panama fauna, mentions Costa Rican specimens of 15 species, two of which were described as new. Twenty-five species are added to the list in the present publication.

Of the 79 species and varieties here recorded, 13 are doubtful, either probable misidentifications or species whose status is dubious. These have been marked with a query (?). I have seen all of HINE's types and most of the other material from Costa Rica in his collection. I have also examined the specimens recorded from Costa Rica by OSTEN SACKEN, including his types, in the British Museum, and have seen Costa Rican specimens of 59 of the species here listed.

* Gorgas Memorial Laboratory, Panama, Republic of Panama

The arrangement of higher categories follows roughly the scheme proposed by MACKERRAS (50). The assignment of species to genera and subgenera represents my present opinion and is subject to future revision.

Subfamily PANGONIINAE

Tribe PANGONIINI

Genus *Esenbeckia* Rondani

Esenbeckia illota osornoi Fairchild 1942, *Ann. Ent. Soc. America*, 35 (2):196, Pl. 2, fig. 11(16) 1 ♀, San Mateo, in Hine coll., Ohio State Univ., recorded by FAIRCHILD (16).

(?) *Esenbeckia filipalpis* (Williston) 1895, *Kansas Univ. Quart.*, 3: 190.

HINE (30) records the species from Costa Rica, without more definite locality. I suspect this is a misidentification, as *filipalpis* was described from Paraguay, but as I did not see the specimen in the Hine Collection certainty is not possible.

(?) *Esenbeckia fuscipennis* var. *minor* Kröber 1931, *Zool. Anz.*, 94: 248, ♂ (39). 1932, *Rev. Ent.*, 2(1):67-68, ♀ (40), Costa Rica. The brief description of the female suggests *E. chagresensis* Fchld., but since the species was not figured and the type in Budapest now presumably destroyed, it is impossible to recognize the species. It is doubtful if it was really a form of *fuscipennis* Wied.

Esenbeckia prasiniventris (Macquart) 1845, *Mem. Soc. Sci. Lille* (1844) p. 161, Pl. 3, fig. 9 (47). Recorded by HINE (28) from near Turrúcares and from Carrillo.

Tribe SCIONINI

Genus *Fidena* Walker

Fidena bicolor Kröber 1931, *Zool. Anz.*, 95 (1-2):36-37, ♂ (40), Higuato, San Mateo. FAIRCHILD (20) described the female from a specimen taken in Quepos, Damas, 4 Oct. 1950, by J. R. Koppers.

Fidena isthmiae Fairchild 1941, *Ann. Ent. Soc. America*, 34 (3):642-644, fig. 1(11). HINE (28, 30) recorded this species as *Erephopsis niger* Ric. form Peralta Station, Calvert coll. I have seen this specimen.

Fidena schildi (Hine) 1925, *Occ. Pap. Mus. Zool. Univ. Michigan*, No. 162, pp. 11-12, ♀ (30), La Suiza de Turrialba 21, 26 Aug., Pablo Schild coll. I have seen the types, and other material from Panama.

Genus *Scione* Walker

Scione claripennis Ricardo 1900, *Ann. Mag. Nat. Hist.*, (7)VI:292 (56). SZILADY (59) records the species as *Sc. costaricana* from Turrialba.

FAIRCHILD (16) redescribed and figured the species from Panama material.

Scione maculipennis (Schiner) 1868, *Reise Novara, Zool.*, II, Abt. 1, Vol. B, Dipt. p. 102, Pl. II figs. 7, 7^a (57). FAIRCHILD (16) discussed and figured the species. Several females from Finca Zeledón, Río Coto Brus, 10 Aug. 1958, R. Hartmann coll. The locality is close to the Panama border in Chiriquí Province.

