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New records of Odonata from Selangor and Negeri Sembilan, Malaysia, with provisional checklists of species recorded from the states

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New records of Odonata  
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Abstract
Previously unpublished records of Odonata from the states of Negeri Sembilan and Selangor in Peninsular Malaysia are presented. One hundred and eight species are listed, of which 77 were collected in Negeri Sembilan and 87 in Selangor. Fifteen of the species recorded from Negeri Sembilan and seven of those recorded from Selangor appear to be first records for the respective state. Notable records include Drepanosticta sp. cf hamadryas Laidlaw, 1931, Rhinocypha pelops Laidlaw, 1936, Acrogomphus ?malayanus Laidlaw, 1925, Heliothemus kelantanensis (Laidlaw, 1902); Onychogomphus duaricus Fraser, 1924, Macromia cupricincta Fraser, 1924, Idionyx montana Karsch, 1891, Chalybeothemis chini Dow, Choong & Orr, 2007 and Hylaeothemis clementia Ris, 1909 Ris, 1909. Provisional checklists of the Odonata known from Selangor plus the Federal Territory of Kuala Lumpur (171 species) and for Negeri Sembilan (116 species) are given in appendices.

Abstrak

Key words: new records, Odonata checklist, Peninsular Malaysia

Introduction
The state of Selangor is on the western side of Peninsular Malaysia and surrounds the

In this publication we present previously unpublished records from Selangor and Negeri Sembilan. The surveys reported here were largely funded by the International Dragonfly Fund and the Mohamed bin Zayed Species Conservation Fund.

In Appendix 1 and Appendix 2 we give provisional checklists for Selangor and the Federal Territory of Kuala Lumpur, and for Negeri Sembilan. It is likely that there are published records in the Malaysian (and possibly also the Japanese) literature that we are unaware of, but since no checklists are available for these two states it seems worthwhile to provide them here in the hope that they can be improved upon in the future. A number of published records are determined only to genus and we have only included these in the checklists if no other species from the genus is included. In Appendix 1 we have indicated whether the species in question has been recorded from Selangor or the Federal Territory of Kuala Lumpur or both but it should be noted that in some cases it is extremely difficult to be sure which administrative entity a record actually comes from. For example the type locality of Merogomphus femoralis Laidlaw, 1931 is given as Kuala Lumpur so we have listed the species accordingly, but it is quite possible that the labels of the holotype merely given the nearest (in the year of collection, 1921) large town and the true type location is actually somewhere in Selangor.

**Odonata recorded**

**Locations**

Fig. 1 shows Negeri Sembilan and Selangor with some of the sampling locations indicated.

**Selangor**

All locations except one are to the east of Kuala Lumpur, the exception is S15 (Templar Park) which is to the north of Kuala Lumpur. Most of the sampling locations in Selangor are indicated in Fig. 2.
Figure 1. Overview of sampling locations in Negeri Sembilan and Selangor. Base image from Google Earth.

Figure 2. Sampling locations in Selangor. Base image from Google Earth.

S1. A small hill stream on the road from Selangor to Kuala Klawang in Negeri Sembilan [representative coordinates 3.11351N, 101.95218E], 460-565m a.s.l.
S2. Marshy areas on a hillside along the same road as S1 [3.12273N, 101.94295E], ca 412m a.s.l.
S3. A stream near the Orang Asli kampung Tanjung Rambi [representative coordinates 3.12987N, 101.95317E], 420-495m a.s.l.
S4. Marshy areas and trailside near S3.
S5. Streams at the foot of Gunung Nuang [representative coordinates 3.22576N, 101.88641E], 280-350m a.s.l.


S8. Pond at a kampung on a small road near Sungai Gabai [3.16684N, 101.8833E], 90m a.s.l.


S10. Sungai Lui and tributaries downstream from Paya Lebar [representative coordinates 3.14842N, 101.91187E], ca 105m a.s.l. This location was only sampled after 2 PM.

S11. A large stream fed pond upstream of the reservoir of the Semenyih Dam [3.10804N, 101.9108E], 133m a.s.l.


S13. Fish ponds near S12, ca 76m a.s.l.

S14. A large, non-fish, pond near S12 [3.06676N, 101.88039E], 84m a.s.l.

S15. Forest streams at Templar Park [3.30038N, 101.61906E], ca 100m a.s.l.

Negeri Sembilan

Most of the sampling locations in Negeri Sembilan are indicated in Fig. 3.

N1. Streams at Ulu Bendul Recreational Park [2.72642N, 102.07624E], 160-185m a.s.l.

N2. Ponds and at buildings at Ulu Bendul Recreational Park.

Figure 3. Sampling locations in Negeri Sembilan. Base image from Google Earth.

N4. (a) Tributary to Sungai Terachi accessed through rubber plantation [2.74234N, 102.10152E], 140-170m a.s.l.; (b) a small pool by road near mouth of (a).

N5. Ponds just outside gate to Ulu Bendul Recreational Park [2.73048N, 102.08234E], 145m a.s.l.

