

# A Preliminary Checklist and Key to the Genera and Subgenera of Tabanidae (Diptera) of Bolivia with Particular Reference to Santa Cruz Department

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*This paper documents 32 genera and 167 species of Tabanidae reported from Bolivia. All available data are cited for each species.*

*A key to genera and subgenera is presented and includes illustrations.*

*This preliminary checklist and key is intended as a baseline for further study, the aim of which is to establish which species are of greatest economic importance.*

Key words: Tabanidae - Bolivia - checklist - keys

The Tabanidae are an important family of flies that are often serious pests of humans and domestic animals due to the direct and indirect consequences of their biting activities. Neotropical species have been associated with the occurrence of several diseases affecting livestock, e.g. anaplasmosis, equine infectious anaemia and trypanosomiasis (Krinsky 1976, Luckins 1988, Foil 1989, Foil & Issel 1991). In Santa Cruz Department, Bolivia, numbers of tabanids are particularly high between August and October. According to local farmers, cattle may be seen gathering in tight groups to lessen the impact of tabanid attacks, which are considered to contribute to reduced beef and milk yields in this period. Such reduced yields have been reported elsewhere (Steelman 1976, Hollander & Wright 1980, Perich et al. 1986).

Despite their importance, no papers specifically addressing the tabanid fauna of Bolivia have been published although numerous records are scattered through the literature.

Bolivia (Fig. 1) has a high diversity of environments (Remsen & Traylor 1989). In the north and east are lowlands which lie at an elevation of less than 500 m and take up over half the

country. In broad terms this area is occupied by a patchwork of forest, savannah and wetlands but shows a transition from wetter Amazonian forest in the north to the drier scrubland of the south. To the west the land rises through forested montane valleys to the high peaks of the Andes which surround the largely treeless altiplano at 3500 - 4000 m. As in the lowlands the montane forests become drier to the south.

Santa Cruz Department (Fig. 2) is situated almost entirely in the lowlands, but montane areas are found to the west of the city Santa Cruz, particularly in Vallegrande Province. Our collecting trip in February 1993 was designed to reflect this environmental variety by collecting along a transect covering both montane and lowland situations (Fig. 3). Our collecting sites were typically on ranchland and included pasture, forest and wetland situations.

## MATERIALS AND METHODS

This list has been compiled from records in the literature and material examined in Museo de Historia Natural "Noel Kempff Mercado", Santa Cruz, Bolivia and the Natural History Museum, London, England. Additional records were provided from specimens in California Academy of Sciences, San Francisco, USA (identified by J Chainey), Florida State Collections of Arthropods, Gainesville, USA (identified by JF Burger or GB Fairchild) and Museum of Comparative Zoology, Harvard, USA (identified by JF Burger).

All available literature records are included and are accepted at face value unless otherwise indicated. All available data are cited for each species.

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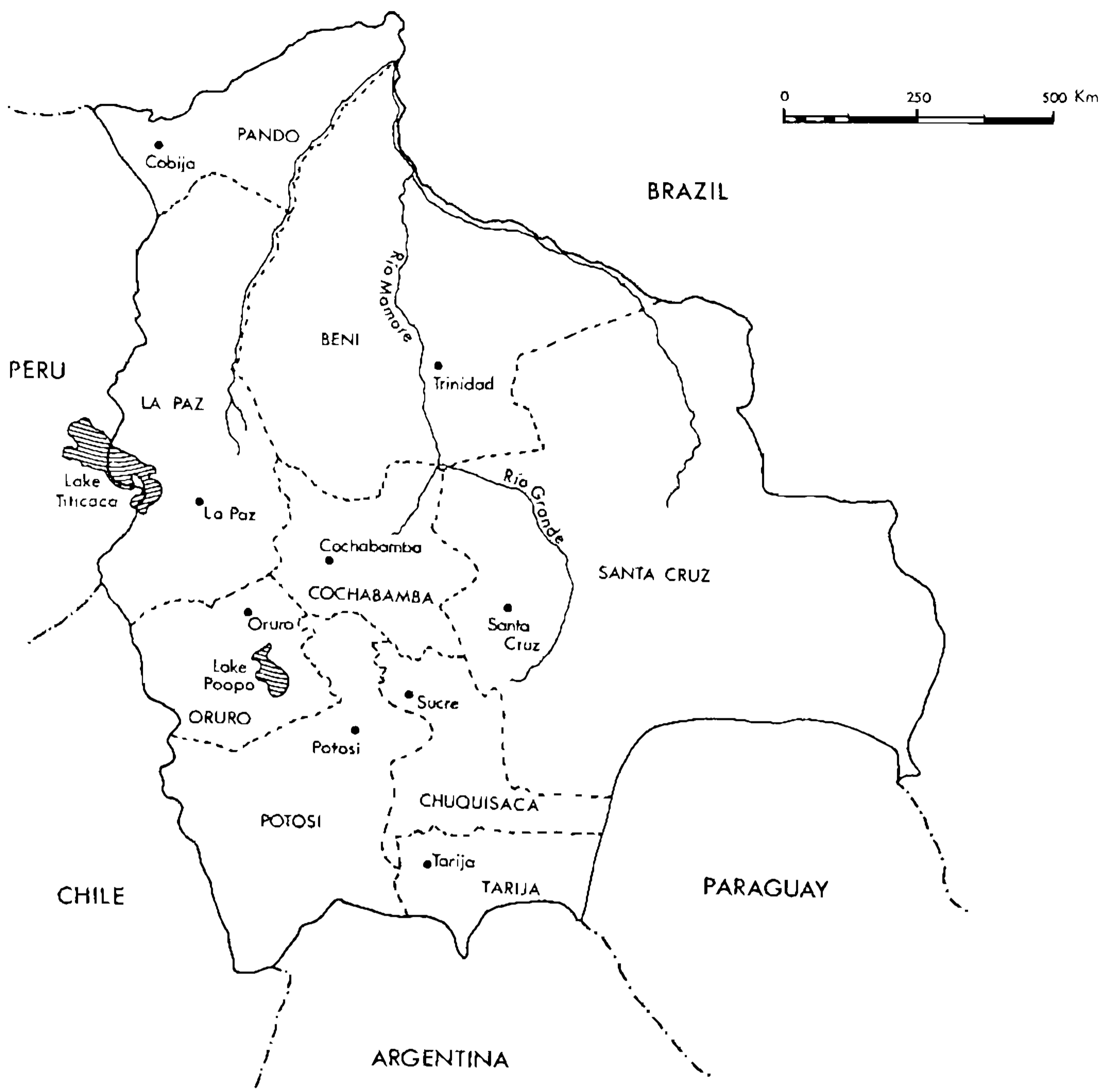


Fig. 1: the Departmental boundaries, Departmental Capitals main rivers and lakes of Bolivia.

The specimens resulting from our fieldwork in 1993 were either collected by black canopy traps [adapted from Catts 1970 and Hribar et al, 1991; with and without 1-octen-3-ol (octenol) as bait (French & Kline 1989)] and malaise traps (Townes 1962) or caught off bait animals, usually horses.

#### SPECIES LIST

This list is arranged systematically by subfamily and tribe (as recognised by Fairchild 1971). Within this arrangement the genera, subgenera and species are listed alphabetically.

Material that we have examined is listed separately. All material listed for ii.1993 was collected by the authors and is deposited in NHM or MNKM. Species recorded from Santa Cruz Department are listed in bold type. Names of departments are given in capitals and those of

provinces in italics. Collectors are not given for material cited elsewhere. Doubtful or erroneous records are enclosed in square brackets. Quotes are used when the data cited from the literature is considered to be misleading or liable to misinterpretation, where the information presented may otherwise appear incomplete and for localities that could not be traced. For each species, the known distribution is cited, based on the Neotropical catalogue (Fairchild 1971) and subsequent literature. Note: \* - first published record for Bolivia.

Abbreviations: CAS - California Academy of Sciences; ct - canopy trap; ct+o - canopy trap with octenol; FSCA - Florida State Collections of Arthropods, Gainesville; JA - José L Aramayo B; MCZ - Museum of Comparative Zoology, Harvard; MNKM - Museo de Historia Natural

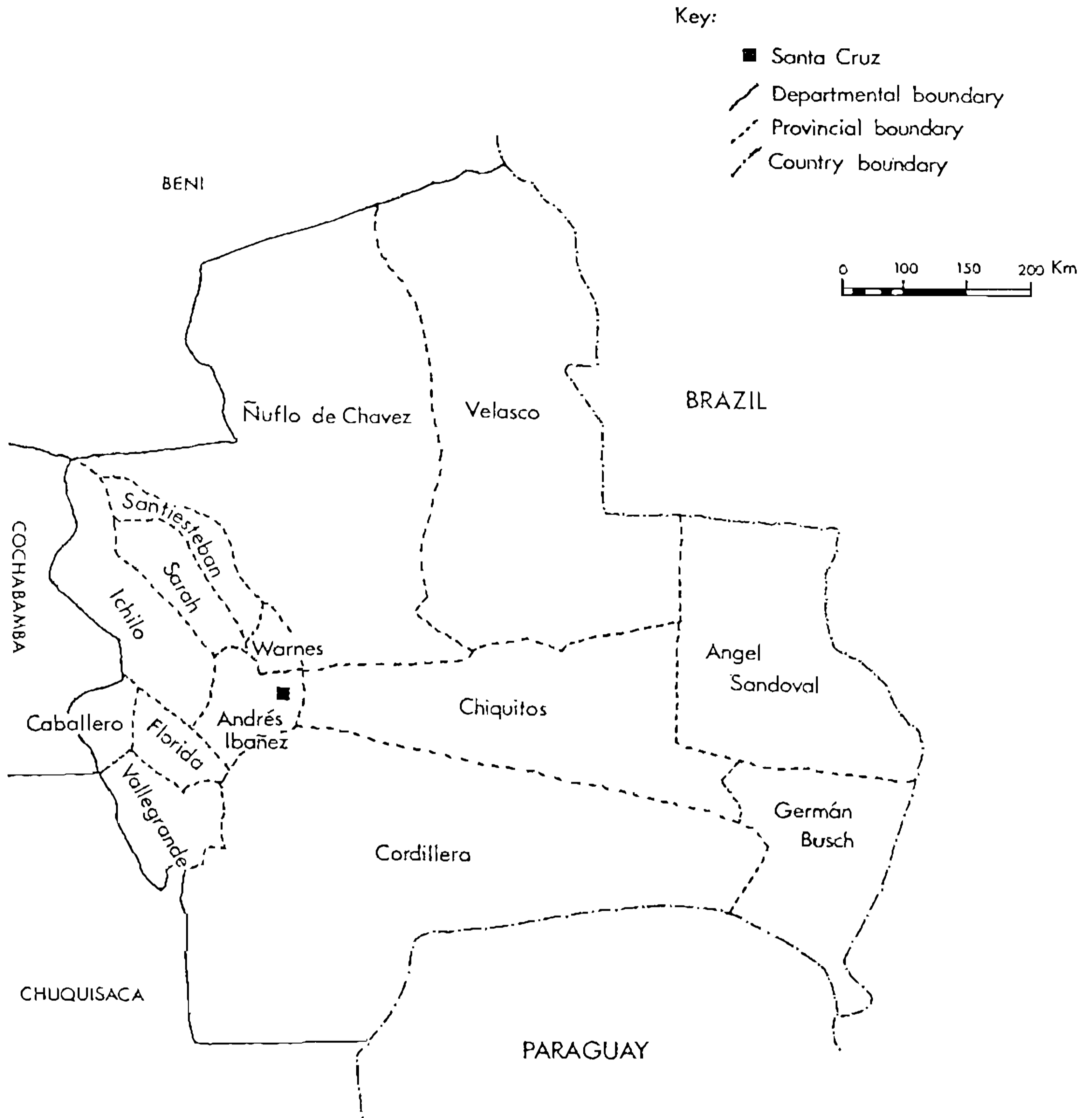


Fig. 2: the Provinces of Santa Cruz Department, Bolivia.

"Noel Kampff Mercado", Santa Cruz; MH - Martin JR Hall; mt - malaise trap; mt+o - malaise trap with octeol; NHM - the Natural History Museum, London; oh - on horse; PB - Paolo Bettella; Parque NKM - Parque Nacional "Noel Kampff Mercado".

Additional data for frequently cited localities: La Piedra - near San Ignacio de Velasco, 10.ii.1993; Las Madres - c25 km N of Concepción, 8.-9.ii.1993; Lomas de Arena - 17°46.2'S, 63°0.97'W, 442m; Masicuri - 18°49.5'S, 63°55.6'W, 600m; Potrerillo - Potrerillo del Guenda, 17°42.3'S, 63°27.0'W, 510m; Santa Anita - c10 km SW of Concepción.

Subfamily PANGONINAE

Tribe PANGONIINI

[*Esenbeckia (Esenbeckia) affinis* Kröber, 1931b. Described [as var. of *E. vulpes* (Wiedemann 1828)] from "Bolivia", it is not certain whether this taxon represents a form of *E. vulpes* or a distinct species. Wilkerson & Fairchild (1983: 556) list *E. affinis* as a synonym of *E. vulpes* but in the subsequent text suggest that it might be distinct. They associate 3 males, COCHABAMBA, Cristal Mayu, x.-xii.1949, with *affinis*. Known distribution: Bolivia, Brazil (Minas Gerais).]

