

On a collection of dragonflies (Odonata) from the Island of Mioswaar (Papua Barat, Indonesia)

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Abstract: A total of 28 species of dragonflies were collected during fieldwork from the 18th to 27th of August 2009. One of these (*Argiolestes roon*) has since been described as new to science while several others are still undescribed (*Argiolestes spec.*) or may to be new to science. This small collection shows that the Island of Mioswaar has a rich and varied dragonfly fauna comparable with that of the mainland. A number of the species have their main range or their nearest relatives on the Bird's Head Peninsula showing that the dragonfly fauna of Mioswaar is more related with that of the Bird's Head than with that of the vast other part of the mainland of New Guinea.

Rangkuman: Sebanyak 28 spesies capung dikumpul selama kerja lapangan dari 18 sampai dengan 27 Agustus 2009. Sejak itu satu di antaranya (*Argiolestes roon*) sudah dipertelakan sebagai spesies baru untuk ilmu, sedangkan sejumlah lain belum dideskripsi (*Argiolestes spec.*) atau mungkin baru untuk ilmu. Hasil yang terbatas ini menunjukkan bahwa pulau Mioswaar mempunyai fauna capung yang kaya dan beranekaragam, yang dapat dibandingkan dengan tanah besar. Sejumlah spesies mempunyai daerah distribusinya atau spesies yang paling dekat di semenanjung Kepala Burung. Hal ini memperlihatkan bahwa fauna capung di Mioswaar lebih erat hubungannya dengan Kepala Burung dari pada dengan bagian luas lainnya dari New Guinea

Introduction

The Island of Mioswaar is situated in the Teluk Cenderawasih (Geelvink Bay) to the east of the neck of the Bird's Head Peninsula between Manokwari and the Wondama Peninsula. It is roughly 20 by 10 km in size, with the highest peak reaching 467 meter. The island is situated approximately 20 km from the mainland, with which it has probably been connected during glacial periods, and is therefore not expected to have a high proportion of endemic dragonfly species. It is likely that the island

has a fauna comparable with that of the adjacent mainland however this region has been very poorly explored and only a few records are available for the area between Nabire in the east to Anggi lakes in the west, a distance of almost 200 km. The Bomberai Peninsula and the Bird's Head Peninsula both have numerous endemic species. The knowledge on the distribution of dragonflies in the area between these peninsulas and the main land mass of New Guinea is currently fragmentary, due to this it is not clear if the faunal change between the two peninsulas and mainland of New Guinea is abrupt or gradual.

The first author visited the Island of Mioswaar in August 2009 as part of an entomological expedition of the Kelompok Entomologi Papua. During this period a small but valuable collection of dragonflies was assembled. This collection constitutes the first records of dragonflies for the island. Some of the material was studied by Kalkman et al., 2010, who listed *Argiolestes roon* for the island. In this paper, all Odonata species collected on Mioswaar are recorded and compared.

Methods

Fieldwork was conducted from the 18th to 27th of August 2009 in the surroundings of Waprak, Kabupaten Wondama (S 02°06.685, E 134°20.721), a village on the southernmost tip of Mioswaar Island. Dragonflies were caught using a hand net. Waprak is surrounded by forest, at least part of which is primary, bordering a narrow, largely pristine river. The forest is difficult to access except for a trail to a newly created water reservoir and the river itself. Identification of the material was made by the second author except for the material of *Agyrthacantha* which has been identified by Gunther Theischinger. The material is stored in the Koleksi Serangga Papua (KSP) with some of the specimens being held in the Nationaal Natuurhistorisch Museum Naturalis, Leiden (RMNH) for further study.

Results

Table 1 lists the species recorded during the fieldwork. Females which were identified solely based on the presence of the males are given in brackets. A total of 28 species from nine families were collected.

Table 1. Species recorded during fieldwork on Mioswaar in 2009.

Chlorocyphidae

Rhinocypha tincta Rambur, 1842

14 m

Megapodagrionidae

<i>Argiolestes roon</i> Kalkman et al., 2010	4 m
<i>Argiolestes</i> spec. nov.	5 m, 1 f
<i>Argiolestes</i> unidentified	15 m, 1 f

Platystictidae

<i>Drepanosticta</i> spec. (near to <i>inconspicua</i>)	3 m
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Platycnemiidae

<i>Idiocnemis strumidens</i> Lieftinck, 1958	4m, 1f
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Protoneuridae

<i>Nososticta</i> spec. (<i>aurantiaca</i> group)	9 m, 4 f
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Coenagrionidae

<i>Palaiargia</i> spec.	2f
<i>Papuagrion</i> spec. nov.?	2 m, 1 f
<i>Teinobasis laglaizei</i> (Selys, 1878)	2 m
<i>Teinobasis rufithorax</i> (Selys, 1877)	9 m

Aeshnidae

<i>Agyrtacantha dirupta</i> (Karsch, 1889)	1 m, 1f
<i>Anax</i> spec.	2 m, 1 f

Macromidae

<i>Macromia</i> spec.	1 m
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Libellullidae

