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Previously unpublished Odonata records from Sarawak, Borneo, part XII: More Odonata from Kapit Division

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Abstract

Records of adult and larval Odonata from the Kapit Town area in Kapit Division, Sarawak, Malaysian Borneo, made in 2023 and 2024, are presented. One hundred and seven species were recorded, nine of which were first records for the division and a further 21 were first records for Kapit District. The total number of Odonata known from Kapit Division was raised to 167. The most significant of the adult records is that of a female *Linaeschna* (probably *L. polli*), a genus only known from the male until now. From the larval records, single larvae of *Borneogomphus* and another Onychogomphine species stand out, the former is particularly notable since it was made at a lowland site. The diversity of the Gomphidae in Borneo is briefly discussed and compared with a recent study made in Thailand as well as more generally with mainland Southeast Asia.

Key words: Odonata, Sarawak, Kapit, larvae, *Linaeschna*, *Borneogomphus*, Gomphidae, Onychogomphinae.

Introduction

Dow (2022) gave results on Odonata from the Kapit Town area from two trips made in 2020, the first funded by the Mohamed bin Zayed Species Conservation Fund (MBZSCF), the second by MBZSCF and the International Dragonfly Fund (IDF). The 2020 surveys were made specifically to search for specific damselfly species under the MBZSCF grant and were hampered by the global pandemic. In 2023 the first author made another trip to the Kapit Town area, again funded by MBZSCF and IDF, but instead of staying in town as in the 2020 trips a longhouse, Rumah Manok Manchal (the Naughty Chicken House, we do not know the origin of this name), in the Sungai Yong area was used as a base of operations. In 2024 the second author joined for an IDF funded trip to the same area, staying at a separate house belonging to a family from Rumah Manok Manchal. The surveys in 2020 and 2023 were mostly conducted in small, high gradient streams (suitable habitat for the target species of the MBZSCF grant), although a broader range of habitat was sampled either in passing, or by field assistants, or when suitable habitat for the target species was simply not found, etc. In contrast the 2024 survey concentrated more on larger streams and the second author conducted larval sampling, broadening our knowledge of the Odonata found in the area considerably. Even though the Kapit Town area cannot be regarded as remote nowadays, working in this area is not without risks: the first author contracted Malaria (*Plas-*

modium knowlesi) during the 2023 survey, with symptoms becoming apparent later during fieldwork in another part of Sarawak and ultimately leading to his hospitalisation. Here we present the results of the 2023 and 2024 surveys.

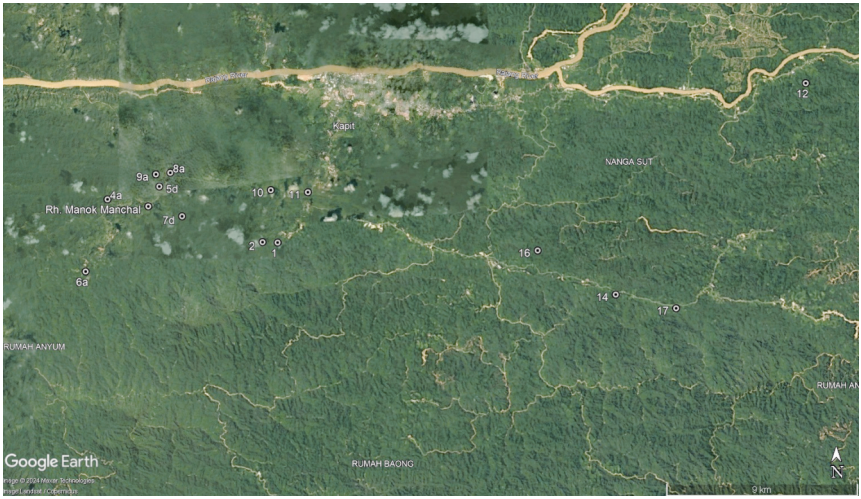

Figure 1. Overview of sampled locations. Note that locations not mentioned in the text (for instance "Rumah Baong") are from Google Earth and might not be accurate (or even exist in reality).

Locations

The locations visited are organized by drainage, those sites within the drainage of the main Rejang River are listed first, then those within the drainage of the Baleh River, one of the two major tributaries that merge just upstream from Kapit Town to form the Rejang. In order to make the list complete locations visited in 2020 (Dow 2022) but not in 2023-2024 are included in the list but in []. To our understanding all locations apart from 12, 13 and 18 are within Kapit District, 12, 13 and 18 are in Bukit Mabong District. Figure 1 shows an overview of the locations visited in 2023-2024.

Rejang drainage

1. Sebabei Recreational Park (1.9451N, 112.9049E), near Rumah Bundong (2020, 2024 surveys; location KT1 in Dow 2022):
   a. Sungai Sebabei.
   b. Tributaries to Sungai Sebabei.
2. Sungai Kapit above Rumah Bundong, the last longhouse on the stream (2020 and 2023 surveys; location KT2 in Dow 2022).
   a. Mainstream (representative coordinates 1.9453N, 112.8984E).
   b. [Tributaries sampled in 2020.]
   c. Small tributary with large, disturbed seepage at head.
   d. Small, steep tributary

