

# BULLETIN ZOOLOGISCH MUSEUM

 UNIVERSITEIT VAN AMSTERDAM

Vol. 10 No.7 1984

## NEW AFROTROPICAL SPECIES OF *TIPULA* SUBG. *ACUTIPULA* ALEXANDER, 1924 (DIPTERA, TIPULIDAE)

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### ABSTRACT

Four new species of *Tipula* subg. *Acutipula* Alexander, 1924, from the Afrotropical Region are described, viz. *bakundu* n.sp., *bamileke* n.sp., *bubiana* n.sp. and *mungo* n.sp.; all species originated from Fernando Poo and/or Cameroun.

### INTRODUCTION

During studies on the phylogeny of the subgenus *Acutipula* Alexander, 1924, (in preparation) unidentified material collected around the Gulf of Guinea was examined. It occurred that this material, deposited in the collections of the Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn (M.A.K.B.) and the Instituut voor Taxonomische Zoölogie (Zoölogisch Museum), Amsterdam (Z.M.A.), contained several species new to science. The species are described herewith and, where possible, notes on allied taxa are given.

I wish to thank Dr. H. Ulrich for the opportunity to study the material from Bonn.

*Tipula (Acutipula) bakundu* n.sp.

Figs. 1-8.

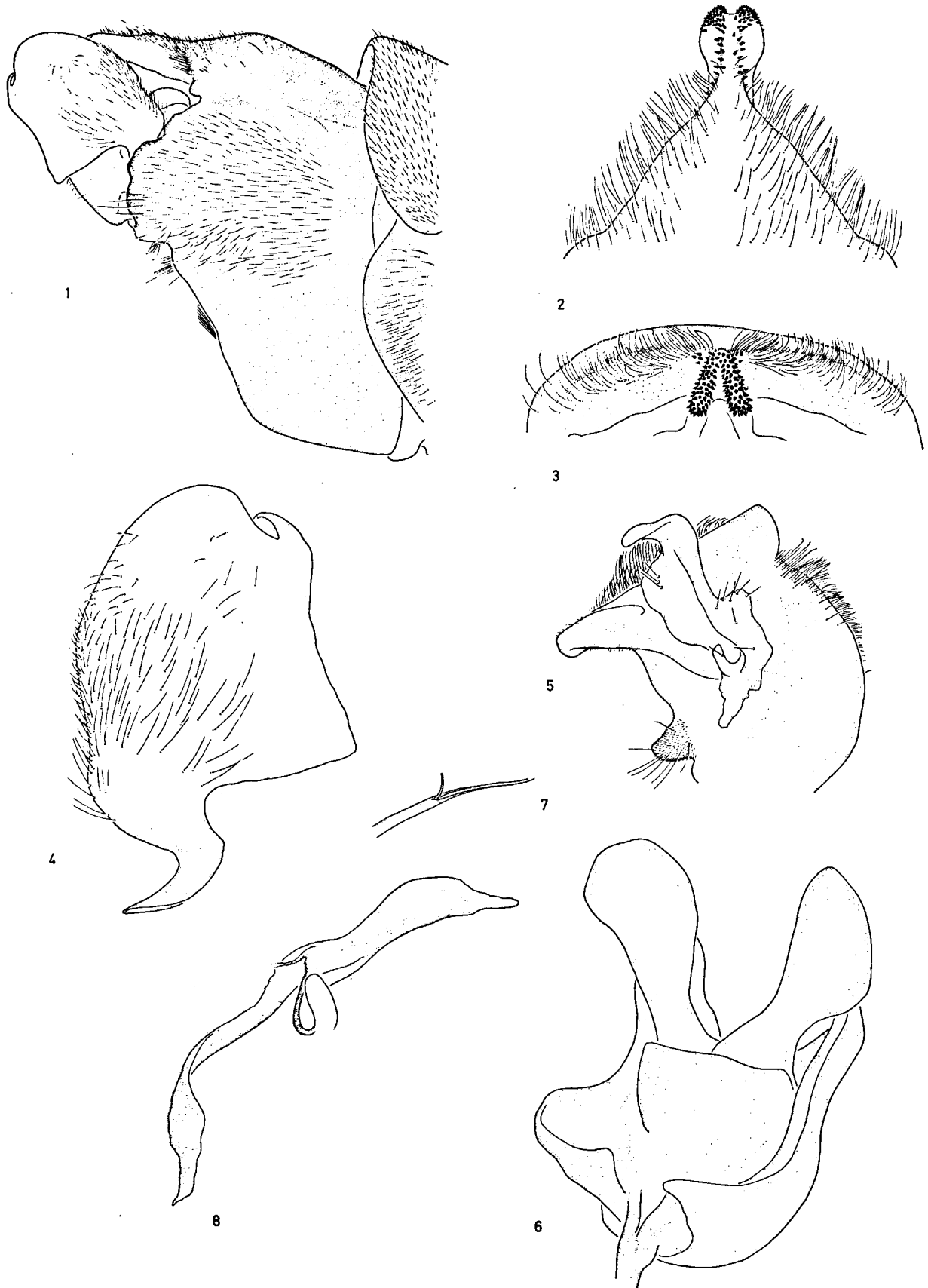
### Type material.-

Holotype ♂, labelled: "Kamerun Lager am/Kupe 1100 m. b. Nyasos/6.12.1966 W. Hartwig leg." "Holotype/Tipula (*Acutipula*)/bakundu/H. de Jong 1984".

Paratype ♂, labelled: "Fernando Poo/Rio Lladyi 1150/m/5.=12.1962/W. Hartwig leg." "Paratype/Tipula(*Acutipula*)/bakundu/H. de Jong 1984". Condition good, postabdomen of paratype in tube on same pin. Holotype preserved in M.A.K.B.; paratype preserved in Z.M.A.

### Description.-

Body length 19 mm (♂); wing length 21 mm (♂); antennal length 3.8-4 mm (♂). Body colour brownish-yellow.



