

**MALIQUA: A NEW GENUS OF BAETIDAE
(EPHEMEROPTERA) FOR A SPECIES PREVIOUSLY
ASSIGNED TO AFROPTILUM^{1, 2}**

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ABSTRACT: *Maliqua* (Ephemeroptera: Baetidae), n. gen., is erected for *M. plumosa*, n. comb., a West African species previously assigned to the *dimorphicum* group of *Afroptilum*. Larvae of *Maliqua* are distinguished by possessing minute denticles on the tarsal claws. Adults are distinguished by having segment 2 of the male genital forceps medially expanded at base and setose. *Maliqua* is hypothesized to be closely related to *Cloeodes* on the basis of mouthpart and male genitalic similarities.

Gillies (1990) erected the genus *Afroptilum* (Ephemeroptera: Baetidae) to accommodate all African species previously assigned to *Centroptilum* Eaton. As such, the genus included 30 species in two subgenera, *Afroptilum* s.s. and *Afroptiloides* Gillies. Gillies (1990) further subdivided *Afroptilum* s.s. into informal groupings he called the *dimorphicum*, *sudafricanum*, *sudanense*, and *tarsale* species groups, but he did not provide any phylogenetic rationales for those subdivisions. Wuillot and Gillies (1993) later described four additional species of *Afroptilum* that they variously assigned to the *tarsale* and *dimorphicum* groups.

More recently, species ascribed to *Afroptilum* have been the subject of considerable revisionary work. Wuillot and Gillies (1994) erected the genus *Dicentroptilum* for two distinct species previously considered in the *sudafricanum* group. McCafferty and de Moor (1995) synonymized the subgenus *Afroptiloides* with *Acanthiops* Waltz and McCafferty, and Barber-James and McCafferty (1997) elaborated the rationale for that revision. Lugo-Ortiz and McCafferty (1996a,b,c) erected the genera *Bugilliesia*, *Crassabwa*, and *Dabulamanzia* for most species in the *tarsale* and *sudanense* groups, and Lugo-Ortiz and McCafferty (1997a) demonstrated that two species assigned to the *dimorphicum* group are referable to *Cheleocloeon* Wuillot and Gillies. McCafferty et al. (1997) erected the genus *Micksiops* for a species previously assigned to the subgenus *Afroptiloides*.

In this paper we erect a new genus for *A. plumosum* Wuillot, a West African species originally assigned to the *dimorphicum* group of *Afroptilum* (Wuillot and Gillies 1993). We describe the new genus, hypothesize that it is closely related to *Cloeodes* Traver, and provide guidelines to differentiate the two gen-

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era. Our attempts to secure original material from Paris for examination were not successful; however, because the new genus is so distinctive and involves one of only a few unresolved species that were previously placed in *Afrotitulum*, it is judicious to describe it at this time.

Maliqia Lugo-Ortiz and McCafferty, NEW GENUS

Larva. Head: Labrum (Fig. 1) anteriorly broadly rounded, with deep anteromedial notch. Left mandible (Fig. 2) with incisors fused; prosthema relatively robust, apically denticulate; small tuft of setae between prosthema and mola. Right mandible (Fig. 3) with two broadly based sets of incisors; prosthema somewhat slender, apically with sharp denticles. Maxillae (Fig. 4) relatively robust; palps two segmented, slender, not reaching galealacinae. Labium (Fig. 5) with glossae and paraglossae subequal in length and width; palps three segmented; palp segment 1 slightly longer than segments 2 and 3 combined; palp segments 2 and 3 subequal in length and width; palp segment 3 apically rounded. Thorax: Hindwingpads absent. Legs (Fig. 6) with femora without villopore and with subparallel dorsal and ventral margins; tarsal claws (Fig. 7) with one row of minute subapical denticles. Abdomen: Gills (Figs. 8, 9) on abdominal segments 1-7, platelike, asymmetrical, anteriorly serrate. Median caudal filament well developed, with abundant short, fine, simple setae on both margins; cerci with abundant long, fine, simple setae medially and short, stout, simple setae laterally every fourth segment.

Adult. Thorax: Forewings (Fig. 10) with single marginal intercalaries. Hindwings absent. Abdomen: Male genital forceps (Fig. 11) three segmented; segment 1 short, subcylindrical; segment 2 medially expanded at base, with short, fine simple setae medially; segment 3 short, ovoid.

Type species. *Maliqia plumosa* (Wuillot), new combination.

Included species –

Maliqia plumosa (Wuillot), new combination.