Scione aurea Szilady 1926, *Biol. Hungarica*, 1 (7): 30(59), ♀, Suiza de Turrialba, Costa Rica. SZILADY says this is the same as *Sc. incompleta* Macq. as determined by Schiner. The description agrees with specimens from Panama determined as *maculipennis* Schiner by me. KRÖBER (44) places *aurea* as a synonym of *Sc. minor* Macquart. The identity of *incompleta* Macq. is uncertain, and Panama specimens were not in agreement with the type of *minor* Macq. in the British Museum. SZILADY'S types were presumably destroyed in Budapest.

Subfamily CHRYSOPINAE

Tribe CHRYSOPINI

Genus *Chrysops* Meigen

Chrysops melaena Hine 1925, *Occ. Pap. Mus. Zool. Univ. Michigan* No. 162, pp. 17-19(30). Paratypes from Higuito, San Mateo, Pablo Schild coll. Palmar, Puntarenas, P. and D. Allen colls. KRÖBER (44) lists as a synonym of *leucospila* Wied., but it is distinct. FAIRCHILD (13) figures the wing pattern.

(?) *Chrysops laeta* Fabricius 1805, *Syst. Antl.*, p. 112(8). KRÖBER (31, 44) reports the species from Costa Rica, without more definite locality.

Chrysops variegata (De Geer), 1776, *Mem. Hist. Ins.* VI, Pl. 30, fig. 7(5). KRÖBER (31) reports specimens of the variety *subfascipennis* Macq. from San José. The species is common along the coast throughout Central America and the West Indies.

Chrysops auroguttata Kröber, 1930, *Zool. Anz.* 90: 71, figs. 6-8 (35). BEQUAERT (2) records the species from Costa Rica, without more definite locality. 1 ♀, Wauchope, Limon Prov., 3 June 1954.

Chrysops calogastra Schiner, 1868, *Reise Novara*, Dipt., p. 103 (57). 1 ♀, Palmar, Puntarenas, P. and D. Allen colls.

(?) *Chrysops latefasciata* Bellardi, 1859, *Sagg. Ditt. Mess.*, 1:71, Pl. 2, fig. 15(1). OSTEN SACKEN (51) records from Cachí, Rogers coll., but this is probably *melaena* Hine.

Chrysops scalarata Bellardi, 1859, *Sagg. Ditt. Mess.*, 1: 72, pl. 2, fig. 19 (1). KRÖBER (31) records the species without specific locality. It occurs commonly on the coast in neighboring Bocas del Toro Province, Panama, and in Honduras and Mexico.

Genus *Assipala* Philip

Assipala tanyceras (Osten Sacken), 1886, *Biol. Centr. Americana*, Dipt., 1: 46(51). Type from Cachí, Rogers coll. HINE (28) records from Peralta Station, March 1910, Calvert coll., and PECHUMAN (52) adds records of 3 ♀ from Navarro Farm., March, W. M. Mann coll.

Subfamily TABANINAE

Tribe DIACHLORINI

Genus *Diachlorus* Osten Sacken

Diachlorus jobbinsi Fairchild, 1942, *Ann. Ent. Soc. America*, 35 (3): 296(17); 1946, *Ann. Ent. Soc. America*, 39 (4):567, Pl. 1, fig. 7(19), Palmar, Puntarenas, P. and D. Allen colls.

Genus *Lepiselaga* Macquart

Lepiselaga crassipes (Fabricius) 1805, *Syst. Antl.*, p. 108 (8). Cato, Mar. 1952, Common from Mexico to Paraguay and in the West Indies.

Genus *Bolbodimyia* Bigot

Bolbodimyia philipi Stone 1954, *Ann. Ent. Soc. America*, 47 (2):253-254 (58), ♀. One female paratype in Coll. C. B. Philip is labelled "San José, 1160 M. XI. 1905 P. Biolley". In view of the known distribution of the species, Guatemala to Colombia, this is very probably San José, Costa Rica, as Biolley collected extensively here.

Genus *Acanthocera* Macquart

Acanthocera costarricana Fairchild, 1941, *Ann. Ent. Soc. America*, 34 (3): 647-648, fig. 1 (12). Type from Higuito, San Mateo, Pablo Schild coll.