3. Sungai Yong at Rumah Manok Manchal (2023, 2024 surveys):
   a. Mainstream.
   b. Small tributary (larval records only).
4. Sungai Sekijang, a tributary of Sungai Yong (2023, 2024 surveys):
   a. Mainstream (representative coordinates 1.9637N, 112.8315E). Fig. 2.
   b. Tributary system (representative coordinates 1.9653N, 112.8243E).
   c. Muddy runnels in second growth forest beside stream.
   d. An oxbow pool.
   e. On path down to stream from road.
5. Rumah Manok Manchal (1.9607N, 112.8491E) (2023, 2024 surveys):
   a. Lights at longhouse.
   b. A fishpond (1.9676N, 112.8566E) at a separate house a little way back down the road to Kapit.
   c. Flying outside the house at **5b**, or found inside this house.
   d. Small stream system on other side of road to **5b** (representative coordinates 1.9692N, 112.8546E):
      i. Righthand, mostly high gradient branch.
      ii. Lefthand, mostly low gradient branch.
   e. Small forest edge pond on hilltop (1.9663N, 112.8548E) above 5d.
6. The Ulu Yong area (2020, 2024 surveys; location KT5 in Dow 2022):
   a. Sungai Yong (representative coordinates 1.9326N, 112.8221E). Fig. 3.
   b. [Tributaries sampled in 2020.]
   c. Tributary system at 1.9353N, 112.8201E (2024).
   d. Tributary system just upstream from old longhouse.
7. Sungai Liban (large tributary of Sungai Yong, confluence not far downstream from Rumah Manok Manchal) (2023, 2024 surveys):
   a. Mainstream (representative coordinates 1.9607N, 112.8607E).
   b. Low gradient tributary:
      i. Mainstream.
      ii. Swampy areas around stream.
      iii. Rocky seepage beside stream.
   c. Right hand (going upstream) branch (representative coordinates 1.9566N, 112.8652E).
   d. High gradient tributary on right hand branch (1.9564N, 112.8637E).
   e. Large, muddy pool beside mainstream.
8. Sungai Sekukut, a large tributary of Sungai Yong entered at Rumah Empawi, only sampled in suboptimal weather conditions for adult Odonata (2024 survey):
   a. Stream, sampled from 1.9752N, 112.8585E to 1.9713N, 112.8749E. Fig. 4.
   b. Paths near stream.
   c. Tree hole near path.
9. Sungai Tiasa, a smaller stream near to Rumah Empawi (2024 survey):
   a. Mainstream (representative coordinates 1.9745N, 112.8523E).
   b. Shady overgrown runnel beside stream.
   c. Pond (1.9764N, 112.8537E) with shady outflow by road, near the stream.
   d. On or beside road near the stream.

10. Along the Yong Road (2024 survey):
    a. A large pond (1.9677N, 112.9019E).
    b. Drains beside road.
11. A pond (1.9668N, 112.9179E) behind some houses on the outskirts of Kapit, at the turning onto the Yong Road (2024 survey). Fig. 5.

Baleh drainage

12. Sungai Sepako, a tributary of the Baleh River (2020 and 2023 surveys; location KT3 in Dow 2022):
    a. Mainstream (representative coordinates 2.0138N, 113.1326E) and its right (main) branch (representative coordinates on right branch 2.0138N, 113.1326E, most sampling was conducted on this branch).
    b. Rock pools at side of right branch of mainstream.
    c. Tributaries to right branch:
        i. First sampled.
        ii. Second sampled.
        iii. Third sampled.
    d. [Tributaries to left branch sampled in 2020.]
13. [A pond (2.0219N, 113.1325E) by the road, not far from location 12 (2020 survey; location KT4 in Dow 2022).]
14. Sungai Pinih in Ulu Sut area (2020, 2024 surveys; location KT6 in Dow 2022):
    a. Mainstream (representative coordinates 1.9227N, 113.0506E). Fig. 6.
    b. [Tributaries to mainstream sampled in 2020].
    c. Sungai Sengkuli, a major tributary entering above the bridge (representative coordinates 1.9219N, 113.0564E.
    d. Ponds in the Sungai Pinih Recreational Park.
15. [Sungai Ngau Mit in Ulu Sut area (2020 surveys; location KT7 in Dow 2022):
    a. Mainstream (representative coordinates 1.9391N, 113.0333E).
    b. Tributaries.]
16. Sungai Ngau Besai in Ulu Sut area (2023, 2024 surveys):
    a. Mainstream (representative coordinates 1.9417N, 113.0169E). Fig. 7 (view from bridge crossing stream).
    b. Small, moderate (average) gradient tributaries in close proximity to each other
    c. High (average) gradient tributary.
    d. Rock pools at side of mainstream.
17. Sungai Merating in Ulu Sut area (2023 survey):
    a. Mainstream (representative coordinates 1.9168N, 113.0766E).
    b. Tributaries.
    c. Rock pools at side of mainstream.
18. [Rumah Nawin area on the other side of the Baleh River from Kapit Town (2020 surveys; location B1 in Dow 2022):
    a. Ponds at longhouse (2.0594N, 113.2516E).
    b. Pond in forest on road to longhouse, fed by tiny stream.

Figures 2–7: (2) Sungai Sekijang; (3) Sungai Yong; (4) Sungai Sekukut; (5) pond on the outskirts of Kapit Town; (6) Sungai Pinih; (7) Sungai Ngau Besai. All photographs by S.G. Butler.

c. Forest edge ponds on road to longhouse (2.0573N, 113.2321E).
d. Other ponds on road to longhouse (2.0579N, 113.2217E).]

List of species recorded in the Kapit Town area in 2023-2024.

Definite first records from Kapit Division made in 2023-2024 are indicated with an **, first records from Kapit District are indicated with an *.

Zygoptera

Platystictidae

1. *Drepanosticta attala* Lieftinck, 1934

   17a – ♀ (teneral), 8.iv.2023.

2. *Drepanosticta* sp. cf *forficula* Kimmins, 1936 *

   The first record of the D. forficula complex from Kapit District, although the complex has been found in the west of Kapit Division in Song District. This species complex presumably occurs throughout the division but is extremely local in occurrence and is only found in low densities where it does occur.
   5di – ♂, 15.iii.2024.

3. *Drepanosticta rufostigma* (Selys, 1886)

   4a – ♂, 12.iii.2024. **4b** – ♂, 12.iii.2024. **5di** – ♂♂, 15.iii.2024. **6c** – ♂♂, 11.iii.2024. **7bi** – ♂, 12.iv.2023. **12ci** – ♂♂, 10.iv.2023. **12cii** – ♂, 10.iv.2023. **12ciii** – ♂, 10.iv.2023. **14c** – ♂, 10.iii.2024. **15b** – ♂♂, 12.iv.2023.

4. *Drepanosticta versicolor* (Laidlaw, 1913)

   4b – ♀, 12.iii.2024. **5di** – ♂♂, ♀, 15.iii.2024. **6c** – ♀, 11.iii.2024. **7d** – ♂♂, 9.iii.2024. **9b** – ♀, 13.iii.2024. **12cii** – ♂, 2 (♂+♀), 10.iv.2023. **12ciii** – ♂♂, ♀♀, ♂+♀, 10.iv.2023. **16b** – ♂, ♀, 12.iv.2023.