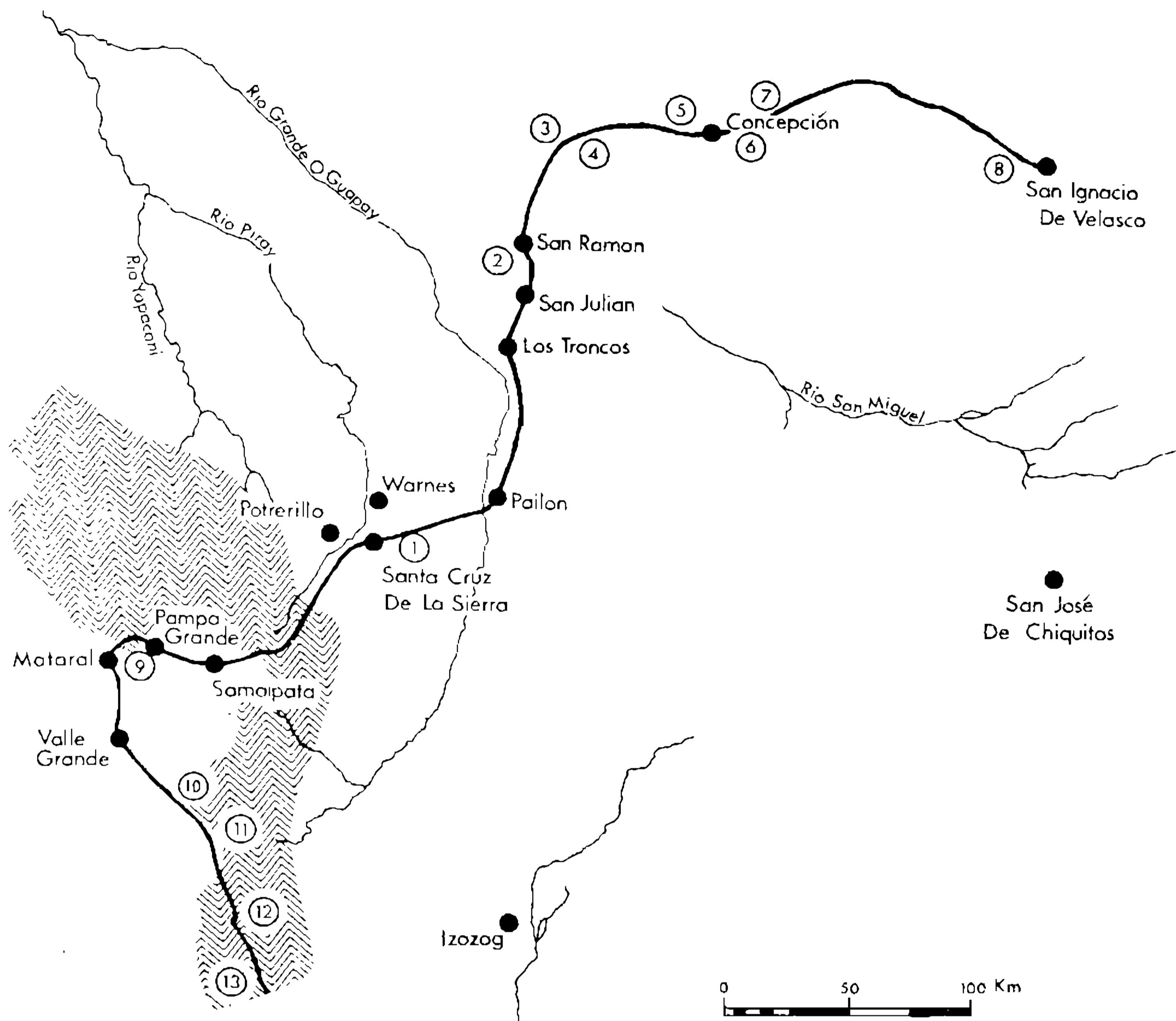


Fig. 3: Tabanid collecting sites visited in Santa Cruz Department during February, 1993: 1, Lomas de Arena; 2, San Julian; 3, San Javier; 4, San Luis Quizer; 5, Santa Anita; 6, 5km east of Concepción; 7, Las Madres; 8, La Piedra; 9, Pampa Grande; 10, San Lorenzo; 11, Cerro el Centinela; 12, Don Dionisio; 13, Masicuri.

**1 *Esenbeckia (Esenbeckia) clari* Lutz, 1909.**

SANTA CRUZ, Buena Vista, iii.1958; Chiquitos, iii.1909 (Wilkerson & Fairchild 1983). *Material examined* 1 female, SANTA CRUZ, Ñuflo de Chavez, Las Madres, 8.-9.ii.1993.

*Known distribution:* Bolivia, Brazil (São Paulo).

**2 *Esenbeckia (Esenbeckia) erebea* Wilkerson & Fairchild, 1983.**

[LA PAZ] Blancos, Alto Beni, 600m (Wilkerson & Fairchild 1983). *Material examined.* SANTA CRUZ, Vallegrande, Masicuri: 1 female, 16.ii.1993, ct+o; 1 female, mt+o; 1 female, oh.

*Known distribution:* Bolivia.

[*Esenbeckia (Esenbeckia) erosa* Enderlein, 1925. Recorded from "Bolivia" (Kröber 1932a), but Fairchild (1971) and Wilkerson and Fairchild (1983) list only the unplaced type locality "Curuzú de Fierro". *E. erosa* is probably a form of *clari* (as listed in Fairchild 1971).]

**3 *Esenbeckia (Esenbeckia) filipalpis* (Williston, 1895).**

"Prov. Sara" [SANTA CRUZ] (Wilkerson & Fairchild 1983); Santa Cruz, ii.1962 (Coscarón 1976b).

*Known distribution:* Northern Argentina, Bolivia, Brazil (Mato Grosso), Paraguay.

[*Esenbeckia (Esenbeckia) lemniscata* Enderlein, 1925.

Listed from Bolivia by Wilkerson and Fairchild (1983: 544), but not in their discussion of this species. This taxon is probably a form of *clari* (as listed in Fairchild, 1971).]

**4 *Esenbeckia (Esenbeckia) lugubris* (Macquart, 1838).**

SANTA CRUZ, Roboré, ii.1959 (Wilkerson & Fairchild 1983). *Material examined.* SANTA CRUZ: 3 female, Prov. Cordillera, Cerro Toborocho, 60° 20' W, 19° 9' S, 9.i.1993, I.Par-

gas, MNKM; 3 female "Provincia Sara", Santa Cruz de la Sierra, ii-iv.1904, J.Steinbach, NHM.  
*Known distribution:* Argentina (Chaco, Misiones), Bolivia, Brazil (São Paulo), Paraguay.

[*Esenbeckia (Esenbeckia) osornoi planaltina* Fairchild, 1971.

Kröber (1934) lists *E. ferruginea* Macquart (= *E. osornoi planaltina*) from "Bolivia", but Fairchild (1971) and Wilkerson and Fairchild (1983) confine the distribution of this taxon to Brazil.]

5 *Esenbeckia (Esenbeckia) tetragoniphora* Lutz & Castro, 1935.

Bolivia (Lutz & Castro 1935).  
*Known distribution:* Bolivia.

6 *Esenbeckia (Proboscoides) arcuata* (Williston, 1895).

SANTA CRUZ, Buena Vista, 7.- 20.iv.1950; Roboré, 30.x.1958 (Fairchild & Wilkerson 1981).  
*Material examined.* SANTA CRUZ: 1 female, Ichilo, La Vibora, 8.iv.1990, JA, MNKM.  
*Known distribution:* Bolivia, Brazil (Mato Grosso, Minas Gerais).

7 *Esenbeckia (Proboscoides) dichroa* Brèthes, 1910.

SANTA CRUZ: Puerto Suarez, 8.iii.1957; Roboré, 30.x.1958; "Prov. Sara", 450m, xi.1909 (Fairchild & Wilkerson 1981); SANTA CRUZ, Cordillera [= Charcas], Parapetí, ii.1962; TARIJA: Ing. Bermejo, 14.- 28.ii.1969 (Coscarón 1976b).  
*Known distribution:* Argentina (Jujuy, Salta, Tucuman), Bolivia, Brazil (Mato Grosso), Paraguay.

#### Tribe SCIONINI

8 *Fidena (Fidena) atripes* (Röder, 1886).

Described from the vicinity of Lake Titicaca [LA PAZ].  
*Known distribution:* Chile, Bolivia, Peru.

9 *Fidena (Fidena) aureosericea* Kröber, 1931c.  
Bolivia (Kröber 1931c). Santa Cruz de la Sierra [SANTA CRUZ] (Fairchild 1966).

*Known distribution:* Bolivia, Brazil (Mato Grosso).

[*Fidena (Fidena) aurimaculata* (Macquart, 1838).

Kröber (1933b) doubtfully records this species from Bolivia. Fairchild (1971) gives the distribution as Brazil (Espírito Santo, Goiás, Minas Gerais).]

10 *Fidena (Fidena) flavithorax* (Kröber, 1930d).

Bolivia (Kröber 1930d, as var. of *F. miniatistola* Enderlein).

*Known distribution:* Bolivia.

11\* *Fidena (Fidena) ochrapogon* Wilkerson, 1979.

COCHABAMBA, Chapare, km 97 Cochabamba - Villa Tunari, 1700m, 21.xi.1982, FSCA (GB Fairchild pers. comm.)

*Known distribution:* Bolivia, Colombia, Ecuador, Peru.

12 *Fidena (Fidena) opaca* (Brèthes, 1910).

Santa Cruz and Santiago [SANTA CRUZ] (Philip 1969). *Material examined.* SANTA CRUZ, Florida: 1 female, Pampa Grande, 18°29.2'S, 64°0.75'W, 18.ii.1993, ct+o; 4 female, Mataral, 20.iii.1991, R.Rengel; Andrés Ibañez (?): 1 female, 5km W of Santa Cruz de la Sierra, 9.iv.1989; Ichilo: 2 female, PN Amboró, 20.-23.x.1989, PB.

*Known distribution:* Argentina (Jujuy, Salta), Bolivia.

13 *Fidena (Fidena) rhinophora* (Bellardi, 1859).

[Yungas de Coroico, "10.xii." (Kröber 1930g): Fairchild (1941) casts doubt on this record.] COCHABAMBA, Chapare, 1100m, Alto Palmar, ix.1960 (Philip 1969).

*Known distribution:* Mexico to Bolivia and Venezuela.

14 *Fidena (Fidena) sorbens* (Wiedemann, 1828).

"B. Vista, westl. Santa Cruz de la Sierra (Boliv.), 13.viii." [SANTA CRUZ] (Kröber 1929b).

*Known distribution:* Argentina (Entre Rios, Misiones), Bolivia, southern Brazil, Paraguay, Uruguay.

15 *Fidena (Fidena) zonalis* Kröber, 1931c.

Bolivia (Fairchild 1971). *Material examined.* SANTA CRUZ: 5 female, Ichilo, PN Amboró, Rio Saquayo, 450m, 20.- 23.x.1989, PB; COCHABAMBA: 1 female, Carrasco, Sajta, 19.ix.1992, R.Quebedo; LA PAZ: 1 female, Nor-Yungas, Chijchipa, 11.xi.1990, M.Ledezma, NHM.

*Known distribution:* Bolivia, Ecuador, Peru.

16 *Fidena (Laphriomyia) rufopilosus* (Ricardo, 1900).

Songo [?- Zongo, LA PAZ] (Ricardo 1900). Bolivia (Enderlein 1925, as *Laphriomyia miniatistola* Enderlein). *Material examined.* LA PAZ: 3 female, Rio Songo, 750-800m, i.1913 (Fassl); 1 female, Mapiri, S. Carlos, 800m, 2.i.1903, W Schnuse, NHM.

*Known distribution:* Bolivia. Subspecies *mirabilis* Lutz, 1911 occurs in southern Brazil.

17 *Fidena (Laphriomyia) palliditarsis* Kröber, 1930d.

Described from "Bolivia".

Known distribution: Bolivia.

18 *Pityocera (Elaphella) cervus* (Wiedemann, 1828).

Eastern Bolivia (Fairchild 1971). *Material examined*. SANTA CRUZ: Ñuflo de Chavez: 22 female, Perseverancia, 14.ii.1991, PB; 25 female, Santa Anita, 11.ii.1993, oh; 23 female, Las Madres, oh; NHM, MNKM.

Known distribution: Bolivia, n. Brazil, e. Colombia, Guyana, Peru, Surinam.

19\* *Pityocera (Pseudelaphella) nana* (Walker, 1850a).

BENI, Versalles, 19.vii.1964, FSCA (GB Fairchild pers. comm.).

Known distribution: Bolivia, Brazil (Goiás, Mato Grosso), Ecuador, Peru.

[*Pityocera (Pseudelaphella) patellicornis* Kröber, 1930e.

Listed from Bolivia (Fairchild 1971) but this record may refer to the above specimen of *P. nana* (Walker) (Fairchild pers. comm.).]

20 *Scaptia (Scaptia) aureopygia* Philip, 1969.

COCHABAMBA, Chapare, 1100m, Alto Palmar, ix.1960 (Philip 1969). Yungas de Arepucho, Chacisacha, ca 1500m, 24.ix.1953; COCHABAMBA, km 95 on road from Cochabamba to Villa Tunari, 1800m, 2.ix.1983 (Coscarón & Wilkerson 1985).

Known distribution: Bolivia.

21 *Scaptia (Scaptia) nigribella* Wilkerson, 1984.

Described from COCHABAMBA, km 95 on road from Cochabamba to Villa Tunari, 1800m, 2.ix.1983.

Known distribution: Bolivia.

22 *Scaptia (Scaptia) rubriventris* (Kröber, 1930g).

Described in part from "Bolivia" [the holotype from Peru is now destroyed]. Yungas de Arepucho, Chacisacha, ca 1500m, 24.ix.1953 (Coscarón & Wilkerson 1985).

Known distribution: Argentina (Tucuman), Bolivia, Peru.

23 *Scaptia (Scaptia) sublata* Philip, 1969.

COCHABAMBA, Chapare, 1100m, Alto Palmar, ix.1960 (Philip 1969).

Known distribution: Bolivia.

24\* *Scione brevistriga* Enderlein, 1925.

*Material examined*. 1 female, Mapiri [LA PAZ], 1000m, "August", PO Simmonds, NHM. The

identification of this little-known species was based on comparison with a female from Pinipini, Peru, det. Kröber.

Known distribution: Bolivia, Ecuador, Peru.

25 *Scione claripennis* Ricardo, 1900.

"Yungas" (Enderlein 1925, as *Rhinotriclista brevipalpis* Enderlein). Bolivia (Szilády 1926). Yungas de Coroico (Kröber 1930h, as *S. costaricana* Szilády 1926).

Known distribution: Bolivia, Peru.

[*Scione costaricana* Szilády, 1926.

Kröber (1930h) records *S. costaricana* from Yungas de Coroico but this relates to *S. claripennis*. *S. costaricana* is only known from Costa Rica and Panama (Fairchild 1986).]

26\* *Scione crassa* Szilády, 1926.

*Material examined* COCHABAMBA: 1 female, Carrasco, Sajta, 29.xi.1992, JA, MNKM. This species was only known from the now destroyed holotype from Peru (Fairchild 1971). The above specimen fits well with Szilády's (1926) meagre description.

Known distribution: Bolivia, Peru.

[*Scione distincta* (Schiner, 1868).

Kröber (1930h) lists this species from Bolivia, but Fairchild (1971) cites the distribution as Venezuela, ? Colombia.]

27 *Scione flavohirta* Ricardo, 1902.

Described from "Cillutincara". *Material examined*. 1 female syntype, Cillutincara, NHM [a syntype male was in Budapest but is now destroyed (Fairchild, 1971)]; SANTA CRUZ, Vallegrande: 1 female, Cerro el Centinela, 18°41.1'S, 63°56.8'W, 2688m, 17.ii.1993, biting man; SE of Vallegrande, San Lorenzo, 18°38.7'S, 63°56.8'W, 2500m: 7 female, 15.ii.1993, on cattle; 8 female, 15.-17.ii.1993, mt+o.