Figs. 1-8. *T. (A.) bakundu* n.sp. 1: Hypopygium, lateral view; 2: Tergite 9, dorsal view; 3: Tergite 9, caudal view; 4: Left outer dististyle, outside; 5: Left inner dististyle, outside; 6: Semen pump, anterolateral view; 7: Intromittent organ, apex; 8: Adminiculum and appendages, lateral view.

Head ( $\delta$ ): Antennae 13 segmented, completely yellowish-brown; flagellomeres slightly nodulose at base; verticils up to 1.8 x length of flagellomeres. Palpi: first segment yellowish-brown; segment 2-4 brownish-black, subshining; segment 5 brownish-black at base, fading to pale-brown towards tip. Head: brown on dorsal surface of rostrum, remainder pale-brown; rostrum well developed, with broad lateral brownish-black spot extending from base of rostrum anteriorly; nasus well developed; frons subshining, frontal tubercle absent.

Thorax ( $\delta$ ): Pronotum on central and lateral parts brownish tinged; dorsal surface of mesothorax darkened; scutum 1 with 4 scutal stripes bordered by dark-brown margins; scutum 2 with 2 pairs of spots bordered the same way; hind rim of scutellum and central portion of parascutellum dark-brown to brownish-black; a somewhat indistinct dark-brown band from anterior spiracle to dark-brown posterior basalare; dorsal part of anepimeron, anatergite and dorsal part of katatergite darker; membrane along anterior margin of front coxae darkened. Legs: coxae, trochanters and femora yellowish-brown, tip of femora darkened; remainder of legs gradually darker towards tip; apical segment of tarsi pale-brown;  $\delta$  claws toothed; tibial spur formula 1.2.2. Wings: slightly yellowish-brown tinged, especially along costal margin and in central portion; veins pale-brown, veins  $R_{4+5}$ ,  $CuA_1$  and (apical part of)  $CuA_2$  infuscated; an indistinct pale band running from front of pale-brown pterostigma through discal cell into cell  $m_3$ ; squama with a few macrotrichia. Halteres pale-brown.

