

Turnbull, D.A., Taylor, P.D., Smith, S.M. and Chainey, J.E. 1992.
A collection of Tabanidae (Diptera) from west-central Ethiopia, with descriptions of *Tabanus gibensis* sp. n. and the male of *T. pallidifacies* Surcouf.
Journal of African Zoology, **106**: 133–140.

David A. Turnbull and Stephen M. Smith (to whom correspondence should be addressed), Dept of Biology, University of Waterloo, Waterloo, ON, Canada N2L 3G1. Philip D. Taylor, Dept of Biology, Carleton University, Ottawa, ON, Canada K1S 5B6. John. E. Chainey, Dept of Entomology, The Natural History Museum, London SW7 5BD, UK.

Abstract 5 genera and 15 species of Tabanidae were collected from the Gibe River area in west-central Ethiopia in 1986. *Tabanus gibensis* n. sp. and the male of *Ta. pallidifacies* are described; amendments to Oldroyd's keys to the African Tabanidae are supplied. *Tabanus atrimanus* is recorded for the first time from Ethiopia. The known tabanid fauna of Ethiopia remains small (5.6%) relative to the Afrotropical fauna.

Introduction

Oldroyd's (1952, 1954, 1957) monograph is the only comprehensive study to date of the Tabanidae of northeastern Africa, and it has striking gaps in its coverage. Although there are many accounts of the Tabanidae of this part of the world, they are mostly fragmentary and cursory, particularly for Ethiopia (Ghidini 1938; Ovazza 1956; Ovazza and Rodhain 1972; White 1977), and, as a result, the tabanid fauna of Ethiopia is poorly known. We therefore take this opportunity to present a species list resulting from a brief trip by DAT, PDT, and SMS to Ethiopia.

Collections

Collections were made in 1986 at "Tolley" field station (8°24' N; 37°24' E) and Gibe field station (8°14' N; 37°34' E), both situated on the Gibe¹ River. Both stations are operated by the International Livestock Centre for Africa (ILCA). Collections began in early October, just at the end of the heavy seasonal rains, and ended on 13 November. Daily temperatures during this period ranged from approximately 16–35°C at Tolley and 16–40°C at Gibe. The area around Tolley (elevation 1400 m) consisted of lush riverine vegetation and open savanna (*see* Taylor *et al.* 1992). Gibe station (elevation 800 m) is situated in the Gibe Valley; the immediate area surrounding the station has been cleared for farming, reducing much of the natural riverine vegetation and open savanna.

During the 24-d collecting effort, 22 d were spent at Tolley (10–23 October; 2, 6, 10–15 November) and 5 d at Gibe (23 October; 1–3, 6 November). Manitoba horsefly traps (Thorsteinson *et al.* 1965), Challier (biconical) traps (Challier and Laveissière 1973) and Malaise traps (Gressitt and Gressitt 1962) were used for collections. Traps were emptied daily and moved frequently to different locations or habitats, depending on trap productivity. In addition, sweep nets were used to collect host-seeking tabanids about us and cattle. Collection efforts were focused primarily on areas of riverine and mixed riverine-savanna vegetation within 100 m of the Gibe River or a nearby stream.

Table 1. Tabanidae collected at Tolley and Gibe field stations, Ethiopia, October – November 1986.

Subfamily	Genus	Species	Tolley		Gibe
			♂♂	♀♀	♀♀
Chrysopsinae	<i>Chrysops</i>	<i>distinctipennis</i> Austen	0	10	0
Tabaninae	<i>Haematopota</i>	<i>albihirta</i> Karsch	0	43	0
		<i>patellicornis</i> (Enderlein)	0	3	0
		sp. ^a	1	0	0
	<i>Atylotus</i>	sp. 1 ^a	0	0	1
		sp. 2 ^a	0	0	1
	<i>Euancaia</i>	<i>maculatissima</i> (Macquart)	0	4	0
	<i>Tabanus</i>	<i>atrimanis</i> Loew	0	8	0
		<i>biguttatus</i> Wiedemann	0	2	0
		<i>gibensis</i> sp. n.	55	12	2
		<i>gratus</i> Loew	0	33	10
<i>insignis</i> Loew		0	1	0	
<i>kingi</i> Austen		0	199	19	
<i>leucostomus</i> Loew		0	18	3	
<i>taeniola</i> Palisot de Beauvois	0	53	7		

^a Specimens too damaged to permit specific identification.