Known distribution: Bolivia.

28 *Scione fulva* Ricardo, 1902.

Described from "Songo" [?= Zongo, LA PAZ]. *Material examined*. Holotype female, Songo, NHM.

Known distribution: Bolivia, Peru.

29 *Scione fumipennis* Kröber, 1930h.

Described from "Cordillera, 3000m, 27.xii."

Known distribution: Bolivia, Peru.

30 *Scione fusca* Ricardo, 1900.

Described from "Songo" [?= Zongo, LA PAZ].

Known distribution: Bolivia, Peru.

[*Scione limbativena* Enderlein, 1925.  
Kröber (1930h) records 1 female from Mapiri, Lorenzopate but suggests this specimen may be *S. fulva* Ricardo.]

31 *Scione picta* Szilády, 1926.  
Described from "San Antonio" (type destroyed).  
*Known distribution*: Bolivia.

32 *Scione rufescens* (Ricardo, 1900).  
"Songo" [?- Zongo, LA PAZ] (Ricardo, 1900);  
the holotype was from Peru but is now destroyed.  
*Material examined*. 1 female paratype, Songo; 1  
female, Rio Songo, 800m, i.1913, Fassel; 2  
female, Yungas de la Paz [LA PAZ], 1000m,  
NHM.  
*Known distribution*: Bolivia, Peru.

#### Subfamily CHRYSOPSINAE

##### Tribe CHRYSOPSINI

33 *Chrysops boliviensis* Kröber, 1926.  
Yungas de Coroico [LA PAZ], 1000m, "17.xi."  
(Kröber 1926). COCHABAMBA: km 95 on road  
from Cochabamba to Villa Tunari, 1800m,  
2.ix.1983; Chapare, km 97 Cochabamba - Villa  
Tunari, 1700m, 21.xi.1982; LA PAZ: Chulumani,  
2.x.1972, FSCA (JF Burger pers. comm.).  
*Known distribution*: Bolivia.

34 *Chrysops brevifascius* Lutz, 1909.  
Bolivia (Kröber 1926). *Material examined*.  
SANTA CRUZ: 9 female, Andrés Ibañez, Pampa  
Tres Cruces, Canton Terevinto, 18.i.1993, PB,  
NHM, MNKM.  
*Known distribution*: northern Argentina, Bolivia,  
Paraguay.

35 *Chrysops bulbicornis* Lutz, 1911.  
Bolivia (Fairchild 1971). BENI: Monte San  
Pablo, 7.viii.1933, MCZ (JF Burger pers.  
comm.).  
*Known distribution*: Bolivia, Brazil (São Paulo),  
Colombia, Paraguay, Peru.

36 *Chrysops flavoscutellatus* Kröber, 1926.  
Potrero de Abril, Chiquitos, 8.xi.1926 [SANTA  
CRUZ] (Kröber 1929b). *Material examined*.  
SANTA CRUZ, Andrés Ibañez: 1 female, Pailas,  
19.-21.xi.1992, ML Paco, MNKM; Lomas de  
Arena: 1 female, 15.xi.1992, JA; 1 female,  
21.xi.1992; Prov. Chiquitos: 1 female, Roboré,  
300m, xi.1959, NHM.  
*Known distribution*: northern Argentina, Bolivia,  
Paraguay.

37 *Chrysops incisus* Macquart, 1846.  
"Motacucito Chiquitos", x.1926 [SANTA CRUZ]  
(Kröber 1929b, as *C. fulviceps* Walker).

*Known distribution*: Bolivia, Brazil (Amapá,  
Pará), Guyana, Peru, Surinam.

[*Chrysops laetus* Fabricius, 1805.  
This species was listed from Bolivia by Kröber  
(1929e) and "Napiri [- Mapiri] 13.ii., San An-  
tonio" (Kröber 1926). However, *C. laetus* has  
been subject to misidentification (Fairchild 1971)  
and these records may relate to *C. varians*.]

38 *Chrysops leucospilus* Wiedemann, 1828.  
Mapiri [LA PAZ], "14.iv.", S. Carlos (Kröber  
1926). COCHABAMBA: Villa Tunari, 240m, 2.-  
6.ix.1983; SANTA CRUZ: 10 km E of Warnes,  
19.-22.viii.1983, FSCA (JF Burger pers. comm.).  
*Material examined*. [1 female, SANTA CRUZ,  
Caballero, Carawasi, 2.i.1992, PB, may be this  
species but has the anepisternum (which is nor-  
mally black in *C. leucospilus*) largely yellow  
with yellow hairs.]  
*Known distribution*: Panama to Bolivia,  
Paraguay.

39 *Chrysops paraguayensis* Brèthes, 1910.  
Ipitás, Chiquitos [SANTA CRUZ], x.1926  
(Kröber 1929b).  
*Known distribution*: Bolivia, Paraguay.

40\* *Chrysops parvifascius* Lutz, 1911.  
*Material examined*. SANTA CRUZ: 1 female,  
Ñuflo de Chavez, 12km E of Concepción,  
23.xii.1992, JA, MNKM.  
*Known distribution*: Bolivia, Brazil (Mato Gros-  
so).

41 *Chrysops patricia* Pechuman, 1953.  
Bolivia (Fairchild 1971). *Material examined*.  
SANTA CRUZ: Andrés Ibañez, Lomas de Arena:  
8 female, 3.x.1992; 1 female, 15.xi.1992, mt; 1  
female, 21.xi.1992; 1 female, 5.iii.1992, JA.  
*Known distribution*: Northern Argentina, Bolivia,  
Brazil (Minas Gerais, Rio Grande do Sul),  
Paraguay.

42 *Chrysops peruvianus* Kröber, 1925.  
"Motacucito Chiquitos", x.1926 [SANTA CRUZ]  
(Kröber 1929b). SANTA CRUZ, Roboré,  
iii.1959 (JF Burger pers. comm.). *Material ex-  
amined*. SANTA CRUZ, Ñuflo de Chavez: 1  
female, San Julian, 16°38.5'S, 62°30.7'W,  
229m., v.1992, MH, NHM; 3 female, near San  
Javier, San Rafael, 6.ii.1993, ct+o; Santa Anita:  
16 female, 11.ii.1993, oh; 5 female, 7.-  
11.ii.1993, ct+o.  
*Known distribution*: Bolivia, Peru.

[*Chrysops tristis* (Fabricius, 1798).  
"Crecencia Chiquitos" [SANTA CRUZ] (Kröber  
1929b). *Material examined*. SANTA CRUZ: 1  
female, Andrés Ibañez, Potrerillo, 8.viii.1992, JA,

MNKM: this specimen was found to be closely similar to the holotype of *C. testaceus* Macquart (currently regarded as a junior synonym of *tristis*). However, it is not certain that *C. testaceus* is conspecific with *C. tristis*. The distribution of *C. tristis* suggests that it is not likely to occur in Bolivia.

*Known distribution:* Guyana, French Guiana, Surinam, Venezuela, ?Brazil.]

43\* *Chrysops varians* Wiedemann, 1828.

*Material examined.* SANTA CRUZ, *Vallegrande*, Masicuri: 2 female, 16.-17.ii.1993, mt+o; 1 female, 29.xii.1992, JA; 1 female, *Andrés Ibañez*, Potrerillo, 8.xi.1992, PB, MNKM. *Known distribution:* Costa Rica to northern Argentina [incl. ssp. *tardus* Wiedemann and *vargus* Fairchild].

44 *Chrysops variegatus* (De Geer, 1776).

Bolivia (Wilkerson 1979). *Material examined* SANTA CRUZ, *Andrés Ibañez*: Terevinto: 1 female, 19.xi.1992, JA; 1 female, 13.v.1992; JA, MNKM; 1 female, Potrerillo, 8.viii.1992; *Ñuflo de Chavez*: 3 female, c10 km SW of Concepción, Santa Anita, 11.ii.1993, oh; 3 female, Las Madres, oh; *Vallegrande*, Masicuri: 3 female, 17.ii.1993, mt+o; 2 female, 29.xii.1992, JA, MNKM; *Velasco*: 1 female, La Piedra, mt+o. *Known distribution:* Mexico to Argentina, West Indies.

Subfamily TABANINAE

Tribe DIACHLORINI

45 *Acanthocera* (*Acanthocera*) *fairchildi* Henriques & Rafael, 1992.

COCHABAMBA, Villa Tunari, 240m, 2.-6.xi.1983 (1 female paratype).

*Known distribution:* Bolivia, Brazil (Amazonas, Pará, Rondônia), Peru.

[*Acanthocera* (*Acanthocera*) *marginalis* (Walker, 1854).

Recorded from Prov. Sara (Fairchild 1939), but subsequently Fairchild (1971) gives the distribution as Brazil (Amapá, Amazonas, Pará), Colombia, Guyana, Peru, Surinam, Trinidad.]

46 *Bolbodimyia desecta* Enderlein, 1925.

Described from "Prov. Sara" [SANTA CRUZ].

*Known distribution:* Bolivia, Peru.

47\* *Bolbodimyia lateralis* Kröber, 1930f.

*Material examined.* SANTA CRUZ, *Vallegrande*, Masicuri: 2 female, 16.-17.ii.1993, ct+o; 1 female, 29.xii.1992, JA, MNKM.

*Known distribution:* Argentina (Salta, Tucuman), Bolivia.

[*Catachlorops* (*Amphichlorops*) *vespertinus* Bequaert & Renjifo-Salcedo, 1946.

Kröber (1931e) records this species (as *Rhamphidommia elongata* Macquart) from "Bolivia; Santa Inez", but this locality may refer to Ecuador.]

48 *Chlorotabanus inanis* (Fabricius, 1794).

Bolivia (Wilkerson 1979). *Material examined.* SANTA CRUZ, *Andrés Ibañez*: 1 female, Potrerillo, 2.iii.1992, JA; *Ñuflo de Chavez*: 5 female, Perseverancia, 14.ii.1992; COCHABAMBA: 1 female, *Carrasco*, Sajta, 14.x.1992, JA, MNKM.

*Known distribution:* Mexico to Bolivia, Brazil (Mato Grosso).

[*Chlorotabanus parviceps* (Kröber, 1934).

Listed from Bolivia in Fairchild (1971) but the specimen on which this record was based is now not thought to be *C. parviceps* (GB Fairchild, pers. comm.).]

49 *Cryptotylus unicolor* (Wiedemann, 1828).

"Prov. del Sara" [SANTA CRUZ], 450m, xi.1909 (Philip & Fairchild 1956). *Material examined.* SANTA CRUZ, *Ñuflo de Chavez*: 4 female, 62°47'S, 14°44'W, 21.-23.iii.1990, PB, NHM, MNKM; Perseverancia: 63 female, 14.ii.1991, PB NHM, MNKM; 2 female, 19.v.1991, MNKM; *Velasco*: 2 female, La Piedra, oh; 5 female, Parque NKM, 16.-30.ix.1991, MNKM.

*Known distribution:* Panama to Argentina (Chaco), Bolivia, Brazil (Mato Grosso).

50 *Dasybasis* (*Dasybasis*) *boliviame* Coscarón & Philip, 1967.

COCHABAMBA, Paratoni [?- Parotani], 10.iv.1946; Cochabamba, 2.iv.1947 (Coscarón & Philip, 1967).

*Known distribution:* Bolivia.

51 *Dasybasis* (*Dasybasis*) *bulbula* Coscarón & Philip, 1967.

6 km N of Challapata [ORURO], 3500m, 23.ii.1951 (Coscarón & Philip, 1967).

*Known distribution:* Bolivia, Chile (Antofagasta, Parinacota).

52 *Dasybasis* (*Dasybasis*) *frequens* (Kröber, 1934).

"La Paz, camino Yungas" [LA PAZ] (Coscarón 1972).

*Known distribution:* Bolivia, Peru.

53 *Dasybasis* (*Dasybasis*) *montium* (Surcouf, 1919).

Bolivia (Wilkerson 1979). LA PAZ, Unduabi, 3000m, 8.v.1968, FSCA (Fairchild pers. comm.).



