

- FASSOTTE C. & GROOTAERT P., 1981. — Contribution a l'étude de la faune des Diptères capturés en automne au piège Malaise a Ottignies (Belgique, Brabant). *Bull. K. Belg. Inst. Nat. Wet.*, 53 (14) : 1-15.
- JEPSON W.F. & SOUTHWOOD T.R.E., 1958. — Population studies on *Oscinella frit* L. *Ann. appl. Biol.*, 46 (3) : 465-474.
- JONES F.G.W. & JONES M.G., 1974. — *Pests of field crops*. London 448 pp.
- KRIZELJ S., 1970. — Un nouveau type de piège d'émergence. *Bull. Rech. agron. Gembloux.*, 4 (3-4) : 555-556.
- NARTSHUK E.P., 1960. — On the biology of the genus *Dicraeus*. *Ent. obozr.*, 39 : 585-593 (Russian).
- NYE J.W.B., 1958. — The external morphology of some of the dipterous larvae living in Graminae of Britain. *Trans. Roy. Ent. Soc. Lond.*, 110 : 411-487.
- RYGG T., 1967. — Emergence periods and population fluctuations of the frit fly *Oscinella frit* L. (Diptera, Chloropidae) in Norway. *Norsk. ent. Tidsskr.*, 14 : 12-23.
- TONNOIR A., 1921. — Notes sur les Chloropidae (Dipt.) de Belgique. *Bull. Soc. Ent. Belg.*, 61 (3) : 131-136.
- VAN EMDEN H.F., JEPSON W.F. & SOUTHWOOD T.R.E., 1961. — The occurrence of a partial fourth generation of *Oscinella frit* L. (Diptera : Chloropidae) in Southern England. *Entomologia exp. appl.*, 4 : 220-225.
- VICKERMAN G.P., 1980. — The phenology of *Oscinella* spp. (Diptera, Chloropidae). *Bull. ent. Res.*, 70 : 601-620.
- VON TSCHIRNHAUS M., 1981. — Die Halm- und Minierfliegen im Grenzbereich Land-Meer der Nordsee. Eine ökologische studie mit beschreibung von zwei neuen Arten und neuer Fang- und Konservierungsmethoden (Diptera : Chloropidae et Agromyzidae). *Spixiana suppl.*, 6 : 405 pp.
- WENDT H., 1968. — Faunistisch-ökologische Untersuchungen an Halmfliegen der Berliner Umgebung. (Dipt. Chloropidae). *Dt. ent. Z. (N.F.)*, 15 : 49-105.
- YARKULOV F., 1971. — About the biology of predaceous flies *Thaumatomyia sulcifrons* BECKER and *Tb. notata* MEIG. (Chloropidae, Diptera). *Zool. Zh.*, 50 : 1252-1254 (Russian).

## TROPIDUCHIDAE (Homoptera, Fulgoroidea) FROM MOUNT KUPE (CAMEROON)\*

by Jan VAN STALLE\*\*

### Introduction

This paper deals with the Tropicuchidae collected during the second Belgian expedition to Cameroon. The first expedition was mainly concentrated on Mount Cameroon, and lasted from February to April 1981. Details were published by BOSMANS (1982), and a list of the Homoptera Fulgoroidea was given by VAN STALLE (1982 & in press).

The second expedition took place from January to April 1983 and investigated a mountain chain starting with Mount Cameroon and extending in northeastern direction along Mount Kupe, the Manengouba Hills, the Bambouto Mountains, the Mbam Massif, Mount Oku, the Tchabal Mbabo Massif and the Poli Mountains (Hosseré Vokré). The material studied below is deposited in the collections of the Koninklijk Belgisch Instituut voor Natuurwetenschappen.

The vegetation of these mountains was described by LETOUZEY (1968), but almost everywhere the primary forest has been replaced by a secondary vegetation or man-made habitats such as pastures, cultivated areas and small villages. The submontane and montane forest belt was mostly restricted to small relicts (gallery forests) along rivers and valleys with steep slopes difficult to access. This was the case for the Bambouto Mountains, the Mbam Massif, Mount Oku, the Poli Mountains and the lower parts of the Manengouba Hills and the Tchabal Mbabo Massif. Well-developed

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forests occurred on the two latter in remote areas, respectively at 2200 and 2000 meters.

