

**A REVIEW OF THE GENUS *CALYPTOPOGON* KIEFFER
(DIPTERA: CERATOPOGONIDAE)**

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Abstract.—A revised diagnosis is given of the Oriental predaceous midge genus *Calyptopogon* Kieffer, and a key is presented for the separation of the three included species. Short diagnoses and new distribution records are given for each species.

The predaceous midges of the genus *Calyptopogon* Kieffer are some of the most spectacular and most highly evolved of the tribe Sphaeromiini, if not of the entire family Ceratopogonidae. Their large size (wing up to 5 mm long), elongate body with conically produced mesonotum, and extremely long, slender legs, often with contrasting white, unusually elongated hind tarsi, brought them to the attention of the earliest insect collectors in the Orient. Wiedemann, one of the earliest Dipterists, described the first species under the name *Macropeza gibbosus* from "India Orient." in 1824. De Meijere (1907) added descriptive notes for *M. gibbosus* from a specimen collected by Jacobsen at Semarang on the island of Java. When Kieffer (1910) described the second species and type-species, *Calyptopogon albitalarsis* from Calcutta, he erroneously inferred that the specimen identified by de Meijere as *M. gibbosus* differed in the shape of the thorax from Wiedemann's species, and gave it the name *Macropeza javanensis* new species. Similar confusion in generic as well as specific identities of *Macropeza* species by various authors has followed down through the literature until the present day, in spite of notable attempts by Brunetti (1920), Johannsen (1927), and Macfie (1939) to clarify the matter. A reclassification of the Sphaeromiini was made by Wirth in 1962 in which he removed the genera *Stenoxenus* Coquillett and *Paryphoconus* Enderlein from the *Macropeza* Group and assigned them to a separate tribe Stenoxenini. In 1972 Wirth and Ratanaworabhan gave a revised diagnosis of the genus *Macropeza* Meigen with *Macroptilum* Becker and *Haasiella* Kieffer as synonyms, and treated

Calyptopogon as a distinct, valid genus. The latter arrangement was followed by Wirth et al. (1974) in their synopsis of the genera of Ceratopogonidae.

At this time we believe it is helpful to review the literature and synonymy for the species of *Calyptopogon*, and to give new distribution records from material we have recently examined. A key is presented for the determination of the three known species, all from the Oriental Region.

We especially thank Leif Lyneborg of the Zoologisk Museum in Copenhagen for his kind cooperation in examining the syntypes of *Macropeza gibbosa* Wiedemann and checking the specific characters which we have given in our key.

Genus *Calyptopogon* Kieffer

Calyptopogon Kieffer, 1910: 209. Type-species, *Calyptopogon albitarsis* Kieffer (monotypy), = *C. gibbosus* (Wiedemann).

Diagnosis.—Large (wing up to 5 mm long), slender, shining blackish species with much elongated hind tarsus. Eyes (Fig. 1F) separated; bare. Antenna (Fig. 1A) elongate, segments long and cylindrical; verticils not prominent. Palpus (Fig. 1C) slender, 5-segmented. Mesonotum convex; produced conically in a sharp anteromedian point (Fig. 1G). Legs (Fig. 1H) slender, elongate; femora unarmed ventrally, thickened distally on fore leg; hind tarsus of female (Fig. 1J) usually greatly elongated, linear; 4th tarsomeres cordiform on fore and mid legs, cylindrical on hind leg; 5th tarsomeres of female (Fig. 1L) armed ventrally with short, stout, blunt, black spines or batonnets; 5th tarsomere of fore leg swollen, fusiform in shape. Female claws short and curved, stout at base, pointed apically, equal on all legs, each talon with a short, blunt, external, basal tooth. Male claws short, simple and equal. Wing (Fig. 1E) long and narrow, anal angle much reduced to absent; one radial cell present, extremely narrow, almost obliterated; costa extending nearly to wing tip; r-m crossvein elongate, usually nearly perpendicular, located near midlength of wing. Female abdomen (Fig. 1O) tapered distally, 7th and 8th segments elongated; a pair of conspicuous lateral hair tufts on 8th sternum; 2 large spermathecae (Fig. 1N) present. Male genitalia (Fig. 1P) long and slender; 9th tergum sclerotized on proximal 0.6 with convex posterior margin, distal portion with large pubescent cerci; basistyle slender, simple; dististyle long and slender, nearly straight; aedeagus with short basal arch, tapering distally to blunt tip; parameres (Fig. 1Q) fused basally, moderately slender, with slender, contiguous distal processes. Immature stages unknown.

