

RESEARCH COMMUNICATION

**AFROTROPICAL *CULICOIDES*: *C. (Avaritia) spinifer* KHAMALA & KETTLE, 1971, A NAME BASED ON AN ARTEFACT (DIPTERA: CERATOPOGONIDAE)**

R. MEISWINKEL, Veterinary Research Institute, Onderstepoort 0110

ABSTRACT

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*Culicoides (Avaritia) spinifer* Khamala & Kettle, 1971, is made a junior subjective synonym of *C. (A.) glabripennis* Goetghebuer, 1935.

During studies on the Afrotropical species of the genus *Culicoides* subgenus *Avaritia* the holotype of *C. spinifer* Khamala & Kettle, 1971, kindly loaned by Dr John Boorman of the British Museum (Natural History), was examined. Khamala & Kettle described the species from a single male collected in a light-trap on the 10. X. 1966 at Kaimosi, Kenya, and so named it because 'from the centre of the aedeagus arises a long, nearly straight posteroventral process extending beyond the apex of the aedeagus'.

Upon close examination of the genitalia at 1000 × magnification, it can be seen that *C. spinifer* draws its name from an artefact. As shown in Fig. 2 and 3 the 'posteroventral process' of the aedeagus is in fact a very misleadingly positioned, finely striated, moth scale. A 2nd, thinner and slightly shorter moth scale can be seen lying obliquely across the 1st. In slidemounted specimens of bloodsucking midges it is not uncommon to find extraneous lepidopteran scales, especially in material caught in light traps. This is easily explained. The death throes of a free-flying male suddenly finding itself in a liquid medium are characterized by the rapid clasp and unclasp of the genitalia. During these spasms it may come into contact with numerous other insects, especially moths, which have previously entered the trap and died; the still-flailing newcomer will soon die perhaps clutching moth scales, legs or a stray antenna. These will subsequently find their way into slide preparations.



FIG. 1 *C. (Avaritia) spinifer*. Wing, male holotype

Having established the anomaly that is *C. spinifer* what then is its true identity? Firstly some remarks on the condition of the holotype, this followed by a brief redescription of *C. spinifer*. Condition: Head squashed, eyes not cleared of red pigment; only 1 antenna present its distal 3 segments collapsed; thorax broken up, flattened; 1 wing and all legs in good condition; male genitalia partially squashed. Redescription: Eyes rather strongly hairy between facets; 3rd palpal segment slender and nearly parallel-sided with a small discrete sensory pit, 3rd

segment as long as 2nd segment; antenna with a sensilla coeloconica distribution as follows: 2 coeloconica apically on segment III, 1 or 2 subapically to apically on each of segments XIII-XV; blunt-tipped sensilla trichodea distribution as follows: 2 long blunt-tipped trichodea on segment III, 2 long and 1 short on IV-VI, 1 long and 1 short on each of segments VII-X with no long or short trichodea on segments XI and XII. Male genitalia (Fig. 2 & 3): membrane of sternum 9 not spiculate in the fairly deep and wide excavated area; aedeagus normal for the

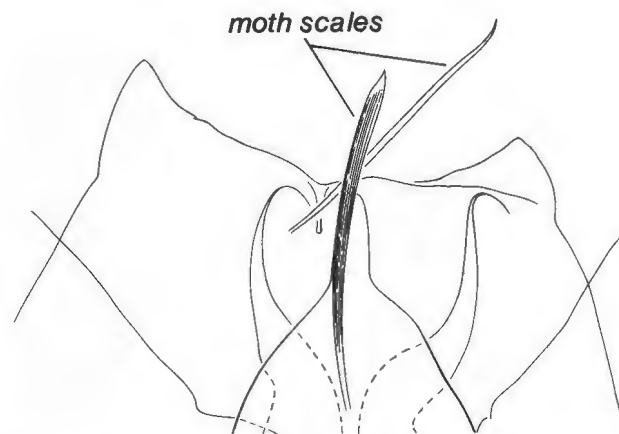


FIG. 2 *C. (Avaritia) spinifer*. Genitalia, male holotype showing striated moth scales.