5. *Telosticta longigaster* Dow & Orr, 2012

   2c – ♂, 11.iv.2023. **4a** – ♂, 12.iii.2024. **5di** – ♂♂, 15.iii.2024. **6c** – ♂♂, 11.iii.2024. **7d** – ♂♂, 9.iii.2024. **12c**i – ♂, ♀, 10.iv.2023. **12cii** – ♂♂, 10.iv.2023. **12ciii** – ♂♂, 10.iv.2023. **16b** – ♂, 12.iv.2023. **16c** – ♂♂, 12.iv.2023.

Euphaeidae

6. *Dysphaea dimidiata* Selys, 1853

   5c – ♀ (found in house in morning), 11.iii.2024. **6a** – ♂, 11.iii.2024. **7a** – ♂♂, 13.iv.2023; ♂♂, 9.iii.2024. **8a** – ♂, 14.iii.2024.

7. *Dysphaea ulu* Hämäläinen, Dow & Stokvis, 2015

   2a – ♂♂, 11.iv.2023. **6a** – ♂, 9.iv.2023.

8. *Euphaea impar* Selys, 1859

   4a – ♂, 9.iv.2023; ♂, 12.iii.2024. **4b** – ♂, 12.iii.2024. **5d** – ♂, 15.iii.2024. **6c** – ♂, 11.iii.2024. **6d** – ♂, 11.iii.2024. **7b** – ♂♂, 13.iv.2023. **7c** – ♂♂, 9.iii.2024. **12a** – ♂, 10.iv.2023. **14c** – ♂, 10.iii.2024. **16a** – ♂, 12.iv.2023. **17b** – ♂, 8.iv.2023.

9. *Euphaea subcostalis* Selys, 1873

   4a – ♂, 12.iii.2024. **6c** – ♂, 11.iii.2024. **7bi** – ♂, 13.iv.2023. **7c** – ♂♂, ♂ (teneral), 9.iii.2024. **12a** – ♂♂, 10.iv.2023. **14c** – ♂♂, ♀ (teneral), 10.iii.2024. **16a** – ♂♂, ♀♀, ♂+♀, 12.iv.2023. **17a** – ♂♂, 8.iv.2023.

10. *Euphaea tricolor* Selys, 1859

    2a – ♂, 11.iv.2023. **6a** – ♂♂, 11.iii.2024. **8a** – ♂♂, 14.iii.2024. **16a** – ♂, 12.iv.2023.

Devadattidae

11. *Devadatta clavicauda* Dow, Hämäläinen & Stokvis, 2015

2c – ♂♂, ♀, 11.iv.2023. **4a** – ♂, 12.iii.2024. **4b** – ♂♂, 12.iii.2024. **5dii** – ♂, 15.iii.2024. **7bi** – ♂, 13.iv.2023. **16b** – ♂♂, 12.iv.2023.

12. *Devadatta somoh* Dow, Hämäläinen & Stokvis, 2015

5di – ♂♂, ♀, 15.iii.2024. **6c** – ♂♂, 11.iii.2024. **6d** – ♂, 11.iii.2024. **12ci** – ♂♂, 10.iv.2023. **12cii** – ♂♂, ♀, 10.iv.2023. **12ciii** – ♂♂, 10.iv.2023. **16c** – ♂♂, ♀, 12.iv.2023.

Philosinidae

13. *Rhinagrion borneense* (Selys, 1886)

1a – ♂, 15.iii.2024. **2a** – ♂, 11.iv.2023. **4a** – ♂, 9.iv.2023; ♂♂, ♀, 12.iii.2024. **4b** – ♂, 12.iii.2024. **7a** – ♂♂, 13.iv.2023; ♂♂, ♀, 9.iii.2024. **7bi** – ♂, 13.iv.2023. **8a** – ♂, 13.iii.2024; ♂, 14.iii.2024. **9a** – ♂♂, 13.iii.2024. **12a** – ♂♂, 10.iv.2023. **14c** – ♂, 10.iii.2024. **16a** – ♂♂, 12.iv.2023.

Argiolestidae

14. *Podolestes orientalis* Selys, 1862

4a – ♂, 12.iii.2024. **4d** – ♂+♀, 12.iii.2024.

Calopterygidae

15. *Neurobasis longipies* Hagen, 1887

1a – ♀, 8.iii.2024; ♂, ♀, 15.iii.2024. **2a** – ♀, 11.iv.2023. **4a** – ♂♂, 9.iv.2023; ♂, 12.iii.2024. **6a** – ♂♂, ♀♀, 11.iii.2024. **7a** – ♂♂, ♀, 9.iii.2024. **8a** – ♂, ♀, 14.iii.2024. **12a** – ♂, 10.iv.2023. **14c** – ♂♂, ♀, 10.iii.2024. **16a** – ♂, 12.iv.2023; ♂, ♀♀, 15.iii.2024. **17a** – ♂, ♀, ♂+♀, 8.iv.2023.

16. *Vestalis amaryllis* Lieftinck, 1965

5dii – ♂, 15.iii.2024. **7bi** – ♂♂, 13.iv.2023. **7c** – ♂, 9.iii.2024.

17. *Vestalis amoena* Hagen in Selys, 1853

1a – ♂♂, 15.iii.2024. **2a** – ♂, 11.iv.2023. **4a** – ♂♂, ♀♀, 9.iv.2023; ♂♂, 12.iii.2024. **4b** – ♂, 12.iii.2024. **3a** – ♂♂, 9.iv.2023. **6c** – ♂, 11.iii.2024. **7a** – ♂, 13.iv.2023; ♂♂, 9.iii.2024. **7c** – ♂♂, 9.iii.2024. **8a** – ♂+♀, 13.iii.2024; ♂, ♀, 14.iii.2024. **9a** – ♂, 13.iii.2024. **12a** – ♂♂, 10.iv.2023. **14c** – ♂♂, ♀, 10.iii.2024. **16a** – ♂♂, 12.iv.2023; ♂, ♀, 15.iii.2024. **17a** – ♂♂, 8.iv.2023.

18. *Vestalis atropha* Lieftinck, 1965

6a – ♂, 11.iii.2024. **6c** – ♂♂, 11.iii.2024. **14c** – ♂♂, 10.iii.2024.

