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TWO NEW *CATOXYETHIRA* SPECIES FROM TANZANIA (TRICHOPTERA, HYDROPTILIDAE) AND A REVISED KEY TO TANZANIAN HYDROPTILIDS

Wells, A. & T. Andersen, 1996. Two new *Catoxyethira* species from Tanzania (Trichoptera, Hydroptilidae) and a revised key to Tanzanian hydroptilids. – Tijdschrift voor Entomologie 139: 85-89, figs. 1-5. [ISSN 0040-7496]. Published 15 October 1996.
Catoxyethira giboni sp. n. and *C. stolzei* sp. n. from Tanzania are described and a new record is given for *C. crinita* Wells & Andersen, 1995. Species groups in *Catoxyethira* are discussed briefly, and a revised version of a recently published key to Tanzanian Hydroptilidae is given.
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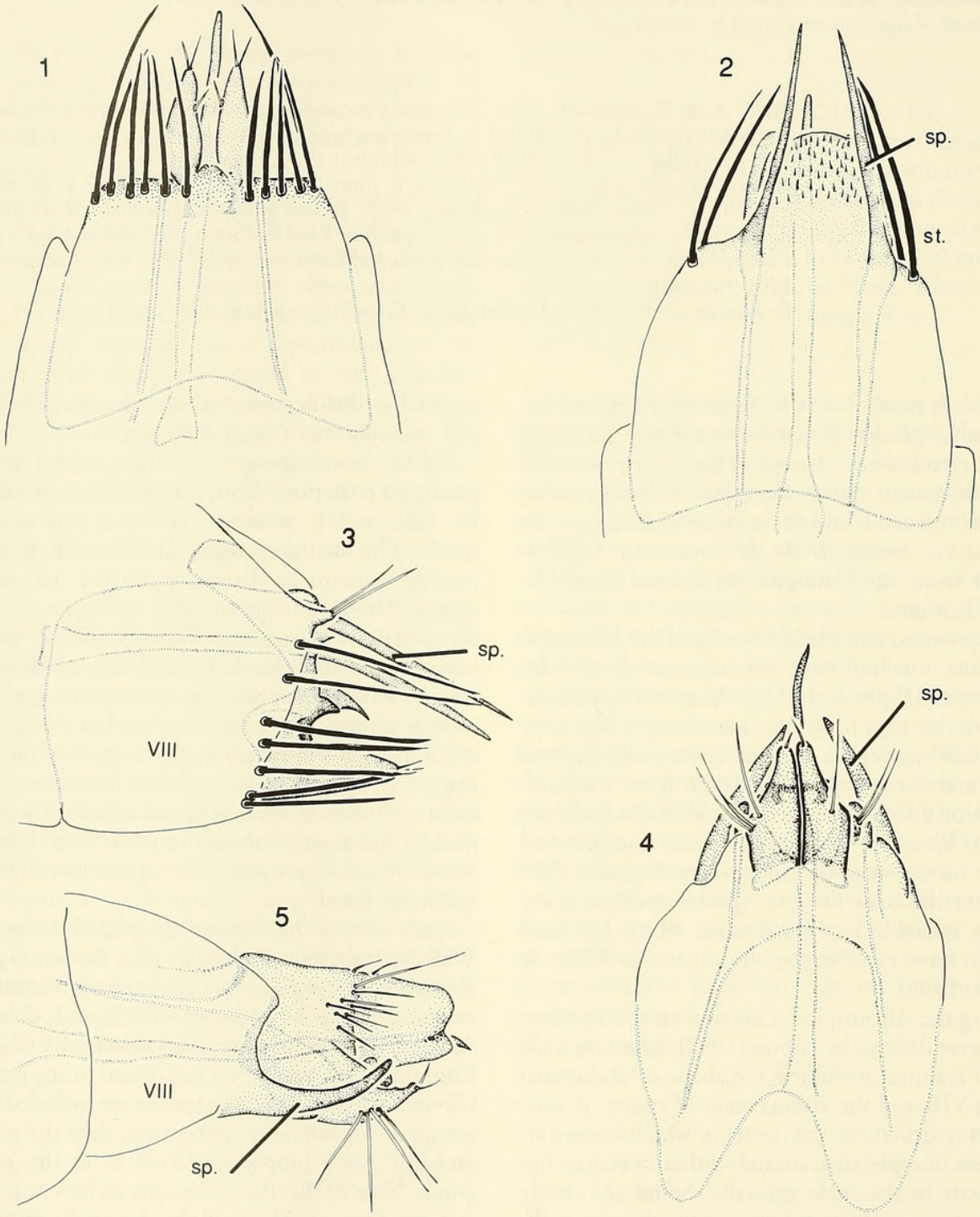
In a recent paper (Wells & Andersen 1995), we described nine species of *Catoxyethira* from Tanzania. Since that study went to press we have recognised two further Tanzanian *Catoxyethira* species amongst newly available material and these are described here. In addition, *C. crinita* Wells & Andersen, 1995 is recorded from the Uzungwa Mountains in south-western Tanzania.