The vegetation on Mount Kupe on the contrary was rather intact and greater parts of the submontane and montane forest belt above 800 m and a forest reserve at  $\pm$  500 m are well-developed. The same conditions are present on Mount Cameroon and on the Small Mount Cameroon (Étinde), especially due to their protection as a national nature reserve and because of their only recent cultivation, as is the case with Mount Kupe and its surroundings.

These conditions with large areas of primary woodland maintain a relatively high and stable humidity, while small relict areas are more influenced by the seasonal variations of the climate. They could give a readily explanation for the occurrence of woodland species such as Tropiduchidae (genera *Tropiduchus*, *Neotaxilana* and *Haliartus*), especially in the very dry season of early 1983.

A survey of the species of these genera already recorded from Cameroon only confirms this hypothesis: the genus *Tropiduchus* was hitherto represented by four species: *Tropiduchus anceps* FENNAH, recorded from Douala by SYNAVE (1969), and *T. ino* FENNAH and *T. electra* FENNAH recorded from « case du Nyong », a river in the southern tropical part of Cameroon; *Tropiduchus bifasciatus* VAN STALLE (in press) was described from Mount Cameroon and Mount Etinde. It was not sampled on the other mountains during the present trip, which consolidate its endemic status. Two more species were described from Fernando Po: *T. subfasciatus* (MELICHAR) and *T. castigator* (MELICHAR).

The genus *Neotaxilana* SYNAVE was hitherto represented by one species, namely *N. lamabokensis* SYNAVE, described from Lamaboke (C.A.R.), which coincides with the northern limit of the tropical rain forest. Two more species are described below.

*Haliartus centralis* (GERSTAECKER) was already recorded from Case du Nyong by FENNAH (1957), and from Mount Cameroon by VAN STALLE (in press). It was sampled on Mount Kupe at 500 and 900 m (2/6-II-1983).

#### List of species

##### *Tropiduchus kupei* n. sp. (fig. 1 to 3)

Material examined. — Holotype ♂ — Mount Kupe 1300 m, 30-I-1983.