- Known distribution:** Bolivia, Colombia, Ecuador, Venezuela.
- 54 *Dasybasis (Dasybasis) pallipes* (Kröber, 1931d).  
La Paz, ii.1902 [DPTO.LA PAZ] (Kröber 1931d).  
**Known distribution:** Argentina (Catamarca, Jujuy, La Rioja, Tucuman), Bolivia.
- 55 *Dasybasis (Dasybasis) persignata* (Kröber, 1934).  
"Montenegro", 1.iii.1926 (Kröber 1929b, as *Tabanus ornatus* Kröber).  
**Known distribution:** northern Argentina, Bolivia.
- 56 *Dasybasis (Dasybasis) poroma* Coscarón & Philip, 1967.  
Described from "Poroma", 10.iii.1948.  
**Known distribution:** Bolivia.
- 57 *Dasybasis (Dasybasis) punensis* (Hine, 1920).  
Guaqui, Titicaca-See [LA PAZ], 20.ix.1906 (Kröber 1931d, as *Tabanus (Agelanius) patellicornis* Kröber).  
**Known distribution:** Bolivia, Chile (Tarapacá), Peru.
- 58 *Dasybasis (Haematopotina) argentina ssp. calchaqui* Coscarón & Philip, 1967.  
COCHABAMBA, Cochabamba, 7.ii.1947 (Coscarón & Philip 1967). **Material examined.** COCHABAMBA: 1 female, Charamoco, 11.iv.1946, W.H.Komp, NHM.  
**Known distribution:** Argentina (Buenos Aires to Jujuy and Chubut) [incl. ssp. *argentina* (Brèthes)], Bolivia.
- 59 *Dasychela (Triceratomyia) biramula* Fairchild, 1958.  
Described from COCHABAMBA, Cristal Mayu, 23.xi.1949.  
**Known distribution:** Bolivia, Peru.
- 60 *Diachlorus bicinctus* (Fabricius, 1805).  
BENI, Rio Itenez at mouth of Rio Baures, 30.ix.1964 (Wilkerson & Fairchild 1982).  
**Known distribution:** Bolivia, Brazil (Amapá, Amazonas, Mato Grosso), Guyana, Surinam, Trinidad, Venezuela.
- 61 *Diachlorus bimaculatus* (Wiedemann, 1828).  
"Ipitás Chiquitos X." (Kröber 1928). **Material examined.** SANTA CRUZ: 1 female, Chiquitos, iii.1909, J Steinbach, CAS; *Germán Busch*: 1 female, Mutum [= Mutún], near Porto Suarez, 11.xi.1927 (CL Collonette) NHM; *Ichilo*: 4 female, Buena Vista, 23.iv.1991, PB, NHM, MNKM; 8 female, La Vibora, 8.iv.1990, JA;
- Ñuflo de Chavez*: 1 female, 62°47'S, 14°44'W, 16.iii.90, PB; 1 female, Perseverancia, 19.v.91, PB; *Santiesteban*: 2 female, 16km S of Hardeman, 29.vii.1991, PB; 1 female, Montero, 14.iv.91, PB, MNKM.  
**Known distribution:** Ecuador to Argentina and Brazil (São Paulo).
- 62 *Diachlorus curvipes* (Fabricius, 1805).  
BENI, Rio Mamore and Rio Itenez, viii., ix.1964 (Wilkerson & Fairchild 1982). **Material examined.** SANTA CRUZ, *Ñuflo de Chavez*: 1 female, Santa Anita, 11.ii.1993, oh; *Santiesteban*, 2 female, San Pedro, viii.1990, C.Proett, NHM, MNKM.  
**Known distribution:** Panama to Bolivia, Brazil (Pará) and Trinidad.
- [*Diachlorus distinctus* Lucá, 1913.  
A specimen in CAS from Bolivia was recorded as this species (Arnaud 1985) but is actually *D. bimaculatus* Wiedemann.]
- 63 *Diachlorus flavitaenia* Lutz, 1913.  
**Material examined.** 1 female, SANTA CRUZ, Puerto Suarez, no date or collector, CAS (recorded without locality in Arnaud 1985).  
**Known distribution:** Argentina (Corrientes), Bolivia, Brazil (São Paulo to Santa Catarina and Mato Grosso).
- 64 *Diachlorus fuscistigma* (Lutz, 1913).  
BENI, Rio Itenez, Pampa de Meio, 11.-13.ix.1964 (Wilkerson & Fairchild 1982).  
**Known distribution:** Bolivia, Brazil (Amazonas to Pará and Bahia), Peru, Surinam.
- 65 *Dichelacera (Dichelacera) albifasciata* Fairchild & Philip, 1960.  
Described from SANTA CRUZ, Puerto Suarez.  
**Known distribution:** Bolivia, Brazil (Mato Grosso).
- 66 \* *Dichelacera (Dichelacera) alcicornis* (Wiedemann, 1828).  
**Material examined.** SANTA CRUZ, *Andrés Ibañez*: 1 female, 21.xi.1992, JA; 1 female, 6km S of Santa Cruz, 10.xii.1989, PB, MNKM; *Vallegrande*: 1 female, Masicuri, 16.ii.1993, mt+o.  
**Known distribution:** Argentina (Chaco, Corrientes, Misiones), Bolivia.
- 67 *Dichelacera (Dichelacera) bifacies* Walker, 1848.  
BENI, Guayaramerin, 29.xi.1943 and 18.ii.1944 (Fairchild & Philip 1960, as *D. varia* Wiedemann).  
**Known distribution:** Bolivia, Brazil (Amapá to São Paulo).

**68 *Dichelacera (Dichelacera) boliviensis* (Brèthes, 1910).**

Chiquitos [SANTA CRUZ] (Brèthes 1910). *Material examined*. SANTA CRUZ, *Ñuflo de Chavez*: 1 female, c10 km N. of Concepción, 9.ii.1993, in car.

*Known distribution*: Bolivia, Paraguay.

**[*Dichelacera (Dichelacera) cervicornis* (Fabricius, 1805).**

Kröber (1934) lists this species from Bolivia, but Fairchild (1971) cites the distribution as Guyana to Brazil (Bahia).]

**69 *Dichelacera (Dichelacera) fuscipes* Lutz, 1915.**

TARIJA, Ing. Bermejo, 14.-28.ii.1969 (Coscarón 1974). *Material examined*. SANTA CRUZ: 3 female, *Vallegrande*, Masicuri, 27.-28.xii.1992, JA. *Known distribution*: Northern Argentina, Bolivia, southeast Brazil, Paraguay.

**70 *Dichelacera (Dichelacera) januarii* (Wiedemann, 1819).**

"Caceres" [?- Laguna Caceres, SANTA CRUZ], xii.1935 (Barretto 1949).

*Known distribution*: Argentina (Misiones), Bolivia, Brazil (Santa Catarina to Minas Gerais), Paraguay.

**71 *Dichelacera (Dichelacera) micracantha* Lutz, 1915.**

Santa Cruz, ii.1962 (Coscarón 1974). *Material examined*. SANTA CRUZ, *Andrés Ibañez*: 7 female, Potrerillo, 28.xi.1992, PB; 1 female, Lomas de Arena, 15.xi.1992, JA; *Ichilo*, 1 female, PN Amboró, 13.ii.1990, PB, MNKM; Buena Vista: 9 female, 14.-17.i.1990, PB, NHM, MNKM; 4 female, 11.xi.90; *Ñuflo de Chavez*: 5 female, Concepción, 22.xi.1992, PB; COCHABAMBA: 1 female, *Carrasco*, Sajta, 23.xi.1992, JA, MNKM.

*Known distribution*: Bolivia, Brazil (Goiás, Minas Gerais, Pará).

**72\* *Dichelacera (Dichelacera) scutellata* Williston, 1895.**

*Material examined*. SANTA CRUZ: 1 female, "Provincia Sara", Santa Cruz de la Sierra [= *Andrés Ibañez*], ii.-iv.1904, J.Steinbach, NHM.

*Known distribution*: Bolivia, Brazil (Goiás, Mato Grosso, Rio Grande do Sul, São Paulo), Paraguay.

**73 *Dichelacera (Dichelacera) submarginata* Lutz, 1915.**

Bolivia (Kröber 1934). *Material examined*. SANTA CRUZ, *Andrés Ibañez*: 1 female Santa Cruz de la Sierra, 26.xi.91, PB; *Ichilo*: 1 female,

PN Amboró, 20.x.1989, PB, NHM; 1 female, Buena Vista, 11.xi.91, PB, MNKM.

*Known distribution*: Costa Rica to Bolivia and Venezuela.

**74 *Dichelacera (Dichelacera) unifasciata* Macquart, 1838.**

Bolivia (Kröber 1934, Fairchild 1971). [*D. soror* Kröber (1931f, = *D. unifasciata*) was described from "Santa Cruz" ? - Bolivia (Fairchild & Philip 1960)].

*Known distribution*: northeastern Argentina, Bolivia, southeast Brazil, Paraguay, Uruguay.

**75\* *Di cladocera argenteomaculata* Wilkerson, 1979.**

*Material examined*. SANTA CRUZ: 2 female, *Ichilo*, PN Amboró, 16.ix.1990, PB, NHM, MNKM.

*Known distribution*: Bolivia, Colombia, Ecuador, Peru.

**76 *Di cladocera bellicosa* (Brèthes, 1910).**

LA PAZ: Yungas de la Paz, 1000m, no date; COCHABAMBA: El Palmar, Chapare, 1000m, 10.-18.i.1958 (Philip 1960, as *Di cladocera neominos* Philip). *Material examined*. holotype female of *D. neominos*, data as above; 1 female, LA PAZ, Coroico, 1200m, Fassi, NHM; 1 female, Pina, 14.iii.1965, F.M.Prince, CAS.

*Known distribution*: Argentina (Salta, Tucuman), Bolivia, Peru.

**77 *Di cladocera griseipennis* Kröber, 1931f.**

Bolivia (Kröber 1931f).

*Known distribution*: Bolivia, Peru.

**78 *Di cladocera macula* (Macquart, 1846).**

"Prov. Sara, Dept. Santa Cruz" (Kröber 1940).

*Known distribution*: Bolivia, Colombia, Ecuador, Peru, Venezuela.

**[*Di cladocera minos* (Schiner, 1868).**

Kröber (1934) records this species from Bolivia and later (Kröber 1940) from Yungas de La Paz [LA PAZ], 1000m Songo [?= Zongo, LA PAZ], although Fairchild (1971) cites the distribution as "Ecuador, Venezuela, ?Brasil".]

**79 *Di cladocera molle* Coscarón, 1967.**

Cochabamba [COCHABAMBA], 2550m, 12.iii.1943; Yungas, Coroico [LA PAZ], 1800m, 28.ix.1906 (Coscarón 1967).

*Known distribution*: Argentina (Catamarca, Jujuy, La Rioja, Tucuman), Bolivia.

**[*Di cladocera neosubmacula* Kröber, 1931f.**

Description includes 1 female paratype (now lost) from Yungas von Coroico [LA PAZ], 1700m. "17.x.", Suapi, but it is not certain that this specimen was conspecific with the [also lost]

holotype which was from Ecuador (Fairchild 1966).]

80 *Di cladocera nova* Kröber, 1931f.

Mapiri [LA PAZ; holotype, now destroyed]; "Lorenzopate, 11.v. Mapiri" (Kröber 1931f). Fairchild (1966) records 3 possible paratypes from the latter locality, dated 28.iv.1903.

*Known distribution:* Bolivia, Peru.

[*Di cladocera rubiginipennis* (Macquart, 1846).

Listed from Bolivia (Kröber 1934), but Fairchild (1971) includes only Colombia and Ecuador in the distribution of this species.]

81\* *Di cladocera uncinata* (Wulp, 1881).

SANTA CRUZ, "Prov. Sara", ii.-iv.1904, FSCA (GB Fairchild pers.comm.).

*Known distribution:* Argentina (Catamarca, San Juan, Tucuman), Bolivia.

82 *Himantostylus intermedius* Lutz, 1913.

Canamina [LA PAZ], vii., 1921-22 (Stone 1934).

*Known distribution:* Panama to Bolivia.

83 *Lepiselaga (Lepiselaga) crassipes* (Fabricius, 1805).

Bolivia (Wilkerson 1979). *Material examined.* SANTA CRUZ, Andrés Ibañez, Lomas de Arena: 1 female, 19.ii.1993, oh; 1 female, 20.ii.1993, ct; 1 female, ct+o (high dose); 6 female, 20.-22.ii.1993, mt+o; 1 female, 3km W Cotoca, 20.ii.90, PB, MNKM; Ñuflo de Chavez: 1 female Perseverancia, 14.ii.91, PB, MNKM; 33 female, 62° 47'W, 14° 44'S, 16.-23.iii.1990, PB, NHM, MNKM; 1 female, Las Madres, oh; 2 female, San Julian - San Javier, Rio Quizer, San Luis Quizer, 5.- 11.ii.1993, ct+o; San Julian, 16°38.5' S, 62°30.7' W, 229m: 10 female, 5.-11.ii.1993, ct+o; 1 female, v.1992 MH, NHM; Santiesteban, 1 female, 16km S of Hardeman, 25.vii.91, PB, MNKM; Velasco: 1 female, Parque NKM, 16.-30.ix.91, MNKM; La Piedra: 2 female, oh; 1 female, ct+o.

*Known distribution:* Mexico to northern Argentina.

84 *Leucotabanus albovarius* (Walker, 1854).

Eastern Bolivia (Fairchild 1971). *Material examined.* SANTA CRUZ: 1 female, Andrés Ibañez, Potrerillo, 28.xi.1992, PB, MNKM.

*Known distribution:* Bolivia, Brazil (Amazonas, Pará), Guyana, Peru, Surinam.

85 *Leucotabanus exaestuans* (Linnaeus, 1758).

Potrero de Abril, Chiquitos, xi.1926 [SANTA CRUZ] (Kröber 1929b, as *L. leucaspis* Wiedemann); Chapare, Chimore, i.1972 [COCHABAMBA] (Coscarón 1976a). *Material examined.* SANTA CRUZ, Andrés Ibañez: 1

female, Lomas de Arena, 4.ii.1993, ct+o; 12 female, Potrerillo, 2.xi.92, PB, MNKM; Ichilo: 2 female, PN Amboró, 3.x.91, MNKM; Ñuflo de Chavez: 15 female, 62° 47'W, 14° 44'S, 26.ix.1990, PB, NHM, MNKM; Vallegrande: 4 female, Masicuri, 27.xii.92, JA; Velasco: La Piedra, 10.ii.1993: 3 female, oh; 1 female, ct+o; COCHABAMBA, Cerrasco: 6 female, Valle Sajta, 19.ix.91, R Quebedo; 1 female, El Sajta, 21.x.91, M.Ledezma; 3 female, Sajta, 14.x.92, JA, MNKM.

*Known distribution:* Mexico to Argentina (Chaco, Misiones).

86 *Leucotabanus procallosus* Lutz, 1912.

San José de Chiquitos [SANTA CRUZ], ix. (Kröber 1929b, as *Leucotabanus pallidus* Kröber). *Material examined.* SANTA CRUZ, Andrés Ibañez: 1 female, "km 6 C." Cochabamba, 16.xii.1992, JA; 7 female, Potrerillo, 8.xi.1992, biting horses, PB; COCHABAMBA: 1 female, Carrasco, Sajta, 23.xi.92, JA, MNKM.

*Known distribution:* Argentina (Misiones, Salta), Bolivia, Brazil (Mato Grosso).

87\* *Leucotabanus weyrauchi* Fairchild, 1951.

*Material examined.* DPTO. SANTA CRUZ: 1 female, Vallegrande, Masicuri, 29.xii.1992, JA, NHM; BENI: 1 female, Espiritu, T. de Color, 18.iii.1985, M.Ribera, MNKM.

*Known distribution:* Bolivia, Ecuador, Peru.

[*Myiotabanus barretto* Fairchild, 1971.

Kröber's (1929b) record of *Tabanus muscoideus* Hine from "60 km N of San José de Chiq., 1.-3.x." may refer to this species.]

88\* *Phaeotabanus cajennensis* (Fabricius, 1787).

SANTA CRUZ, E of Warnes, xii.1987, flight trap, FSCA (GB Fairchild pers. comm.).

*Known distribution:* Colombia to Bolivia, Brazil (Ceará and Mato Grosso).

89 *Phaeotabanus fervens* (Linnaeus, 1758).

La Rosita and "S. Fermin", Chiquitos [SANTA CRUZ] (Kröber 1929b, as *Tabanus badius* Kröber). *Material examined.* SANTA CRUZ, Ñuflo de Chavez: 1 female, Perseverancia, 10.ix.90, PB; Santiesteban: 1 female, Gral. Saavedra (CIMCA), ix.1990, JA, MNKM.

*Known distribution:* Venezuela to Argentina.

90 *Phaeotabanus limpidapex* (Wiedemann, 1828).

Chapare, Chimore, i.1972 [COCHABAMBA] (Coscarón 1979b).