Genus *Dichelacera* MacquartSubgenus *Dichelacera*

Dichelacera fasciata Walker 1850, *Ins. Saund. Dipt.*, 1: 68 (61) HINE (29) records the species, as *analis* Hine, from Higuito, San Mateo. KRÖBER (37) also records it from San Mateo, as *costaricensis* Kröb. I have seen specimens also Wauchope, Limon, Aug. 1951, June 1954; San Miguel, June 1954; Palmar, Esquinas, and Golfito, Puntarenas.

Dichelacera regina Fairchild, 1940, *Ann. Ent. Soc. America*, 33 (4):699-700(9), fig. 3. HINE (28) reported 3 ♀ of this species as *D. grandis* Ricardo from Juan Viñas, Calvert coll. I have seen Hine's specimens labelled Juan Viñas, 30 Aug. 1909, Calvert coll.; Juan Viñas, Schaus coll.; Esparta 22 May, Schaus coll.

Dichelacera melanosoma Hine, 1920, *Ohio J. Sci.*, 20 (8):316, fig. 1(29). Type from Higuito, San Mateo, Pablo Schild coll. A long series of both sexes from Palmar, Puntarenas, P. and D. Allen in M. C. Z.

Dichelacera scapularis Macquart, 1847, *Dipt. Exot.*, Suppl. 2, p. 15(48). 1 ♀, Siquirres, Aug. 1960, Zeledón coll.

Dichelacera submarginata Lutz, 1915, *Mem. Inst. Osw. Cruz*, 7: 86, Pl. 20, fig. 8(46) 1 ♀, Orosi, May 1938, H. W. Kumm coll.

Dichelacera princessa Fairchild and Philip, 1960, *Stud. Ent.*, 3 (1-4): 53-55, Pl. 4, fig. 3 (24). Holotype, Allotype and 25 Paratypes from Palmar, Dept. Puntarenas, P. and D. Allen colls. Another specimen from Wauchope, Limon Prov., 9 Aug. 1951.

Dichelacera dorotheae Fairchild and Philip, 1960, *Stud. Ent.*, 3 (1-4): 31-32, Pl. 3, fi. 5; Pl. 7. fig. 5 (24). Holotype and 8 paratypes from Esquina, near Golfito, Dept. Puntarenas, P. and D. Allen colls.

Subgenus *Psalidia* Enderlein

Dichelacera fulminea Hine form *ocellata* Enderlein 1925, *Mitt. Mus. Berlin*, 11: 393(6). HINE (29) records a specimen as *Tabanus festivus* Hine, not Wied. from Costa Rica. In the Hine collection there are two females, one labelled Costa Rica, the other La Suiza de Turrialba. I have a specimen from Wauchope, Limon, 9 Aug. 1951.

Subgenus *Catachlorops* Lutz

Dichelacera umbratus (Hine) 1920, *Ohio J. Sci.*, 20 (6): 187-188(29). Type female from Higuito, San Mateo, Pablo Schild coll. in U. S. N. M.

Genus *Stypochela* Enderlein

Stypochela badia (Kröber) 1931, *Rev. Ent.*, 1: 402, fig. 3 (37). The specimen recorded by HINE (28) as *Tabanus venenatus* O.S. from Peralta Station, 10 Mar. 1910 proves on examination to be the present species, although HINE subsequently decided it was the same as *St. peruviana* (Bigot), a closely related form.

Genus *Stibasoma* SchinerSubgenus *Stibasoma*

Stibasoma chionostigma (Osten Sacken) 1886, *Biol. Centr. Americana*, Dipt., 1: 54, Pl. 1, fig. 11 (51). Recorded by HINE (1917) from Guácimo, June 6, 1909. Calvert coll., as *St. flavistigma* Hine. I have seen this specimen, now in the Academy of Natural Sciences, Philadelphia.