Abdomen ( $\delta$ ): Tergites pale-brown in ground-colour, from middle of tergite 2 towards tip of abdomen medially darker; spots at lateral margins of tergites 2-6 brown to brownish-black, forming an interrupted stripe; sternite 1 yellowish-brown, following sternites gradually darker towards abdominal end; segment 9, except pale-brown extension of tergite 9, brown to dark-brown.

Hypopygium: External and internal structures figs. 1-8. Posterior extension of tergite 9 long and slender, slightly bifid at tip, apex set with black spines (figs. 2 and 3); sternite 9 with paired brush of stiff upward directed

spines; outer dististyle pale-brown, very large, posteriorly curved inwards, basally with slightly upcurved appendage (fig. 4); inner dististyle with typical lateral outgrowth (fig. 5); semen pump large (fig. 6); intromittent organ short, reaching into segment 8, apex tripartite (fig. 7); adminiculum with broad pubescent adminicular rods (fig. 8).

Remark.-

So far no species closely related to *T. (A.) bakundu* is known.

Etymology.-

This species is named after the Bakundu, the people living in the Mungo-area, one of the oldest tribes along the coast of Cameroun.

*Tipula (Acutipula) bamileke* n.sp.

Figs. 9-16

Type material.-

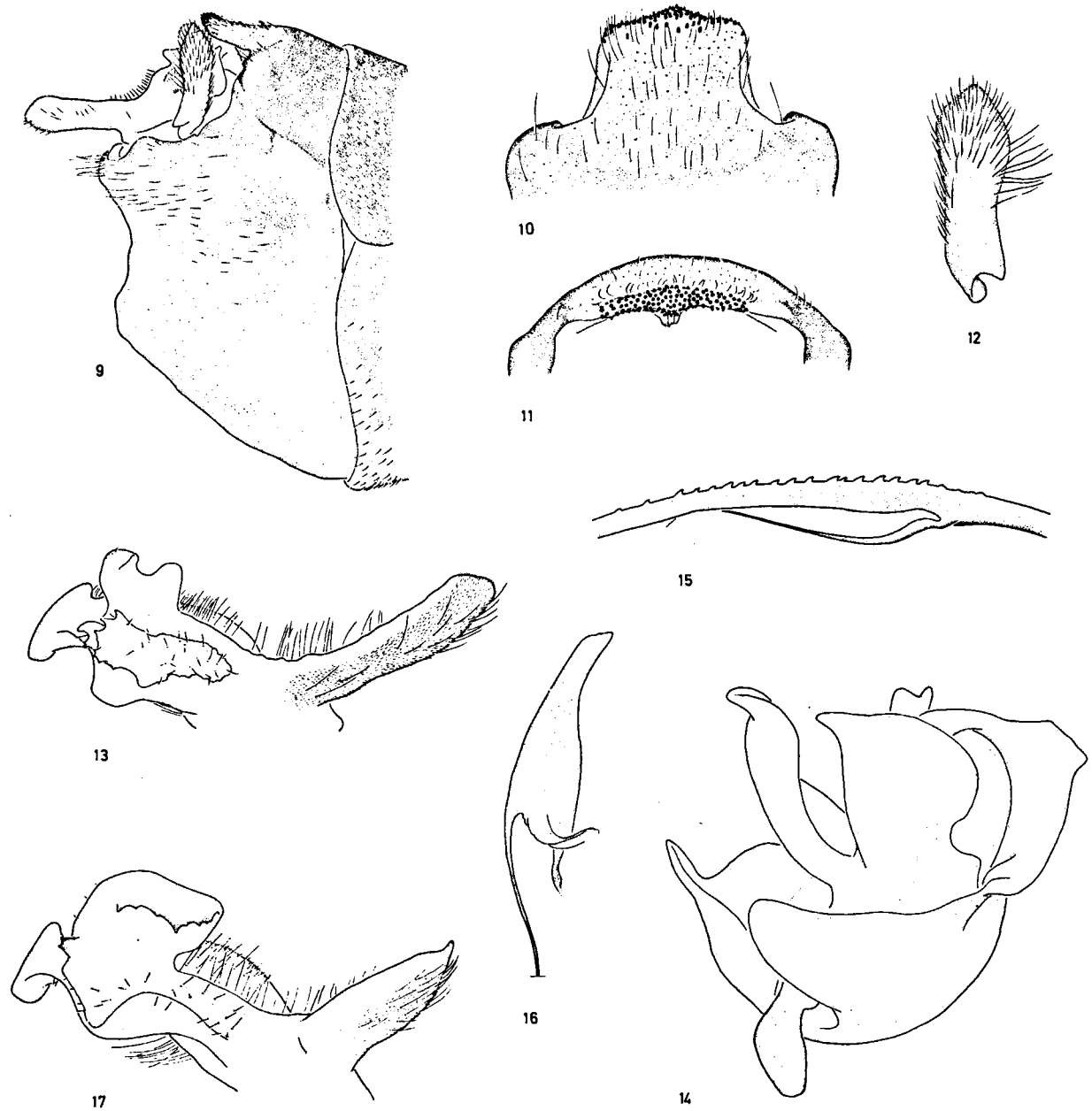
Holotype  $\delta$ , labelled: "Kamerun Lager D'Ikume, Rumpi Hills 1100 m./27.2.1967 W. Hartwig leg." "Holotype/Tipula (Acutipula)/bamileke/H. de Jong 1984". Condition good. Postabdomen in tube on same pin. Material preserved in M.A.K.B.