*Known distribution:* Argentina (Misiones), Bolivia, Brazil (Bahia, Guanabara, Santa Catarina).

[*Philipotabanus (Melasmatabanus) fascipennis* (Macquart, 1846).

Listed from Bolivia (Kröber 1934), but Fairchild (1971) gives the distribution of *P. fascipennis* as Colombia, Panama and Venezuela.]

91 *Philipotabanus (Philipotabanus) reticulatus* (Kröber, 1930b).

"Prov. Sara" [SANTA CRUZ] (Fairchild 1942d). *Material examined*. SANTA CRUZ, Andrés Ibañez: Potrerillo, 510m: 3 female, 8.xi.1992, biting horses, PB; 1 female, 1.xi.92; Ichilo: 1 female, PN Amboró, Rio Cheio, 10.ii.90; Vallegrande: 3 female, Masicuri, 29.xii.92, JA, MNKM.

*Known distribution*: Bolivia, Peru.

92 *Pseudacanthocera brevicorne* (Enderlein, 1925).

"Bolivia" (Kröber 1929d); Mutum [= Mutún], "8.-15.xi." (Kröber, 1930a). SANTA CRUZ, Cordillera [= Charcas], Parapetí, ii.1962 (Coscarón 1976a). *Material examined*. SANTA CRUZ, Cordillera: 2 female, Cerra Toborocho, 9.i.93, MNKM; Andrés Ibañez, Lomas de Arena: 1 female, 22.ii.1993, electric flight trap + octenol; 1 female, ct+o; Germán Busch: 14 female, Mutum [= Mutún], 8.-15.xi.1927 (CL Collenette) NHM; 1 female, Tres Cruces, 28.xi.91, JA; Vallegrande: 7 female, Masicuri, 27.xii.92, JA.

*Known distribution*: Argentina (Misiones, Salta), Bolivia, Brazil (Mato Grosso), Colombia, Paraguay.

93\* *Querbetia inopinata* Fairchild, 1972.

COCHABAMBA, Villa Tunari, 240m, 2.-6.ix.1983, FSCA (GB Fairchild, pers. comm.).

*Known distribution*: Bolivia, Peru.

94 *Roquezia signifera* Wilkerson, 1985b.

Described from SANTA CRUZ, 10 km E Warnes, 22.viii.1983.

*Known distribution*: Bolivia.

95 *Selasoma tibiale* (Fabricius, 1805).

Bolivia (Kröber 1929d). *Material examined*. SANTA CRUZ, Andrés Ibañez, 1 female, Potrerillo, 2.iii.92, JA, MNKM; Ñuflo de Chavez: 1 female, Santa Anita, 11.ii.1993, oh; 1 female, San Julian - San Javier, Rio Quizer, San Luis Quizer, 5.-11.ii.1993, ct+o; 5 female, Perseverancia, 14.ii.1991, PB, NHM, MNKM; 1 female, 62°47'S, 14°44'W, 17.iii.90, PB, MNKM; Velasco: La Piedra, 1 female, oh.

*Known distribution*: Mexico to n. Argentina.

96 *Spilotabanus multiguttatus* (Kröber, 1930b).

*Material examined*. 1 female, Yungas de Arepucho, Chacisacha, c1500m, 24.ix.1953, W

Forster, CAS (recorded without locality in Arnaud 1985).

*Known distribution*: Bolivia, Colombia, Ecuador.

97 *Stenotabanus (Brachytabanus) sphaeriscapus* Wilkerson, 1985a. Described from COCHABAMBA, Villa Tunari, 240m, 5.ix.1983.

*Known distribution*: Bolivia.

98 *Stenotabanus (Phorcotabanus) cinereus* Wiedemann, 1821.

"60 km nördl. San José de Chiq. (Bol.) 1.-3.x., San José Chiq. (Bol.) ix." [SANTA CRUZ] (Kröber 1929b).

*Known distribution*: Argentina (Chaco, Salta), Bolivia, Brazil (Amapá, Ceará), Colombia, Ecuador.

99 *Stenotabanus (Stenotabanus) incipiens* (Walker, 1860).

"Prov. Sara" [SANTA CRUZ] (Enderlein 1925, as *Styposelaga sexannulata* Enderlein).

*Known distribution*: Guatemala to Argentina (Salta) and Brazil (Minas Gerais).

100 *Stenotabanus (Stenotabanus) obscurus ssp. flavofemoratus* Kröber, 1929d.

Bolivia (Fairchild 1971). *Material examined*. SANTA CRUZ, Prov. Ichilo: 7 female, PN Amboró, 16.ix.90; 1 female same, 20.x.89; 2 female same, Rio Saguayo, 3.x.91, PB; Vallegrande: 13 female, Masicuri, 29.xii.92, JA; BENI: 2 female, Huachi Beni, viii.1921, WM Mann, NHM.

*Known distribution*: Costa Rica to Bolivia and Venezuela [incl. ssp. *obscurus* Kröber].

101 *Stenotabanus (Stenotabanus) pallidicornis* Kröber, 1929d.

Bolivia (Kröber 1929d). Chapare, Villa Tunari [COCHABAMBA] (Coscarón 1975). *Material examined*. SANTA CRUZ, Ichilo: Buena Vista: 1 female, 7.i.1990, PB, NHM; 1 female, 14.i.90, MNKM; 1 female, PN Amboró, 25.xi.90, PB; Andrés Ibañez, Potrerillo: 6 female, 2.ix.92, JA; 1 female, 3.xi.1992, PB, MNKM; Vallegrande, Masicuri: 9 female, 16.ii.1993, mt+o; 18 female, 26.-29.xii.92, JA, MNKM; COCHABAMBA, Chapare, Villa Tunari: 1 female, i.1972 (Fritz); 1 male, 1.iv.1978, at UV light (O'Brien & Marshall) CAS. This material shows some variation and further study may reveal that more than one species is included. Specimens from Masicuri are particularly small and dark.

*Known distribution*: Argentina (Tucuman), Bolivia, Ecuador, Peru.

102 *Stenotabanus (Stenotabanus) trilunatus* Philip, 1969.

Rio Colorado, ix.; BENI: Rurrenabaque, x. (Philip 1969). *Material examined*. 1 female, SANTA CRUZ, Ichilo, Parque Amboró, 16.ix.1990, PB, MNKM.

*Known distribution*: Bolivia.

[*Stibasoma (Rhabdotylus) venenata* (Osten Sacken, 1886).

Recorded from Yungas von Coroico [LA PAZ], 1000m, "7.i." (Kröber 1932a), but Fairchild (1971) cites the distribution of this species as Guatemala to Ecuador.]

103 *Stibasoma (Stibasoma) fulvohirtum* (Wiedemann, 1828).

Mapiri [LA PAZ], "19.iii."; Suapi (Kröber 1932b).

*Known distribution*: Costa Rica to Bolivia, Brazil (Pará).

104 *Stibasoma (Stibasoma) willistoni* Lutz, 1907.

Buena Vista [SANTA CRUZ], "viii" (Kröber 1932b).

*Known distribution*: Bolivia, Brazil (Mato Grosso, Rio de Janeiro, Santa Catarina, São Paulo).

105 *Stypommisa apicalis* Fairchild & Wilkerson, 1986.

Description lists 4 female paratypes (1 in NHM), Palos Blancos, Alto Beni [LA PAZ], 11.-15.i.1976, 600m; 1 female paratype, COCHABAMBA, Villa Tunari, 240m, 3.-6.ix.1983. *Material examined*. SANTA CRUZ: 4 female, Andrés Ibañez, Potrerillo, 8.xi.1992, inside woods, PB, MNKM; LA PAZ: 1 paratype female, data as above.

*Known distribution*: Bolivia, Brazil, Peru.

106 *Stypommisa captiroptera* Kröber, 1930c.

BENI, Alto Beni, S. Inicua River, 1100m, 15.-18.i.1976, (Fairchild & Wilkerson 1986).

*Known distribution*: Mexico to Bolivia, Brazil (Pará, Rondônia).

107 *Stypommisa flavescens* (Kröber, 1930a).

Listed from Bolivia (Kröber 1930a), but not in the distribution given by Fairchild & Wilkerson (1986). *Material examined* LA PAZ: 1 female, Coroico, 1200m, Fassel, NHM.

*Known distribution*: Bolivia, Colombia, Ecuador, Peru.

108 *Stypommisa furva* (Hine, 1920).

"Songo" [?- Zongo] (Hine 1920). Bolivia (Kröber 1929a, as *Stypommia maculipennis* Kröber). LA PAZ: Songo [?- Zongo]; Mapiri, S. Carlos, 800m, i.1903; Yungas von Coroico, 1800m, x.1906; ?Yungasweg, 1200-2500m, x.1906; Yungas La Paz, Yolera a Caranavi,

x.1968; N Yungas Prov., Caranavi, ix.1971; COCHABAMBA: Cristal Mayu, viii.1949 and ix.1956; El Palmar, Chapare, ix., xi.1956 and x.1943; km 95 on road from Cochabamba to Villa Tunari, 1800m, 2.ix.1983; also Osuntom, vii.1921; Rio Colorado, ix.1921; Cordillera, 3000m, xii.1902; Basin, 1914 (Fairchild & Wilkerson 1986). *Material examined*. 6 female paratypes of *maculipennis* from "Bolivien, Sammlung Hartmann", NHM.

*Known distribution*: Bolivia, Peru.

109 *Stypommisa glandicolor* (Lutz, 1912).

COCHABAMBA, Villa Tunari, 240m, 2.-6.ix.1983 (Fairchild & Wilkerson 1986).

*Known distribution*: Costa Rica to Bolivia, Brazil (Mato Grosso) and Surinam.

110 *Stypommisa hypographa* ssp. *neofurva* Philip, 1969.

Villa Tunari, Chapare, COCHABAMBA, 500m, 5.-9.i.1958 (Philip 1969). LA PAZ, S. Inicua, Riv. Alto Beni, 15.-18.i.1976; Mapiri, S. Carlos, 800m, 9.i.1903 (Fairchild & Wilkerson 1986). Mapiri (Kröber 1930a, as *Stypommia hypographus* Kröber). *Material examined*. 1 female, Riv. Alto Beni [as above].

*Known distribution*: Panama to Bolivia and Venezuela [incl. ssp. *hypographa*].

111 *Stypommisa kroeberi* Fairchild & Wilkerson, 1986.

COCHABAMBA: Villa Tunari, 240m, 2.-6.ix.1983; Cristal Mayu, 23.xi.1949; SANTA CRUZ: "Sara Prov." (Fairchild & Wilkerson 1986). Mapiri, "24.i."; Yungas, Coroico, "3.xi." (Kröber 1930a, as *S. venosa* (Bigot)). *Material examined*. SANTA CRUZ, Ichilo, PN Amboró, 4 female, 26.iv.1990, PB NHM, MNKM; 2 female, 3.x.91, MNKM; Andrés Ibañez: 1 female, Potrerillo, 2.xi.92, PB, MNKM; 1 female, Villa Tunari [as above].

*Known distribution*: Bolivia, Peru.

112 *Stypommisa modica* (Hine, 1920).

Chapare [COCHABAMBA] (Fairchild & Wilkerson 1986).

*Known distribution*: Bolivia, Brazil (Pará), Ecuador, Guyana, Peru.

113 *Stypommisa pequeniensis* (Fairchild, 1942c).

BENI, S. Inicua River, 1100m, 15.-18.i.1976 (Fairchild & Wilkerson 1986).

*Known distribution*: Costa Rica to Bolivia.

114 *Stypommisa rubrithorax* (Macquart, 1838).

SANTA CRUZ, 10km E Warnes, 19.-22.viii.1983 (Fairchild & Wilkerson 1986). *Material examined*. SANTA CRUZ, Ichilo: 1 female, PN Amboró, 16.ix.90, PB; 1 female

same, Rio Saguayo, 22.viii.90, L Paco; COCHABAMBA: 12 female, Aro Para, Seque Rancho, 1000m, 28.viii.92, H Roge; 7 female, Aropara, San Antonio - Rio Cotacajes, 900m, J Cuellar, 25.viii.92, HW Roge, MNKM.

**Known distribution:** Argentina, Bolivia, Brazil (Goiás, Mato Grosso, Minas Gerais, São Paulo), Paraguay.

[*Stypommisa venosa* (Bigot, 1892).

Fairchild & Wilkerson (1986) consider that Kröber's (1930a) records of *S. venosa* from Bolivia refer to *S. kroeberi*.]

### Tribe TABANINI

[*Poeciloderas lindneri* (Kröber, 1929b).

Described (as *Tabanus (Hypopelma) lindneri*) from Argentina, Lapango, Pilcomayo. Kröber (1931a) repeated the description but stated that the male/female types were from "Bolivia". Fairchild (1966) examined the syntypes and states that they are from Argentina.]

115 *Poeciloderas lucipennis* (Kröber, 1934).

*Hypopelma claripennis* Kröber (1929b) was described from 60 km N of San José de Chiquitos, "x." [SANTA CRUZ] and *Poecilosoma claripennis* Kröber (1931a) from La Rosita. These names are synonyms of *P. lucipennis* and both descriptions refer to the same specimen!

**Known distribution:** Bolivia.

116 *Poeciloderas quadripunctatus* (Fabricius, 1805).

A variable taxon that may prove to be a complex of closely related species. "Mpiri" [= Mapiri, LA PAZ] (Kröber 1931a). **Material examined.** SANTA CRUZ, Ichilo: 5 female, PN Amboró, 16.ix.1990, PB, NHM,MNKM; 1 female, PN Amboró, Rio Cheio, 14.iii.91, PB, MNKM; *Vallegrande*: 4 female, Don Dionisio, 16 km W of Masicuri, 17.ii.1993, biting cattle and pigs; 2 female, Masicuri, 27.xii.92, JA, MNKM. **Var. amabilinus** Philip, 1960: SANTA CRUZ, Andrés Ibañez: 2 female, Potrerillo, xi.92, PB; 2 female, Lomas de Arena, 20.-22.ii.1993, ct+o (high dose); Ichilo: 1 female, Buena Vista, 14.xi.88, PB; *Nuflo de Chavez*: 2 female, Perseverancia, 14.ii.91, PB MNKM.

**Known distribution:** Mexico to Argentina.

117 *Poeciloderas seclusus* (Brèthes, 1910).

La Rosita, 60 km N of San José de Chiquitos, "x." [SANTA CRUZ] (Kröber 1929b, as *Tabanus (Hypopelma) obscuriventris* Kröber). **Material examined.** SANTA CRUZ, Andrés Ibañez, Lomas de Arena: 5 female, 20.- 21.ii.1993, ct+o; 2 female, 22.ii.1993, mt+o.

