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THE STATUS OF THE GENERIC NAMES *GOMPHOIDES*,  
*NEGOMPHOIDES*, *PROGOMPHUS*,  
AND *AMMOGOMPHUS* (ODONATA: GOMPHIDAE)

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IN THE EARLY formative years of the classification of the Odonata on a worldwide basis, Selys sometimes referred in print to his progress and preliminary studies before his completion of a synopsis or monograph of a major group. One example of this is in his footnote to a statement in a paper dealing with fossil Odonata by his co-worker, Dr. Hagen (1850, p. 360), concerning the venation of *Gomphus brodiei* Westwood: "Je pense que c'est de mon nouveau genre *Gomphoides* de l'Amerique, que cette aile se rapproche le plus par la disposition des triangles de l'aile. Le type actuel est la *Diastatomma obscura* de Rambur." At this time he was working on a classification of the Gomphines in which the arrangement of the triangles in the wings played an important part. Considering the context of the paragraph by Hagen and of the footnote, "actuel" would mean "living," and "type," "example." Thus, "The living example is the *Diastatomma obscura* of Rambur." The comparison was with the venation of the wing of a living species and that of a fossil wing. In no way, then, can this reference to an example be construed as a designation of a type species for a genus not yet described.

In the Synopsis des Gomphines (1854) Selys used the name *Gomphoides* only for the genus and subgenus, the "2<sup>e</sup> Cohorte" of *Gomphus* being given no name. In the Monographie des Gomphines (Selys & Hagen, 1857) Selys reverted to the broader concept of the genus which he apparently had in 1850, and the second Cohorte of the Légion Gomphus became Légion Gomphoides (equivalent of his "nouveau genre" mentioned in the footnote). This Légion was sub-

divided, the same as the Cohorte in 1854, into four genera: *Progomphus*, *Gomphoides*, *Zonophora*, and *Hagenius*. *Diastatomma obscura* Rambur was placed in the second group under *Progomphus*. No change was made in the division of the genus *Gomphoides* into three subgenera—*Gomphoides*, *Cyclophylla* (now *Phyllocycla*), and *Aphylla*. Kirby (1890) elevated these taxa to generic status and designated type species selecting, with the exception of *Cyclophylla*, the first species listed by Selys (1854) under each. Neither Selys nor Hagen had referred to any species as type of a genus or subgenus. Muttkowski (1910a,b) interpreted Selys' footnote of 1850 as meaning the "actual type" of the new genus *Gomphoides* that Selys expected to describe, and therefore, substituted (1910a) the name *Gomphoides* for *Progomphus*, and proposed the name *Negomphoides* for the species deprived of a generic name by the transfer. In this new arrangement, *D. obscura* Rambur became the type species of *Gomphoides* and *G. infumata* (Burmeister) the type species of *Negomphoides*. Fortunately, this change was not sanctioned or followed by most experienced odonatologists and the confusion caused by the switchover is not as great as it might otherwise have been. I believe misinterpretations, such as this one made by Muttkowski, should not be honored, and therefore consider *Negomphoides* Muttkowski (1910) a new synonym of *Gomphoides* Selys (1854) with *Diastatomma infumatum* Burmeister restored as its type species. *Progomphus* Selys is also to be considered a valid generic name with *P. gracilis* Hagen the type species as designated by Kirby (1890).

My unpublished study of *Gomphoides* (begun in 1933 by adding to E. B. Williamson's data and notes dating from 1905) indicated that the genus needed to be divided again. Belle (1970) has attempted to do this by describing a new genus *Phyllogomphoides*, for two of the species, but still retaining the generic name *Negomphoides* for the other species. The matter, however, needs further consideration. As can be seen in Plate I, Figures 1–4 of the type species *Gomphoides infumatus*, the accessory genitalia of abdominal segment 2, and the anal appendages are distinctive. The anterior hamules are shell-shaped with a recurved hook about midway on the distal margin of each; abdominal segment 10 is longer than segment 9, and its lateroventral length is only slightly less than the dorsal; the tapered pale superior appendages each end in a sharp point, and, except for a short truncate tubercle located ventrally near the base of each, are without protuberances or projections; and the cleft robust inferior appendage has

on its dorsal surface two prominent teeth or spurs. The only other species described to date which are strikingly similar to *infumatus* are *Ammogomphus perditus* Förster (Plate I, Figures 5–8 of type male) and *Gomphoides praevia* St. Quentin. These three species also have in common a venational character of the hind wing of the male which seems to be constant, namely, the vein  $A_2$  extends almost in a straight line from the anal loop to the lower margin of the wing and has three or more marginal cells between it and the tip of the anal triangle. The species *infumatus*, *perditus*, and *praevia* have all of these characteristics and form a compact and distinct group worthy of separate generic recognition. This being the case, the monotypic genus *Ammogomphus* Förster 1914 becomes a new synonym of *Gomphoides* Selys 1854. The type localities for the three species that qualify to be included in *Gomphoides* are<sup>1</sup>: Brazil for *infumatus* (Rambur), Sapucay, Paraguay for *perditus* (Förster), and Nova Teutonia, Brazil for *praevious* St. Quentin.