Chlorocyphidae

19. *Heliocypha biseriata* (Selys, 1859)

1a – ♂, 8.iii.2024. **2a** – ♂, 11.iv.2023. **3a** – ♂, 9.iv.2023. **4a** – ♂, ♀♀, 9.iv.2023; ♂, 12.iii.2024. **6a** – ♂♂, ♀, 11.iii.2024. **7a** – ♂♂, 13.iv.2023; ♂, 9.iii.2024. **8a** – ♂, 13.iii.2024. **9a** – ♂, 13.iii.2024. **12a** – ♂♂, 10.iv.2023. **14c** – ♂♂, ♀, 10.iii.2024. **16a** – ♂♂, 12.iv.2023; ♂, 15.iii.2024. **17a** – ♂♂, ♀, 8.iv.2023.

20. *Libellago semiopaca* (Selys, 1873)

This and the next species were probably under-recorded during the 2023-2024 surveys since they are easily missed by field assistants and RD was focused on unsuitable habitat

for them in 2023 and on difficult to catch Anisoptera while on streams of the size they favour in 2024.

6a – ♂, 11.iii.2024.

21. *Libellago stictica* (Selys, 1869)

6a – ♂, 11.iii.2024. **8a** – ♂, 13.iii.2024.

22. *Rhinocypha aurofulgens* Laidlaw, 1931

2a – ♂, 11.iv.2023. **14c** – ♂, 10.iii.2024. **16a** – ♂, 15.iii.2024. **17a** – ♂, 8.iv.2023.

23. *Rhinocypha cucullata* Selys, 1873

7c – ♂♂, 9.iii.2024.

24. *Sundacypha petiolata* (Selys, 1859) *

4b – ♂♂, 12.iii.2024. **7bi** – ♂♂, 13.iv.2023.

Platycnemididae

25. *Coeliccia borneensis* (Selys, 1886)

One of the males collected at location 5di in 2024 is peculiar, bearing a very large dorsal spine on the left paraproct but no such spine on the right paraproct, when first viewed under the microscope (the left side) the initial reaction was that it was a new species but on examining the other side of the specimen the asymmetry was revealed, so this is assumed to be merely an aberrant individual.

5di – ♂♂, 15.iii.2024. **6c** – ♂♂, 11.iii.2024. **7c** – ♂, 9.iii.2024. **12b** – ♀, 10.iv.2023. **12ci** – ♂, 10.iv.2023. **12ciii** – ♂, ♀, 10.iv.2023. **16b** – ♂♂, ♀, 12.iv.2023.

26. *Coeliccia cyaneothorax* Kimmins, 1936

4a – ♂, 12.iii.2024. **12a** – ♂♂, ♀, 10.iv.2023. **12b** – 2 (♂+♀), 10.iv.2023. **16d** – ♂, ♀, 12.iv.2023.

27. *Coeliccia kenyah* Dow, 2010

Only a single individual found, Dow (2022) reported a single individual from another location in the general Kapit Town area; it appears that this species is approaching the edge of its range in Kapit Town area and is very uncommon there but is more common in the east of Kapit Division in Belaga District.

12b – ♂, 12.iv.2023.

28. *Coeliccia nigrohamata* Laidlaw, 1918

1b – ♂♂, 8.iii.2024. **2c** – ♂♂, 11.iv.2023. **4a** – ♂, 12.iii.2024. **4b** – ♂, 12.iii.2024. **5dii** – ♂, 15.iii.2024. **6c** – ♂, 11.iii.2024. **7bii** – ♂, 13.iv.2023. **7c** – ♂, 9.iii.2024. **12cii** – ♂, 10.iv.2023. **14c** – ♂, 10.iii.2024. **16a** – ♂, 12.iv.2023. **16b** – ♂♂, ♀, 12.iv.2023. **17b** – ♂, 8.iv.2023.

29. *Copera vittata* (Selys, 1863)

4d – ♂, 12.iii.2024. **7bii** – ♂♂, 13.iv.2023. **7d** – ♂, 13.iv.2023. **17b** – ♂+♀, 8.iv.2023.

30. *Elattoneura analis* (Selys, 1860)

2a – ♂, 11.iv.2023. **4a** – ♂♂, 12.iii.2024. **4b** – ♂♂, 12.iii.2024. **7bi** – ♂+♀, 13.iv.2023. **7c** – ♂♂, 9.iii.2024. **8a** – ♂, 14.iii.2024. **9a** – ♂+♀, 13.iii.2024. **16a** – ♂, 12.iv.2023.

31. *Onychargia atrocyana* Selys, 1865

11 – ♂+♀, 10.iii.2024.

32. *Prodasineura dorsalis* (Selys, 1860)

5dii – ♂, 15.iii.2024. **7bi** – ♂, 13.iv.2023. **14c** – ♂ (teneral), 10.iii.2024. **16b** – ♂♂, 12.iv.2023.

33. *Prodasineura hosei* (Laidlaw, 1913)

4b – ♂, 12.iii.2024. **7a** – ♂, 13.iv.2023. **7bi** – ♂, 2 (♂+♀), 13.iv.2023. **16a** – ♂♂, ♀♀, 12.iv.2023.

34. *Prodasineura hyperythra* (Selys, 1886)

Seemingly uncommon in the Kapit Town area, with only a single individual reported here and two (from two locations) in Dow (2022).

17a – ♂, 8.iv.2023.

35. *Prodasineura verticalis* (Selys, 1860)

6a – ♂♂, 9.iv.2023; ♂♂, 12.iii.2024. **7a** – ♂♂, ♂+♀, 9.iii.2024. **8a** – ♂, 14.iii.2024. **9a** – ♂, 13.iii.2024. 1**2a** – ♂, 10.iv.2023. **16a** – ♂, 12.iv.2023. **17a** – ♂♂, 8.iv.2023.

Coenagrionidae

36. *Agriocnemis femina* (Brauer, 1868)

5b – ♂, 8.iv.2023. **11** – ♀, 10.iii.2024.

37. *Argiocnemis* sp.

8b – ♀, 13.iii.2024. **17c** – ♂, 8.iv.2023.

38. *Ceriagrion bellona* Laidlaw, 1915 *

5e – ♂+♀, 15.iii.2024.

39. *Ceriagrion cerinorubellum* (Brauer, 1865)

11 – ♂, 10.iii.2024. **14d** – ♂♂, 10.iii.2024.

40. *Pericnemis* sp. *

A single *Pericnemis* larva was found in a tree hole in a mosaic of second growth forest and planted (but often old and large) fruit trees and rubber trees beside Sungai Sekukut. This record is interesting because the genus (in Borneo) is most often reported from old growth forest; it is also the first record of the genus from Kapit District.

