

TABANIDAE FROM FORMOSA

collected by Mr. H. SAUTER.

By GERTRUDE RICARDO.

The species included in this paper were sent me by Dr. KERTÉSZ for identification, all in very good preservation.

For references and explanation of the groups refer to my paper: Records of Indian Museum, IV. No VI, p. 111 (1911).

TABANUS.

In Group II.

1. *Tabanus sexcinctus* RICARDO.

Two females from Toyenmongai.

In Group IV.

2. *Tabanus negativus* RICARDO.

Three males and one female from Takao (1. VII. 1907).

In Group VI.

3. *Tabanus fuscicornis* RICARDO.

I described this species from Punkio, Formosa, collected by Mr. A. E. WILEMAN.

In Group VII.

4. *Tabanus abbreviatus* BIG.

Four females from Takao (23. VI. 1907).

5. *Tabanus aurotestaceus* WALKER.

WALK., List. Dipt. V, Suppl. 1, pp. 214, 253 (1854); RICARDO, Records Indian Museum, IV, No VI, p. 163 (1911).

WALKER described the male only, from Shanghai. There are two well preserved, female specimens in the Berlin Museum and Mr. SAUTER's Coll. respectively, from Formosa and a female from Lang Son, Tongking in the Paris Museum, from which it is possible to more fully describe the female of this species.

A yellowish medium sized species with a broad yellow median stripe on abdomen.

Forehead narrow. Legs yellowish, fore femora black, tibiæ white. Length of females 17—18 mm.

Face yellow with yellow hairs. Cheeks and subcallus a darker shade of yellow: Palpi the same as these last in colour, fairly stout ending in an obtuse point, with black pubescence. Antennæ bright red, the first two joints paler, with black hairs, the third broad at base with distinct tooth.

Forehead about nine times as long as it is broad, barely half as wide anteriorly as it is at vertex. Frontal callus greenish yellow very narrow, not reaching eyes, with a lineal extension. Thorax covered with yellowish brown tomentum and with fulvous hairs, a few black hairs intermixed. Scutellum the same. Abdomen a little darker in colour, the stripe composed of golden yellow hairs, which are also scattered over the rest of the dorsum, but intermixed with black hairs, sides of abdomen with golden yellow hairs. Legs yellowish, the fore femora black, the fore tibiæ white, black at apex, the other tibiæ whitish yellow. Tarsi black, pubescence yellow on pale parts, black on the dark parts. Wings clear, veins yellowish.

In Group VIII.

6. *Tabanus mandarinus* SCHIN.

Male from Taihorinho, female from Svihenkyaku.

7. *Tabanus amaenus* WALKER.

A long series of males and females from Takao (10. VII. 1907) and Koshun (VII. 1909).

8. *Tabanus indianus* RICARDO.

A series of males and one female from Takao (18. VI. 1907).

In Group IX.

9. *Tabanus fulvemedius* WALKER.

WALK., List. Dipt., I, p. 152 (1848); RICARDO, Records Indian Museum, IV, No VI, p. 197 (1911).

Tabanus melanopygatus, ♀, BIGOT, Mem. Soc. Zool. France, p. 651 (1892). [*Atylotus*.]

Tabanus pagodinus, ♀, BIGOT, l. c. p. 654 (1892). [*Atylotus*.]

A series of females from Kosempo, Fuhosho (1909.) and Toyenmongai. as usual from this Island dark in colouring.

Type (male) and others from same localities. These are more reddish brown in colouring than the females. Eyes with the large facets occupying two thirds of the surface, almost reaching to the base of the frontal triangle, next the subcallus, and reaching the vertex. Palpi yellow with yellow and brown hairs. Beard and hairs on face yellow, some brown ones on the cheeks. Abdomen reddish brown on the first three segments,

then blackish, the median yellow haired stripe narrower than in the female; underside reddish yellow, a little darker at apex. Legs more wholly reddish yellow. Wings tinged yellowish, no appendix is present. Length. 14·5—16 mm.

10. *Tabanus crassus* WALKER.

Three male from Takao (27. VII. 1907) and Lake Candidius (X. 1907).

11. *Tabanus sanguineus* WALKER.