**Known distribution:** northern Argentina, Bolivia, Brazil (Mato Grosso), Paraguay.

[*Tabanus bigoti* Bellardi, 1859.

1 female in CAS from Coluya was recorded as this species (Arnaud 1985), but is actually *T. hirtinibia* Walker. Bolivia is well outside the known range of this species.]

118 *Tabanus boliviensis* (Kröber, 1930a).

Described from LA PAZ: Yungas, Coroico, 1800m, 15.x.1906 (holotype); Yungasweg, "12.x."; Mapiri, "8.i."; Sarampione, "3.i."

**Known distribution:** Bolivia, Paraguay, Peru.

119 *Tabanus charrua* Coscarón, 1979a.

SANTA CRUZ, Terenda, xi.1960 (Coscarón 1979a).

**Known distribution:** Argentina (Entre Rios, La Rioja), Bolivia.

120 *Tabanus claripennis* (Bigot, 1892).

Bolivia (Wilkerson 1979). **Material examined.** SANTA CRUZ, Andrés Ibañez, Lomas de Arena: 2 female, 21.- 22.ii.1993, ct+o (high dose); 2 female, 15.-21.xi.92, JA; 3 female Potrerillo, 28.xi.92, MNKM; *Santiesteban*: 8 female, San Pedro, viii.1990, C.Proett, NHM,MNKM; *Velasco*: 1 male, 1 female, La Piedra, 10.ii.1993, oh.

**Known distribution:** Costa Rica to Argentina and Chile, West Indies.

[*Tabanus colombensis* Macquart, 1846.

1 female in CAS was recorded as this species (Arnaud 1985) but is actually *T. occidentalis* L. Bolivia is well outside the known range of this species.]

121\* *Tabanus curtus* Hine, 1920.

**Material examined.** SANTA CRUZ, *Nuflo de Chavez*: 1 female, Santa Anita, 11.ii.1993, oh; 1 female, Las Madres, oh.

**Known distribution:** Bolivia, Brazil (Mato Grosso), Guyana, Surinam, Venezuela.

122 *Tabanus discifer* Walker, 1850a.

Fairchild (1984) includes N Bolivia in his distribution map of this species. **Material examined.** 1 female, SANTA CRUZ, Andrés Ibañez, Espejillos, no date, R.Camacho, MNKM, is considered to be this species but has the beard and thoracic hairs black instead of yellow. Further material may show this form to be a distinct species.

**Known distribution:** Bolivia, Brazil (Pará, Amazonas), Peru, Surinam, Trinidad.

123 *Tabanus fuscofasciatus* Macquart, 1838.

SANTA CRUZ, Buena Vista, 8.- 26.vii.1973 (Coscarón 1979a). [Kröber (1934) doubtfully

records *T. mordax* Hine (= *T. fuscofasciatus*) from Bolivia.] *Material examined*. SANTA CRUZ, Ichilo: 5 female, PN Amboró, 23.viii.1990; 8 female, PN Amboró, Rio Saguayo, 22.-24.viii.1990, PB, NHM,MNKM; COCHABAMBA: 1 female, Cerrasco, Sajta, 6.ix.1992, JA, MNKM.

*Known distribution*: Argentina (Salta to Entre Rios), Bolivia, Brazil (Goiás to Rio Grande do Sul), Paraguay, Uruguay.

124 *Tabanus fuscus* Wiedemann, 1828.

"Sur de Bolivia" (Coscarón 1979a).

*Known distribution*: Argentina (Misiones), Bolivia, Brazil (Bahia to Mato Grosso and Rio Grande do Sul), Uruguay.

125 *Tabanus glaucus* Wiedemann, 1819.

"Prov. Sara" [SANTA CRUZ], 600-700m, ix.-iii. (Kröber 1931a, as *T. grandis* Kröber). *Material examined*. SANTA CRUZ, Ichilo: 1 female, La Vibora (J.Claros); Ñuflo de Chavez: 1 female, Esperanza, "1926-1929", NHM; COCHABAMBA, Carrasco, Sajta: 1 female, 14.xi.1992, PB; 2 female, 20.xii.92, JA, MNKM.

*Known distribution*: Bolivia, Brazil (Amazonas, Mato Grosso, Pará, São Paulo), Colombia, Venezuela, Trinidad.

126 *Tabanus guyanensis* Macquart, 1846.

Riberalta [BENI] (Fairchild 1984). *Material examined*. SANTA CRUZ, Ñuflo de Chavez: 1 female, San Julian, 16°38.5' S, 62°30.7' W, 229m, 5.-11.ii.1993, ct+o; 14 female, 62°47'W, 14° 44'S, 16.-23.iii.1990, PB; 19 female, Perseverancia, 14.ii.1991, PB, NHM,MNKM.

*Known distribution*: Bolivia, Brazil (Amapá), Ecuador, French Guiana, Peru.

127\* *Tabanus hirtitibia* Walker, 1850a.

*Material examined*. LA PAZ, Sud Yungas: 1 female, Chulumani, Hotel San Bartolome, 1.-3.xi.1989, E.Forno, MNKM; 1 female, Coluya, 1800m, xii.1935 (Y.Mexia) CAS.

*Known distribution*: Bolivia, Colombia, Ecuador, Peru, Venezuela.

128 *Tabanus importunus* Wiedemann, 1828.

"Beni" (Fairchild 1967). Bolivia (Wilkerson 1979). *Material examined*. SANTA CRUZ, Ñuflo de Chavez: 3 female, 62° 47'W, 14° 44'S, 18.xi.1990, PB NHM, MNKM; Santiesteban: 1 female, Saavedra (CIMCA), ix.90, C Proett; Velasco: 2 female, Parque NKM, 16.-30.ix.91, R.Misarendino, MNKM; BENI: 2 female, Ballivian, Espiritu, T Amarilla, 12.iii.85 (M Ribera); 4 female, Ballivian, Estacion Biologica sol Beni, El Porvenir, 20.ix.87, MNKM.

*Known distribution*: Panama to Bolivia, Brazil (Rio Grande do Sul).

129\* *Tabanus isis* Fairchild, 1983.

*Material examined*. SANTA CRUZ, Ichilo: 3 female, PN Amboró, 16.ix.1990, PB, NHM,MNKM.

*Known distribution*: Bolivia, Peru.

130\* *Tabanus mucronatus* Fairchild, 1961.

*Material examined*. SANTA CRUZ, Ñuflo de Chavez: 2 female, Perseverancia, 14.ii.91, PB, MNKM. These specimens are somewhat larger (16.5 - 17.5 mm) than typical *T. mucronatus* and have median patches of black hairs basally on the sternites. Insufficient material is available to be certain that these represent anything more than variants of *T. mucronatus*.

*Known distribution*: Bolivia, Brazil (Goiás, Pará).

131 *Tabanus nebulosus* ssp. *ornativentris* Kröber, 1929b.

Described (in part and as a syn. of *T. druyvesteijni* Szilády) from "Potrero, 8.xi." [? - Potrero de Abril, SANTA CRUZ]. BENI (Fairchild 1984). "The Pilcomayo River area of northern Argentina and southeast Bolivia" (Philip, 1969). *Material examined*. SANTA CRUZ, Andrés Ibañez: 1 male, Pailas, 19.-21.xi.1992, ML Paco, MNKM.

*Known distribution*: Northern Argentina, Bolivia, Paraguay. Subspecies *nebulosus* occurs from Belize to Brazil (Mato Grosso).

132\* *Tabanus nematocallus* Fairchild, 1984.

*Material examined*. SANTA CRUZ, Ñuflo de Chavez: 5 female, Perseverancia, 14.ii.91, PB, MNKM.

*Known distribution*: Bolivia, Brazil (Amazonas), Colombia, Peru, Venezuela.

133 *Tabanus nigrofemoratus* Kröber, 1929b.

"El Cairo, westl. Sta. Cruz de la Sierra, Bol. VIII." [SANTA CRUZ] (Kröber 1929b).

*Known distribution*: Bolivia.

134 *Tabanus occidentalis* Linnaeus, 1758.

This is an extremely variable taxon that may prove to be a complex of closely related species. As far as possible the specimens seen have been assigned to the vars. recognised by Fairchild (1983). Kröber's (1933a) record of *T. lineola* from Mapiri, "13.iii." is here considered to refer to *T. occidentalis*. *Material examined*. SANTA CRUZ, Andrés Ibañez: 1 female, Santa Cruz de la Sierra, 1.xi.91, JA, MNKM; Lomas de Arena: 2 female, 20.-22.ii.1993, ct+o; 2 female, 20.ii.1993, ct+o (high dose); 1 female, 20.ii.1993, mt+o; Ichilo: 2 female, PN Amboró, Rio Saguayo, 16.ix.90, PB; Ñuflo de Chavez: 7 female, Santa Anita, 11.ii.1993, oh; 1 male, San Julian - San Javier, Rio Quizer, San Luis Quizer, 5.- 11.ii.1993, ct+o; 11 female, 62° 47'W, 14°

44°S, 12.-23.iii.1990, PB; 51 female, Perseverancia, 14.ii.1991, PB, NHM, MNKM; 1 female, Concepción, 22.xi.92, PB; 1 female, Brecha Casarave, 4.viii.92, JA, MNKM; *Santiesteban*: 93 female, San Pedro, viii.1990, PB, NHM, MNKM; *Vallegrande*: 1 female, Masicuri, 16.ii.1993, mt+o; *Velasco*: 1 female, La Piedra, mt+o; BENI, Ballivian, Espiritu, T. Amarilla: 1 female, 12.iii.85, M. Ribera; 1 female, 3.iv.85. **Var. *consequa* Walker, 1850b**: SANTA CRUZ, *Andrés Ibañez*, Lomas de Arena: 4 female, 20.ii.1993, ct; 1 female, ct+o; 2 female, 22.ii.1993, ct+o (high dose); 1 female, 22.ii.1993, mt+o; 10 female, 15.xi.92; 1 female, Potrerillo, 2.iii.92, JA MNKM; *Nuflo de Chavez*, Santa Anita, 5 female, 11.ii.1993, oh; 1 female, 7.-11.ii.1993, ct+o; 1 female, Las Madres, oh; 4 female, Perseverancia, 14.ii.1991, PB, NHM; *Vallegrande*, Masicuri: 1 female, 16.ii.1993, mt+o; 34 female, 26.-29.xii.92, JA, MNKM; *Velasco*, La Piedra: 1 female, mt+o; 1 female, ct+o; 1 female, "Prov. del Sara", 450m, xi.1909, J. Steinbach CAS. **Var. *dorsovittatus* Macquart, 1855**: SANTA CRUZ, *Andrés Ibañez*: 1 male, Lomas de Arena, 15.xi.1992, JA; *Ichilo*, 1 female female, Buena Vista, 16.xi.90, PB MNKM; *Nuflo de Chavez*: 1 female, Santa Anita, 7.-11.ii.1993, ct+o; 3 female, near San Javier, San Rafael, 6.-11.ii.1993, ct+o; 11 female, 62 47'W, 14 44'S, 12.-23.iii.1990, PB, NHM, MNKM. **Var. *modestus* Wiedemann, 1828**: SANTA CRUZ, *Nuflo de Chavez*, Santa Anita: 3 female, 11.ii.1993, oh; 1 female, 7.-11.ii.1993, ct+o; 1 female, near San Javier, San Rafael, 6.ii.1993, ct+o; 10 female, 62 47'W, 14 44'S, 16.-23.iii.1990, PB, NHM, MNKM; *Vallegrande*: 1 female, Don Dionisio, 16 km W of Masicuri, 17.ii.1993, biting man; 2 female, Masicuri, 25.xii.92, JA, MNKM.

Some specimens of var. *consequa* key out to *T. cicur* Fairchild in Fairchild (1983) since they have a black scutellum and a blackish median integumental spot on tergite 2. However, these specimens occurred with typical var *consequa* (having the scutellum reddish apically and tergite 2 without dark integumental spot) and there are a few intermediate examples. Only one specimen has the mid and hind femora more than slightly greyish at base (usually with basal infuscation in *T. cicur*).

**Known distribution:** Mexico to Argentina.

**135\* *Tabanus palpalis* Brèthes, 1910.**

**Material examined.** SANTA CRUZ, *Andrés Ibañez*, Lomas de Arena: 1 female, 20.ii.1993, mt+o; 3 female, 21.xi.1992; 1 female, 18.xi.1992, mt, JA; 1 female, Potrerillo, 28.xi.1992, PB; *Nuflo de Chavez*: 1 female, Concepción, 22.xi.1992, PB; *Vallegrande*: 1 female, Masicuri, 16.ii.1993, mt+o; *Velasco*, La Piedra: 2 female, 10.ii.1993, oh; 1 female, mt+o.

**Known distribution:** Argentina (Catamarca, Misiones, Salta), Bolivia, Brazil (Goiás, Mato Grosso), Paraguay.

**136 *Tabanus piceiventris* Rondani, 1848.**

Fairchild (1984) includes N Bolivia in his distribution map of this species. LA PAZ, Iturrealde, 40 km E of Reyes, 600m, 4.v.1974, human bait; SANTA CRUZ, 210 km NW of Santa Cruz at Rio Yapacani, 5.-10.v.1983, flight trap, FSCA (GB Fairchild pers. comm.).

**Known distribution:** Bolivia, Brazil (Amapá, Pará), French Guiana, Guyana, Peru, Surinam, Trinidad.

**137\* *Tabanus pungens* Wiedemann, 1828.**

**Material examined.** SANTA CRUZ, *Andrés Ibañez* 1 female, Lomas de Arena, 21.ii.1993, ct+o; *Nuflo de Chavez*: 3 female, near San Javier, San Rafael, 6.-11.ii.1993, ct+o; *Vallegrande*: 1 female, Masicuri, 16.ii.1993, mt+o; BENI: 1 male, Ballivian, Rio Yacuma, "1-8-81", W Hanagart; 1 male, Ballivian, Espiritu, T. Amarilla, 12.iii.1985, M. Ribera; 1 male, Espiritu, T. de Color, 18.iii.1985, M. Ribera, MNKM.

**Known distribution:** U.S.A. (Texas) to Argentina.

**138 *Tabanus restrepoensis* Fairchild, 1942a.**

SANTA CRUZ, San Joachim (Fairchild 1976). **Material examined.** SANTA CRUZ, *Andrés Ibañez*: 7 female, Potrerillo, 1.-28.xi.1992, PB, MNKM; *Nuflo de Chavez*: 3 female, near San Javier, San Rafael, 6.ii.1993, ct+o; *Vallegrande*, Masicuri: 22 female, 16.ii.1993, mt+o; 1 female, ct+o.