<<“*Tabanus atrimanis* Loew” should read “*Tabanus atrimanus* Loew”.>

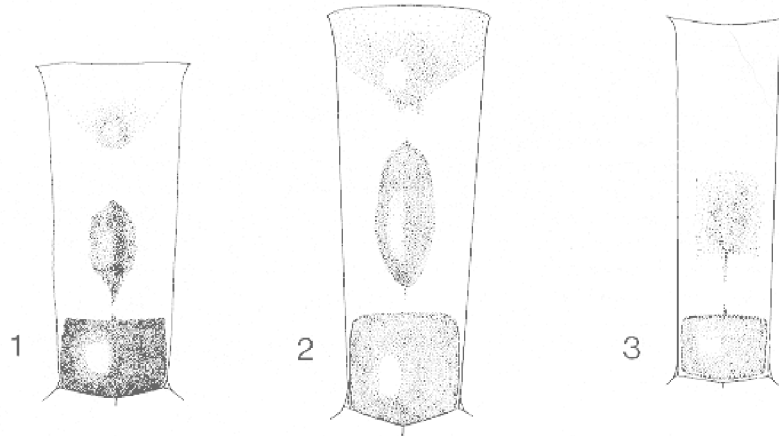
A total of 5 genera and 15 species were collected (Table 1). This compares with 8 genera and 40 species for which published Ethiopian records exist. The collection included material of *Tabanus atrimanus* Loew, which has not been recorded previously from Ethiopia, and a previously undescribed species of *Tabanus*, which is described below. The known Ethiopian fauna remains unexpectedly small (5.6%) relative to the Afrotropical fauna of some 30 genera and 750 species.

Descriptions

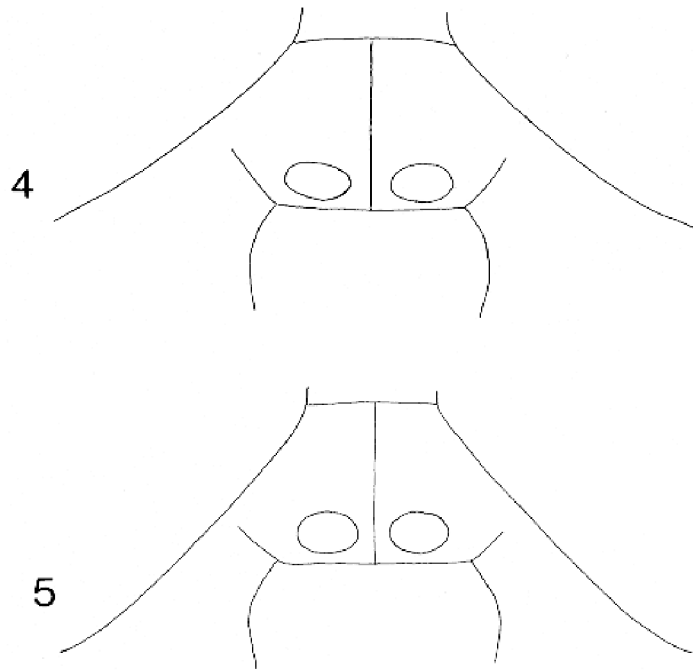
Tabanus gibensis sp. n.