8c – larva, 13.iii.2024.

41. *Pseudagrion lalakense* Orr & van Tol, 2001

5e – ♂, 15.iii.2024. **11** – ♂♂, ♂+♀, 10.iii.2024. **14d** – ♂♂, 10.iii.2024.

42. *Pseudagrion microcephalum* (Rambur, 1842)

10a – ♂, 15.iii.2024. **11** – ♂, ♂+♀, 10.iii.2024.

43. *Pseudagrion perfuscatum* Lieftinck, 1937

4a – ♂, 9.iv.2023. **7a** – ♂, 9.iii.2024. **8a** – ♂, 14.iii.2024. **14c** – ♂, 10.iii.2024. **17a** – ♂, 8.iv.2023.

44. *Stenagrion dubium* (Laidlaw, 1912)

2d – ♂♂, 11.iv.2023. **4b** – ♂, 12.iii.2024. **5di** – ♂♂, ♂+♀, 15.iii.2024. **7bii**i – ♂, 13.iv.2023. **12a** – ♂, 10.iv.2023. **12ci** – ♂, 10.iv.2023. **16a** – ♂♂, 12.iv.2023.

45. *Xiphiagrion cyanomelas* Selys, 1876

5e – ♂♂, 15.iii.2024. **10a** – ♂, 2 (♂+♀), 14.iii.2024. **14d** – ♂, ♂+♀, 10.iii.2024.

Anisoptera

Aeshnidae

46. *Anax panybeus* Hagen, 1867 *

10a – ♂♂, 14.iii.2024.

47. *Gynacantha dohrni* Krüger, 1899 **

A single male was collected at lights in Rumah Manok Manchal by one of the residents.

5a – ♂, 12.iv.2023.

48. *Linaeschna ?polli* Martin, 1909 **

A single female was collected, it was first observed while apparently ovipositing into a small log on a low gradient stream bank, ca. 1m from water, then on a large, partly exposed root or 90% buried log ca. 2m from water; the behavior was similar to that of *Tetracanthagyna* females, which it resembled to the point that when RD first saw it he thought that it was a small *Tetracanthagyna*. Examination of the specimen in hand revealed markings unlike any *Tetracanthagyna* species known from Borneo but resembling that of *Linaeschna polli* (which is only known from the male) and examination of the wing venation places the specimen in *Linaeschna*. It is likely that this female is that of *L. polli* rather than that of a second species of *Linaeschna*, but since males were not found and the specimen is smaller than might have been expected for *L. polli*, we have listed it with a ?

16a – ♀, 12.iv.2023.

49. *Tetracanthagyna ?degors*i Martin, 1895

1a – larva, 12.iii.2024. **4a** – larvae, 12.iii.2024. **8a** – larvae, 14.iii.2024. **16a** – larvae, 15.iii.2024.

Gomphidae

50. *Acrogomphus* sp.

Typically for this genus in Borneo larvae were found at many sites but adults at none.

1a – larvae, 8.iii.2024; larvae, 12.iii.2024. **6a** – larvae, 11.iii.2024. **7a** – larvae, 9.iii.2024. **8a** – larvae, 13.iii.2024; larvae, 14.iii.2024. **9a** – larvae, 13.iii.2024. **14a** – larvae, 10.iii.2024. **14c** – larvae, 10.iii.2024. **16a** – larvae, 15.iii.2024.

51. *Borneogomphus* sp. *

A single larva of *Borneogomphus* was collected, the first record of the genus from Kapit District (but not from the division). As with an increasing number of records of this genus (originally assumed to be an upland/montane genus) the larva was collected at a decidedly lowland site.

1a – larva, 12.iii.2024.

52. *Burmagomphus insularis* Laidlaw, 1914

7a – ♂, 13.iv.2023.

53. *Gomphidia maclachlani* Selys, 1873

1a – larva, 12.iii.2024. **2a** – ♂, 11.iv.2023. **4a** – larva, 11.iii.2024. **7a** – ♀, 9.iii.2024. **16a** – ♂, 12.iv.2023; larva, 15.iii.2024.

54. *Heliogomphus borneensis* Lieftinck, 1964 *

A single male was found during emergence (Fig. 3).

8a – ♂ (teneral, found emerging), 14.iii.2024.

Figure 3: Freshly emerged *Heliogomphus borneensis* at Sungai Sekukut. Photograph by S.G. Butler.

55. *Heliogomphus* sp. cf *oliveaceous* Lieftinck, 1961 *

A single male was collected, apparently (it was collected by a field assistant out of view of RD and miscommunication about exactly where it was caught is possible) while it was perched on a rock in the stream bed, not a typical perching place for this genus in Borneo in RD's experience.

2a – ♂, 11.iv.2023.

56. *Ictinogomphus decoratus melaenops* (Selys in Selys & Hagen, 1858)

5c – ♂♂, 8.iv.2023. **9c** – ♂♂, 13.iii.2024. **10a** – ♂, 14.iii.2024. **11** – ♂♂, 10.iii.2024.

57. *Leptogomphus coomansi* Laidlaw, 1936 *

Given that this is usually the most common species of *Leptogomphus* in the lowlands of Sarawak it is a little surprising that it was only recorded in Kapit District in 2024.

6c – ♂, 11.iii.2024.

58. *Leptogomphus* sp. cf *coomansi* Laidlaw, 1936 *

4a – ♂ (teneral), 12.iii.2024.

59. *Leptogomphus sii* Dow, Stokvis & Ngiam, 2017

9a – ♀ (teneral), 13.iii.2024.

60. *Leptogomphus williamsoni* Laidlaw, 1912

16a – ♂, ♀♀, 12.iv.2023.

61. *Macrogomphus quadratus* Selys, 1878 *

7biii – ♂, 13.iv.2023.

62. *Megalogomphus borneensis* (Laidlaw, 1914)

3a – ♂, 9.iv.2023.

63. *Microgomphus chelifer* Selys in Selys & Hagen, 1858 **

As with *Leptogomphus coomansi* it is slightly surprising, given that this is generally one of the most common Gomphidae in Sarawak, that the single record here is the first definite record from Kapit Division; all other records have either been of larvae or females of another species or dubious since those who claimed them were unaware of the presence of another, superficially similar species in Borneo.