Stibasoma fulvohirtum (Wiedemann) 1828, *Auss, zweifl. Ins.*, 1: 155(62). 1 ♀, Wauchope, Limon Prov., 9 Aug. 1951.

Stibasoma panamensis Curran 1934, *Fam. Gen. N. A. Dipt.*, p. 153, fig. 23(4). Recorded by FAIRCHILD (21) from Wauchope, Limon, 9 Aug. 1951.

Subgenus *Rhabdotylus* Lutz

Stibasoma venenata (Osten Sacken) 1886, *Biol. Centr. Americana* Dipt. 1: 54 (51). 1 ♀, Carrillo, May 1903, C. F. Underwood coll. agreed with the types in the British Museum.

Genus *Chlorotabanus* Lutz

Chlorotabanus mexicanus (Linnaeus) 1767, *Syst. Nat.*, 12th ed., 1, pt. 2, p. 1000(45). Philip and Fairchild (55) report a specimen from Finca Suerre.

Chlorotabanus inanis (Fabricius), 1794, *Ent. Syst.*, IV, p. 368(7), PHILIP and FAIRCHILD (55) mention from Costa Rica, without definite locality, but I cannot now trace the authority for this, though it undoubtedly occurs.

Genus *Phaeotabanus* Lutz

Phaeotabanus longiappendiculatus (Macquart) 1855, *Dipt. Exot.*, Suppl. 5: 32(49) 1 ♀, Palmar, Puntarenas, 28 Nov. 1949, Trapido and Allen coll.

Phaeotabanus atopus (Fairchild) 1953 *Ann. Ent. Soc. America*, 46 (2): 271-272, Pl. 1, fig. 3(21). 1 ♀, Palmar, Puntarenas, P. and D. Allen colls.

Genus *Stenotabanus* LutzSubgenus *Stenotabanus*

Stenotabanus fulvistriatus (Hine) 1912, *Ohio Nat.*, 12 (7): 515(27). A specimen in the Hine Collection is labelled Higuito, San Mateo, Pablo Schild coll. I have also seen material from Palmar, Puntarenas, P. and D. Allen Colls.

Stenotabanus plenus (Hine) 1907, *Ohio Nat.*, 8 (2): 225(26). FAIRCHILD (17) records 5 ♀ from Higuito, San Mateo in the Hine Collection.

Stenotabanus maculifrons (Hine) 1907, *Ohio Nat.* 8 (2): 222-223(26). Palmar and Golfito, Puntarenas, P. and D. Allen.

Stenotabanus pequeniensis Fairchild 1942, *Ann. Ent. Soc. America*, 35 (3): 308-309, fig. 13(17). Palmar, Puntarenas, P. and D. Allen.

Stenotabanus xenium Fairchild 1946, *Ann. Ent. Soc. America*, 39 (4): 568-569 (19), fig. 5. 1 ♀ Finca Margarita, May 1938, Kumm coll.

Stenotabanus lerida Fairchild 1942, *Ann. Ent. Soc. America*, 35 (3): 307-308(17) fig. 14. 1 ♀, Carillo, C. F. Underwood coll.; San Carlos, Zeledón coll.

(?) *Stenotabanus* sp. 1 ♂, Palmar, Puntarenas, P. and D. Allen colls. This may be the undescribed male of *St. (Brachytabanus) longipennis* Kröb.

Tribe TABANINI

Genus *Hemichrysops* Kroeber

The use of this name rather than *Philipotabanus* is necessitated by considerations of priority, as noted earlier (FAIRCHILD, 22). *Philipotabanus* is retained in a subgeneric sense for the species with an irregular fenestrated wing pattern. Whether the group belongs in *Diachlorini* or *Tabanini* is still undecided, as the two groups are not well defined in the Neotropics.