Female

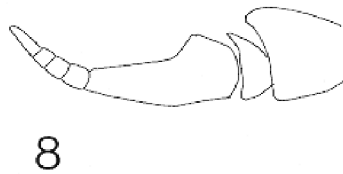
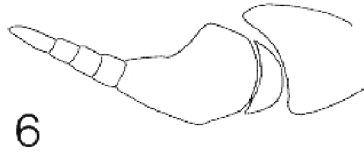
Head. — Eyes unbanded. Frons slightly convergent toward antennae (index 3; Fig. 1), grayish-yellow pollinose with black or dark red-brown calli and black hairs, which are long at the vertex. The upper callus is irregularly expanded, but appears narrowly joined to the lower callus. Vertex subshining red-brown through thick tomentum. Occipital median sclerite almost equilateral-triangular in shape (Fig. 12); grayish pollinose with whitish hairs, overlying a tan-colored integument. Occipital rim with pale yellowish hairs, mixed with long black hairs toward the vertex. Subcallus pale yellowish-gray pollinose, darker toward the frons. Face and parafacials gray pollinose with whitish hairs, parafacials becoming slightly more yellowish toward frons. Beard off-white. Antennae (Fig. 6): scape reddish through thick whitish tomentum, hairs black toward apex on dorsal surface, otherwise whitish; pedicel red, hairs mostly whitish; flagellum red-brown at base, otherwise black-brown. Palpi (Fig. 9) stout, pale yellowish with mixture of black and white hairs. Proboscis black-brown.



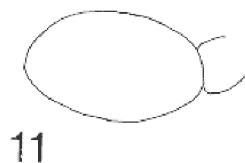
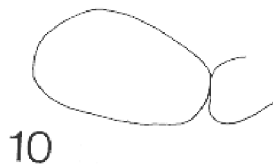
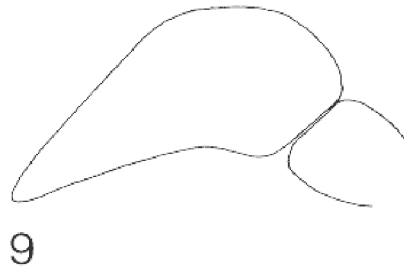
Figs. 1–3. Female frons. (1) *Tabanus gibensis*; (2) *Ta. pallidifacies*; (3) *Ta. kingi*.



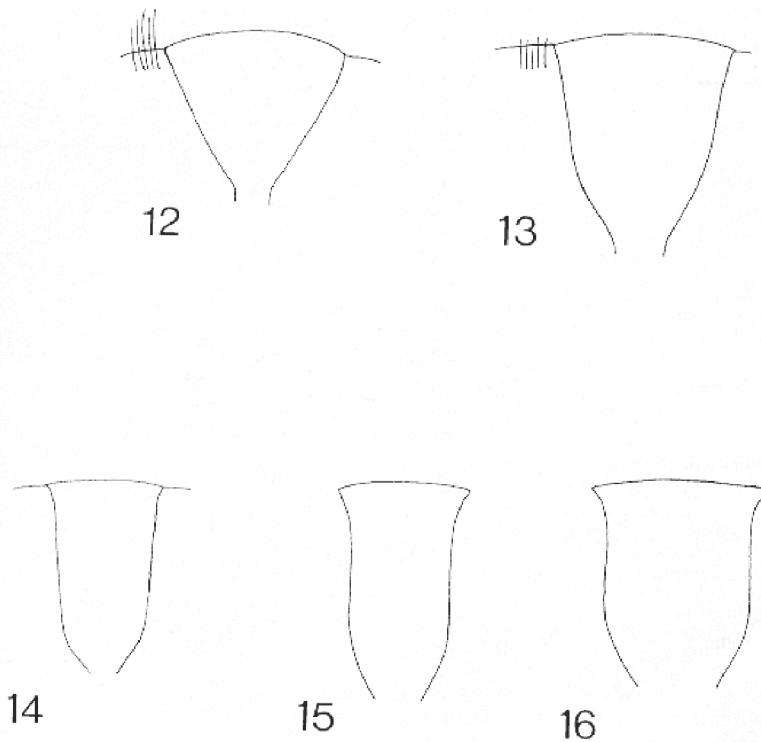
Figs. 4–5. Female subcallus and face. (4) *Ta. gibensis*; (5) *Ta. kingi*.