Description.-

Body length 16 mm ( $\delta$ ); wing length 18 mm ( $\delta$ ); antennal length 4.2 mm ( $\delta$ ). Body colour dark-brown with yellow.

Head ( $\delta$ ): Antennae 13 segmented; scape and pedicel yellow; flagellomeres brownish-black, except slightly nodulose pale base; verticils up to 2 x length of flagellomeres. Palpi: first, fourth and fifth segments pale-brown, intermediate segments dark-brown. Head dark-brown in groundcolour; rostrum dark-brown on dorsal surface, ventral surface paler; nasus dark-brown; frons shining, pale-brown; frontal tubercle absent; vertex dark-brown, with lighter narrow median stripe; rim posterior of eyes pale-brown; postgenae pale-brown to yellowish.

Thorax ( $\delta$ ): Pronotum dark-brown; dorsal surface of thorax pale-brown, with darker markings; the 4 scutellar stripes bordered by dark margins; lateral margins of dorsum darkened; pleura pale-brown to pale-yellow in ground-colour, all sclerites extensively dark-brown



Figs. 9-16. *T. (A.) bamileke* n.sp. 9: Hypopygium, lateral view; 10: Tergite 9, dorsal view; 11: Tergite 9, caudal view; 12: Left outer dististyle, outside; 13: Left inner dististyle, outside; 14: Semen pump (in situ apodemes directed ventrally, see text); 15: Intromittent organ at point of partitioning; 16: Adminiculum and part of adminicular rods, lateral view.

Fig. 17. *T. (A.) rubricapilla* Alexander. Left inner dististyle, outside.

tinged. Legs: coxae pale-yellow in groundcolour, with dark-brown markings, more so on mid- and hind-coxae; trochanters pale-yellow; femora brownish, darkened apically; tibiae and tarsi darkened; ♂ claws toothed; tibial spur formula 1.2.2. Wings brownish tinged, pterostigma brown; veins brown, lighter along hindmargin; squama with a few macrotrichia. Halteres with pedicel pale at base; rest dark-brown.

Abdomen (♂): Tergites dark-brown with diffuse lighter spots; sternites pale-brown, posterodorsal part of sternite 7 and sternite 8 entirely dark-brown; sternite 9 pale-brown with darker spots.