Subgenus *Hemichrysops*

Hemichrysops vecordis Fairchild 1956, *Smithsonian Miscell. Coll.*, 131 (3): 16 (22). New name for *H. fascipennis* Kröber 1930, not Macquart. 1 ♀, Carillo, C. F. Underwood in the British Museum.

Subgenus *Philipotabanus* Fairchild

Hemichrysops ebrinus (Osten Sacken) 1886, *Biol. Centr. Americana*, Dipt.

1: 49(51). Type from Irazú, Rogers coll. Several females from Finca Zeledón, Río Coto Brus, 20 Aug. 1958, R. Hartmann coll.

Hemichrysops magnificus (Kröber) 1934, *Rev. Ent.*, 4 (3): 305 (44). Recorded by KRÖBER (44) as *Tabanus (Phaeotabanus)* and by FAIRCHILD (18, 21) as *Tabanus (Philipotabanus)* from Higuito, San Mateo; Suretka, May 1924, J. C. Bradley coll.; Esquinas, Puntarenas, P. and D. Allen. Later material has been seen from San Miguel, San Ramón Esparta; Golfito; Dominical, T. H. G. Aitken coll.; San Carlos, Zeledón coll. Specimens in the Hine coll. from Juan Viñas and Higuito are labelled *alteripennis*.

Hemichrysops medius (Kröber) 1934 (44), nom. nov. pro *Tabanus intermedius* Kröber 1930, *Zool. Anz.* 90: 81(35), not Walker 1848, Suiza de Turrialba (type). Another specimen, Tapantí, Cartago 9 May 1960, was sent for identification by Dr. Zeledón. This is not *Philipotabanus medius* Fairchild (18) which equals *pallidetinctus* Kröber.

Hemichrysops pallidetinctus (Kröber) 1930, *Zool. Anz.*, 86 (11-12): 297-298, fig. 19(34). This is the species erroneously treated as *medius* Kröber by me in 1942 (18) and in 1953 (21) as *caliginosus* Bell. Type comparisons by Dr. C. B. Philip and myself and more careful study of descriptions, now show that *caliginosus* with its synonym *alteripennis* Walk. is a Mexican species, while *medius* Kröb. and *pallidetinctus* are apparently distinct. Hine lumped all his material from Central America under *caliginosus* or *alteripennis*, but examination of these shows that his Costa Rican specimens belong to two species, *magnificus* Kröb., already discussed, and the present species. 1 ♂, Higuito, and 2 ♀, La Suiza, Turrialba in the Hine coll.

Genus *Leucotabanus* Lutz

Leucotabanus exaestuans (Linnaeus) 1767, *Syst. Nat.* ed. 12, 2: 1000. = *L. leucaspis* Wied. 1828. Wauchope, Limon Prov., 3 June 1954(45).

Leucotabanus flavinotum (Kröber) 1934 (44), nov. nom. pro *T. nigriflavus* Kröb., 1931, *Konowia* 10: 292(41). FAIRCHILD (10) records from Costa Rica, without more definite locality.

Genus *Tabanus* Linnaeus

Tabanus lineola var. *carneus* Bellardi 1859. FAIRCHILD (15) has discussed this species and its various forms, which are widespread throughout tropical America. Punta Rieles, Golfito, 14 May 1943, T. Aitken coll.; Damas., Quepos, 5 July 51, Koppers coll.; Turrialba, 30 Mar. 13 April, 1949, Neel coll.; Palmar, Puntarenas, P. and D. Allen; San Carlos, Zeledón coll. Specimens in the Hine coll. are from San Mateo.

Tabanus lineola var. *plangens* Walker 1854. San Miguel, 5 June 1954. HINE (25) reported specimens from Carrillo as *T. modestus* Wied.

Tabanus lineola var. *stenocephalus* Hine 1906(25). Cato, March 1952; Dominical, T. Aitken coll.