Figs. 6–8. Antennae. (6) *Ta. gibensis*; (7) *Ta. gibensis*; (8) *Ta. pallidifacies*.



Figs. 9–11. Palps. (9) *Ta. gibensis*; (10) *Ta. gibensis*; (11) *Ta. pallidifacies*.



Figs. 12–16. Occipital median sclerite. (12) *Ta. gibensis*; (13) *Ta. pallidifacies*; (14) *Ta. kingi*; (15) *Ta. taeniola*; (16) *Ta. hamoni*.

Thorax. — Mesonotum black-brown through thin grayish tomentum with 3 obscure grayish stripes (brownish in rubbed specimens); sparsely black-haired except at sides and anteriorly where mixed with whitish hairs. Scutellum concolorous with mesonotum (reddish-brown at the tip in rubbed specimens). Notopleural lobes red-brown with black hairs. Pleura gray with whitish hairs except mesopleuron, which is slightly more reddish and with a few black hairs. Legs: coxae gray with whitish hairs; femora variable — grayish to reddish with mostly whitish hairs except fore femora, which have black hairs dorsally; tibiae orange-brown with short whitish hairs, except on outward surface where the pale hairs are mixed with black hairs; fore tibiae black-brown on apical quarter; fore tarsi blackish, otherwise tarsi red-brown. Wings faintly smoky; vein R4 without appendix, vein Cu bare dorsally. Halteres brown with whitish knob. Squamae off-white with pale-brown rim.

Abdomen. — Dorsum black-brown (reddish to pinkish-brown laterally on tergites 1–3) with an irregular narrow median grayish stripe and sublateral orange-brown spots; hind margins narrowly paler; hairs mostly black except on sublateral spots, hind-margins and extreme sides where whitish. Venter light reddish-brown, becoming grayer at sides; hairs whitish except on sternite 7 where black.

Lengths. — Body 14.5–15 mm, wing 12.5–13 mm.

Male

Eyes unbanded, microscopically hairy, joined for a short distance, upper facets little larger than lower facets. Small tubercle at vertex. Occipital rim with long black hairs. Antennae as in Fig. 7. Palpi as in Fig. 10. Generally similar to female, but abdomen dorsally more reddish at sides. Fore tibiae only paler on basal half. Parafacials with mixed black and pale hairs. Mesonotal hairs mostly black. 1 of 15 examined has a short appendix to vein R4.

Material examined. — Holotype female: Ethiopia: border of Shewa and Kefa Provinces, Gibe River, Tolley Field Sta., 8°24' N, 37°24' E, 1400 m, 13 November 1986, S. Smith, P. Taylor and D. Turnbull (University of Waterloo, Ontario); 15 males, 3 females, paratypes, same locality and collectors, 11 October – 13 November 1986 (University of Waterloo, Cornell University and The Natural History Museum, London).

***Tabanus pallidifacies* Surcouf, 1907**

The male of this species has not been previously reported, so a brief description is given as follows. It is generally similar to the female (apart from the usual sexual differences: e.g. holoptic eyes, more slender antennae (Fig. 8) and rounded palpi (Fig. 11)) but with the abdominal median stripe a little more prominent. The area of greatly enlarged upper-eye facets is a pale-greenish color with a broad, median black band (similar to that in *Ta. taeniola* Palisot de Beauvois, etc.). JEC has seen 1 male that was taken, together with 4 females, with the following data: Kenya: Uaso Nyiro R., Archer's Post, 2300', 12 December 1969, M.E. Irwin and E.S. Ross (in California Academy of Sciences).

Discussion And Key

Tabanus gibensis appears to be related to *Ta. pallidifacies* Surcouf, a species of the *sufis*-group known only from Kenya. The female of *Ta. gibensis* is very close structurally, but may be separated by its much darker appearance with less conspicuous median triangles on the abdomen, and occipital rim with long black hairs toward the vertex (which also has long black hairs and is subshining only when not worn). The male of *Ta. gibensis* is easily separated by having the upper-eye facets little larger than the lower facets; in *Ta. pallidifacies* (and most other Afrotropical *Tabanus*) the upper facets are greatly enlarged.