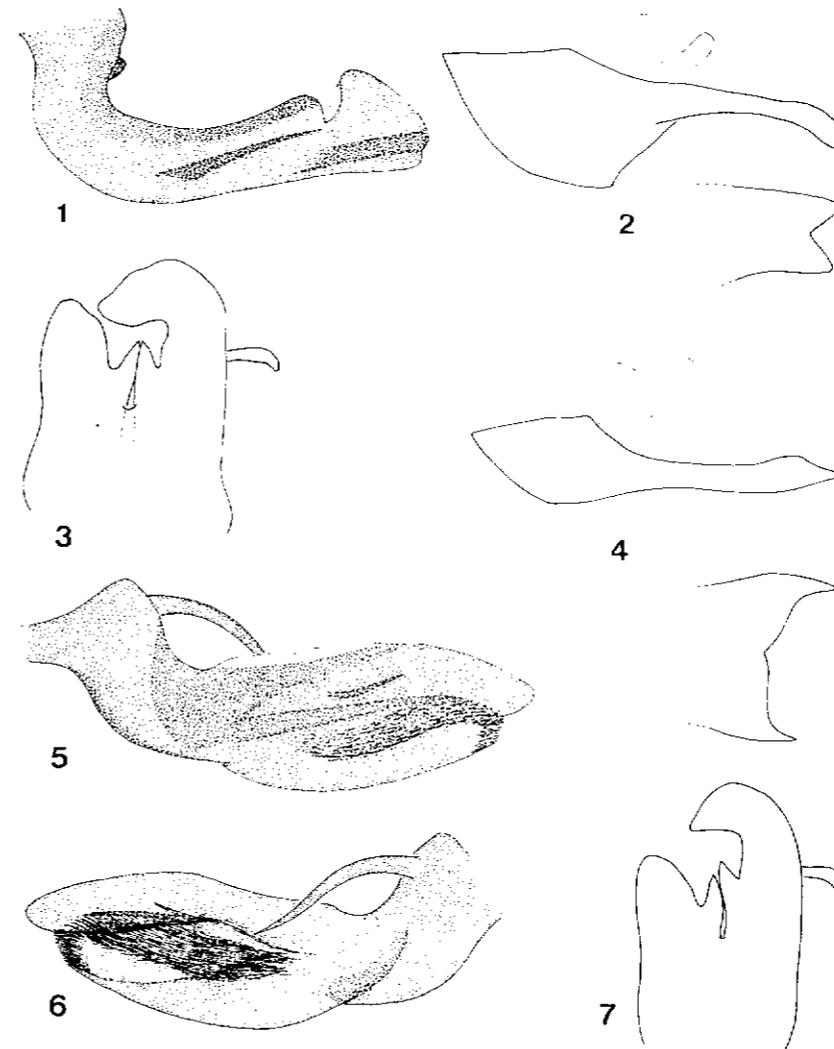


FIG. 1 to 3. — *Tropiduchus kupei* n. sp.

1: aedeagus, left lateral view; 2: anal segment, with a detail of the apex in dorsal view; 3: genital styles, ventral view.

FIG. 4 to 7. — *Tropiduchus pallidus* n. sp.

4: anal segment, with a detail of the apex in dorsal view; 5: aedeagus, left lateral view; 6: aedeagus, right lateral view; 7: genital styles, ventral view.

Description. — Colour pale yellowish-brown throughout. Tegmina hyaline, an indistinct small brown spot on the base of Sc + R and on the base of Cu. Further, apical portion of the tegmina fumated with brown, and a transverse brown band covering the apical transverse veinlets, connecting the costal margin with the tip of the clavus. Posttibiae with three spines laterally and six spines distally. First segment of the posttarsi with five, second with two spines apically.

Male genitalia: anal segment (fig. 2) long, slightly excavated apically (in dorsal view), and thus forming two short tooth-like processes. Pygofer symmetrical. Genital styles asymmetrical (fig. 3), right one longer than left one and the first with a blunt spine along its external border. Aedeagus (fig. 1) long and slender, with a small dorsal lobe basally, and one spine within it.

Total length: 9 mm.

Diagnosis. — This species is closely related to *Tropiduchus bifasciatus* VAN STALLE (in press); it is distinguished from this species by details of the aedeagus.

***Tropiduchus pallidus* n.sp.** (fig. 4 to 7)

Material examined. — Holotype ♂ — Mount Kupe 1600 m, 31-I-1983.

Paratypes. — 1 ♂ 3 ♀, same locality.

Description. — Colour and external features as the preceding species.

Male genitalia: anal segment (fig. 4) long, subsymmetrical, provided with two apical teeth. Pygofer asymmetrical, left side with one small lobe in the ventral half, right side with two unequal smaller lobes. Genital styles (fig. 7) fused together, right one longer and curved from right to left, and provided with a spine along its external border. Aedeagus (fig. 5-6) long and slender, consisted of two sclerotised lamellae, a dorsal and a ventral one, the latter provided with stout black setae apically. Two unequal spines visible inside the lamellae, just above a long sac-like vesicle which is densely covered by black setae. Further, a long curved dorsal spine inserted near the base of the aedeagus and directed to the right side.

Total length: 8.5 - 9 mm.

Diagnosis. — This species is easily characterized by the shape of the aedeagus.

***Tropiduchus silvicola* n. sp.** (fig. 8 to 11)

Material examined. — Holotype ♂ — Mount Kupe 900 m, 2-II-1983.

Paratypes. — 2 ♂ 2 ♀, same locality; 3 ♂, same locality, 30-I-1983; 1 ♂, same loc., 6-II-1983, at light; 1 ♂ 1 ♀, Mount Kupe 550 m, 31-I-1983, at light; 1 ♂ 2 ♀, same locality, 30-I-1983; 3 ♂ 4 ♀, Mount Kupe 1600 m, 31-I-1983.

Description. — Colour and external features as the preceding species.