**Known distribution:** Bolivia, Colombia, Peru, ?Guyana.

**139 *Tabanus rubripes* Macquart, 1838.**

Guariño, Sarampioni, "18.iii." [LA PAZ] (Kröber 1929c, as *T. pruinosus* Kröber). BENI, Reyes, xii.1956 (Fairchild 1964). **Material examined.** SANTA CRUZ, *Nuflo de Chavez*: 9 female, Santa Anita, 11.ii.1993, oh; 13 female, 62° 47'W, 14° 44'S, 12.-23.iii.1990, PB, NHM, MNKM; 76 female, Perseverancia, 14.ii.91, PB, MNKM; *Vallegrande*: 2 female, Masicuri, 28.xii.1992, JA, MNKM; COCHABAMBA: 1 female, Sajta, 29.xi.92, JA, MNKM.

**Known distribution:** Panama to Bolivia, Paraguay.

**140 *Tabanus sorbillans* Wiedemann, 1828.**

Guyaramerin [BENI] (Fairchild 1961); Santa Cruz, ii.1962 (Coscarón 1979a). **Material examined.** SANTA CRUZ, *Andrés Ibañez*, Lomas de Arena: 5 female, 19.ii.1993, oh; 3 female, 20.-22.ii.1993, ct+o; 5 female, 21.-22.ii.1993, ct+o (high dose); 6 female, 20.-22.ii.1993, mt+o; 10 female, Potrerillo, 2.iii.1992, PB; *Nuflo de Chavez*: 14 female, Santa Anita, 11.ii.1993, oh; 3



female, Las Madres, oh; 1 female, San Julian, 16°38.5' S, 62°30.7' W, 229m, 5.-11.ii.1993, ct+o; 1 female, San Julian - San Javier, Rio Quizer, San Luis Quizer, 5.-11.ii.1993, ct+o; *Velasco*: 46 female, La Piedra, 10.ii.1993, oh; 1 female, San Ignacio de Velasco, 12.xi.1992; "Provincia Sara", 1 female, Santa Cruz de la Sierra, ii.- iv.1904, J.Steinbach, NHM.

*Known distribution*: Colombia to northern Argentina.

141\* *Tabanus triangulum* Wiedemann, 1828.

*Material examined*. SANTA CRUZ, Andrés

Ibañez: 1 female, Terevinto, 19.ii.1992, JA; *Nuflo de Chavez*: 1 female, Santa Anita, 11.ii.1993, oh; *Vallegrande*: 4 female, Masicuri, 16.ii.1993, mt+o; 1 female, Don Dionisio, 16 km W of Masicuri, 17.ii.1993, biting cattle.

*Known distribution*: northern Argentina, Bolivia, se. Brazil, Paraguay, Uruguay.

142 *Tabanus wokei* Fairchild, 1983.

SANTA CRUZ, San Joachim, vi.1964; "Rio Yecuma" [?- Rio Yacuma, BENI] (Fairchild 1983).

*Known distribution*: Bolivia.

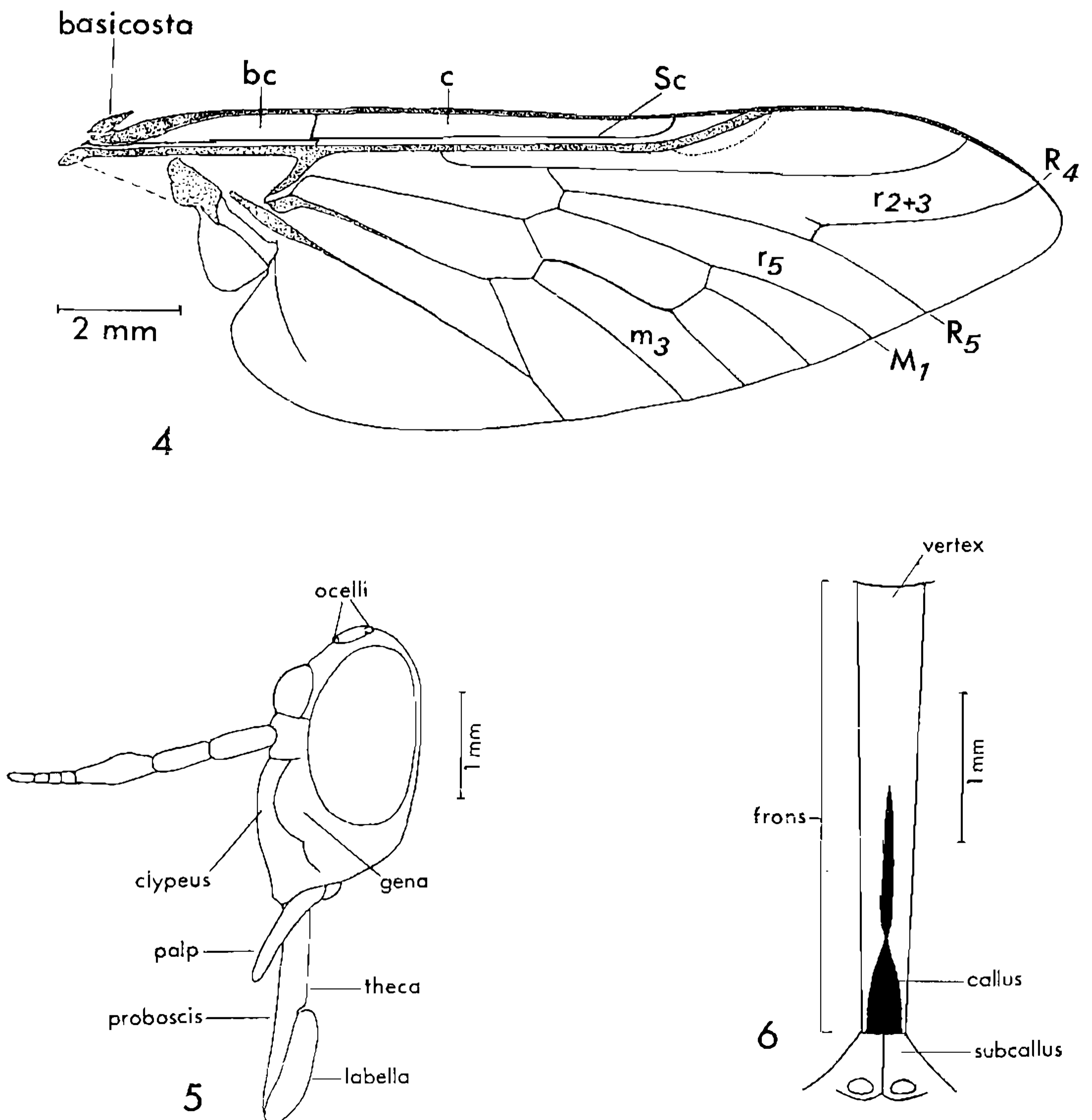


Fig. 4: example of tabanid wing. Fig. 5: female *Chrysops*, sideview of head. Fig. 6: female *Tabanus sorbillans* frons.

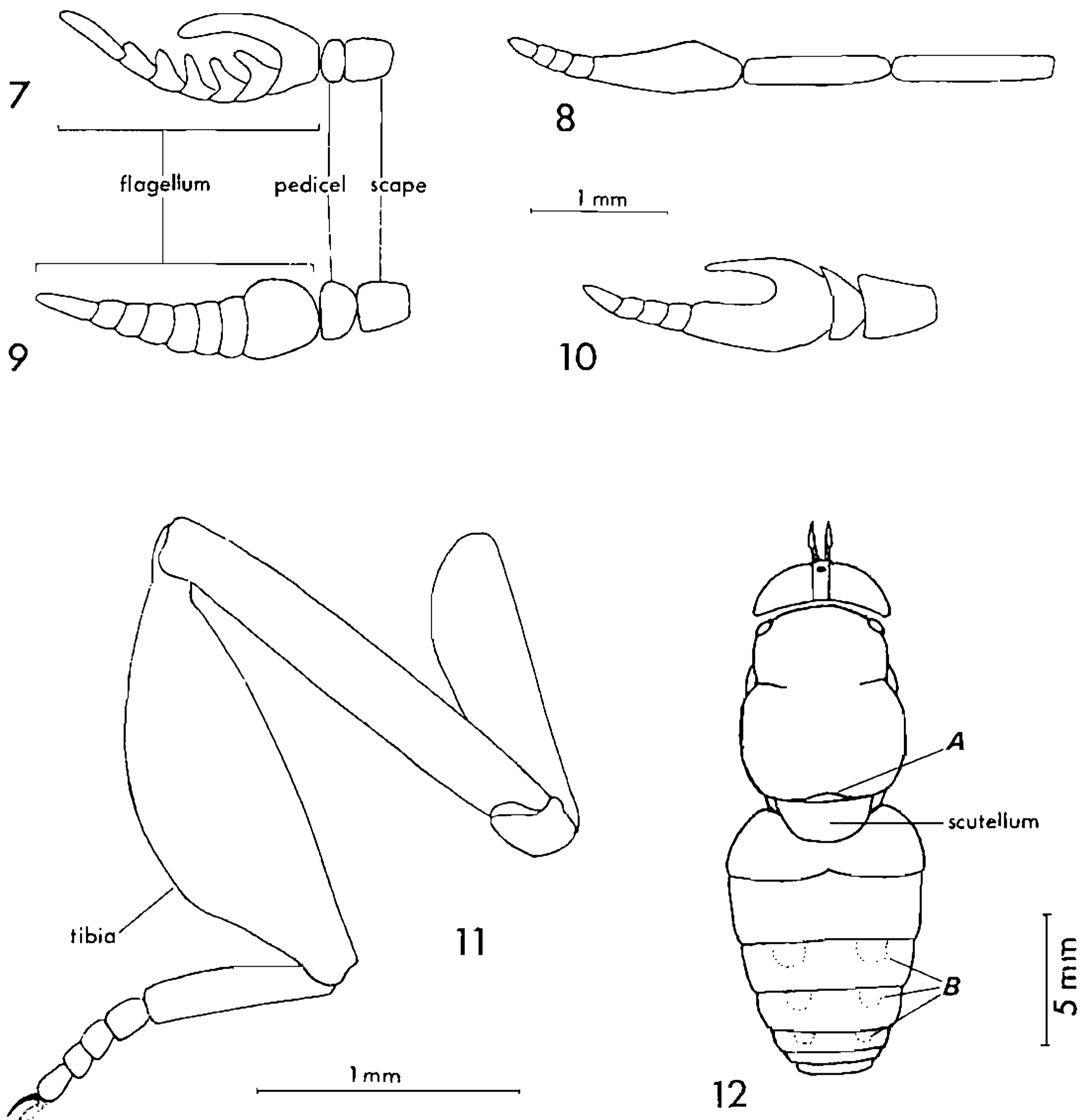


Fig. 7: *Pityocera* antenna. Fig. 8: *Fidena* antenna. Fig. 9: *Chrysops* antenna. Fig. 10: *Dichelacera* antenna. Fig. 11: *Selasoma* leg. Fig. 12: example of tabanid body showing (A) area of prescutellar spot when present; (B) sublateral pale spots of *Tabanus discifer*.

**KEY TO GENERA AND SUBGENERA OF  
TABANIDAE OCCURRING (OR POTENTIALLY  
OCCURRING) IN BOLIVIA**

**[ FEMALE ONLY ]**

This key is aimed purely at identification of Bolivian Tabanidae and does not attempt to demonstrate relationships between genera, nor should it be relied on for taxa occurring in other parts of the Neotropical Region (for which see

Fairchild 1969). See Figs 3-12 for structures that are frequently used in identification. References to papers useful in the identification of Bolivian species are included in the key. Some very distinctive species have also been included in the key, as well as certain species that have characters that could cause confusion. The need for pinned dry specimens in good condition is paramount: it is particularly important that the antennae should be complete. It is useful to note any eye patterns of freshly collected specimens since these quickly fade after death.

1. Vein Sc bare ventrally . . . . . 2
  - Vein Sc with ventral setae, at least apically. Note that these setae are very small and may be inconspicuous against a dark background. They are not easily visible at low magnification or in poor light . . . . . 15
2. Fourth posterior cell (m3) closed . . . . . *Scione*
  - Fourth posterior cell (m3) open . . . . . 3
3. First posterior cell (r5) open . . . . . 4
  - First posterior cell (r5) closed . . . . . 8
4. Three ocelli present at vertex. Wings with median crossband or without pattern . . . . . 5
  - Ocelli at vertex absent. Wings grey with rosettes of pale spots . . . . . *Dasybasis (Haematopotina)* [Coscarón & Philip 1967]
5. Wings with distinct median crossband. Antenna: scape over twice as long as high and flagellum consisting of a basal plate and four terminal flagellomeres (Fig. 8) . . . . . *Chrysops* [Coscarón 1979b]
  - Wings without distinct pattern. Antenna: scape at most slightly longer than high and flagellum consisting of eight flagellomeres (Fig. 9) . . . . . 6
6. Proboscis long, at least more than half as long as height of head . . . . . 7
  - Proboscis short, less than half height of head . . . . . *Fairchildimyia* [NOT RECORDED FROM BOLIVIA]
7. Proboscis over three times as long as palps . . . . . *Fidena*, 13
 

NB. *Scaptia (Pseudoscione)* (unlikely to occur in Bolivia) would key out here but may be distinguished from *Fidena* by having the labella thicker than theca, and the clypeus densely hairy but not greatly swollen.