Tabanus trivittatus Fabricius 1805, *Syst. Anth.*, p. 104(8). *T. fumatipennis* Kröber 1933 and Fairchild 1942 (15) is a synonym according to PHILIP (53). 3 ♀ Higuito San Mateo, Schild coll, and 1 ♀, San Carlos, Schild and Burgdorf, all in U.S.N.M. Palmar, Puntarenas, P. and D. Allen colls. HINE (25) reported specimens from San Carlos under this name.

Tabanus unistriatus Hine 1906., *Ohio Nat.*, 7 (2): 28(25). San Carlos, types in U.S.N.M. Wauchope, Limon, 9 Aug. 1951; Siquirres, Aug. 1960. Dogles coll. There are also specimens in the Hine collection from Piedras Negras and Carrillo, as reported by FAIRCHILD (15).

(?) *Tabanus costaricensis* Kröber, 1931, *Konowia*, 10 (4): 294-295(41), ♀, Costa Rica. This species has not been identified since its descriptions. The type is in Vienna where it has been studied by Dr. C. B. Philip, who writes that he does not recognize it and suspects it may not be Neotropical.

(?) *Tabanus griseopleuris* Kröber, 1931, *Konowia*, 10 (4): 295-296(41), ♀, Costa Rica. From the description, I believe this species is probably a synonym of *T. quinquepunctatus* Hine 1925, a species overlooked by KRÖBER in his catalogue (44). I have seen Hine's species, described from Guatemala, also from British Honduras and Panama. Kröber's type was in Hamburg and presumably destroyed during the war.

(?) *Tabanus lacajaensis* Kröber 1931, *Stell. Ent. Zeit.*, 92 (1-2: 303 (36), ♀, La Caja, 8 Km. West of San José, C.R. Type in Hamburg, presumably destroyed. From the description, this species would appear similar to *T. haemagogus* Will., and *T. umbraticolus* Fchld., but its identity is uncertain.

Tabanus ratus Kröber, 1934, *Rev. Ent.*, 4 (3): 313(44), new name for *T. validus* Hine 1920, nec Wiedemann 1828. I have a specimen from Palmar, Feb. 1951, D.O. Allen coll, which agreed with the type of *validus* in U.S.N.M.

(?) *Tabanus fenestra* Williston 1887 from the West Indies was listed by KRÖBER (44) from Costa Rica, probably in error. Kröber's Costa Rican material may have been *Stenotabanus pequeniensis* Fchld. or *St. xenium* Fchld., similar appearing species. There are 2 ♀, labelled Costa Rica under this in the Hine collection, but their true status remains to be determined.

(?) *Tabanus appreciatus* Kröber 1934, *Rev. Ent.*, 4 (3): 306(44), new

name for *T. apicalis* Macq. 1841, not Wiedemann 1828. BELLARDI (1), however, had already renamed Macquart's species, whose type is headless, as *bigoti* Bell. The identity of Kröber's specimens from Costa Rica is thus uncertain.

Tabanus erebus Osten Sacken 1886, *Biol. Centr. Americana*, Dipt. 1: 50(51). KRÖBER (37) recorded the species as *Astigmatophthalmus satanas* Kröb. from Turrialba, and I have seen 6 ♀ from various localities in Costa Rica in the Hine collection.

Tabanus nebulosus De Geer 1776, *Mem. serv. hist. Ins.*, 6: 227, Pl. 30, fig. 2(5). 1 ♀, Palmar, Feb. 1951, T.H.G. Aitken coll.

Tabanus pungens Wiedemann, 1828, *Auss. Zweifl. Ins.* 1: 175(62). A widespread species with numerous synonyms, among which are *desertus* Walker and *angustivittata* Kröb. 1 ♀, Turrialba, 7 Apr. 1949, W. W. Neel Coll.

Tabanus xenorhynchus Fairchild 1946, *Ann. Ent. Soc. America*, 39 (4): 572-573, Pl. 1, fig. 1(19). 1 ♀, Punta Rieles, Golfito, 14 May 1943, T. Aitken coll. (paratype).