8a – ♀ (teneral), 14.iii.2024.

64. *Sieboldius japponicus* Selys, 1854 *

2a – ♂, 11.iv.2023.

65. Onychogomphinae sp. **

A single larva, at least very similar to an exuvia reported from a location in southwest Sarawak by Dow et al. (2021: *Onychogomphus* sensu latu sp. A from Sungai Sirin).

8a – larva, 13.iii.2024.

Chlorogomphidae

66. *Chlorogomphus* sp. *

Larvae only, from a single site.

1a – 2 larvae, 8.iii.2024.

Macromiidae

67. *Epophthalmia vittigera* (Rambur, 1842)

10a – ♂♂, 14.iii.2024. **14d** – ♂, 10.iii.2024.

68. *Macromia arachnomima* Lieftinck, 1953 **

The distinctive larva and exuvia of this species, generally very elusive in the adult stage, were found at two locations.

4a – larva, 11.iii.2024. **8a** – ?exuvia, 13.iii.2024.

69. *Macromia callisto* Laidlaw, 1922

Adults of this species were abundant on the upper Sungai Yong (location **6a**) in the early morning of 11.iii.2024 but not seen at all after about 9:30 AM.

6a – ♂♂, ♀♀, 11.iii.2024. **7a** – ♀, 9.iii.2024.

70. *Macromia* sp. cf *cincta* Rambur, 1842 **

A larval record from one site, almost certainly *M. cincta*.

8a – larva, 13.iii.2024.

71. *Macromia corycia* Laidlaw, 1922

2a – ♀, 11.iv.2023.

72. *Macromia cydippe* Laidlaw, 1922

2a – ♂♂, 11.iv.2023. **3a** – larvae, 9.iii.2024. **3b** – larvae, 9.iii.2024. **4a** – larvae, 11.iii.2024. **6a** – ♂, 11.iii.2024. **7a** – ♂, 13.iv.2023; larvae, 9.iii.2024. **7c** – ♀, 9.iii.2024. **8a** – larvae, 13.iii.2024; larvae, 14.iii.2024. **9a** – ♀, 13.iii.2024; larvae, 13.iii.2024. **12a** – ♂♂, 10.iv.2023. **14c** – ♀, 10.iii.2024. **16a** – ♂, 12.iv.2023; larvae, 15.iii.2024.

Synthemistidae

73. *Idionyx* sp. or spp. *

Larval records from two sites.

1a – larvae, 12.iii.2024. **14c** – larvae, 10.iii.2024.

74. *Macromidia fulva* Laidlaw, 1915 *

Although this is the first record of another species that is rather common for Kapit District, it is less surprising than others highlighted above; this species is most active very early in the morning and late in the day, in the main part of the day it is normally only seen when disturbed from a resting place in foliage above the stream.

4a – ♂, 12.iii.2024.

Libellulidae

75. *Acisoma panorpoides* Rambur, 1842 *

11 – ♂, ♀, 10.iii.2024.

76. *Aethriamanta gracilis* (Brauer, 1878)

5b – ♂, 11.iii.2024. **10a** – ♂, 14.iii.2024. **11** – ♂, 10.iii.2024. **14d** – ♂, 10.iii.2024.

77. *Agrionoptera insignis* (Rambur, 1842)

5e – ♂, 15.iii.2024. **8a** – ♀, 14.iii.2024. **9c** – ♂, 13.iii.2024.

78. *Brachydiplax chalybea* Brauer, 1868

9c – ♂♂, 13.iii.2024. **11** – ♂♂, 10.iii.2024.

79. *Cratilla lineata* (Brauer, 1878) *

5e – ♂, 15.iii.2024.

80. *Cratilla metallica* (Brauer, 1878)

12b – ♂, 10.iv.2023. **16d** – ♂, 12.iv.2023.

81. *Hydrobasileus croceus* (Brauer, 1867)

10a – ♂, 14.iii.2024.

82. *Hylaeothemis clementia* Ris, 1909 *

4c – ♂, 12.iii.2024. **5dii** – ♂, 15.iii.2024.

83. *Lyriothemis biappendiculata* (Selys, 1878)

4a – ♂, 12.iii.2024. **4c** – ♂, 12.iii.2024. **5dii** – ♂, 15.iii.2024.

84. *Lyriothemis cleis* Brauer, 1868

8b – ♂, 13.iii.2024.

85. *Neurothemis fluctuans* (Fabricius, 1793)

1a – ♂, 15.iii.2024. **5b** – ♂, 8.iv.2023; ♂, 11.iii.2024. **9c** – ♂♂, 13.iii.2024. **14c** – ♂, 10.iii.2024. **14d** – ♂♂, 10.iii.2024. **16a** – ♂, ♀, 15.iii.2024.

86. *Neurothemis ramburii* (Brauer, 1866) **

First definite record from Kapit Division in 2024.

11 – ♂, 10.iii.2024. **14d** – ♂, 10.iii.2024.

87. *Neurothemis terminata* Ris, 1911

4e – ♂, 12.iii.2024. **5b** – ♂, 8.iv.2023. **9c** – ♀, 13.iii.2024. **9d** – ♂, 13.iii.2024. **10a** – ♂, ♀, 14.iii.2024. **11** – ♂, 10.iii.2024.

88. *Onychothemis coccinea* Lieftinck, 1953

1a – ♂, 15.iii.2024. **2a** – ♂♂, 11.iv.2023. **6a** – ♂♂, 11.iii.2024. **7a** – ♂♂, 13.iv.2023; ♂, 9.iii.2024. **16a** – ♂, 15.iii.2024. **17a** – ♂♂, 8.iv.2023.

89. *Onychothemis culminicola* Förster, 1904 *

2a – ♀, 11.iv.2023. **7a** – ♂, 9.iii.2024. **8a** – ♂, 14.iii.2024.

90. *Orchithemis pulcherrima* Brauer, 1878 *

The cover photograph shows a male of this species (taken at the Matang Wildlife Centre in Kuching Division).

4c – ♂, 12.iii.2024. **7bii** – ♂♂, 13.iv.2023.

91. *Orthetrum chrysis* (Selys, 1891)

4c – ♂, 12.iii.2024. **9c** – ♂, 13.iii.2024. **10a** – ♂, 14.iii.2024.