  - Proboscis less than twice as long as palps . . . . . *Scaptia (Scaptia)* [Coscarón & Wilkerson 1985]
8. Eyes bare *Esenbeckia*, . . . . . 9
  - Eyes hairy . . . . . 10
9. Labellae partly sclerotised and not forceps-like when closed together; inner surface with pseudotracheae (these have the appearance of a series of slender tubes or grooves). Wings sometimes patterned. . *Esenbeckia (Esenbeckia)* [Wilkerson & Fairchild 1983]
  - Labellae mainly sclerotised and forceps-like when closed together (a gap visible when viewed from above or below); inner surface with pseudotracheae greatly reduced or absent. Wings never patterned . . . . . *Esenbeckia (Proboscoides)* [Fairchild & Wilkerson 1981]
10. Palps over half length of proboscis. Proboscis about height of head in length or shorter . . . . . *Scaptia (Scaptia)* [Coscarón & Wilkerson 1985]
  - Palps about quarter the length of proboscis. Proboscis over twice as long as height of head . . . . . 11
11. First posterior cell (r5) closed well in front of wing margin by anterior bending of vein M<sub>1</sub> . . . . . *Pityocera*, 12
  - First posterior cell (r5) closed near wing margin by posterior bending of vein R5. . . . . *Fidena*, 13
12. Antennal flagellum with dorsal processes (Fig. 7) *Pityocera (Elaphella) cervus* (Wiedemann)
  - Antennal flagellum without dorsal processes, though basal flagellomere is greatly enlarged with a dorsal tuft of hairs. . . . . *Pityocera (Pseudelephella)*
13. Femora and hind tibiae with conspicuous long hairs . . . . . *Fidena (Laphriomyia)*
  - Femora and hind tibiae with short hairs only . . . . . 14
14. Palps swollen with a longitudinal groove . . . . . *Fidena (Leptofidena)* [NOT RECORDED FROM BOLIVIA]
  - Palps outwardly flattened. *Fidena (Fidena)*
15. Cell r<sub>2+3</sub> not narrowed at wing margin or if a little narrowed then subcallus not greatly swollen and shining . . . . . 16
  - Vein R<sub>4</sub> bent forward so that cell r<sub>2+3</sub> is narrowed at wing margin. Wings usually black with apex clear. Subcallus and antennal scape greatly swollen and shining. . . . . *Bolbodimyia* [Stone 1934, Coscarón 1976a]
16. Wings with conspicuous pattern of dark spots on forks, crossveins and on posterior veins just before wing margin . . . . . *Spilotabanus* [Wilkerson 1979]
  - If wing spotted then no spots on posterior veins near wing margin. . . . . 17
17. Wings with row of spots in posterior cells, but separate from posterior veins . . . . . *Tabanus sannio* Fairchild [NOT RECORDED FROM BOLIVIA]
  - Wings without such spots . . . . . 18
18. At least fore tibiae greatly swollen and shining (Fig. 11). Subcallus shining. Palps swollen, blunt tipped and shining. Wings largely black with at least apical quarter clear; the black area enclosing at least one small clear spot . . . . . 19
  - Fore tibiae not swollen or if swollen, then other characters not as above . . . . . 21
19. Frons at least as wide as high . . . . . *Lepiselaga (Conoposelaga)* [NOT RECORDED FROM BOLIVIA]
  - Frons distinctly narrower than high . . . . . 20
20. Tarsi black, concolorous with tibiae. Thorax entirely black haired . . . . . *Selasoma tibiale* (Fabricius) [Wilkerson 1979]

- At least mid and hind tarsi whitish basally; contrasting with black tibiae. Thorax and abdomen with numerous shining golden or green scale-like hairs . . . . .  
*Lepiselaga (Lepiselaga) crassipes* (Fabricius) [Coscarón 1968]
- 21. Clypeus shining . . . . . 22
  - Clypeus pollinose, at most with small subshining areas . . . . . 30
- 22. Gena and subcallus entirely shining; shining areas confluent with frontoclypeus. Antennal flagellum with at most an obtuse dorsal angle . . . . . 23
  - Gena with at least some discreet pollinose areas, or entirely pollinose or subcallus pollinose. Antennal flagellum often with a long dorsal spine . . . . . 25
- 23. Wings without distinct pattern, though may be darkened along costa . . . . . 24
  - Wings dark basally, clear on apical third. . . . .  
*Himantostylus intermedius* Lutz [Wilkerson 1979]
- 24. Abdomen black or dark brown, without pattern. Basicosta bare. Eyes in life with two narrow bands joined to form a loop . . . . .  
*Stenotabanus (Stenochlorops)* [NOT RECORDED FROM BOLIVIA]
  - Abdomen with pale haired bands on at least tergites 2 and 4. Basicosta setose. Eyes without pattern in life . . . . .  
*Pseudacanthocera* [Coscarón 1976a]
- 25. Gena entirely pollinose . . . . . 26
  - Gena with distinct shining areas . . . . . 27
- 26. Antennal flagellum with distinct dorsal tooth or spine (Fig. 10). Proboscis with labella at least partly shining *Dichelacera (Dichelacera)* [Fairchild & Philip 1960]
  - Antennal flagellum with at most an obtuse dorsal angle. Proboscis with labella entirely pollinose . . . . .  
*Diachlorus* [Wilkerson & Fairchild 1982]
- 27. Antennal scape greatly swollen . . . . .  
*Querbetia*
  - Antennal scape slender . . . . . 28
- 28. Antennal flagellum with dorsal spine. . . . .  
*Acanthocera (Acanthocera)*
  - Antennal flagellum without dorsal spine, at most with an obtuse dorsal angle . . . . . 29
- 29. Frons wider than high . . . . .  
*Acanthocera (Mimoderynus)* [NOT RECORDED FROM BOLIVIA]
  - Frons much narrower than high . . . . .  
*Dichelacera (Nothochelacera)* [NOT RECORDED FROM BOLIVIA]
- 30. Frontal callus present, or if indistinct then antennal flagellum with distinct dorsal tooth . 31
  - Frontal callus absent. Antennal flagellum with obtuse dorsal angle. Unicolorous yellowish or green species . . . . .  
*Chlorotabanus* [Philip & Fairchild 1956]
- 31. Proboscis with labella at least partly sclerotised (shining) . . . . . 32
  - Proboscis with labella wholly pollinose . . 40
- 32. Palps very short and inflated; at most half the length of the proboscis. Abdomen acutely pointed at tip . . . . .  
*Myiotabanus* [Coscarón 1975]
  - Palps more slender; over half length of proboscis. Abdomen not acutely pointed at tip . . . . . 33
- 33. Antennal flagellum with obtuse dorsal angle . . . . .  
*Phaeotabanus*
  - Antennal flagellum with distinct dorsal tooth or spine . . . . . 34
- 34. Frontal callus narrower than frons . . . . . 35
  - Frontal callus as wide as frons . . . . .  
*Dichelacera (Dichelacera)* [Fairchild & Philip 1960, Coscarón 1974]
- 35. Wings with distinct pattern . . . . . 36
  - Wings without distinct pattern (although costal cell (c) or cell (bc) may be contrasting) . 38
- 36. Tibiae somewhat swollen, with long dense fringes . . . . .  
*Stibasoma (Stibasoma)*
  - Tibiae slender, with only short haired fringes . . . . .  
*Catachlorops*, 37
- 37. First posterior cell (r<sub>5</sub>) closed or strongly narrowed. Labella entirely sclerotised . . . . .  
*Catachlorops (Psalidia)* [NOT RECORDED FROM BOLIVIA]
  - First posterior cell (r<sub>5</sub>) open. Labella of proboscis often partly pollinose . . . . .  
*Catachlorops (Catachlorops)* [NOT RECORDED FROM BOLIVIA]
- 38. Body and legs with contrasting hair patterns . . . . . 39
  - Body and legs unicolorous; without hair patterns . . . . .  
*Cryptotylus* [Philip & Fairchild 1956]
- 39. Frontal callus as wide or almost as wide as frons. Palps stout at base . . . . .  
*Stibasoma (Rhabdotylus)*
  - Frontal callus widely separated from eye margins. Palps long and slender, hardly thickened at base . . . . .  
*Catachlorops (Amphichlorops)*
- 40. Wings with distinct dark pattern, but pattern not consisting of spots on crossveins and forks or an apical cloud . . . . . 41
  - Wings without pattern, or with spots on crossveins and forks and/or an apical cloud . . . . . 47
- 41. Proboscis as long or longer than height of head and curved back in towards body . . . . .  
*Dasychela*, 42
  - If proboscis as long as height of head then it is straight . . . . . 43
- 42. Antennal flagellum with one or two long dorsal spines which are fringed with hairs . . . . .  
*Dasychela (Triceratomyia)*

- Antennal flagellum with one dorsal projection without fringes.....*Dasychela* (*Dasychela*)  
[NOT RECORDED FROM BOLIVIA]
- 43. Notopleuron with a cone shaped protuberance anteriorly ..... *Eutabanus*  
[NOT RECORDED FROM BOLIVIA]
  - Notopleuron without cone shaped protuberance ..... 44
- 44. Frons broad, at most four times as high as wide. Antennal flagellum with dorsal tooth or spine ..... *Di cladocera*  
[Coscarón 1967, Wilkerson 1979]
  - Frons narrow, over five times as high as wide. Flagellum with obtuse dorsal angle. . . . . 45
- 45. Wings largely blackish but clearer apically. Large species with black abdomen that has paired white spots on tergites 3 - 5 (Fig. 12) . . . . . *Tabanus discifer* Walker
  - Wings distinctly banded, even if the band is irregular in shape. Small to medium sized species without the above abdominal pattern . . . . . *Philipotabanus*, 46
- 46. Wings with evenly outlined black bands . . . . . *Philipotabanus (Melasmatabanus)*  
[NOT RECORDED FROM BOLIVIA]
  - Wings irregular in outline, leaving clear areas surrounding crossveins and R<sub>4</sub> fork . . . . . *Philipotabanus (Philipotabanus)*
- 47. Basicosta bare ..... 48
  - Basicosta with at least a few setae ..... 54
- 48. Abdomen brown with a white V shaped median spot on tergite 1 adjacent to scutellum (which is concolorous) and extending onto the anterior margin of tergite 2; tergites 3 - 5 each with a large white median half- moon shaped spot (approaching the anterior margins of tergites 3 - 4 and crossing tergite 5). Eyes with one band in life ..... *Stenotabanus (Stenotabanus) trilunatus* Philip
  - Abdomen without above pattern ..... 49
- 49. Eyes bare with two bands in life. Note that the eye bands are often not visible in dried specimens but may be temporarily revived by placing the specimen in a relaxing box for about an hour ..... *Stenotabanus*, 50
  - Eyes at most with one band, often pilose . . . . . 51
- 50. Antennal flagellum apparently with 3 terminal flagellomeres. Frons less than twice as high as wide; callus much narrower than frons. Tentorial pits shining black . . . . . *Stenotabanus (Brachytabanus)*  
[Coscarón 1975, Wilkerson 1985a]
  - Antennal flagellom with 4 terminal flagellomeres. Frons at least twice as high as wide or callus as wide as frons . . . . . *Stenotabanus (Stenotabanus)*  
[Coscarón 1975]
- NB. *Roquezia* Wilkerson (1985b) may key out here but pattern of eyes is unrecorded. Distinguished from *Stenotabanus (Stenotabanus)* by having the frontal callus separate from the frons.
- 51. Flagellum with distinct dorsal spine . . . . . *Catachlorops (Hadrochlorops)*  
[NOT RECORDED FROM BOLIVIA]
  - Flagellum with obtuse dorsal angle . . . . . 52
- 52. Frontal callus narrower than frons and produced above into a ridge or line . . . . . 53
  - Frontal callus as wide as frons and without median projection above . . . . . *Dasybasis (Dasybasis)*  
[Coscarón & Philip 1967]
- 53. Eyes densely pilose. Vertex usually with 3 ocelli present (may be indistinct) . . . . . *Dasybasis (Agelanius)*  
[NOT RECORDED FROM BOLIVIA]
  - Eyes at most with sparse short hairs. Vertex without ocelli . . . . . *Stypommisa*
- 54. Antennal flagellum apparently with only 3 terminal flagellomeres. Base of frontal callus as wide as frons. Subcallus pollinose, not shining . . . . . *Stenotabanus (Phorcotabanus)*  
[Coscarón 1975]
  - Antennal flagellum with 4 terminal flagellomeres. Frontal callus at least narrowly separated from eye- margins, or if as wide as frons then subcallus bare and shining . . . . . 55
- 55. Wings with spots on forks and crossveins, sometimes with an apical cloud . . . . . 56
  - Wings without spots . . . . . 59
- 56. Large stout bodied species with first posterior cell (r<sub>5</sub>) distinctly narrowed towards wing margin. Eyes bare . . . *Tabanus nebulosus ornativentris* Kröber
  - If rather large and robust with narrowed (or closed) first posterior cell then eyes distinctly pilose . . . . . 57
- 57. Apex of antennal scape over twice height of base of the pedicel . . . . . *Poeciloderas*  
[Coscarón & Fairchild 1976]
  - Apex of antennal scape less than 1.5 times the height of the pedicel . . . . . 58
- 58. Frontal index (length divided by width at base) greater than 4 . . . . . *Stypommisa*  
[Fairchild & Wilkerson 1986]
  - Frontal index less than 4 . . . . . *Dasybasis (Agelanius)*  
[NOT RECORDED FROM BOLIVIA]
- 59. Medium to large (13 mm or more) robust species with frontal index (length of frons divided by its width at base) less than 4. Thorax without prescutellar black spot . . . *Di cladocera*  
[Coscarón 1967, Wilkerson 1979]
  - If medium to large species, then frontal index greater than 4 or thorax with black prescutellar spot (Fig. 12) . . . . . 60
- 60. Vertex with distinct raised tubercle, someti-

mes bearing vestigial ocelli. Abdomen never with pattern of stripes nor with pale sublateral spots, though there may be distinct bands expanded into small median triangles. Eyes at most with a single band. Antennal flagellum never with long dorsal spine . . . . . 61

- Vertex at most with small denuded spot. Abdomen often with distinct stripes or with distinct pale-haired sublateral spots. Eyes frequently with more than one band. Antennal flagellum sometimes with long dorsal spine . . . . .

. . . . . *Tabanus*  
[Coscarón 1979a, Fairchild 1976, 1983, 1984]

61. Scutellum with dense pale yellowish or white hairs, contrasting with either abdomen or thorax. Subcallus sometimes bare and shining. Vein R<sub>4</sub> never with appendix. Abdomen with conspicuous dorsal pale bands or large median triangles and lateral spots. Small to medium sized species up to 17 mm in length . . . . .

. . . . . *Leucotabanus*  
[Coscarón 1976a, Fairchild 1985]

- Scutellum brown, without dense covering of pale hairs. Subcallus never bare and shining. Vein R<sub>4</sub> often with appendix. If abdomen with bands or median triangles these are small and not conspicuous. Generally small species up to 13 mm in length . . . . . *Stypommisa*  
[Fairchild & Wilkerson 1986]

#### DISCUSSION

A total of 30 genera and 142 species are listed for Bolivia (excluding 2 genera and 25 species for which only doubtful or erroneous records exist). This compares with 30 genera and 228 species recorded for Peru (Wilkerson & Fairchild 1985) and 16 genera and 110 species for Chile (Coscarón & González 1991). Currently, the faunal overlap of Bolivian Tabanidae with neighbouring countries is as follows: Argentina 46 species, Brazil 68 spp, Chile 4 spp, Paraguay 34 spp, Peru 75 spp. 18 species are only known from Bolivia. The tabanid fauna of large areas of Bolivia remains unknown, eg. only two species are recorded for Tarija Department, one species for Oruro Department and none at all for Chuquisacha, Pando and Potosi Departments. Given the diverse environments found in Bolivia, it is likely that further collecting will reveal many additions to the present list.

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