<i>Agrionoptera insignis</i> (Rambur, 1842)	1 m
<i>Agrionoptera longitudinalis</i> Selys, 1878	4 m
<i>Brachydiplax duivenbodei</i> (Brauer, 1866)	4 m
<i>Diplacina callirhoe/smaradina</i>	2 m, (2 f)
<i>Nannophya pygmaea</i> Rambur, 1842	2 m
<i>Nesoxenia mysis</i> (Selys, 1878)	4 m, 6 f
<i>Neurothemis stigmatizans</i> (Fabricius, 1775)	4 m, 4 f
<i>Orthetrum serapia</i> Watson, 1984	4 m
<i>Orthetrum villosovittatum</i> (Brauer, 1868)	4 m, 4 f
<i>Pantala flavescens</i> (Fabricius, 1798)	1 m
<i>Protorthemis coronata</i> (Brauer, 1866)	4 m, 4 f
<i>Rhyothemis resplendens</i> Selys, 1878	5 m
<i>Tetrathemis irregularis</i> Brauer, 1868	2 m, 1 f
<i>Tamea</i> spec.	1 m, 1 f
<i>Zyxomma multinervorum</i> Carpenter, 1897	1 m

Notes on selected species

Argiolestes roon – This species was recently described based on a male from Roon Island by Kalkman et al. (2010). Material from Mioswaar was not included in the type material but was listed as additional material.

Argiolestes spec. nov. – This species belongs to the large group of species with the dorsum of segment 8 and 9 only lightly sclerotised and the hind rim of segment 10 serrated. It is the only species of this group occurring in West Papua (Papua Barat) that has red legs.

Argiolestes unidentified – Not all material of *Argiolestes* was seen by the second author for which reason it is here listed as unidentified. Probably this series contains material of the two other listed species.

Drepanosticta spec. (near to *inconspicua*) – Resembles *D. inconspicua* in general shape of the appendages and the dorsum and sides of thorax being brown throughout but has pale instead of dark brown appendages. *D. inconspicua* was described from three males from Waigeu Island and a female from Roon Island. If the specimens from Mioswaar belong to an undescribed species, then it is not unlikely that the female from Roon Island also belongs to this species.

Idiocnemis strumidens – This species was thus far known from Misool, the western tip of the Vogelkop (= Bird's Head) Peninsula (Beraur River area) and the Bomberai Peninsula. The new record fits in this pattern and shows that this species is widespread from Nabire westwards.

Micromia spec. – This specimen has the postclypeus reddish brown and the dorsum of the thorax lacking a well defined antehumeral band and thus belongs to group 2 as defined by Lieftinck (1971). It does not however match any of the described species and might therefore be a new species. The dorsal projection on segment 10 and the anal appendages with the lower being clearly longer than the upper are not unlike that of *M. lachesis* from New Britain. That species has however a pair of bright lateral spots on the postclypeus lacking in the specimen from Mioswaar.

Palaiargia spec. – Only two females are available which do not pertain to the common and widespread *P. charmosyna*. Identification of the females is currently not possible.

Papuagrion spec. nov.? – The appendages of the two males are distorted making identification difficult. The appendages best fit those of *P. magnanimum* but the pattern on the synthorax and details of the hind rim of the prothorax are different.

Teinobasis laglaizei – Thus far known from Karoon and the wider surroundings of Jayapura. In the latter area it has been collected at a large number of localities, suggesting that the species is common in the lowlands from Jayapura eastwards.

Discussion

The species here recorded from Mioswaar are probably only a fraction (30 to 50%) of the number of species present on the island and it is likely that the list would double with two or three weeks additional fieldwork at other localities on the island. The total number of species occurring on the island might therefore number between 60 and 80. Despite being collected over a short period and in a relatively small area of the island, this collection shows that the island of Mioswaar has a rich and varied dragonfly fauna. It seems likely that further fieldwork would show that all families known from New Guinea are present on the island. Eighteen of the 28 species, including all the libellulids, are widespread and also occur outside New Guinea. Of the remainder, two are widespread while nine others are limited to a small part of the mainland of New Guinea. The latter group might show which part of New Guinea is most closely affiliated to Mioswaar, however five of these nine could not be identified to species level or are new to science giving little information on their closest relatives. The remaining four are distributed as follows:

- *Teinobasis laglaizei* is known from the Indonesia part of the northern lowland and from the Bird's Head Peninsula.
- *Argiolestes roon* is only known from the islands of Mioswaar and Roon. These islands were connected with the mainland during glacial periods and might therefore have largely the same fauna.
- *Idiocnemis strumidens* is limited to the Bird's Head Peninsula.
- *Drepanosticta* spec. has its closest relative on the Bird's Head Peninsula, we consider it to be close to or conspecific with *inconspicua*.
These distributions indicate that the dragonfly fauna of Mioswaar shows more affinity with that of the Bird's Head Peninsula than with that of the mainland of New Guinea.

References

- Lieftinck, M.A. 1971. Studies in Oriental Corduliidae (Odonata). Tijdschrift voor Entomologie 114: 1-50.
- Kalkman, V.J., S.J. Richards & D.A. Polhemus 2010. Three new species of *Argiolestes*, with a key to the males of *Argiolestes* s. str. (Odonata: Megapodagrionidae). International Journal of Odonatology 13: 75-88, pls II, IIIa



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Fig. 1. River close to sea; **Fig. 2.** Hilly site; **Fig. 3.** Swampy area; **Fig. 4.** Site close to water reservoir; **Fig. 5.** River down from water reservoir; **Fig. 6.** First author in the field.