The two species, *fuliginosus* (Hagen) and *audax* (Hagen), for which Belle (1970) erected the genus *Phyllogomphoides* seem to differ mainly from those he retained under the name *Negomphoides* in having a wider flange or exfoliation on each side of abdominal segment eight and a greater modification of the anterior hamule on segment two. However, these two characteristics seem to represent only the extremes in development or variation of these parts and aside from *infumatus* and *praevious*, not sufficient to distinguish them generically from the species he included under *Negomphoides*. They have several characteristics that would identify them as belonging to one group. In the males, abdominal segment 10 is slightly shorter than segment 9, and at mid-height its apical margin slopes ventrad and cephalad so that its lateroventral length is only one-half to two-thirds that of the dorsal. Each superior appendage has two or more protuberances as well as a postbasal spine or vestige of one, and the inferior appendage is thin and widely forked, and has no teeth or spurs on its dorsal surface. The number of cells in the internal and discoidal triangles of front and hind wings is too variable to be relied upon as a generic character, but I have encountered no exception (males

<sup>1</sup> According to Dr. B. E. Montgomery, who is compiling a new catalog for the Odonata, adjective compounds, to which all Odonata names ending in *-oides* belong, take the gender of the governing noun. *Gomphus* is masculine and, therefore, in the list of species for *Gomphoides* and for *Phyllogomphoides* the endings of adjectival names not in agreement are herein changed to conform.

## PLATE I

*Gomphoides infumatus* (Burmeister), male. Bom Jesus de Itabapoana, Brazil, November 15, 1904, J. Zikán. E. B. Williamson Collection (ex Collection F. Ris), University of Michigan, Museum of Zoology.

FIGS. 1-3. Abdominal segments 8-10 and appendages in dorsal, lateral, and ventral views, respectively.

FIG. 4. Lateroventral view of second abdominal segment showing anterior and posterior hamules.

*Ammogomphus perditus* Förster, holotype male. Sapucay, Paraguay, February 21, 1905. E. B. Williamson Collection, University of Michigan, Museum of Zoology.

FIGS. 5-7. Abdominal segments 8-10 and appendages in dorsal, lateral, and ventral views, respectively.

FIG. 8. Lateroventral view of second abdominal segment showing anterior and posterior hamules.

The beautiful drawings of this plate were made by Miss Grace Eager, Museum of Zoology Artist, shortly before her death in 1947.



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*Grace Eager*

only) to the divergence of  $A_2$ , or a branch of it, toward the anal triangle, which at its lower end has only one marginal cell between it and the tip of the anal triangle. Primarily for these reasons, it seems fitting to place the species, excluded *antea* from *Gomphoides* (*sensu stricto*), in the genus *Phyllogomphoides*, at least provisionally. Accordingly, this genus includes the following 23 species: *albrighti* (Needham), *andromeda* (Selys), *annectens* (Selys), *appendiculatus* (Kirby) [synonym of *bifasciatus* (Selys)?], *atlanticus* (Belle), *audax* (Hagen), *bifasciatus* (Selys), *calverti* (Kirby), *camposi* (Calvert), *cornutifrons* (Needham), *cristatus* (Needham), *demoulini* (St. Quentin), *fuliginosus* (Selys) type species, *ictinius* (Selys)?, *lieftincki* (Belle), *pacificus* (Selys), *perfidus* (Hagen), *regularis* (Selys), *selysi* (Navas), *semicircularis* (Selys), *stigmatius* (Hagen, doubtfully that of Say), *suasus* (Selys) and *undulatus* (Needham). No one species has a very wide distribution but that for the genus extends from Texas to Brazil.

The genus name *Gomphoides* (*sensu lato*) has had a rather turbulent history partly because of the association of species with the wrong subdivisions. Most of this has now been corrected and Kirby's elevation of the subgenera to generic status fully accepted. The consideration given in the present paper to some of the genera involved will, it is hoped, lead toward clarification and ultimate stability. There still remains much needed study of the females and the description of new species.

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