Male genitalia: anal segment moderately long (fig. 8-9), gently rounded apically and devoid of spines. Pygofer symmetrical, rounded in profile. Left genital style longer than right one, curved apically from left to right and provided with a spine along its external margin (fig. 11). Aedeagus (fig. 10) upcurved apically, and provided with two subequal spines, straight in the holotype and most paratypes, but sometimes bended and pointed away from each other.

Total length: 7.5-8 mm.

Diagnosis. — Easily recognisable from the other species treated in this paper. The longest genital style is the left one, while it is the opposite way in the other species. Further it also differs in details of the aedeagal structure, especially by the presence of two upwards directed spines and by the absence of teeth on the apex of the anal segment, and finally, *Tropiduchus silvicola* n. sp. is somewhat smaller than the species mentioned above.

***Neotaxilana picturata* n. sp.** (fig. 12 to 15)

Material examined. — Holotype ♂ — Mount Kupe 1600 m, 31-I-1983.

Description. — Proportions and colour of frons, vertex, pronotum and mesonotum as those of *Neotaxilana lamabokensis* SYNAVE. Tegmina hyaline with a brown mark as illustrated (fig. 14), which

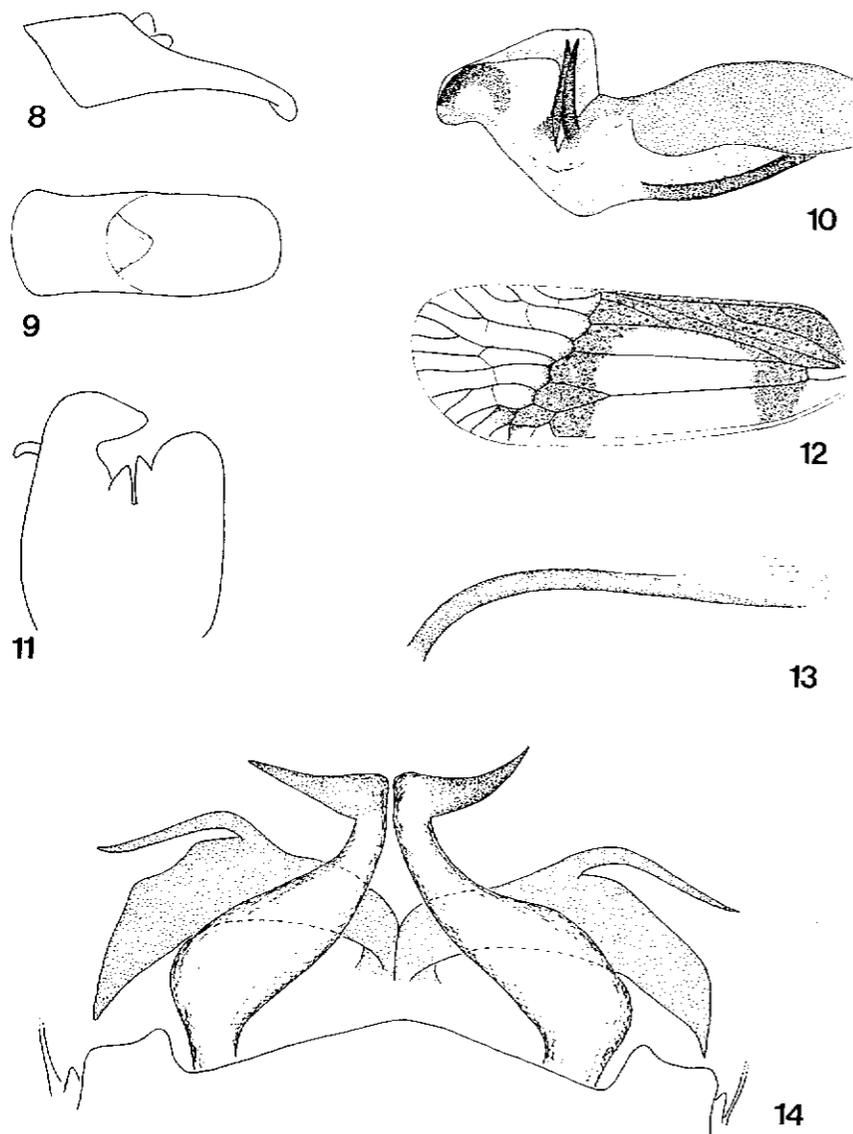


FIG. 8 to 11. — *Tropiduchus silvicola* n. sp.