Hypopygium: External and internal structures figs. 9-16. Posterior extension of tergite 9 broad, with black spines along apical margin (figs. 10 and 11); sternite 9 without striking features; outer dististyle longer than wide (fig. 12); inner dististyle with long caudal extension (fig. 13); semen pump as in fig. 14, in situ twisted 180° with the compressor apodemes directed ventrally; intromittent organ lengthened, reaching into segment 6, with row of teeth at point of partitioning just beyond semen pump (fig. 15); adminiculum with long and slender adminicular rods, up to 4 x length of adminiculum; rods distally membranous (fig. 16).

#### Remarks.-

*T.(A.) bamileke* closely resembles *T.(A.) langi langi* Alexander, 1920, and *T.(A.) langi rubricapilla* Alexander, 1920, from Zaire and Uganda. Although differing in colour characteristics the species have the overall structure of tergite 9, sternite 9 and of the inner dististyle in common (cf. figs. 13 and 17). Other features shared are the long and slender adminicular rods, the lengthened intromittent organ and the typical structure and position of the semen pump. Distinguishing characters for *bamileke* are found in the details of the inner dististyle and the comb of teeth on the intromittent organ.

#### Etymology.-

This species is named after the Bamileke, the people living in the mountains of West Cameroun.

### *Tipula (Acutipula) bubiana* n.sp.

Figs. 18-26

#### Type material.-

Holotype ♂, labelled: "Fernando Poo/bei San Carlos/30.9.1962/W. Hartwig leg." "Holotype/Tipula (Acutipula)/bubiana/H. de Jong 1984". Condition good, all legs, except second and third on left side, missing. Postabdomen in tube on same pin. Holotype preserved in M.A.K.B.

#### Description.-

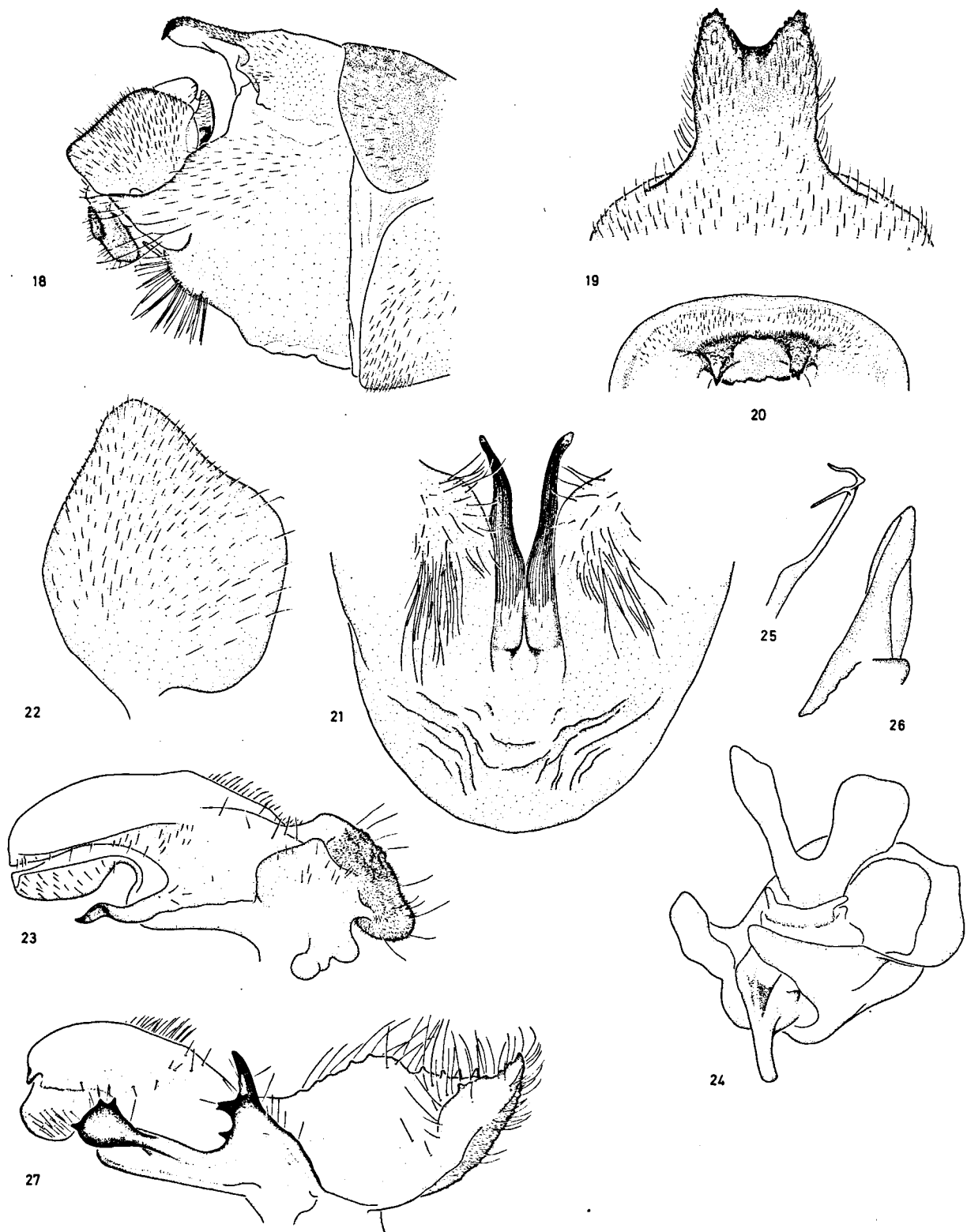
Body length 19 mm (♂); wing length 23 mm (♂); antennal length 4 mm (♂). Body colour brownish-yellow.