Catoxyethira is remarkably diverse in the Afrotropical Region, totalling with the two new species described here, 42 species. Indeed, the genus may be endemic to the region, as the identities of the only non-African species, *C. formosae* (Iwata, 1928), from Taiwan and *C. vedonga* Oláh, 1989, from Vietnam, are questionable (see Gibon 1985; Wells & Andersen 1995). At least the Vietnamese species, distinguished by Oláh from species of *Chrysotrichia* Schmid, 1958 mainly on the basis of tibial spur formula, is more probably referable to *Chrysotrichia*, which has been shown to have variable spur formulae (see Wells & Huisman 1993).

Among the Afrotropical *Catoxyethira* species three groups were defined by Gibon (1993), based on male genitalic features, including the shape of abdominal segment VIII and the arrangement of spines. A variety of spiny structures, the nature of which has not always been interpreted accurately either in text or figures, occur in the male genitalia. Some are clearly specialised stout sclerotised setae, since they are socketed, while others appear to be produced from the margins of abdominal sternite VIII and are, therefore, true spines. Only with hindsight, have we fully appreciated the distinctions between the modified setae and true spines of *Catoxyethira* species.

Gibon's *veruta*-group has a ventro-medial structure produced posteriorly from the apical border of sternite VIII, and is accompanied by a pair of lateral spines. The medial structure may be a single sharply tapered spine or be divided to form a pair of such spines. The second group, the *mali*-group, has the distal margin of segment VII unmodified, and has one or more stout, black, (modified) setae distally on sternite VIII, generally at the apico-lateral angles, but no true spines. The *hougardi*-group has the apico-lateral angles or some more medial section of the apical margin of sternite VIII produced into spines which are usually darkly sclerotised and often are accompanied by black setae inserted near the distal border of the sclerite. Gibon was unable to place seven of the 22 species he listed.

Only one of the Tanzanian species, *C. crenulata* Wells & Andersen, 1995 is placed in the *veruta*-group. Two *mali*-group species are known from Tanzania, *C. ruvuensis* Wells & Andersen, 1995, and *C. ocellata* Statzner, 1977. The latter closely resembles *C. pinheyi* Kimmins, 1958 which was not placed in any group by Gibon (1993). If these two species are included in this group, as we believe is appropriate, then the group is probably more properly referred to as the *pinheyi*-group. Most of the Tanzanian species have true spines and are thus members of the *hougardi*-group – *C. apicospinosa* Wells & Andersen, 1995, *C. lanceolata* Wells & Andersen, 1995, *C. elongata* Wells & Andersen, 1995, *C. crinita* Wells & Andersen, 1995



Figs. 1-5. – 1-3. *Catoxyethira giboni* sp. n., male terminalia: 1, ventral view; 2, dorsal view; 3, lateral view. – 4, 5. *Catoxyethira stolzei* sp. n., male terminalia: 4, ventral view; 5, lateral view. – Abbreviations. VIII: abdominal segment VIII; sp.: spine; st.: seta.

and *C. ciliata* Wells & Andersen, 1995, and the two new species, *C. giboni* sp. n. and *C. stolzei* sp. n.