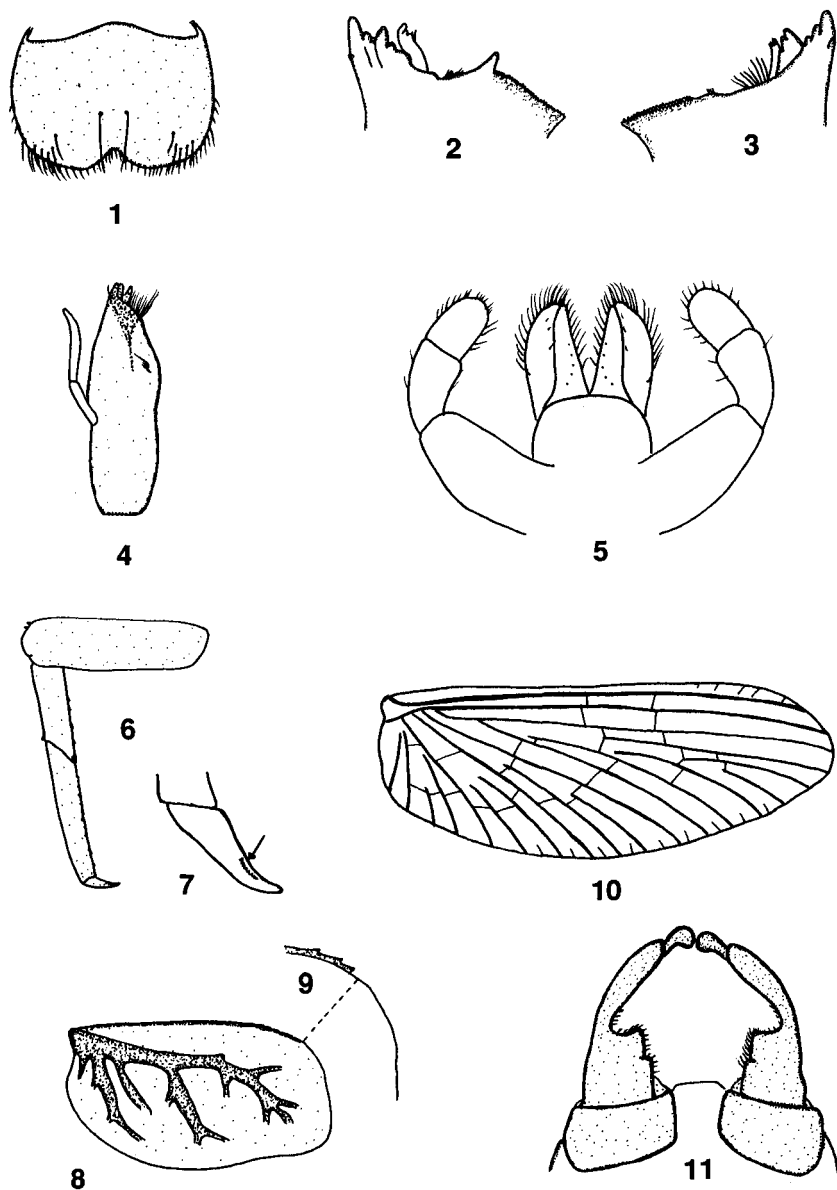
Afrotitulum plumosum Wuillot, in Wuillot and Gillies 1993:276. (larva, male adult).

Distribution. Guinea, Mali.

Etymology. The generic name is an arbitrary combination of letters that incorporates the name of the country where the type locality of the type species is located. The gender is feminine.

DISCUSSION

Larvae of *Maliqia* are generally similar to those of the Pantropical genus *Cloeodes*, but are distinguished from that genus by the presence of tufts of setae between the prosthemae and molae of both mandibles (Figs. 2, 3) and minute denticles on the tarsal claws (Fig. 7). Adults of *Maliqia* are also similar to those of *Cloeodes*, but segment 2 of the male genital forceps of *Maliqia* (Fig. 11) is considerably more expanded than in *Cloeodes*. Other differences that aid in distinguishing larvae of *Maliqia* from those of *Cloeodes* are the presence in larvae of the latter genus of subproximal arcs of long, fine, simple setae on the tibiae [Waltz and McCafferty (1987b): Figs. 1, 7], edentate tarsal claws [Waltz and McCafferty (1987b): Fig. 8], and tufts of long, fine, simple setae on abdominal sterna 2-6 [Waltz and McCafferty (1987a): Fig. 5; Waltz and McCafferty (1987b): Figs. 9, 44]. The tendency of some female adults of



Figs. 1-11. *Maliqua plumosa* (Wuillot), larva and male adult [modified from Wuillot and Gillies (1993)]. 1. Labrum (dorsal). 2. Left mandible. 3. Right mandible. 4. Right maxilla. 5. Labium (ventral). 6. Right foreleg. 7. Tarsal claw (pointer to row of denticles). 8. Gill 5. 9. Detail of gill 5. 10. Forewing. 11. Male genitalia.