8: anal segment, left lateral view; 9: anal segment, dorsal aspect; 10: aedeagus, right lateral view; 11: genital styles, ventral view.

FIG. 12 to 14. — *Neotaxilana picturata* n. sp.

12: right tegmen; 13: aedeagus, left lateral view; 14: genital styles, with the caudal border of the pygofer, ventral view.

is densely covered by white spots; costal membrane almost inexistent; veins white, not covered by the brown colour.

Male genitalia: anal segment (fig. 15) short, broadening distally. Genital styles as figured (fig. 14), each provided with a sclerotised spinose process as illustrated. Pygofer (fig. 15) with posterior lateral margins weakly convex, each ventrolateral edge with two unequal processes. Aedeagus (fig. 13) long and slender, strongly curved basally and broadening distally into a blunt lobe.

Total length: 7.5 mm.

Diagnosis. — This species is easily characterized by the shape of the male genitalia, and especially by the typical shape of the genital styles.

***Neotaxilana curtirostris* n. sp.** (fig. 16 to 20)

Material examined. — Holotype ♂ — Mount Kupe 1300 m, 31-I-1983.

Description. — General colour ivory white; lateral borders of the frons abruptly widening before the frontoclypeal suture. Vertex (fig. 20) broader than long (49:41), with a short median keel. Tegmina (fig. 18) hyaline, with a brown narrow band extending basally from the costal to the commissural margin, then to the apex of the clavus, and finally returning to the costal border along the transverse veins. The latter white, not covered by the brown colour. Costal membrane almost inexistent.

Male genitalia: anal segment (fig. 19) short; pygofer as illustrated (fig. 19); genital styles (fig. 16) long and slender, curved inwards distally and tapering, each with a cylindrical appendage dorsally and a sclerotised hook-like process medially. Aedeagus simple, tubular, not sclerotised, and gently curved ventrally in lateral view.

Total length: 5 mm.

Diagnosis. — This species is easily distinguished from *Neotaxilana lamabokensis* SYNAVE by the short colourless vertex, the colour pattern on the tegmina, the unarmed aedeagus, and the typical shape of the genital styles.