A fourth group of species, here designated the *improcera*-group for Statzner's (1977) species from Zaire, have quite simple genitalia, lacking completely the spiny armature of others. This group also includes *C. incompta* Wells & Andersen, 1995 and *C. bombolensis* Wells & Andersen, 1995 from Tanzania.

At this stage these species groups are simply categories of convenience as they are not all supported by synapomorphies.

Wells & Andersen (1995) listed 29 species of Trichoptera in the Tanzanian Hydroptilidae, 24 newly described. Our key to the hydroptilids of Tanzania included species in *Ugandatrichia* Mosely, 1939, *Hydroptila* Dalman, 1819, *Dhatrichia* Mosely, 1948, *Tangatrichia* Wells & Andersen, 1995, *Orthotrichia* Eaton, 1873, *Stactobia* McLachlan, 1880, *Scelotrichia* Ulmer, 1951, and *Catoxyethira* Ulmer, 1912. Unfortunately, the key was distorted during publication and we therefore include an amended and updated key to the Tanzanian Hydroptilidae in the present paper.

MATERIAL

The material examined in this study forms part of a Trichoptera collection taken in several of the Eastern Arc Mountains in Tanzania by M. Stolze and N. Scharff (see Stolze 1989). Holotypes are lodged in the Zoological Museum, University of Copenhagen, Denmark (ZMUC), and paratypes in ZMUC and in the Museum of Zoology, University of Bergen, Norway (ZMBN).

Catoxyethira giboni sp. n.

(Figs. 1-3)

Type material. – Holotype male, Tanzania, Uluguru Mts, Morogoro River, 600 m, 3.ix.1982, M. Stolze & N. Scharff, ZMUC. Paratypes: 5 males, data as for holotype; 2 males, 3 females (1 male, 1 female on slide), Tanzania, Uzungwa Mts, Mwanihana Forest, Sanje River, 300-400 m, 24.viii.1982, loc. 9, M. Stolze & N. Scharff.

Description

Anterior wing length 2.6-2.7 mm. Terminalia as in figs. 1-3. Sternite VIII with a row of strong black setae apically, the row interupted midventrally; dorsally a pair of straight elongate spines. Tergite X covered with tiny spinules, rounded apically. Inferior appendages more than 2 times as long as wide, more or less conical in ventral view. Subgenital plate not evident in ventral view but possibly represented by the short, curved spiny structures visible in lateral view. Aedeagus simple, straight.

Etymology. – Named for François-Marie Gibon who has described so many *Catoxyethira* species from tropical Africa.

Remarks. – This species most closely resembles *C. cavallyi* Gibon, 1985 from the Ivory Coast, but differs in having more setae posteriorly on segment IX and the spines without serrations on their margins.

Catoxyethira stolzei sp. n.

(Figs. 4-5)

Type material. – Holotype male, Tanzania, Uzungwa Mts, Mwanihana Forest, Sanje River, 300-400 m, 24.viii.1982, loc. 9, M. Stolze & N. Scharff, ZMUC. Paratype, 1 male (on slide), data as for holotype.

Description

Anterior wing length 2.1-2.3 mm. Terminalia as in figs. 4,5. Sternite VIII with a pair of strong dark setae at each apico-lateral angle, a pair of slender straight spines more medially on the dorsum. Segment IX with a pair of short, apically rounded lateral lobes. Tergite X membranous, without spinules. Inferior appendages stout basally, tapered towards apex, a tuft of setae near base. Subgenital plate with a sclerotised band apically. Aedeagus slender, elongate.

Etymology. – Named for M. Stolze who, with N. Scharff, collected the specimens.

Remarks. – In overall form, the genitalia of this species closely resemble those of *C. ciliata* Wells & Andersen, 1995. *Catoxyethira stolzei*, however, is readily distinguished by its shorter, regularly curved spines.

Catoxyethira crinita Wells & Andersen

Catoxyethira crinita Wells & Andersen, 1995

Biology and distribution. – *Catoxyethira crinita* has been collected from beside a large slow-flowing stream, with a sandy and stony substrate. The new record extends the distribution from northeastern Tanzania to the southwestern part of the country.