Ta. gibensis is also superficially similar to *Ta. kingi nigrifeminibus* Austen, a species placed in Oldroyd's (1954) residual 'patterned' group. *Ta. kingi* Austen is separated by the shape of the median occipital sclerite (Fig. 12, 14), frons (Fig. 1, 3) with lower callus narrowly isolated from subcallus, and vertex dull tomentose (unless worn), narrower parafacials (Fig. 4, 5), palpi mostly pale haired and vein R4 with appendix (1 male *Ta. gibensis* has a short appendix). The male of *Ta. kingi* is unknown, but it is likely to have the upper-eye facets greatly enlarged. *Ta. kingi* appears to be more closely related to the Palearctic *Ta. rupinae* Austen than to other Afrotropical species.

The characters for separating the 'patterned' and *sufis*-groups tend to break down in these 3 species. The more distinctly triangular shape of the median occipital sclerite in *Ta. pallidifacies* and *Ta. gibensis* separate these 2 from most species of the 'patterned' group, whereas many, though not all, species of the *sufis*-group show this character. The following amendments are suggested to Oldroyd's (1954) keys.

Amendments to key to species of *Tabanus sufis*-group (females only).

14. Abdomen black-brown or reddish brown, but with three rows of pale triangles or spots, the median row at most uniting to form an irregular stripe 15
Abdomen with a distinct, smooth-sided, median stripe 16
15. Abdomen with bold pattern of large light-gray triangles. Frons narrower (index 3.5), vertex not shining *trianguliger* Austen
Abdomen with a median row of narrow triangles, and rather smaller sublateral spots. Frons broader (index 3), vertex shining or subshining (Fig. 1, 2) 15a
- 15a. Reddish-brown species. Occipital rim with short, mostly pale, hairs *pallidifacies* Surcouf
Black-brown species. Occipital rim with long black hairs toward vertex *gibensis* sp. n.
16. (As in Oldroyd 1954.)

Amendments to key to species of *Tabanus* 'patterned' group (females).

12. Abdomen reddish brown, becoming darker apically, and with a black median stripe, sometimes interrupted. No median gray stripe, but broad sublateral stripes are indicated by yellow hairs *nigrostriatus* Ricardo
Abdomen with either a median yellow or grey stripe, or a median row of pale triangles 12a
- 12a. Median occipital sclerite distinctly triangular (Fig. 12, 13). Medium-sized species with narrow median triangles, sometimes united into an irregular stripe, and smaller sublateral spots. Frons broad (index 3, Fig. 1, 2), slightly convergent, with upper callus irregularly expanded. Broad parafacials (Fig. 4). Wings clear or faintly smoky with vein Cu bare dorsally 12b
Median occipital sclerite not obviously triangular (Fig. 14–16), or other characters collectively not as above 13
- 12b. Reddish-brown species. Occipital rim with short, mostly pale hairs (Fig. 13) *pallidifacies* Surcouf
Black-brown species. Occipital rim with long black hairs toward vertex (Fig. 12) *gibensis* sp. n.
13. (As in Oldroyd 1954.)

Amendments to key to males of Afrotropical *Tabanus*.

6. Vein R4 of the wing with long, curved appendix. A medium-sized (14 mm), brown species, the abdomen in well-preserved specimens showing small, white-haired median triangles, and a narrow fringe of white hair on the hind margin of each segment. In rubbed specimens the abdomen may appear almost without pattern. Subcallus flat and tomented *sandersoni* Austen
Vein R4 with no more than a vestige of an appendix (usually without); or, if a distinct appendix is present (*leucostomus*, *albilinea*), then the subcallus is bare and swollen, or the abdomen has a different pattern 6a
- 6a. Eyes with upper facets only a little larger than the lower facets, and not distinctly differentiated from them. Medium-sized (14-16 mm) black-brown species. Abdomen with narrow median triangles and smaller sublateral spots; tergites 2-4 reddish at sides *gibensis* sp. n.
Eyes with upper facets greatly enlarged and sharply differentiated from lower facets, or, if not, then eyes distinctly hairy and(or) other characters not as above 7
7. (As in Oldroyd 1954.)
44. Reddish-brown species (14.5 mm), with entirely reddish legs, and abdomen dorsally with narrow and somewhat irregular median stripe and smaller sublateral spots. Vertex with weak, sunken tubercle *pallidifacies* Surcouf
Not with above combination of characters. If a yellow-brown, medium-sized species, then vertex with distinct tubercle, femora usually black and abdomen with sublateral stripes (diffuse laterally) rather than spots 44a
- 44a. (As Oldroyd's (1954) key couplet 44.)

