

Supplementary Note on the Morphology of the Male Genitalia  
and Pupal Abdomen of *Simulium (Morops) kaiti*  
Smart and Clifford, 1965, from New  
Ireland, Papua New Guinea

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**Abstract:** The reared male, pupae and larvae of blackfly (Diptera:Simuliidae) collected from Danfu, New Ireland, Papua New Guinea, in 1982, were provisionally identified as *Simulium (Morops) kaiti* Smart & Clifford, 1965. A close examination disclosed a few previously unreported characters for the Australasian *Morops* species: 1) the posterior surface of the male ventral plate is completely bare, 2) the last pupal abdominal segment lacks the grapnel-shaped hooklets, and 3) a pair of pupal terminal hooks are of usual cone-shape.

*Key words:* Blackfly, *Simulium (Morops) kaiti*, Papua New Guinea

On September 2, 1982, the junior authors (Oda and Fujita) collected four pupae (a reared adult male) and about 20 larvae of blackflies (Diptera: Simuliidae) from Danfu in New Ireland, Papua New Guinea. In the key of Smart and Clifford (1965), a reared adult male runs to *Simulium (Morops) raunsimnae* Smart and Clifford, by the coloration of the halteres (off-white). However, this male seems to be *S. (M.) kaiti* Smart and Clifford, the only known simuliid species from New Ireland, judging from the size of the head (much wider than thorax), the wing length (1.7 mm) the number of large facet (11 horizontal rows and 11 vertical columns) and the coloration of the second abdominal segment (dark brown). Three pupae, as well as the pupa from which a male adult emerged, were readily assigned to the *clathrinum* group of the subgenus *Morops* Enderlein, defined by Crosskey (1967), by the presence of the pit-like organ at the base of the gill with four filaments. Moreover, some major morphological characteristics of

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these pupae appear to conform to those of *S. (M.) raunsimnae*, including the size of the pit-like organ (smaller in diameter than the gill stalk) and the shoe-shaped cocoon with an anteroventral collar tightly woven. On the other hand, larval specimens taken together with pupae were rather similar to those of *S. (M.) avilae* Smart and Clifford, by the shape of the postgenal cleft (deep, nearly reaching the hypostomium) and the number of the hypostomial setae (six). Although more collections are needed to clarify whether one or more species are involved in our material, it is probable that present pupal and larval specimens are those of *S. (M.) kaiti* of which the female and the immature stages were unknown yet.

Incidentally, the primarily Australasian subgenus *Morops* is well characterized by the pleural membrane and the katepisternum both haired (Crosskey, 1967). Besides this, most striking is that unlike in most species of the genus *Simulium* Latreille s. l., the New Guinean species of *Morops* lacks any definitely developed parameral hooks in the male genitalia (Smart and Clifford, 1965; Crosskey, 1967). However, no detailed information was yet available on the morphology of most New Guinean *Morops* species, for comparison with other related members from the Oriental Region, i.e. the recently reported Philippine species of *Morops*, which have been already known to differ remarkably from the New Guinean species by having the developed parameral hooks in the male, the large or medium-sized basal tooth in the female claws, and in the larval stage by possessing the ventral papillae and lacking any supernumerary mandibular serration (Takaoka, 1983).

In this context, we examined our material and found a few other previously unreported characters, by which *S. (M.) kaiti* (and probably its related species) is further distinguished from all the eight Philippine *Morops* species. First, having ascertained the absence of any developed parameral hooks, we discovered also in the male genitalia that the posterior surface of the ventral plate is completely bare, although the ventral surface is fully setose, as illustrated in Figure 1 and 2. Secondly, in the pupal stage,

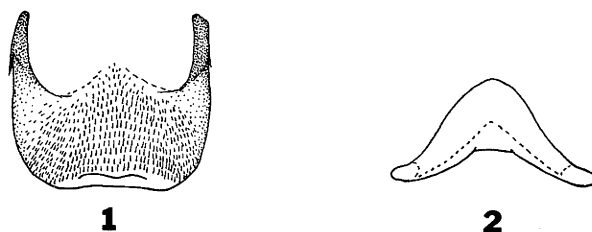


Fig. 1 & 2. Ventral plate of *Simulium (Morops) kaiti*: 1, Ventral view; 2, End view.

there is no grapnel-shaped hooklets on the last abdominal segment, and a pair of terminal hooks are of usual cone-shape. By comparison, all the Philippine species of *Morops* have the ventral plate with hairs even on the posterior surface, the grapnel-shaped hooklets and a pair of saw-like terminal plates (except *S. (M.) alienigenum* which bears a pair of usual cone-like terminal hooks, as in *S. (M.) kaiti*) (Takaoka, 1983).

In view of the phylogenetic relationship between the Australasian and the Philippine species of *Morops*, it will be interesting to examine whether these characters newly reported herein for *S. (M.) kaiti* are common to other Australasian members.

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パプアニューギニア産ブユ *Simulium (Morops) kaiti* の雄成虫の外部生殖器および蛹腹部の形態についての補遺

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1982年9月, ニューギニアのニューアイルランド島で採集したブユの蛹 (蛹から羽化した雄成虫を含む) と幼虫の形態と観察した. その結果, 蛹は呼吸管基部の小孔 (pit-like organ) の大きさとマユの性状などから, *Simulium* 属の *Morops* 亜属に属する *S. (M) raunsimnae* と類似していた. 一方, 幼虫は postgenal cleft の形・大きさ, および hypostomial setae 数などから, *S. (M) raunsimnae* よりむしろその近似種の *S. (M) avilae* に似ていた. しかしながら, 羽化した一匹の雄成虫は一部の形質で *S. (M) raunsimnae* を共通するものの, 翅長や腹部第2節の色彩などから, ニューアイルランド島から唯一の既知種である *S. (M) kaiti* (雄成虫のみから記載) と同定した. したがって今回同一水系から採集した標本は, 別の類似種が含まれている可能性は否定できないが, これまで不明であった *S. (M) kaiti* の蛹と幼虫と思われる. *Morops* 亜属は元来, オーストラリア区に固有のブユであるが, 最近東洋区のフィリピン諸島にも分布することが報告された (Takaoka, 1983). しかしながら, 興味深いことに, 同じ亜属に属しながら両者間にはいくつかの基本的な重要な形態上の差異が見い出されている. 今回, *S. (M) kaiti* と同定した標本を詳細に検討した結果, 1) 雄成虫の外部生殖器の ventral plate の後面が無毛で裸出する, 2) 蛹の腹部末節に多爪錨に似た小鉤を欠く, また末端にある一対の鉤は通常の錐状を呈する, など, 新たにフィリピンの *Morops* の種類とは異なる形態的特徴が認められたので報告した.