Head (♂): Antennae 13 segmented; scape and pedicel yellow; flagellum uniformly brownish; base of flagellomeres slightly nodulose; verticils up to 2.3 x length of flagellomeres. Palpi: first segment yellow, remaining segments brown to pale-brown. Head yellow to brownish-yellow; rostrum yellow, ventrally between eyes subhyaline; nasus darkened apically; frons shining, subhyaline; frontal tubercle absent; occipital marking reddish-brown, apically broader, reaching shining part of frons.

Thorax (♂): Dorsal surface yellowish-brown, scutal stripes vaguely indicated; anterolateral corner of scutum 1 with dark-brown spot; scutellum and mediotergite darker, scutellum with caudally tapering lighter median stripe; pleura pale-yellow; dorsopleural membrane before insertion of wing pale-brown; posterior part of anatergite with brown spot. Legs: coxae and trochanters yellow; femora, tibiae and tarsi darkened; femora with several indistinct darker bands; ♂ claws toothed; tibial spur formula 1.2.2. Wings with a light yellowish-brown tinge, more so along costal margin; veins brownish; veins r-m and m-cu slightly infuscated; pterostigma brown; squama with a few macrotrichia. Halteres with pedicel brown, knob dark-brown.

Abdomen (♂): Dorsal surface, except tergite 9, brown; tergite 9 and sides of tergites 1 and 2 yellowish; sternites pale-yellow.

Hypopygium: External and internal structures figs. 18-26. Posterior extension of tergite 9 bifid, apically roughened (figs. 19, 20); basistyle caudally triangularly produced (fig. 18);



Figs. 18-26. *T. (A.) bubiana* n.sp. 18: Hypopygium, lateral view; 19: Tergite 9, dorsal view; 20: Tergite 9, caudal view; 21: Sternite 9 with appendages, caudal view; 22: Left outer dististyle, outside; 23: Left inner dististyle, outside; 24: Semen pump, anterolateral view; 25: Intromittent organ, apex; 26: Adminiculum, lateral view.  
 Fig. 27. *T. (A.) gaboonensis* Alexander. Left inner dististyle, outside.

sternite 9 with a pair of long and slender appendages (fig. 21); outer dististyle a large flattened blade with keel along inner frontal margin (fig. 22); inner dististyle fig. 23; semen pump rather small, somewhat lengthened (fig. 24); intromittent organ short, reaching into segment 8, bifid at apex (fig. 25); adminiculum short and stout, with short adminicular rods (fig. 26).