Acknowledgements

We are indebted to ILCA for the provision of accommodation in Addis Ababa and in the field; we especially appreciate the support of Ato Getechew Tikubet and the use of his field laboratory at Tolley. The friendship and willing help of the ILCA field staff at Tolley, particularly the field manager, Ato Chemellis and our driver, Ato Mekonnen T/Selassie, were significant contributors to our work in Ethiopia. We are grateful for the help of Gloria Smith in the field. This project was carried out while SMS was on secondment to the Department of Biology at Addis Ababa University, under the aegis of a joint University of Waterloo/University of Addis Ababa project, funded by the Canadian International Development Agency. Most of the equipment and other support for this project came from a grant to sms from the Natural Sciences and Engineering Research Council of Canada.

References

- Challier, A. and Laveissière, C. 1973. Un nouveau piège pour la capture des glossines (*Glossina*: Diptera, Muscidae): description et essais sur le terrain. *Cah. ORSTOM, Sér. Entomol. Méd. Parasitol.*, **11**: 251–262.
- Ghidini, G.M. 1938. Ditteri ematofagi dell’Africa orientale italiana. Gen. *Tabanus. s.l. Riv. Biol. Coloniale*, **1**: 321–364.
- Gressitt, J.L. and Gressitt, M.K. 1962. An improved Malaise trap. *Pacific Insects*, **4**: 87–90.
- Oldroyd, H. 1952. The horseflies (Diptera: Tabanidae) of the Ethiopian Region. Volume I. *Haematopota and Hippocentrum*. British Museum (Natural History), London. ix + 226 pp.
- Oldroyd, H. 1954. The horseflies (Diptera: Tabanidae) of the Ethiopian Region. Volume II. *Tabanus* and related genera. British Museum (Natural History), London. x + 341 pp.
- Oldroyd, H. 1957. The horseflies (Diptera: Tabanidae) of the Ethiopian Region. Volume III. Subfamilies Chrysopsinae, Sepsidinae and Pangoniinae and a revised classification. British Museum (Natural History), London. xii + 489 pp.
- Ovazza, M. 1956. Contribution à l’étude des diptères vulnérants de l’Empire d’Éthiopie. III. Tabanidae. *Bull. Soc. Pathol. Exot.*, **49**: 197–204.
- Ovazza, M. and Rodhain, F. 1972. Note sur les tabanidés et les glossines de la basse vallée de l’Omo (Éthiopie). *Bull. Soc. Pathol. Exot.*, **65**: 166–169.
- Taylor, P.D., Turnbull, D.A. and Smith, S.M. 1992. Mating and oviposition behavior of *Tabanus gibensis* (Diptera: Tabanidae). *J. Afr. Zool.*, **106**: 303–311.
- Thorsteinson, A.J., Bracken, G.K. and Hanec, W. 1965. The orientation behavior of horseflies and deerflies (Diptera: Tabanidae). III. The use of traps in the study of orientation of tabanids in the field. *Entomol. Exp. Appl.*, **8**: 189–192.
- White, G.B. 1977. Man-biting species of *Chrysops* Meigen, *Culicoides* Latreille and *Simulium* Latreille in Ethiopia, with discussion of their vector potentialities. *Trans. R. Soc. Trop. Med. Hyg.*, **71**: 161–175.

¹ On some maps and in some publications, the English transliteration is given as “Ghibe”.