N6. Ponds past Rembau [2.56477N, 102.12684E], 45m a.s.l.

N7. Stream at Hutan Lipur Gunung Dato’ [representative coordinates 2.5467N, 102.1731E], 100-210m a.s.l.

N8. Hutan Lipur Serting Ulu: (a) the main stream (a branch of Sungai Serting) in the area occupied by park facilities [coordinates at gate 2.91355N, 102.25733E], 150-200m a.s.l. Fig. 4 shows the main stream just inside the Hutan Lipur; (b) a tributary in the same part; (c) the main stream upstream of park facilities (entirely forest surrounded) [representative coordinates 2.91398N, 102.2504E], 200-250m a.s.l.; (d) a tributary in the same part; (e) forest pools near the stream in the same part.

![Figure 4. Main stream at Hutan Lipur Serting Ulu, just inside the Hutan Lipur (location N8a).](image)

N9. The same branch of Sungai Serting downstream of N8 [representative coordinates 2.91537N, 102.25977E], 120-140m a.s.l.

N10. A large pond near N9 [2.91502N, 102.26042E], 120m a.s.l.

N11. A smaller pond along the road leading to Hutan Lipur Serting Ulu [2.91772N, 102.26852E], 106m a.s.l.
Figure 5. Stream near old road from Pertang to Batu Kikir (location N14a).

N12. A pond in rubber near Simpang Pertang [2.92967N, 102.27926E], 95m a.s.l.

N13. Small steep hill streams in Serting Forest Reserve, accessed from the old road from Pertang to Batu Kikir [2.91137N, 102.22933E], 280-300m a.s.l.

N14. A stream near to an Orang Asli camp in Serting Forest Reserve by the old road from Pertang to Batu Kikir (a) main stream [entry point 2.89089N, 102.2205E], 230-250m a.s.l., Fig. 5 shows a section of this stream; (b) tributaries.

N15. A smaller stream in the same area as N14 [2.88473N, 102.21665E], 255-260m a.s.l.

N16. Along a logging track in the same area.

N17. A muddy pond surrounded by degraded forest near to N14, 236m a.s.l.

Species collected
First records (to our knowledge) from Selangor and the Federal Territory of Kuala Lumpur are indicated by a bold S, first records from Negeri Sembilan by a bold N, after the species authority. ♂+♀ indicates a pair in tandem.

Zygoptera
Lestidae
1. *Lestes praemorsus decipiens* Kirby, 1894 N
2. *Orolestes wallacei* (Kirby, 1889)
   - S8 – ♂, 8.vi.2016.
Platystictidae

3. *Drepanosticta* sp. cf *hamadyras* Laidlaw, 1931 S, N

This is the same species as listed by Choong, Ng & Dow (2012) from Terengganu as *Drepanosticta* sp. and stated there to be a new species allied to *D. hamadyras*; only a single male was collected in Terengganu. The holotype of *D. hamadyras* (in the Natural History Museum, London (NHML), from Kuala Tahan in Pahang, stated to have been collected at 300 feet a.s.l.) is missing its anal appendages and the original description (Laidlaw 1931) is inadequate. However there is a second specimen in NHML (♀, Kuala Teku, Pahang, Peninsular Malaysia, 500-1500 feet a.s.l., 31.vii.1905, leg. H.C. Robinson), determined as *D. hamadyras* by D. Kimmins and indeed agreeing with what remains of the holotype in all except minor details of colouration and pattern. In contrast the specimen from Terengganu and those reported here differ significantly in colour and pattern, but are essentially identical in their anal appendages to the Kuala Teku specimen. There is a Kuala Teku in Taman Negara National Park, in the same general area as Kuala Tahan and it is likely that this specimen is from that area. More material and further study are required to determine if *D. hamadyras* is simply a variable species or if the taxon reported here is actually a distinct species. Whatever its true identity, this taxon was common at two of the locations covered here when they were visited.


4. *Drepanosticta fontinalis* Liettink, 1937

The specimens listed under this species have male anal appendages matching the illustrations provided in Liettink (1937) very well.


5. *Drepanosticta* cf *fontinalis* Liettink, 1937

The identity of this and the next species are the subject of ongoing enquiry.


6. *Drepanosticta* cf *sharpil* (Laidlaw, 1907) N


Calopterygidae

7. *Echo modesta* Laidlaw, 1902


8. *Neurobasis chinensis* (Linnæus, 1758a)

The female from S10 was being consumed by *Onychothemis testaceae* when caught.

9. Vestalis amethystina Lieftinck, 1965


10. Vestalis amoena Hagen in Selys, 1853


Chlorocyphidae

11. Aristocypha fenestrella (Rambur, 1842)


12. Heliocypha biforata (Selys, 1859)


13. Heliocypha perforata (Percheron, 1835)


14. Libellago lineata (Burmeister, 1839)


15. Libellago stigmatizans (Selys, 1859) N


16. Rhinocypha pelops Laidlaw, 1936 S

This is apparently a scarce species in Peninsular Malaysia. A second female was seen at the same location as that collected, perched high and extremely wary, so its behaviour may play a role in its apparent scarcity.