Remarks.-

*T. (A.) bubiana* is closely related with and strongly resembles the regional *T. (A.) gaboonensis* Alexander, 1920, the type-species of the subgenus. Both species share the overall coloration, whereas *gaboonensis* shows a more distinct pattern on the dorsal surface of the thorax and has the wings more uniformly brownish tinged. Both species have the shining frons, the spots on the antero-lateral corner of scutum 1 and on the posterior part of the

anatergite in common. The structure of tergite 9 and sternite 9, which bears a pair of long protuberances, is almost identical in both species. Conspicuous differences are found in the structures of the inner dististyles (cf. figs. 23 and 27).

Etymology.-

This species is named after the Bubi, the original inhabitants of Fernando Poo.

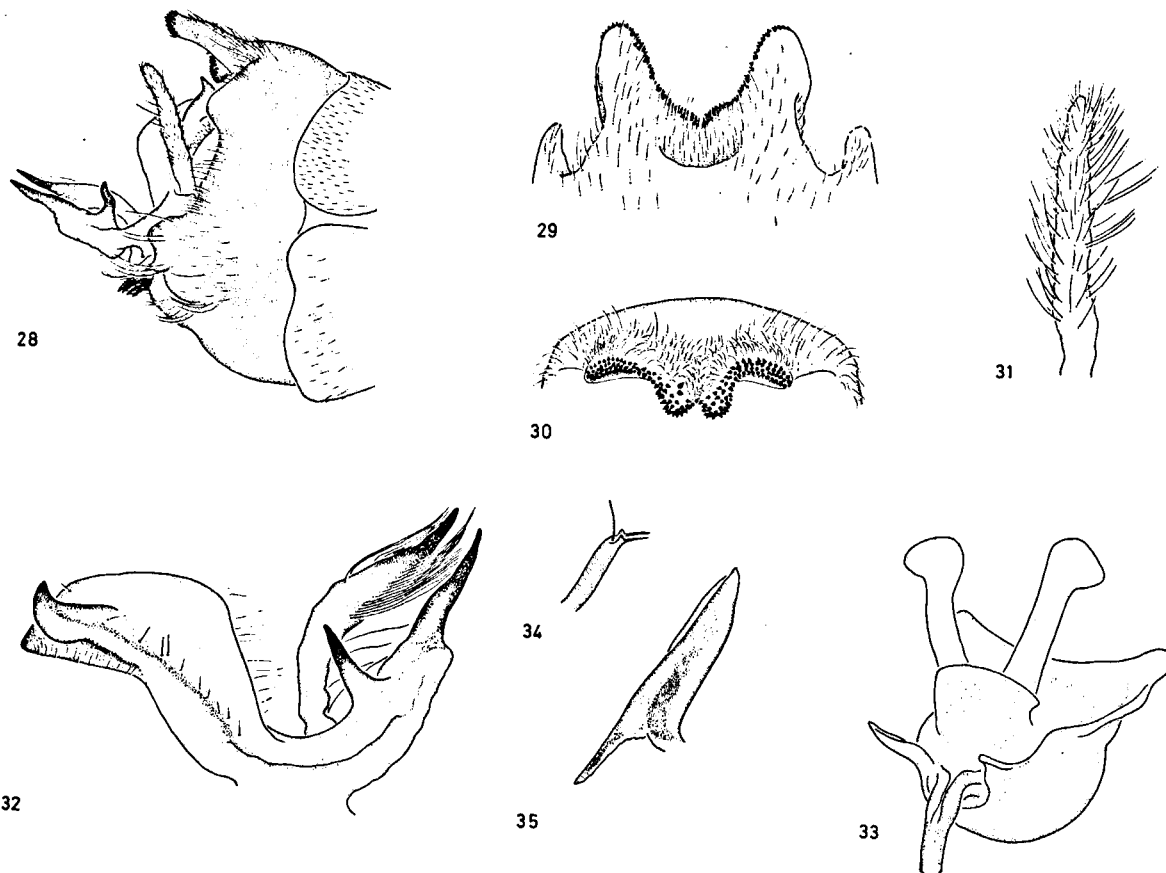
*Tipula (Acutipula) mungo* n.sp.

