# Previously unpublished Odonata records from Sarawak, Borneo, part VI: Miri Division including checklists for Niah, Lambir Hills, Loagan Bunut and Pulong Tau National Parks

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## Abstract

Records of Odonata made from 2005 to 2020 in Miri Division in Sarawak are presented, including records from Lambir Hills, Loagan Bunut, Niah and Pulong Tau National Parks. Primary types of Odonata originating from Miri Division are listed. Surveys of more than one day duration in Miri Division and covered here are tabulated with the funding source where appropriate; four of the surveys covered here were funded by the International Dragonfly Fund. One hundred and eighty-eight species are listed based on surveys made by the authors, of which *Macromia jucunda* Lieftinck, 1955, had not been recorded from Borneo before, *Burmagomphus arthuri* Lieftinck, 1953 is a new record for Miri Division

and *Camacinia gigantea* (Brauer, 1867) has only been recorded from the Division recently with the only published record in a difficult to access publication (Choong (2020)). At least 48 more of the species listed were recorded from Miri Division for the first time in surveys covered in this report, although the records have been published (in most cases with no details beyond division and district in Dow (2021)) before. Two forms of *Xiphiagrion cyanomelas* Selys, 1876 are recorded and the likelihood that they represent different species is discussed. A possibly new, large sized, species of *Macromia* allied to *M. westwoodii* Selys, 1874 is recorded and discussed. Other notable records not published with details before include *Rhinocypha stygia* Förster, 1897, *Rhinoneura caerulea* Kimmins, 1936, *Dysphaea lugens* (Selys, 1873), *Euphaea ameeka* van Tol & Norma-Rashid, 1995, *Euphaea basalis* (Laidlaw, 1915), *Amphicnemis* new sp. cf *mariae* Lieftinck, 1940 (previously recorded from Usun Apau National Park), *Anaciaeschna jaspidea* (Burmeister, 1839), *Heliaeschna uninervulata* Martin, 1909, *Borneogomphus* sp., *Heliogomphus borneensis* Lieftinck, 1964, *Ictinogomphus acutus* (Laidlaw, 1914), *Chlorogomphus* sp., *Macromia corycia* Laidlaw, 1922, *Idionyx montana* Karsch, 1891, *Hylaeothemis clementia* Ris, 1909, *Orchithemis xanthosoma* Laidlaw, 1911, *Rhyothemis fulgens* Kirby, 1889, *Rhyothemis regia* (Brauer, 1867), *Tetrathemis* sp. cf *platyptera* Selys, 1878, *Tramea phaeoneura* Lieftinck, 1953 and *Tramea* sp. cf *virginia* (Rambur, 1842). The habitat preferences of *Dysphaea lugens* are discussed. A male-male tandem of *Coeliccia nigrohamata* Laidlaw, 1918 is reported. The somewhat peculiar distribution of *Argiocnemis rubescens rubeola* Selys, 1877 and *Pseudothemis jorina* Förster, 1904 in Sarawak is discussed. Activity of the apparently normally crepuscular *Heliaeschna uninervulata* in the middle of the day is reported. An interesting morphological detail of some female *Chlorogomphus* from Sarawak is discussed. The likelihood that *Macromia corycia* is a junior synonym of *M. gerstaeckeri* Krüger, 1899 is discussed. The possibility that the range of *Rhyothemis regia* is expanding in Sarawak is remarked upon. The identity of *Tramea* sp. cf *virginia* is discussed. With the records presented here at least 222 species of Odonata are known from Miri Division and with the addition of *Macromia jucunda* to the known fauna, 309 species have now been recorded from Sarawak. More detailed specimen records are given in Appendix 1 and a revised checklist of Odonata from Lambir Hills National Park and the first checklists from Loagan Bunut, Niah and Pulong Tau National Parks are given in Appendix 2.

**Key words:** Malaysia, Borneo, Sarawak, Miri Division, Odonata, new records, checklists

## Introduction

This paper is the sixth of a series of publications in which we hope to list all the Odonata records made by or involving the authors in Sarawak since 2005 and which have not previously been published and which are not scheduled to be published elsewhere. In this paper we present records from Miri Division of Sarawak, made up to 2020.

Miri Division, with an area of approximately 26,777km$^2$, is the second largest administrative division of Sarawak. The division is also historically one of the better studied areas for Odonata in Sarawak (this is reflected in the large number of primary types of odonate species that originate from the Division, see Table 1), thanks in part to a number