Note.—Species of the genus *Macropeza* Meigen resemble those of *Calyptopogon*, but differ in having the thorax bluntly rounded or bluntly conical in front, not produced markedly over the head, the fifth tarsomeres not

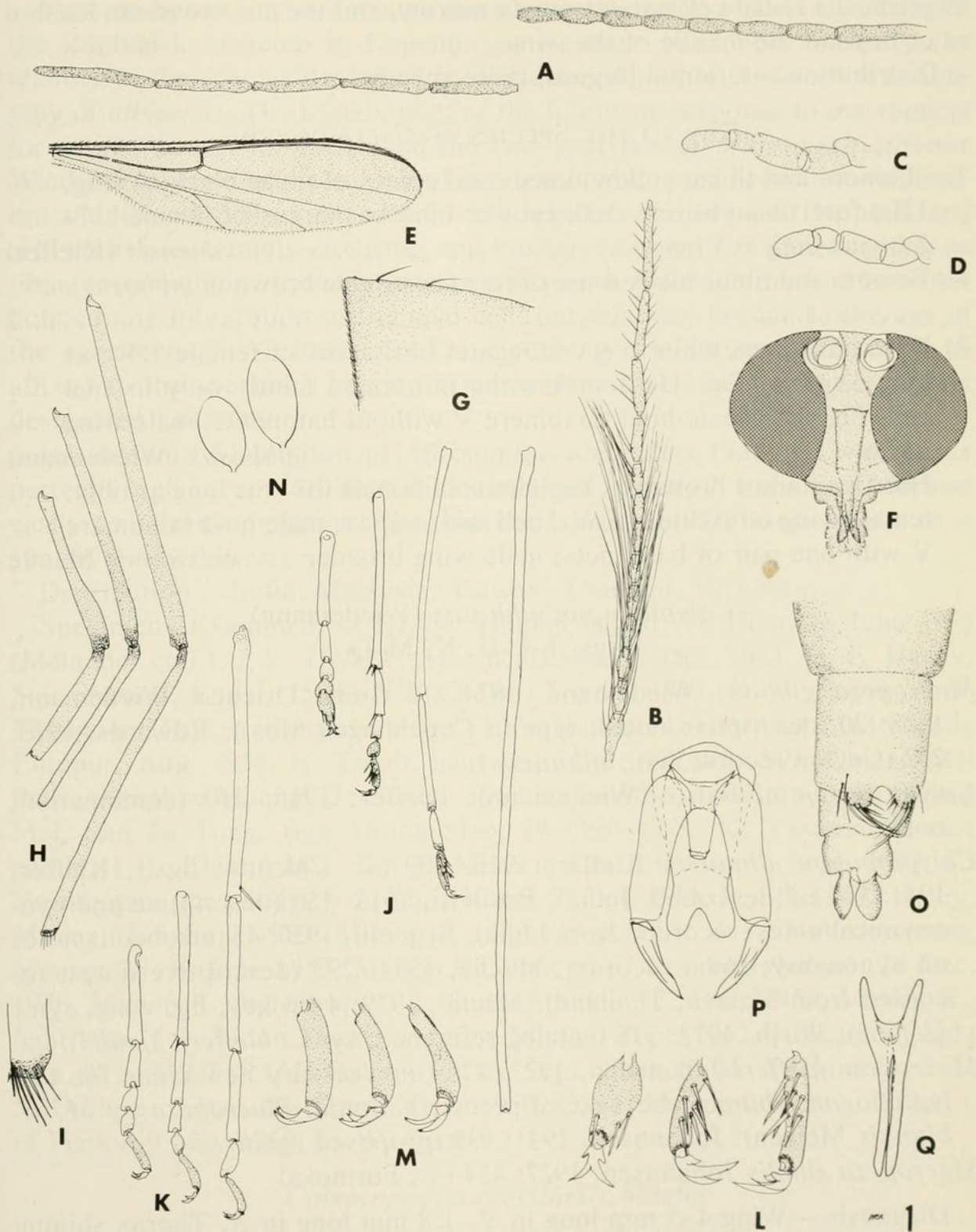


Fig. 1. A-G, K, M-Q. *Calyptopogon gibbosus*. H-J, L. *C. javanensis*. A, C, E-J, L, N-O, Female. B, D, K, M, P-Q, Male. A, B, Antenna. C, D, Palpus. E, Wing. F, Head, frontal view. G, Anterior portion of mesonotum, lateral view. H, Femora and tibiae (all leg figures left to right, fore, mid, and hind legs). I, Hind tibial comb. J, K, Tarsi. L, M, 5th tarsomeres and claws. N, Spermathecae. O, Terminal segments of abdomen showing genital sclerotization. P, Genitalia, parameres removed. Q, Parameres.

swollen, the radial cell not extremely narrow, and the r-m crossvein located at or beyond the middle of the wing.