Tabanus punctipleura Hine 1920. *Ohio J. Sci.*, 20: 314 (29). San Carlos; Carrillo; (types).

Also fairly common in neighboring Bocas del Toro Prov., Panama.

Tabanus pruinosus Bigot, 1892, *Mem. Soc. Zool. France*, 5: 683(3). KRÖBER (41) redescribes as *T. schmidti* from La Caja, near San José. I have it also from Chiriqui, Panama.

Tabanus albocirculus Hine 1907, *Ohio Nat.*, 8: 227(26). Tucurrique, Schild. and Bergdorf colls. (type). Wauchope, Limon, 9 Aug. 1951, Trapido and Galindo colls. Another specimen from Arenas, 20 Sept. 1950, is the smaller reddish form.

Tabanus oculus Walker, 1848, *List Dipt. Brit. Mus.*, 1: 157 (60). 1 ♀, Palmar, Puntarenas, P. and D. Allen colls.

Tabanus defilippii Bellardi, 1859, *Sagg. Ditt. Mess.*, 1: 57(1). KRÖBER (32) records this species from Carrillo, but later (33) realized that he was really dealing with *punctipleura* Hine. It is however, very likely that *defilippii* does occur in Costa Rica, as it is common in nearby Bocas del Toro Prov., Panama, though it is primarily a tree-top species.

(?) *Tabanus fumomarginatus* Hine, 1929(29), was reported by Kröber from Carrillo, probably in error. His specimens may have been the closely similar

T. polyphemus Fairchild, known from Mexico to Panama.

Tabanus bigoti Bellardi, 1859, *Sagg. Ditt. Mess.*, 1:58(1). 1 ♀, Wauchope, Limon 3 June 1954, Trapido and Galindo colls. This is the species treated by FAIRCHILD as *bigoti* var. B. (18).

(?) *Hybostraba albovillosa* Kröber, 1931, *Stett. Ent. Zeit.*, 92: 92(36), ♂, Costa Rica. The genus was proposed for male Tabanidae with the eyes pilose and an area of much enlarged facets. It is probably a synonym of *Tabanus*. The present species has not been recognized nor have females been associated. The most similar regional species seems to be *T. pruinosus* Bigot. Dr. C. B. Philip (in litt.) writes that males of *pruinosus* agree quite well with Kröber's description.

Poeciloderas platyventris Kröber, 1931, *Zool. Anz.*, 94 (3-4): 88-89(38), fig. 29, ♀, Costa Rica. I believe this to be no more than a poorly preserved specimen of *P. quadripunctatus*. Dr. Philip has examined the type in Vienna and agrees.

Poeciloderas quadripunctatus (Fabricius), 1805, *Syst. Antl.*, p. 99(8). OSTEN SACKEN (5) reported a specimen from Rio Sucio, Rogers coll., while HINE (28) reported specimens from Juan Viñas and Cerro Jocosal and (30) from Higuito as *T. punctipennis* Macq., a synonym. Kröber's (38) material was from La Caja, near San Jose. I have seen the following material: San Jose, 16 Aug. 1944, Fairchild coll. Mercedes Sur, Puriscal, San José, 10 Apr. 1960, Wille coll.; Sabana, 1960, Zeledon coll.

SUMMARY

A list, with localities, of the 66 species and varieties of Tabanidae known from Costa Rica is given. An additional 13 species of uncertain status, either probable misdeterminations or unrecognized species, have been reported in the literature and are included here with a query. The references include publications containing aids to the identification of species as well as those containing records of Costa Rica species.

RESUMEN

Se presenta un catálogo, con localidades, de las 66 especies y variedades de Tabanidae conocidas de Costa Rica. Se incluyen, marcadas con signo de interrogación, otras 13 especies de estado incierto, o especies no reconocidas o bien identificaciones erróneas, que se han mencionado en la literatura. En la bibliografía se incluyen trabajos útiles en la identificación de especies así como los que contienen mención de ejemplares costarricenses.

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