

ON SOME EXAMPLES OF THE GENUS *LEPTOGOMPHUS*

(*Odon., Gomphidae*).

By

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I have to thank Mr. M. A. LIEFTINCK for the opportunity of studying the interesting pair of Gomphines from Borneo, discussed in the following note, and also for letting me compare with them an example of the same genus from Basilan in the Philippine group. In addition he has very kindly sent me the drawings of the anal appendages and genitalia of the males which accompany the note. These serve to make the verbal description much easier to follow.

All specimens are in the collection of the Buitenzorg Museum.

Leptogomphus coomansi sp. n. (Text-fig. 1).

1 ♂ (Holotype). W. Borneo. Near Singkawang, "Forest-patches between Pakmiongtheo and Pandjaoa". 3. IV. 1932, leg. L. COOMANS DE RUITER.

Length of abdomen 35 mm.

of hindwing 30 mm.

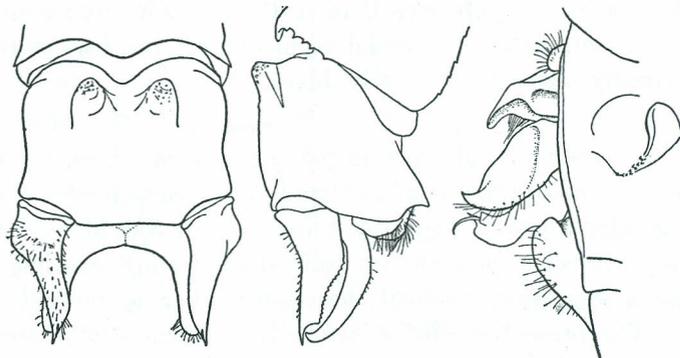
Nodal indicator $\frac{13-16}{11-11} \quad \frac{19-12}{13-11}$.

Anal triangle three-celled. Basal postcostal present on all wings. Pterostigma unbraced. Maximum of two rows of cells in anal area of fore wing.

Head: Upper lip yellow, broadly margined with black, the yellow finely indented in front. Anteclypeus black, postclypeus yellow. Genae yellowish brown. Frons yellow, vertex and occiput black.

Prothorax: black, with a pair of yellow spots lying transversely on the middle lobe.

Synthorax: black, mesothoracic collar yellow narrowly interrupted in the middle line. A pair of narrow, dorsal stripes of the same colour continuous



Text-fig. 1. — *Leptogomphus coomansi*, sp. n. Anal appendages of male, seen from above and from the right side, and genitalia of second segment of the abdomen, from the left side (holotype).

with the collar. Sides dark gray passing to yellow posteriorly, with broad black bands along the sutures. Legs black, coxae marked with yellow.

Abdomen: almost entirely black; sides of the first segment and the oreillettes yellow, the latter narrowly edged with black. A terminal, yellow spot apically on the sides of the second segment, and dorsal marks of the same colour on the first and second segments, that on the second consisting of a narrow, longitudinal line.

On the dorsum of the tenth segment there are a pair of mamma-like tuberosities, which are studded with irregularly arranged, thorn-like spines.

Anal appendages: Upper pair distant, rather slender, acuminate apically. Viewed laterally, the lower border is rather regularly serrate as far as the up-curving base of the terminal spine. Lower appendage, of about the same length as the upper pair, with widely separated, parallel branches, between which its posterior border is regularly curved. The appendages are of approximately the same length as the tenth segment of the abdomen.

1 ♀ (Allotype). W. Borneo. Singkawang, "Forest-stream Soengei Bagak"
10. VI. 1933, leg. L. COOMANS DE RUITER.

Length of abdomen 37.5 mm.

of hindwing 32.5 mm.

Nodal indicator $\frac{11-15}{10-11} \frac{15-11}{11-12}$

Basal postcostal absent on both hindwings.

Head: As in male.

Prothorax: Yellow markings more extensive than in the male, the middle lobe is largely yellow, and there are yellow marks on either side anteriorly.

Synthorax: As in the male, the sides are however more obscurely coloured with a dark gray-brown, but the metepimerite is yellow.

Abdomen: The yellow markings on the sides of the first and second segments are more extensive than in the male, whilst there seems to be no mark on the dorsum of the second segment, and the rest of the abdomen, which is decidedly slender, is entirely black.

I have much pleasure in naming this new form for its collector, Mijnheer COOMANS DE RUITER, who has already made considerable additions to the Bornean dragonfly fauna. I understand from my friend M. A. LIEFTINCK that quite a large number of new and unrecorded species are awaiting entry on the list, and that a large proportion of these have fallen to the net of the same collector.

The present species is evidently not remotely related to *lansbergei* SELYS and *assimilis* KRÜGER, from Java and Sumatra respectively. (Cf. RIS. 1927. Zoöl. Mededeel. Leiden. X, pp. 28 - 29, figs. 15 - 18).

It differs from them in that in both sexes there is no antehumeral (outer) dorsal stripe on the dorsum of the synthorax, whilst the dorsal stripe meets the mesothoracic collar.