Distribution.—Oriental Region; three species.

KEY TO THE SPECIES OF *CALYPTOPOGON*

1. Femora and tibiae yellow, knees and apices of tibiae blackish (Fig. 1H); fore tibia entirely dark brown; hind basitarsus of female $1.7-2.0\times$ as long as tibia *javanensis* (Kieffer)
- Femora and tibiae black (base of fore femur pale brown in *gibbosus*) 2
2. Hind basitarsus white, very elongate, basitarsus of female $1.5\times$ as long as tibia (Fig. 1J); female wing infuscated faintly only in anal cell (Fig. 1E); male hind tarsomere V without batonnets; male wing narrow *gibbosus* (Wiedemann)
- Hind basitarsus brownish, basitarsus of female $0.7\times$ as long as tibia; female wing infuscated in anal cell and at apex; male hind tarsomere V with one pair of batonnets; male wing broader ... *brevitarsis* Macfie

Calyptopogon gibbosus (Wiedemann)

Figs. 1 A–G, K, M–Q

Macropeza gibbosa Wiedemann, 1824: 10 (India Orient.); Wiedemann, 1828: 20 (descriptive notes; type in Copenhagen Mus.); Edwards, 1913: 202 (Ceylon record; syn.: *albitarsis*).

Calyptopogon gibbosus (Wiedemann); Kieffer, 1910: 210 (combination; notes).

Calyptopogon albitarsis Kieffer, 1910: 209 (♀; Calcutta; figs.); Kieffer, 1911: 124 (♂ described; India); Brunetti, 1913: 150 (descriptive and synonymical notes; recorded from India); Brunetti, 1920: 45 (erroneous notes on synonymy; India records); Macfie, 1934: 292 (descriptive notes; recorded from Malaya, Thailand); Macfie, 1939: 4 (in key; fig. wing; syn.: *kiefferi*); Wirth, 1973: 378 (catalog reference; syns.: *kiefferi*, *similis*).

Macropeza kiefferi Johannsen, 1927: 423 (unnecessary new name for *Calyptopogon albitarsis* because of preoccupation in *Macropeza* by *M. albitarsis* Meigen); Johannsen, 1931: 439 (proposed again).

Macropeza similis Johannsen, 1927: 424 (♀; Formosa).

Diagnosis.—Wing 4–5 mm long in ♀, 1.8 mm long in ♂. Thorax shining black. Legs blackish; trochanters and bases of femora pale brown; tarsi whitish, tip of tarsomere IV brownish, tarsomere V dark brown. Female basitarsus 1.5 as long as tibia; male hind tarsomere V without batonnets. Wing hyaline, a faint dark cloud sometimes in anal cell. Halter brownish. Male genitalia as in Figs. 1P, Q; aedeagus with short basal arch and blunt tip.

Note on Synonymy.—Through the kind cooperation of Leif Lyneborg of the Zoologisk Museum in Copenhagen we have been able to verify the identity of the species described by Wiedemann and to confirm the synonymy of *albitarsis*. Dr. Lyneborg gave the following response to our request for assistance: "I have checked the two syntypes of *Macropeza gibbosa* Wiedemann. Both are females and in a reasonably good condition. All femora and tibiae are blackish, only f-1 a little paler in basal part. The hind tarsi are whitish, extremely elongate, and basitarsus about 1.5 times as long as tibia, corresponding to the information in your key for *albitarsis*. I have not noticed any infuscation of the anal cell, but this may be due to the age of the specimens." We have sent Dr. Lyneborg a lectotype label which he affixed to the specimen bearing Wiedemann's type label, and it is hereby designated LECTOTYPE.

Johannsen's description of *Macropeza similis* fits that of *C. gibbosus* perfectly well except for "femora not enlarged apically," a character subject easily to misinterpretation. On that basis Wirth (1973) sank *similis* as a synonym of *albitarsis*.

Distribution.—India, Malaysia, Taiwan, Thailand, Viet Nam.