Figs. 28-35

Type material.-

Holotype ♂, labelled: "W. Afrika/Mt Cameroon/Hut 1/4.11.1962" "Ex alcohol" "Holotype/Tipula (Acutipula)/mungo/H. de Jong 1984.

Paratype ♂, labelled the same except for paratype label; postabdomen in tube on same pin. Material collected by Dr. G.G.M. Schulten. Condition good. Material preserved in Z.M.A.



Figs. 28-35. *T. (A.) mungo* n.sp. 28: Hypopygium, lateral view; 29: Tergite 9, dorsal view; 30: Tergite 9: caudal view; 31: Left outer dististyle, outside; 32: Left inner dististyle, outside; 33: Semen pump, anterolateral view; 34: Intromittent organ, apex; 35: Adminiculum, lateral view.

## Description.-

Body length 12 mm ( $\delta$ ); wing length 17-18 mm ( $\delta$ ); antennal length 2.9 mm ( $\delta$ ). Body colour pale-brown.

Head ( $\delta$ ): Antennae 13 segmented, pale-brown, darker towards tip; base of flagellomeres slightly nodulose and somewhat darker; verticils up to 2 x length of flagellomeres. Palpi pale-brown, segments 2 and 3 somewhat darker. Head pale-brown, darker on dorsal surface of rostrum, vertex and occiput; nasus distinct; frontal tubercle absent; occipital marking dark-brown, V-shaped, pointing forward.

Thorax ( $\delta$ ): Rim of prescutum and posterior part of paratergite dark-brown; lateral portion of pronotum darker; surface of scutum 1 and 2 darker, the 4 scutellar stripes paler, surrounded by dark-brown margins; anepisternum, dorsal part of katepisternum, anepimeron, anatergite and posterior part of katatergite darkened. Legs pale-brown; coxae, especially fore-coxae, darkened laterally; femora darkened apically;  $\delta$  claws toothed; tibial spur formula 1.2.2. Wings: somewhat crumpled, yellowish-brown tinged; veins pale-brown, darker at wingtip; pterostigma pale-brown; basal section of vein  $CuA_1$  infuscated; pale band in front of pterostigma running through discal cell into cell  $m_3$ ; squama with a few macrotrichia. Halteres with pale-brown pedicel, knob somewhat darker.

Abdomen ( $\delta$ ): Tergites pale-brown, becoming darker towards abdominal end; sternites yellowish-brown at base of abdomen, somewhat darker towards hypopygium.

Hypopygium: External and internal structures figs. 28-35. Posterior extension of tergite 9 medially excavated; margins medially incurved, set with black spines (figs. 29 and 30); sternite 9 with a few downward curved spines be-

tween hairs at base of adminiculum (fig. 28); outer dististyle slender (fig. 31); inner dististyle with several sclerotized spiny excrescences (fig. 32); semen pump fig. 33; intromittent organ short, reaching into segment 8, tripartite at apex (fig. 34); adminiculum stout, with short adminicular rods (fig. 35).

## Remarks.-

So far no species closely related to *T. (A.) mango* are known. The characteristic structure of the apical margin of tergite 9 and the structure of the inner dististyle distinguish this species from all of the other species of the subgenus *Acutipula*.

## Etymology.-

This species is named after the region east of Mount Cameroun.

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received : 28.III.1984  
 distributed : 7.XII.1984