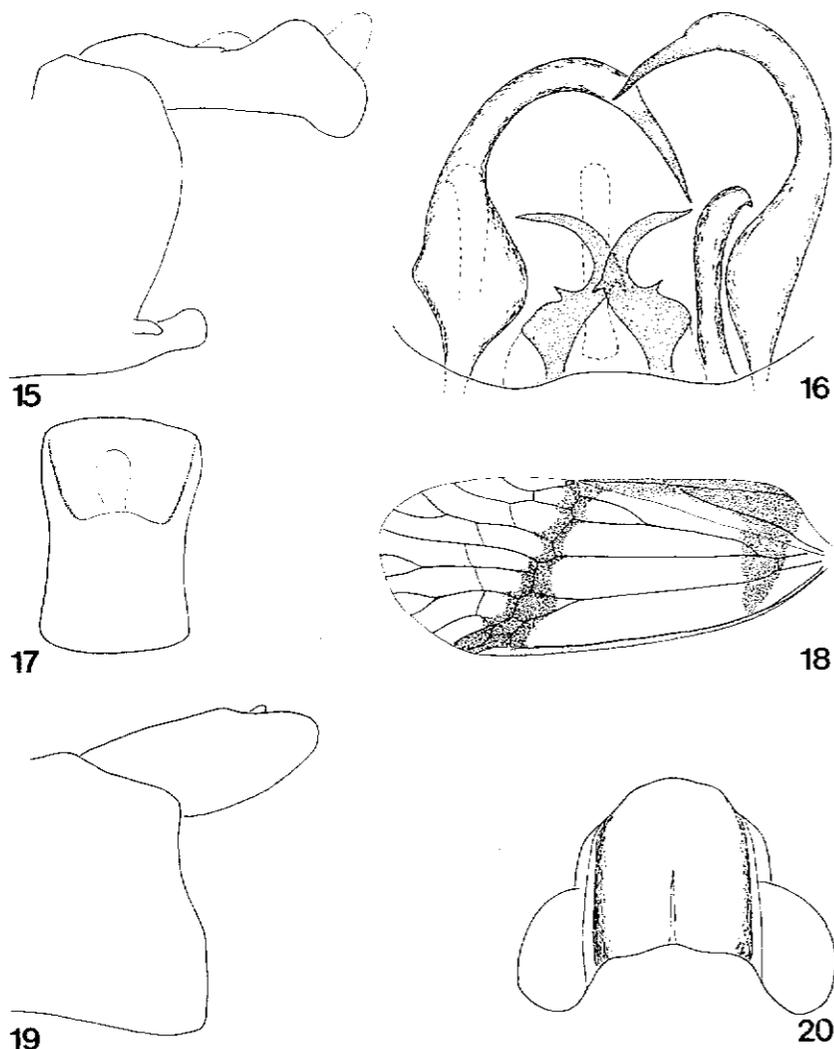


FIG. 15. — *Neotaxilana picturata* n. sp.

15 : pygofer and anal segment.

FIG. 16 to 20. — *Neotaxilana curtirostris* n. sp.

16 : genital styles and caudal border of the pygofer, ventral view (dotted line : aedeagus); 17 : anal segment, dorsal view; 18 : right tegmen; 19 : pygofer and anal segment; 20 : vertex.

### Acknowledgements

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### Summary

Five species of the family Tropiduchidae (Homoptera, Fulgoroidea) are newly described from Mount Kupe (south west Cameroon): *Tropiduchus kupei* n. sp., *T. pallidus* n. sp., *T. silvicola* n. sp., *Neotaxilana picturata* n. sp., and *N. curtirostris* n. sp. *Haliartus centralis* (GERSTAECKER) was also recorded on several heights.

### References

- BOSMANS R., 1982. — Scientific Results of the Belgian Mount Cameroon Expedition, February-April 1981. I : Situation of the collecting sites on the altitudinal gradient. Description of *Hahnia leopoldi* n. sp. (Aranea : Hahniidae). *Rev. Zool. Afr.*, 96, 3 : 670-682.
- FENNAH R.G., 1957. — Results from the Danish Expedition to the French Cameroon, 1949-1950. XXIV : Fulgoroidea. *Bull. I.F.A.N.*, XIX, ser. A (4) : 1274-1311.
- LETOUZEY, 1968. — Etude phytogéographique du Cameroun. P. Lechevalier, Paris, 511 p.
- MELICHAR L., 1914. — Monographie der Tropiduchinen (Homoptera). *Verh. Naturf. Ver. Brünn*, 53 : 82-226.
- SYNAVE H., 1969. — Some African Fulgoroidea in the United States National Museum. *Proc. Ent. Soc. Wash.*, 71 : 174-190.
- SYNAVE H., 1979. — Description d'espèces nouvelles appartenant aux familles Cercopidae, Cixiidae, Derbidae, Dictyopharidae et Tropiduchidae (Homoptera). *Bull. Inst. r. Sci. nat. Belg.*, 51 (6) : 1-31.
- VAN STALLE J., 1982. — Scientific Results of the Belgian Mount Cameroon Expedition, February - April 1981. III. Fam. Cixiidae, Derbidae, Meenopliidae, Dictyopharidae, Achilidae, Lophopidae, and Tettigometridae (Homoptera, Fulgoroidea). *Bull. Inst. r. Sci. nat. Belg.*, 54 (6) : 1-18.
- VAN STALLE J., in press. — Scientific Results of the Belgian Mount Cameroon Expedition. VII. Fam. Delphacidae, Tropiduchidae and Ricaniidae, with notes on the altitudinal zonation of Homoptera Fulgoroidea on Mount Cameroon. *Bull. Inst. r. Sci. nat. Belg.*