Specimens Examined.—CHINA: Hainan Island, Ta Hian, 18 June 1935 (Melander coll.), 2 ♀. INDIA: Assam, Chabua, 2 Oct. 1943, D. E. Hardy, 5 ♀. Assam, Rupsi, 15 mi NW Chubri, 3 Nov. 1943, D. E. Hardy, 1 ♂. Thanjavur Dist., Nedungadu, 2 Jan., P. S. Nathan, 1 ♀. MALAYSIA: Kuala Lumpur, Aug. 1958, R. Traub, light trap, 2 ♂. THAILAND: Chiang Mai Prov., Amphoe Muang, Oct.–Nov. 1962, J. Scanlon, light trap, 4 ♀. Chiang Mai, San Pa Tong, Ban Thung Sieo, 19 Feb. 1979, K. Yasumatsu, rice paddy, 1 ♂. Chiang Mai, Doi Pa-Morn in Doi Inthanon, 5 Sept. 1977, K. Yasumatsu, rice paddy, 3 ♂. Khon Kaen, 17 Oct. 1953, R. Elbel, 4 ♀. Loey, Meung, 1–5 June 1959, Manop R., light trap, 1 ♂, 4 ♀. Nakronpanom, Meung, 28–30 June 1959, Manop R., light trap, 1 ♀. Nonthaburi, 20 Dec. 1958, Manop R., light trap, 1 ♀. Samuthprakan, 22 Dec. 1958, Manop R., light trap, 1 ♀. Udon Thani, Amphoe Muang, Sept. 1962, J. Scanlon, light trap, 4 ♀. VIET NAM: Dalat, 1500 m, Sept. 1960, C. M. Yoshimoto, 2 ♀. M'Drak, e of Ban Me Thuot, Dec. 1960, C. M. Yoshimoto, 2 ♀. 20 km n of Pleiku, 9 May 1960, L. W. Quate, 1 ♀.

Calyptopogon brevitarsis Macfie

Calyptopogon brevitarsis Macfie, 1939: 8 (♀; Thailand; fig. wing).

Diagnosis.—Wing length 4.7 mm. Dark brown, almost black; thorax with some grayish pollen; legs with all femora and tibiae entirely very dark brown, tarsi pale brown, tarsomeres IV and V of fore and mid legs and tarsomere I of hind legs very dark brown. Wing hyaline, infuscated at base and tip; anterior veins brown; costa extending to wing tip, vein R4+5 joining

it tangentially some distance before tip; one radial cell, very narrow, almost indistinguishable. Tarsomere V fusiform on fore leg, armed on all legs in female; in male with one pair of batonnets on fore leg. Male genitalia as in *C. gibbosus*, but aedeagus with higher basal arch and more slender apex.

Distribution.—Indonesia, Thailand.

Specimens Examined.—*INDONESIA*: Java, Pekalongan, May 1907, F. Muir, 1 ♂. *THAILAND*: Khon Kaen, Ban Nong Bua, 23 June 1977, K. Yasumatsu, rice paddy, 1 ♂. Ubon Ratchathani, Phibum Mangasahan, 6 Sept. 1977, K. Yasumatsu, rice paddy, 3 ♂. Udon Thani, Amphoe Muang, Sept. 1962, J. Scanlon, light trap, 2 ♂, 6 ♀. Nakhon Phanom, Amphoe Renunakorn, Ban Pone Thong, 10 Sept. 1978, K. Yasumatsu, rice paddy, 2 ♂, 5 ♀.

Calyptopogon javanensis (Kieffer)

Fig. 1 H–J, L

Macropeza javanensis Kieffer, 1910: 210 (n. sp. for *M. gibbosa* of de Meijere 1907, not Wiedemann); Edwards, 1913: 202 (descriptive notes; Ceylon); Johannsen, 1927: 423 (in key).

Macropeza gibbosa Wiedemann of authors, misident.; de Meijere, 1907: 216 (notes; Java); Johannsen, 1931: 438 (notes; syn.: *javanensis*).

Calyptopogon gibbosus (Wiedemann) of authors, misident.; Kieffer, 1910: 210 (notes in error on synonymy); de Meijere, 1913: 337 (discussion of synonymy); Brunetti, 1920: 44 (extensive notes on synonymy); Macfie, 1934: 293 (Malaya; descriptive notes); Macfie, 1939: 4 (in key; syn.: *javanensis*); Wirth, 1973: 379 (catalog reference; syn.: *javanensis*, *edwardsi*).

Macropeza edwardsi Macfie, 1939: 9 (♀; Ceylon; syn.: *M. javanensis* Kieffer of Edwards [1913] and Johannsen [1927]).

Diagnosis.—Wing 4.6 mm long. Thorax dull brownish black. Legs (Fig. 1 H, J) yellow, narrow knee spot, tips of tibiae, and tarsomere V dark brown or black; hind basitarsus 1.7–2.0× as long as tibia. Otherwise as in *C. gibbosus*.

Distribution.—Ceylon, Indonesia, Malaysia, Thailand.

Specimens Examined.—*THAILAND*: Chiang Mai, Amphoe Muang, Oct.–Nov. 1962, J. Scanlon, light trap, 10 ♀.

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