One female from Takao (10. VI. 1907).

12. *Tabanus exoticus* n. sp. ♂ ♀.

Type (male), Type (female) and a series of males and females from Fuhosho, Koshun and Alikang.

A large blackish brown or reddish brown species in general appearance rather resembling *Tabanus sanguineus* WALKER, from which it is at once distinguished by the dark not white base of tibiæ. Abdomen with greyish yellow median spots and narrow bands. Forehead narrow. Legs blackish. Length 17—21·5 males, 19—21·5 mm. females.

♀. Face covered with greyish tomentum, more yellowish brown on the cheeks, some blackish hairs in centre below antennæ, elsewhere white.

Beard white or yellowish. Palpi reddish yellow, almost the same width throughout, with short black pubescence. Antennæ dull reddish brown, the third joint broad at base with a distinct tooth, the first two joints with black pubescence. Forehead narrow, about eight times as long as it is broad, and a third narrower anteriorly. Frontal callus blackish, oblong, narrow, not reaching the eyes, with a lineal extension. Forehead with some black pubescence. Thorax brownish, with grey tomentum, a few fulvous hairs are intermixed with the black pubescence. Scutellum the same.

Abdomen blackish brown, with a grey tomentose median triangular spot on each segment, each spot clothed more or less with short yellow hairs, the posterior borders of segments grey tomentose, widest at the sides, with yellow hairs, most numerous at the sides; underside the same but with no median spots; dorsum of abdomen with short black pubescence, sides with yellow and black hairs. Legs dark, the femora blackish with grey tomentum and black pubescence, on their upper and lower borders with yellowish hairs, the fore coxæ covered with grey tomentum and with yellow hairs, tibiæ dark reddish, the tarsi blackish, both with black pubescence. Wings tinged yellowish brown, the veins brown, an appendix present, the first posterior cell often a little narrowed at border. Two females are much redder brown in colouring on the abdomen.

♂. The males are all reddish brown, like the two females: Eyes with the large facets occupying quite two thirds of their surface, reaching the apex of frontal triangle, but not attaining the vertex, a very narrow border of small facets being apparent at vertex and gradually becoming wider. Palpi yellow with black hairs. Face yellow, and the hairs on it chiefly pale. Antennæ brighter red.

Abdomen reddish brown, the last two segments darker, the spots and narrow bands more yellowish or yellowish red than grey. Wings with appendix not always present.

13. *Tabanus Sauteri* n. sp. ♂ ♀.

Type (female) from Fuhosho, Formosa and other females from same locality. Type (male) from Fanano-Tacko, Formosa.

A blackish medium sized species with greyish with bands and spots near *Tabanus khasiensis* RICARDO (Records Indian Museum, IV, p. 193, 1911) but distinguished from it by the dark wings, yellow beard and scutellum uniform in colour with no white pubescence. Length 15.5—16.5 mm.

♀. Face covered with greyish yellow tomentum, above the antennæ brown, a few black hairs below the antennæ in centre and on upper cheeks. Beard pale yellow. Palpi blackish, almost uniform in size, ending in a short point, with some greyish tomentum and with black pubescence.

Antennæ black, the first two joints with black hairs, the third with a distinct tooth.

Forehead the same colour as above antennæ, narrow, about eight times as long as it is broad anteriorly, nearly parallel, the frontal callus black, shining, oblong with a short prolongation ending in a point, not reaching the eyes. Thorax brownish with some grey tomentum, pubescence black, the breast and sides pale greyish yellow with yellow hairs.

Scutellum brown covered with greyish tomentum.

Abdomen black with narrow grey tomentose bands on each segment, widening in the middle of the second to a large triangular spot, but in the following ones only appearing as small truncated spots, pubescence black, a few glistening white hairs on centre spots; underside with broader bands not extending into median spots, clothed with white hairs.

Legs black. Wings dark brown, becoming paler on the posterior border and at apex, veins brown.

♂. Similar to female. The large facets of eyes hardly reach the vertex, but attain the base of the frontal triangle. Antennæ have the third joint reddish. Wings with the dark colour less extended, leaving the apex quite clear.