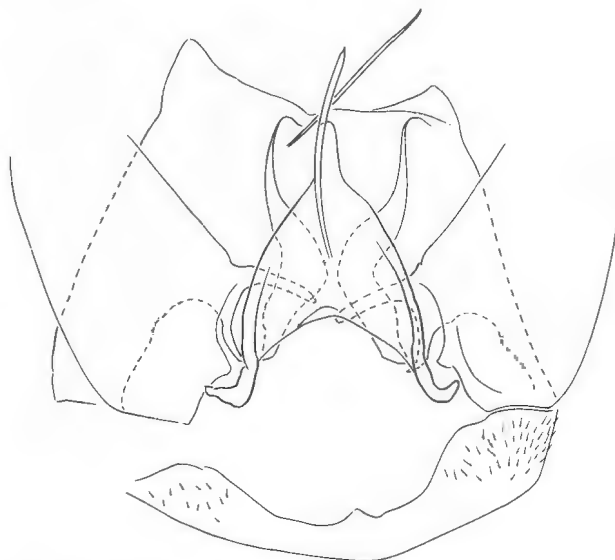


FIG. 3 *C. (Avaritia) spinifer*. Genitalia, male holotype

subgenus *Avaritia* in that it has basally a fairly high concave arch, not infuscate along its margin, and has a rather slender apical projection of short to moderate length that is parallel-sided and smoothly rounded apically; parameres also normal for the subgenus in being separate and ending in fine, simple recurved tips; tergum 9 with apicolateral processes on each corner, these short and blunt with inner margins sloping at 45° to very broad bases, and are separated medianally by a small shallow excavation; basistyles with dorsal and ventral feet as typically seen in the subgenus *Avaritia*. Wing (Fig. 1) with a rather diffuse pattern of light and dark areas and few to no macrotrichia.

In the Afrotropical region there are a number of species groups within the subgenus *Avaritia*. Three character states squarely place *C. spinifer* within the *grahamii* group: diffuse wing pattern, hairy eyes, and characteristically shaped tergum 9. Only 3 described species constitute the *grahamii* group at present: *C. grahamii* Austen, 1909, *C. glabripennis* Goetghebuer, 1935 and *C. spinifer* Khamala & Kettle, 1971. *C. glabripennis* has been variously placed as a synonym of *C. grahamii* by Kr mer, Rebholtz-Hirtzel & Delecolle (1975) and Wirth, De Meillon & Haeselbarth (1980), and of *C. imicola* (under the name of *C. pallidipennis*) by Khamala & Kettle, 1971. However, I agree with Itoua & Cornet (1986) who resurrected *C. glabripennis* to species status separating it from its congener *C. grahamii* on small but constant differences in wing pattern, wing macrotrichia, distribution of sensilla coeloconica on the female antenna and on the presence or absence of spiculae on the membrane of sternum 9 in the male genitalia. Furthermore, these morphological differences are upheld by important differences in biology; *C. grahamii* is strongly anthropophilic in west and central tropical Africa, being incriminated by Sharp (1927) as a vector of the filarial worm *Mansonella perstans* (= *Microfilaria perstans*) in man. This has led to a number of intensive investigations into the biology and ecology of *C. grahamii* (Auriault 1977a,b; Itoua, 1984; Vattier-Bernard, Itoua, Trouillet & Lallemand, 1986). Though occurring sympatrically with *C. grahamii*, *C. glabripennis* is rarer and not a man-biting species (Itoua, Vattier-Bernard & Trouillet, 1987). The type localities of *C. glabripennis* and *C. spinifer* are Vitshumbi (00° 41' S, 29° 23' E) eastern Zaire, and Kaimosi (00° 12' N, 34° 57' E), western Kenya respectively, and are some 500 km apart. According to White (1983) both localities fall into or are bounded by vegetation types 11a, 19 and 45. The 1st (11a) is a forest transition and mosaic more precisely described as a mosaic of lowland rain forest and secondary grassland of the Guineo-Congolian subtype; the 2nd (19) is also a forest transition and mosaic but is an undifferentiated montane vegetation of Afromontane affinity; the last (45) is a bushland and thicket mosaic of East African evergreen bushland and secondary *Acacia* wooded grassland.

The above brief description of *C. spinifer* shows it to be inseparable from the redescription given by Kr mer *et al.* (1975) of the holotype of *C. glabripennis*. Furthermore, the character states established by Itoua & Cornet (1986) to be diagnostic for *C. glabripennis* perfectly fit those found in *C. spinifer*. Finally, that both *C. glabripennis* and *C. spinifer* have their type localities in identical vegetation zones on the equator, further supports their being one and the same taxon. *C. (A) spinifer* Khamala & Kettle, 1971, is accordingly here designated as a junior subjective synonym of *C. (A) glabripennis* Goetghebuer, 1935.

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