Remarks. – The two new specimens referred to this species, show some slight differences from the type material. The bundle of dark setae midventrally is denser and the tips of all setae are turned inwards, and the inferior appendages are separated throughout their length.

Material examined. – 2 males (on slides), Tanzania, Uzungwa Mts, Mwanihana Forest, Sanje River, 300-400 m, 24.viii.1982, loc. 9, M. Stolze & N. Scharff, ZMUC.

Key to males of the Tanzanian Hydroptilidae

This is a revised and modified key after Wells & Andersen (1995). Only figures indicated with an asterisk relate to this paper, all other figure numbers, un-

less otherwise indicated, refer to figures provided by Wells & Andersen (1995).

1. On thorax, mesoscutellum with a transverse suture 2
– On thorax, mesoscutellum without a transverse suture 4
2. Tibial spur formula 1, 3, 4 or 1, 2, 4 3
– Tibial spur formula 0, 3, 4 ....*Scelotrichia glandulosa* Wells & Andersen
3. Tibial spur formula 1, 3, 4 (*Catoxyethira* Ulmer) 8
– Tibial spur formula 1, 2, 4 .... *Stactobia kaputensis* Wells & Andersen
4. On head, ocelli absent 5
– On head, ocelli present 6
5. Forewing with a jugal lobe, tibial spur formula 0,2,4 (*Hydroptila* Dalman) 19
– Forewing without jugal lobe, tibial spur formula 0,3,4 (*Orthotrichia* Eaton) 24
6. Wings slender, attenuate apically, venation reduced (see figs. 4, 32, 51) 7
– Wings broad, forewing rounded apically, venation complete (fig. 26) *Ugandatrichia* Mosely 29
7. On head, antennal flagellar segments with scattered clothing hair; metascutellum triangular, truncate anteriorly (fig. 50) .... *Tangatrichia gracilenta* Wells & Andersen
– Antennal flagellar segments with clothing hair in a basal whorl; on thorax, metascutellum rounded anteriorly (*Dhatrichia* Mosely) 30
8. Abdominal sternite VIII with a pair of true spines or with strong dark setae or both on apical margin (figs. 12-25) 9
– Abdominal sternite VIII with no stout spines or strong setae on apical margin (figs. 8-10) 16
9. Abdominal sternite VIII with 14-16 strong dark setae posteriorly (*figs.1-3) .... *Catoxyethira giboni* sp.n.
– Abdominal sternite VIII with no more than 4 strong dark setae posteriorly or lacking such setae 10
10. Abdominal sternite VIII with a tuft of long dark setae midventrally .... *Catoxyethira crinita* Wells & Andersen
– Abdominal sternite VIII without a tuft of long dark setae midventrally..... 11
11. Abdominal segment VIII with a pair of stout spines, or three spines meso-ventrally (figs. 12-21) 12
– Abdominal segment VIII without spines meso-ventrally (figs. 24-25, *fig. 4) 16
12. Abdominal sternite VIII with a shorter third spine between the paired spines (fig. 21) ....*Catoxyethira crenulata* Wells & Andersen
– Abdominal sternite VIII with one pair of spines only 13
13. Paired spines on abdominal sternite VIII about equal in length to inferior appendages (fig. 13) ... .*Catoxyethira ruvuensis* Wells & Andersen
– Paired spines on abdominal sternite VIII almost 2×length of inferior appendages, or longer 14
14. Length of paired spines on abdominal sternite VIII 2.5 to 3×length of inferior appendages (fig. 18) ..... *Catoxyethira elongata* Wells & Andersen
– Length of paired spines on abdominal sternite VIII no more than 2× length of inferior appendages (e.g. figs. 14, 16) 15
15. Paired spines on abdominal sternite VIII straight in lateral view (fig. 16), curved inwards in ventral view (fig. 17) .... *Catoxyethira lanceolata* Wells & Andersen
– Paired spines on abdominal sternite VIII curved upwards in lateral view (fig. 14), more or less straight in ventral view .... *Catoxyethira apicospinosa* Wells & Andersen
16. Inferior appendages positioned mid-ventrally in a deep excision in abdominal sternite VIII (see Statzner 1977, fig. 24) .... *Catoxyethira ocellata* Statzner
– Abdominal sternite VIII without a deep excision midventrally (fig. 25, *fig. 4) 17
17. Spines on abdominal sternite VIII stout, twisted (fig 25) .... *Catoxyethira ciliata* Wells & Andersen
– Spines on abdominal sternite VIII slender, slightly curved, not twisted (*figs. 4,5) .... *Catoxyethira stolzei* sp. n.
18. Subgenital plate and inferior appendages elongate, subequal in length; inferior appendages cylindrical (figs. 9, 10) .... *Catoxyethira bombolensis* Wells & Andersen
– Subgenital plate about 2× length of inferior appendages; inferior appendages broader basally than distally (fig. 8) .... *Catoxyethira incompta* Wells & Andersen
19. With pair of sclerotised strap-like structures above inferior appendages (fig. 48) 20
– Without pair of strap-like structures above inferior appendages (figs. 39, 42, 43, 46) 21
20. Inferior appendages in ventral view slender, curved, narrowed slightly towards apex, without a black spine apically (see Mosely 1948, fig. 48) .... *Hydroptila cruciata* Ulmer
– Inferior appendages in ventral view stout basally, apically bifid, with strong, black spine ventrally and a pale slender spine dorsally (fig. 48) ....*Hydroptila bumbulensis* Wells & Andersen
21. Inferior appendages short, sub-globose in ventral view, irregular in shape (fig. 46) .... *Hydroptila tannerorum* Wells & Andersen
– Inferior appendages elongate, cylindrical or somewhat sinuous, with length at least 3× width .. 22