92. *Orthetrum glaucum* (Brauer, 1865)

4a – ♂♂, 12.iii.2024. **5b** – ♂, 8.iv.2023. **16a** – ♂, ♀, 12.iv.2023.

93. *Orthetrum sabina* (Drury, 1773)

10a – ♂, 14.iii.2024. **11** – ♂, 10.iii.2024.

94. *Orthetrum schneideri* Förster, 1903

4a – ♀, 12.iii.2024. **6a** – ♂, 11.iii.2024. **7bii** – ♂, 13.iv.2023. **7e** – ♂, 13.iv.2023. **14d** – ♂, 10.iii.2024.

95. *Orthetrum testaceum* (Burmeister, 1839)

3a – ♂♂, ♀, 9.iv.2023. **5e** – ♂, 15.iii.2024. **7a** – ♂, 13.iv.2023. **7e** – ♂, 9.iii.2024. **11** – ♂♂, 10.iii.2024. **14c** – ♀, 10.iii.2024. **14d** – ♂+♀, 10.iii.2024.

96. *Rhodothemis rufa* (Rambur, 1842)

11 – ♂, 10.iii.2024.

97. *Rhyothemis regia* (Brauer, 1867) **

Recorded from Kapit Division for the first time, where, as at many other locations, it was found flying together with *Tramea* sp. cf *virginia*.

10a – ♂, 14.iii.2024.

98. *Rhyothemis triangularis* Kirby, 1889

9c – ♂♂, 13.iii.2024. **10a** – ♂♂, ♀, 14.iii.2024. **11** – ♂♂, 10.iii.2024.

99. *Tetrathemis hyalina* Kirby, 1889

This species is normally found in shady situations, but a male collected at a pond in Sungai Pinih Recreational Park (**14d**) was perched on vegetation in bright sunshine in the middle of the pond, well away from any shade.

7e – ♂♂, 13.iv.2023. **14d** – ♂, 10.iii.2024.

100. *Tholymis tillarga* (Fabricius, 1798)

5c – ♀ (flying outside house at dusk), 10.iii.2024.

101. *Tramea* sp. cf *virginia* (Rambur, 1842) **

Recorded from Kapit Division for the first time.

10a – ♂, 14.iii.2024.

102. *Trithemis aurora* (Burmeister, 1839)

5b – ♂, 8.iv.2023. **10a** – ♂, 14.iii.2024. **14d** – ♂♂, 10.iii.2024. **17a** – ♂, 8.iv.2023.

103. *Trithemis festiva* (Rambur, 1842)

3a – ♂♂, 9.iv.2023. **4a** – ♂, 12.iii.2024. **8b** – ♂, 13.iii.2024. 10b – ♀, 14.iii.2024. **14c** – ♂♂, 10.iii.2024.

104. *Tyriobapta torrida* Kirby, 1889

1a – ♂, 15.iii.2024. **4a** – ♂, 12.iii.2024. **4c** – ♂, 12.iii.2024. **7e** – ♂, 13.iv.2023; ♂, 9.iii.2024. **12b** – ♂, 10.iv.2023.

105. *Urothemis signata insignata* (Selys, 1872) *

5b – ♂, 8.iv.2023. **10a** – ♂, 14.iii.2024.

106. *Zygonyx ida errans* Lieftinck, 1953

3a – ♂, 9.iv.2023. **4a** – ♂, 9.iv.2023. **6a** – ♂, 11.iii.2024. **16a** – ♂, 12.iv.2023.

107. *Zyxomma petiolatum* Rambur, 1842

5a – ♀, 13.iv.2023.

Additional records

Larval records not identified to species but from genera with at least one species recorded in the adult stage. These are listed separately to avoid potential inflation of the number of taxa recorded. Only non-libellulid Anisoptera are listed.

Aeshnidae

Anax sp.

9a – larvae, 13.iii.2024.

Aeshnidae sp.

14a – larva, 10.iii.2024.

Gomphidae

Burmagomphus sp. or spp.

3a – larvae, 9.iii.2024. **3b** – larvae, 9.iii.2024. **4a** – larvae, 11.iii.2024. **7a** – larvae, 9.iii.2024. **8a** – larvae, 13.iii.2024; larvae, 14.iii.2024. **16a** – larvae, 15.iii.2024.

Heliogomphus sp. or spp.

1a – larva, 8.iii.2024; larva, 12.iii.2024. **6a** – larvae, 11.iii.2024. **14c** – larvae, 10.iii.2024. **16a** – larvae, 15.iii.2024.

Leptogomphus sp. or spp.

1a – larvae, 12.iii.2024. **3b** – larvae, 9.iii.2024. **4a** – larvae, 11.iii.2024; larvae, 12.iii.2024. **6a** – larvae, 11.iii.2024. **7a** – larvae, 9.iii.2024. **8a** – larvae, 13.iii.2024. **9a** – larvae, 13.iii.2024. **14a** – larvae, 10.iii.2024. **14c** – larvae, 10.iii.2024. **16a** – larvae, 15.iii.2024.

Macrogomphus sp. or spp.

1a – larva, 8.iii.2024. **3a** – larvae, 9.iii.2024. **3b** – larvae, 9.iii.2024. **4a** – larvae, 12.iii.2024. **7a** – larvae, 9.iii.2024. **8a** – larvae, 13.iii.2024; larvae, 14.iii.2024. **14a** – larvae, 10.iii.2024. **14c** – larvae, 10.iii.2024. **16a** – larvae, 15.iii.2024.

Megalogomphus sp. or spp.

3a – larvae, 9.iii.2024. **3b** – larvae, 9.iii.2024. **6a** – larvae, 11.iii.2024. **7a** – larvae, 9.iii.2024. **8a** – larvae, 13.iii.2024; larvae, 14.iii.2024. **9a** – larvae, 13.iii.2024. **14a** – larvae, 10.iii.2024. **14c** – larvae, 10.iii.2024. **16a** – larvae, 15.iii.2024.

Microgomphus sp. or spp.

3a – larvae, 9.iii.2024. **3b** – larvae, 9.iii.2024. **6a** – larvae, 11.iii.2024. **8a** – larvae, 13.iii.2024. **9a** – larvae, 13.iii.2024. **16a** – larvae, 15.iii.2024.

Macromiidae

Macromia sp. or spp.