The males are distinguishable by the fact that the upper anal appendages in the case of *coomansi* have the dorsum black, whilst the Sumatran and Javanese species have these structures coloured white above.

But it is evident that the three forms are so allied that they may be taken as representative species, or to use a term which is now coming into fashion, they belong to a "Formenkreis".

There are of course plenty of other cases amongst the dragonflies of these Islands in which we meet with a similar state of affairs. And at present it is largely a matter of individual preference as to whether one uses a trinomial nomenclature for such cases, or whether one gives only the single specific name. I have here, purely as a matter of my own preference, kept to the more conservative method of the single specific name.

Leptogomphus sp. (? *semperi* SELYS). (Text-fig. 2).

1 ♂. Philippine Is. Basilan Is. Maloong. 21. VIII. 1932, leg. K. KUWASIMA. (The specimen is much broken, and very dry).

Length of abdomen 35 mm. circ.
of hindwing 30 mm.

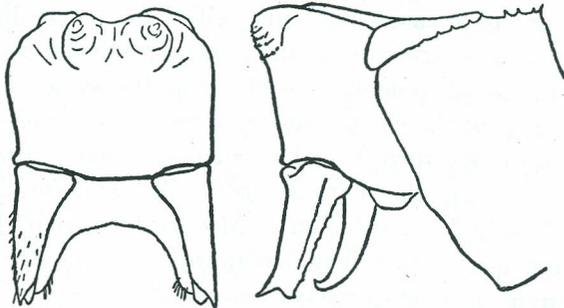
Nodal indicator	11-17	18-10
	11-11	11-11

Anal triangle three-celled. Basal postcostal present on all wings. Pterostigma unbraced. Maximum of two rows of cells in anal area of forewing.

Head: Upper lip black, with a pair of square yellow spots. Horizontal part of frons yellow, the rest of the head, except the yellowish green genae, black.

Prothorax: black with a pair of transverse yellow marks on the middle lobe.

Synthorax: black, mesothoracic collar yellow, interrupted in the middle line. A narrow pair of dorsal stripes of the same colour do not meet the collar. Antehumeral stripes present, but very slender. Sides of thorax brown, broadly marked with black bands along the position of the sutures.



Text-fig. 2. — *Leptogomphus* sp (? *semperi*). Anal appendages of male seen from above and from the right side.

Legs: (discoloured) black, coxae and infraepisternites brown.

Abdomen: (discoloured, and incomplete) almost entirely brown black with indications of brown markings on the sides of the first and second segments.

Anal appendages: much as in *coomansi*, but the last serration of the lower margin of the upper appendages is produced so as to form a terminal spine which gives the appendage a bifid appearance when looked at laterally.

It should be noted also that the mamma-like processes of the dorsum of the tenth abdominal segment have their spines more regularly arranged, in concentric rings (see fig. 2).

Here again we have a species evidently belonging to the same "cluster" as *coomansi*, *lansbergei* and *assimilis*, but differing sufficiently to deserve recognition as a representative species. It remains to be settled whether or no this form has already been named.

At present one species only of *Leptogomphus* has been recorded from the Philippines, viz: *semperi* SELYS (SELYS 1878. Bull. Acad. Belg. (2) XLVI. p. 442). Unfortunately his account is not very full, and I regret that I have not been able to find an opportunity of studying his types in the Brussels Museum. In his well known paper on the "Dragonflies of Burma and Lower Siam" WILLIAMSON figures the venation of *semperi* from "Borneo". (WILLIAMSON 1907. Proc. U.S. Nat. Mus. XXXIII. p. 292). It is not made clear in the text whether he had actually seen the specimen, but I think one may infer that the photo was one sent to him from Brussels by M. SEVERIN (See WILLIAMSON'S introductory remarks). In this case the photo would most likely be that of the type male. It may have been taken from a specimen in the type series, from Borneo, but I am inclined to think that the locality "Borneo" is a mistake, and that possibly WILLIAMSON was misled by MARTIN who gives Tonkin and Borneo as localities for the species in addition to the Philippines (MARTIN 1904. Mission Pavie, Indo-Chine, 3, p. 215).

On the whole I believe that the evidence points strongly to this specimen being an example of *semperi*, but as some doubt exists on the point I prefer to leave the question open.

But there can be no doubt that there exists in Sumatra, in Java, Borneo and the Philippine Islands a "cluster" of species all allied in venation, in the presence of mamma-like tuberosities on the tenth abdominal segment of the male, in the structure of the anal appendages, and of the genital appendages of the second abdominal segment of the same sex; as well as in the general similarity of the colour pattern. Should my surmise that this specimen is really *semperi* prove correct, and if trinomial nomenclature be adopted for the group, then of course the name *semperi* will stand for that of the "Formenkreis".

Finally I am indebted to Mrs. L. K. GLOYD of the University of Michigan for the information that *Malayogomphus semiteres* FÖRSTER is undoubtedly a synonym of *Leptogomphus lansbergei* SELYS.