In Group X.

14. *Tabanus formosiensis* RICARDO.

Females from Takao (19. VII. 1907).

15. *Tabanus perakiensis* RICARDO.

A female from Fuhosho.

16. *Tabanus pallidepectoratus* BIGOT.

BIG., Mém. Soc. Zool. France. V, p. 658 (1892) [*Atylotus*]; RICARDO, Records Indian Museum, IV, No VI, p. 209 (1911).

The type came from Cochin China. In a small collection sent me by Mr. SURCOUF belonging to the Paris Museum is a female of this species from Haifong, Tongking. The male has not been described, but in the Brit. Mus. Coll. is a male from Formosa. and another in the Coll. of the Hung. Nat. Mus. from the same island, which are identical with the female from Haifong. The eyes have the upper two thirds occupied by the large facets which reach beyond the apex of the frontal triangle and to the vertex, but beyond the vertex they begin to recede, leaving a gradually wider border of the small facets. Palpi yellow with black hairs. Face covered with yellow tomentum and with yellowish brown hairs.

Abdomen similar to that of female; underside with blackish bands which almost entirely occupy the last five segments, the segmentations fringed with yellow pubescence, the seventh wholly blackish. Length 22 mm. males and females.

The golden yellow pubescence of abdomen is much thicker in the female specimen than in the type (owing to denudation in this last) and extends as triangular median spots on each segment, and as a broad border to each segment posteriorly.

17. *Tabanus candidus* n. sp. ♀.

Type (female) from Formosa.

A species near *Tabanus birmanicus* BIGOT, but quite different. A large black species with a white haired thorax and scutellum. Thorax sharply distinguished from the dull deep black abdomen. Antennæ legs and palpi blackish. Forehead narrow. Length 21 mm.

Face covered with dark brown tomentum and with black hairs in centre below antennæ and on the cheeks.

Beard blackish brown. Palpi blackish, slightly stouter at base, ending in an obtuse point.

Antennæ blackish, the third joint somewhat reddish brown, the first two joints with a little black pubescence. Subcallus and forehead the same colour as face, some greyish tomentum on forehead above the frontal callus. Forehead about seven times as long as it is broad, hardly

half the width anteriorly, that it is at vertex, frontal callus black, narrow, not reaching the eyes, its short extension nearly equal in width, ending in a point.

Thorax brownish, with a blackish brown central stripe and less defined lateral ones, dorsum covered with thick appressed silvery white pubescence, some black hairs intermixed, especially on the stripes. Scutellum the same.

Abdomen dull blackish with black pubescence; underside the same. Legs black with black pubescence. Wings tinged smoky brown, with white streaks in most of the cells, veins blackish brown.

CHRYSOPS.

1. *Chrysops dispar* FABR.

I saw specimens from Lake Candidius (X. 1907), Kagi (10. VIII. 1907), Koroton (IX. 1907), Takao (12. X. 1907), Koshun (III. 1908), Suihenkyaku (VIII. 1908), Tainan (VI. 1912) and Anping (VI. 1912).

2. *Chrysops sinensis* WALKER.

I have identified specimens from Kagi (10. VIII. 1907).

SILVIUS.

1. *Silvius formosensis* n. sp. ♂ ♀.

Type (male), Type (female) from Toyenmongai, Formosa.

A small reddish yellow species allied to *Silvius indianus* RICARDO (Records Indian Museum, IV, p. 374, 1911), but distinguished by the absence of black stripes on the abdomen and by the darker coloured tibiae and tarsi. Length 8–9 mm.

Face wholly reddish yellow, with some yellowish hairs on its lower part. Palpi same colour, in the female long and narrow, in the male club shaped with yellow hairs. Antennae reddish yellow, the first two joints more pale yellow with pale hairs.

Forehead in female broad, the same width throughout, the very small frontal callus hardly distinguishable. Ocelli on vertex. Eyes in male with the large facets occupying the upper two thirds of surface.

Thorax and abdomen reddish yellow, the former with three dark brownish short stripes. Legs yellowish brown, the femora and coxae yellow, pubescence on the pale parts yellow on the dark parts brownish. Wings clear, veins brown.