1a – larva, 8.iii.2024; larvae, 12.iii.2024. **3a** – larvae, 9.iii.2024. **3b** – larvae, 9.iii.2024. **4a** – larvae, 11.iii.2024; larvae, 12.iii.2024. **6a** – larvae (many), 11.iii.2024. **7a** – larvae, 9.iii.2024. **8a** – larvae, 14.iii.2024. **9a** – larvae, 13.iii.2024. **14a** – larvae, 10.iii.2024. **14c** – larvae, 10.iii.2024. **16a** – larvae, 15.iii.2024.

Synthemistidae

Macromidia sp.

16a – larvae, 15.iii.2024.

Discussion

Of the 107 odonate taxa recorded in the Kapit Town area in 2023-2024, nine (*Gynacantha dohrni*, *Linaeschna ?polli*, *Microgomphus chelifer*, Onychogomphinae sp., *Macromia arachnomima*, *Macromia* sp. cf *cincta*, *Neurothemis ramburii*, *Rhyothemis regia* and *Tramea* sp. cf *virginia*) are first records for Kapit Division and a further 21 are new records for Kapit District. The number of species of Odonata now known from Kapit Division is 167. It is notable that all of the first records for the division are of Anisoptera.

Dow (2022) recorded unusual *Neurothemis* with an entirely red abdomen collected from sites in the Kapit Town area in 2020. Unfortunately no such individuals were found in 2023-2024 (although the sites where they were found in 2020 were not revisited in 2023-2024) so that nothing can be added on this taxon here.

Borneo (approximate area 748,168 km^2) had generally been regarded as relatively species poor for the Gomphidae compared to mainland Southeast Asia, with 23 species listed by Orr (2003). Over the last two decades the number of Gomphidae known from Borneo has increased by more than 50%, with 36 species (including unnamed species and species whose identity has not been determined yet) listed by Dow et al. (2022). A further significant increase to the number of Gomphidae known from Borneo can still be expected given how poorly studied vast Kalimantan is for Odonata. Dow et al. (2024) list 36 species from the family from Peninsular Malaysia and Singapore (a considerably smaller area than Borneo), the same number as is known from Borneo, suggesting that the southernmost part of mainland Southeast Asia actually has similar rather than greater diversity to Borneo for the family. In contrast Thailand (approximate area 513,120 km^2) has more than 65 species from the Gomphidae recorded (this is based on an as-yet incomplete review of mainland Southeast Asian literature, with only species for which a definite name is known included, so that it is highly likely that the true total is greater).

It is interesting to compare the results of our study, conducted over 14 days with larval sampling included on eight days with a recent study (Keetapithchayakul et al. 2023) from Thailand that also included both larval and adult sampling, was conducted over a similar number (15) of days (although spread across more years) over a larger sized area and included a wide range of habitat (actually arguably wider than our surveys which did not

include any undisturbed, protected areas). We note at the outset that no criticism of Keetapithchayakul et al. 2023 is implied here, we have simply picked it for comparison because of the factors above and because the identifications are reliable, but the difference in number of Gomphidae recorded is striking, Keetapithchayakul et al. 2023 record only nine species from the family over 15 days work (note this does not include the additional photographic and "personal" records made outside of the main study that Keetapithchayakul et al. 2023 list separately from the same area, which add a further four gomphid species). All nine gomphid species recorded by Keetapithchayakul et al. 2023 were recorded as larvae, three were also recorded (but not collected) as adults. We recorded at least 16 species of Gomphidae, with at least nine recorded as larvae, three recorded only in the larval stage, one only definitely recorded at emergence and 10 only definitely recorded as adults. It is still not possible to identify many Bornean gomphid larvae to species without successful rearing, so these numbers likely underestimate the number of species from the family recorded as larvae during our survey.

Our study covered a smaller area than that of Keetapithchayakul et al. 2023, measured using the area of the minimum polygon including all sites the areas are 241.189 km^2 compared with 1,850.911 km^2 respectively; the area in Thailand is almost eight times as large as our area in Sarawak. Keetapithchayakul et al. 2023 also give (their Table 3) a check list for their study area including earlier literature records for the same area as well as those already mentioned, with 15 members of the Gomphidae listed in total, from significantly more days of effort in the field than our 14 days. Of course the actual sampling technique used for larvae will differ in details at least between our study and that of Keetapithchayakul et al. (2023) and might possibly account for some of the difference, but on the other hand the latter appears to have concentrated more on larvae than our study.

It does appear that although Borneo has less Gomphidae overall than Thailand it can have equal or greater diversity from this family at relatively small geographical scales, with Thailand's overall greater gomphid diversity probably largely due to its greater latitudinal range and with a significant part of this diversity only in the northern parts of the country. Although we did not attempt any analysis at this stage, we are confident that a similar situation would be found for other parts of mainland Southeast Asia.

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References

Dow, R.A., 2022. Previously unpublished Odonata records from Sarawak, Borneo, part VIII: New records from Kapit Division. International Dragonfly Fund – Report 169: 1–13.

Dow, R.A., S.G. Butler, R.W.J. Ngiam & G.T. Reels, 2021. Previously unpublished Odonata records from Sarawak, Borneo, part V: Odonata from the southwest of Sarawak, including

the first records from the Bungo Range National Park. International Dragonfly Fund – Report 159: 1–77.

Dow, R.A., C.Y. Choong, J. Grinang & P. Lupiyaningdyah, 2022. Revised Checklist of the Odonata (dragonflies and damselflies) of Borneo. Malayan Nature Journal 74 (2): 217–240.

Dow, R.A., C.Y. Choong, J. Grinang, P. Lupiyaningdyah, R.W.J. Ngiam & V.J. Kalkman, 2024. Checklist of the Odonata (Insecta) of Sundaland and Wallacea (Malaysia, Singapore, Brunei, Indonesia and Timor Leste). Zootaxa 5460 (1): 1–122. https://doi.org/10.11646/zootaxa.-5460.1.1

Keetapithchayakul, T.S., N. Makbun, K. Rattanachan & N. Tungpairojwong, 2023. Contribution to the knowledge of the Odonata fauna of Khao Yai National Park and the adjacent regions in Thailand. Faunistic Studies in South-east Asian and Pacific Island Odonata 42: 1–46.

Orr, A.G., 2003. A guide to the dragonflies of Borneo: their identification and biology. Natural History Publications (Borneo), Kota Kinabalu, x + 195 pp.

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