Cloeodes to have single marginal intercalary veins in the forewings [Waltz and McCafferty (1987a): Fig. 1; Waltz and McCafferty (1987b): Figs. 16, 18, 19, 22, 33] is also noteworthy.

Maliqua plumosa cannot be considered to belong to *Afroptilum* because it differs considerably from *A. sudafricanum* (Lestage), the type species of *Afroptilum*. Moreover, the shape of the claws and presence of a single row of denticles on the larval tarsal claws of *Maliqua* excludes it from consideration in a complex of African and Malagasy genera to which *Afroptilum* belongs and that also includes *Acanthiops*, *Centroptiloides* Lestage, *Dicentroptilum*, *Edmulmeatus* Lugo Ortiz and McCafferty, *Nesoptiloides* Demoulin, and *Thraulobaetodes* Elouard and Hideux (Lugo-Ortiz and McCafferty 1997b). That complex is characterized, in part, by the distinctive shape of the claws and presence of two subparallel rows of denticles on the larval tarsal claws [Lugo-Ortiz and McCafferty (1997b): Fig. 12].

The larval mouthparts are remarkably similar in *Maliqua* and *Cloeodes*, particularly with respect to the relatively robust maxillae and their somewhat short and slender palps [Fig. 4; Waltz and McCafferty 1987b: Figs. 5, 28] and the labial palps having segments 2 and 3 subequal in length and width [Fig. 5; Waltz and McCafferty 1987b: Figs. 6, 29]. Those larval similarities, plus the fundamentally similar medially expanded and setose segment 2 of the male genital forceps [Fig. 11; Waltz and McCafferty 1987b: Fig. 34], support the hypothesis that the two genera are closely related. It is possible that other apomorphies tie *Maliqua* and *Cloeodes*, but because the original description of *M. plumosa* by Wuillot and Gillies (1993) is rather brief, they cannot be ascertained at this moment.

LITERATURE CITED

- Barber-James, H. M. and W. P. McCafferty. 1997. Review and a new species of the African genus *Acanthiops* (Ephemeroptera: Baetidae). *Ann. Limnol.* 33: 85-92.
- Gillies, M. T. 1990. A revision of the African species of *Centroptilum* Eaton (Baetidae, Ephemeroptera). *Aquat. Insects* 12: 97-128.
- Lugo-Ortiz, C. R. and W. P. McCafferty. 1996a. *Crassabwa*: a new genus of small minnow mayflies (Ephemeroptera: Baetidae) from Africa. *Ann. Limnol.* 32: 235-240.
- Lugo-Ortiz, C. R. and W. P. McCafferty. 1996b. The composition of *Dabulamanzia*, a new genus of Afrotropical Baetidae (Ephemeroptera), with descriptions of two new species. *Bull. Soc. Hist. Nat. Toulouse* 132: 7-13.
- Lugo-Ortiz, C. R. and W. P. McCafferty. 1996c. The *Bugilliesia* complex of African Baetidae (Ephemeroptera). *Trans. Am. Entomol. Soc.* 122: 175-197.
- Lugo-Ortiz, C. R. and W. P. McCafferty. 1997a. Contribution to the systematics of the genus *Cheleocloeon* (Ephemeroptera: Baetidae). *Entomol. News.* 108: 283-289.
- Lugo-Ortiz, C. R. and W. P. McCafferty. 1997b. *Edmulmeatus grandis*: an extraordinary new genus and species of Baetidae (Insecta: Ephemeroptera) from Madagascar. *Ann. Limnol.*, in press.

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- McCafferty, W. P. and F. C. de Moor.** 1995. South African Ephemeroptera: problems and priorities. Pp. 463-476. In: L. Corkum and J. Ciborowski (eds.), Current directions in research on Ephemeroptera. Canadian Scholars' Press, Toronto.
- McCafferty, W. P., C. R. Lugo-Ortiz, and H. M. Barber-James.** 1997. *Micksiops*, a new genus of small minnow mayflies (Ephemeroptera: Baetidae) from Africa. Entomol. News. 108: 363-366.
- Waltz, R. D. and W. P. McCafferty.** 1987a. Generic revision of *Cloeodes* and description of two new genera (Ephemeroptera: Baetidae). Proc. Entomol. Soc. Wash. 89: 177-184.
- Waltz, R. D. and W. P. McCafferty.** 1987b. Revision of the genus *Cloeodes* Traver (Ephemeroptera: Baetidae). Ann. Entomol. Soc. Am. 80: 191-207.
- Wuillot, J. and M. T. Gillies.** 1993. New species of *Afroptilum* (Baetidae, Ephemeroptera) from West Africa. Rev. Hydrobiol. Trop. 26: 269-277.
- Wuillot, J. and M. T. Gillies.** 1994. *Dicentropitulum*, a new genus of mayflies (Baetidae, Ephemeroptera) from Africa. Aquat. Insects 16: 133-140.
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