22. Aedeagus greatly dilated distally, a single small spine sub-apically (fig. 39) .... *Hydroptila usambarensis* Wells & Andersen
– Aedeagus slender or weakly dilated distally, with one or two spines apically 23
23. Inferior appendages in ventral view dilated in basal half, tapered and out-turned apically; aedeagus with a small spine apically (figs. 41, 42) ....*Hydroptila morogoroensis* Wells & Andersen
– Inferior appendages in ventral view sub-cylindrical; aedeagus divided distally to form a pair of spines in series (figs. 43, 44) .... *Hydroptila mazumbaiensis* Wells & Andersen
24. Abdominal segment IX laterally with paired membranous, digitate processes with 1 or 2 apical setae (e.g. figs. 55-57) 25
– Abdominal segment IX without paired processes laterally (e.g. figs. 58-63) 26
25. Inferior appendages symmetrical (fig. 57) ....*Orthotrichia barnardi* Scott
– Inferior appendages asymmetrical (fig. 55) ....*Orthotrichia bisetula* Wells & Andersen
26. Tibial spurs 0,2,4 .... *Orthotrichia hydroptiloides* Wells & Andersen
– Tibial spurs 0,3,4 27
27. Inferior appendages fused, in ventral view rectangular (fig. 59) .... *Orthotrichia scutellata* Wells & Andersen
– Inferior appendages discrete or partially fused, in form of two unequal lobes 28
28. Inferior appendages rounded, asymmetrical, the left apically with a small sclerotised knob; an elongate process extending distally into a spine at right apico-lateral angle of segment IX (fig. 61) ....*Orthotrichia nigrovillosa* Wells & Andersen
– Inferior appendages tapered distally, the right one twisted; a simple apically rounded process at right apico-lateral angle of segment IX (see Jacquemart 1956, fig. 2) .... *Orthotrichia straeleni* Jacquemart
29. Inferior appendages set into deep excision in abdominal sternite IX, irregular in shape, with small inner spur subapically (fig. 28) ....*Ugandatrichia tanzaniensis* Wells & Andersen
– Abdominal sternite IX with shallow, ventral excision; inferior appendages stout, with inner spur at base (figs. 27, 30) .... *Ugandatrichia dentata* Wells & Andersen
30. Length of inferior appendages in ventral view about 2× width (fig. 35) .... *Dhatrichia divergenta* Wells & Andersen
– Length of inferior appendages in ventral view 3 to 4× width (fig. 37) .... *Dhatrichia cinyra* Wells & Andersen

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