The genus *Risiocnemis* Cowley, 1934 is the most speciose genus of the damselfly subfamily Calicnemidinae in the Indo-Pacific region. It is endemic to the Philippine archipelago, but does not occur in the Sulu archipelago and the Palawan island chain. Generally, the species of the genus are confined to small clear streams in shady rain forest environment, occurring from lowland up to lower montane forest.

The genus is defined mainly by wing venational characters like the very distal position of the R4, IR3 and IR2 veins (cf. Hämäläinen 1991a; see below for a more thorough diagnosis).

Two subgenera within the genus *Risiocnemis* were recognized by Hämäläinen (1991a) based on the species-groups defined by Lieftinck (1961): *Risiocnemis* Cowley, 1934 s. str., and *Igneocnemis* Hämäläinen, 1991. A revision of the subgenus *Risiocnemis* Cowley, 1934, was presented by Hämäläinen (1991a), but the revision of the subgenus *Igneocnemis* Hämäläinen, 1991, was postponed since a constant flow of new material from the Roland Müller Expeditions to the Philippines was pouring in until 1997. Whereas some 1000 specimens of the genus *Risiocnemis* were present in the Müller collection in 1991, by 1997 the amount had increased to over 8300 of which some 2800 specimens belong to *Igneocnemis*. Thus, a complete taxonomic treatment of the subgenus *Igneocnemis* has become timely and it is presented here. The present paper may be considered as the second part of the series ‘The Philippine genus *Risiocnemis* (Zygoptera: Platycnemididae)’ (Hämäläinen 1991a). It also forms part of a comprehensive taxonomic and phylogenetic revision of the Indo-Pacific Calicnemidinae carried out by the first author (Gassmann 1999, 2000). The genus *Risiocnemis* now includes 36 described species, of which 20 are assigned to the subgenus *Igneocnemis*. It is worth mentioning that over 4500 specimens of the subgenus *Risiocnemis* have become available for study and one new species has been described after the revision in 1991 (Hämäläinen 1991a). The new material also includes two other new species and one first male and one first female, not yet described.
Monophyly of *Igneocnemis* and *Risiocnemis* s. l.

Several putative synapomorphies of *Igneocnemis* species point to the monophyly of the subgenus: the only smoothly crenulate wing margin (fig. 1), which is unique within the Malesian Calicnemiinae, the position of the arculus at the second antennodal vein, the angulate postclypeus and the subequal length of the first and second antennal segments. However, the monophyly of the whole genus, i.e., *Risiocnemis* sensu (Needham & Gyger, 1939) in *Selys*, and *Brauer, 1868* differs from *Kirby, 1890*, rather than to *Igneocnemis*. This question will soon be treated in detail within the scope of a phylogenetic study of the Malesian Calicnemiinae (Gassmann in prep.).

Relationships within *Igneocnemis*

Although the males of *Igneocnemis* species often differ remarkably in their coloration, in particular of the legs, structural differences are usually less conspicuous within the group. Consequently, establishing species-groups based on the shape of the male ligula (penis), as done for the subgenus *Risiocnemis* (Hämäläinen 1991a), proved to be difficult. In most species the ligula structure is quite uniform; however, some species show distinct peculiarities in the shape of the apical margin of the terminal lobes or the median incision between them; *R. ignea* (Brauer, 1868) differs from all other species by having the terminal lobes almost entirely reduced. Except for *R. flammea* (Selys, 1882) which was figured by Hämäläinen (1991a), the ligula structures of *Igneocnemis* species are examined and illustrated here for the first time.

Contrary to the males, the females of the group are quite uniform in coloration. However, they can be distinguished by the structure of the posterior pronotal lobe and the length of valvae.

Preliminary groupings within the subgenus based on, for instance, the male appendages, appeared to be weakly supported by other characters, e.g., coloration. Therefore, the definition of species-groups is postponed until a thorough phylogenetic study of the group will be available (Gassmann in prep.).

Materials and Methods

Collections

Most of the material examined was collected by Roland A. Müller (St. Gallen, Switzerland) and his assistants and co-workers during his Philippine Expeditions (1985-1997), which since 1987 were focused mainly on odonates. The Roland Müller collection was acquired by the National Museum of Natural History (Leiden) in 1998. For an itinerary of Roland Müller’s Philippine Expeditions and a general history of dragonfly research in the Philippines see Hämäläinen & Müller (1997).

The present study is based on specimens in the following collections:

- **CUC**: Cornell University Insect Collection, Ithaca
- **ISNB**: Institut Royal des Sciences Naturelles, Brussels
- **MCZ**: Museum of Comparative Zoology, Harvard University
- **RMNH**: National Museum of Natural History (Naturhistorisches Museum, formerly: Rijksmuseum van Natuurlijke Historie), Leiden (including the former Roland Müller collection)
- **SMFD**: Senckenberg-Museum, Frankfurt

The following collection is referred to in the text (no material examined):

- **FMNH**: Field Museum of Natural History, Chicago

Specimens Examined

All specimens listed in the ‘material’ section of the descriptions below were examined by the senior author, except for the holotype of *R. atripes* (Needham & Gyger, 1941), holo- and allotype of *R. tendipes* (Needham & Gyger, 1941), both in MCZ, and the allotype of *R. rubripes* (Needham & Gyger, 1939) in CUC; these specimens were studied only by the junior author. A database of additional specimens, seen only by the second author, who has preliminarily identified the entire Roland Müller odonate collection, is available from the authors upon request.

Scanning Electron Microscopy

The male ligula and the appendages of all species were studied by scanning electron microscopy (SEM). Since the ligula of several *Igneocnemis* species proved to be quite uniform, only a selection of species is illustrated here to show the most important structural differences. The male appendages of all species are illustrated in lateral, posterolateral and dorsal view. The female prothorax of all species was studied by SEM, except for *R. melanops* and *R. polilloensis* of which only one female specimen each was available. The anterior view of the posterior pronotal lobe of *R. fuligifrons*, *R. haematopus* and *R. ignea* could not be illustrated due to the oblique angle of the lobe. All scanning electron micrographs were taken by the first author using a JEOL SEM 6400 microscope. The objects were cleaned in 70% ethanol, air-dried and subsequently sputtered with gold for 1.5-2 min at 20 mA before examination.

Terminology

The terminology of odonate wing venation applied here follows the modified Tillyard-Fraser system (Watson & O’Farrell 1991).