S1 – ♀. 8.vi.2016.

Devadattidae

17. Devadatta argyoides (Selys, 1859)


Euphaeidae

18. Dysphaea dimidiata Selys, 1853

19. *Euphaea impar* Selys, 1859


20. *Euphaea ochracea* Selys, 1859


**Philosinidae**

21. *Rhinagrion viridatum* Fraser, 1938 N  

**Platycnemididae**

22. *Calicnemia chaseni* (Laidlaw, 1928)


23. *Coelliccia albicauda* (Förster in Laidlaw, 1907)


Material collected at location S1 in 2016 listed in Dow et al, 2018. This is a very locally occurring species, typically found only at very low densities even where it occurs. N13 is a new location for the species.


25. *Coelliccia octogesima* (Selys, 1863)


26. *Copera marginipes* (Rambur, 1842)


27. *Copera vittata* (Selys, 1863)


28. *Indocnemis orang* (Förster in Laidlaw, 1907)


29. *Onychagria atrocyana* Selys, 1865


30. *Prodasineura collaris* (Selys, 1860)


31. *Prodasineura humeralis* (Selys, 1860)


32. **Prodasineura laidlawii** (Förster in Laidlaw, 1907)


33. **Prodasineura notostigma** (Selys, 1860)


34. **Pseudocopera ciliata** (Selys, 1863)


### Coenagriionidae

35. **Agriocnemis femina** (Brauer, 1868)


36. **Agriocnemis rubescens rubeola** Selys, 1877


37. **Agriocnemis species**

**N1** – ♂, 6.ix.2016.

38. **Ceriagrion cerinorubellum** (Brauer, 1865)

**S14** – ♂, 23.viii.2019.

39. **Ceriagrion chaoi** Schmidt, 1964 N

**S8** – 2 ♂♂, 8.vi.2016. **N5** – 2 ♂♂, 7.ix.2016.

40. **Ischnura senegalensis** (Rambur, 1842)


41. **Pseudagrion australasiae** Selys, 1876


42. **Pseudagrion microcephalum** (Rambur, 1842)


43. **Pseudagrion pruinorum** (Burmeister, 1839)


44. **Pseudagrion rubriceps** Selys, 1876


### Anisoptera

### Aeshnidae

45. **Gynacantha subinterrupta** Rambur, 1842

46. *Indaeschna grubauseri* ( Förster, 1904)

**Gomphidae**

47. *Acrogomphus malayanus* Laidlaw, 1925
   The female of *Acrogomphus malayanus* has not been described but the specimen listed here agrees well with the male in size and markings. Records of *Acrogomphus* larvae in Furtado (1969) are also likely to refer to this species.


49. *Burmagomphus williamsoni* Förster, 1914 S

50. *Gomphidia abbotti* Williamson, 1907 N

51. *Gomphidictinus perakensis* (Laidlaw, 1902)

52. *Heliogomphus kelantanensis* (Laidlaw, 1902)

53. *Ictinogomphus decoratus melaenops* Selys, 1857

54. *Leptogomphus risi* Laidlaw, 1932
   Furtado (1969) recorded exuviae of *Leptogomphus* from Selangor, maybe the single female recorded by us is the same species. The female collected in 2016 has similarities to *L. risi* but also differences and is not definitely that species.
   S1 – ♀, 8.vi.2016.

55. *Megalogomphus sumatranus* (Krüger, 1899)

56. *Microgomphus chelifer* Selys, 1858 N

57. *Nepogomphus fruhstorferi* (Lieftinck, 1934) N
   The female collected at location N14a was flying a short beat over a narrow and completely shaded section of the stream.

58. *Onychogomphus duaricus* Fraser, 1924 S
   S6 – 2 ♂♂, 5.vi.2016.

59. *Paragomphus capricornis* (Förster, 1914) N
Macromiidae
60. *Epophthalmia vittigera* (Rambur, 1842)
   \[S7 - \varphi, 5.vi.2016.\]
61. *Macromia callisto* Laidlaw, 1922 N
   \[N9 - \varphi, 18.viii.2019.\]
62. *Macromia cupricincta* Fraser, 1924 S
   \[S6 - 2 \delta\delta, 5.vi.2016.\]

Synthemistidae
63. *Idionyx montana* Karsch, 1891 N
   \[N7 - \delta, (found dead in spider web), 9.ix.2016.\]

Libellulidae
64. *Acisoma panorpoides* Rambur, 1842
65. *Aethriamanta brevipennis* (Rambur, 1842)
   \[S7 - 2 \delta\delta, 5.vi.2016. S14 - 4 \delta\delta, 23.viii.2019.\]
66. *Aethriamanta gracilis* (Brauer, 1878)
   \[S7 - \delta, 5.vi.2016. S11 - 3 \delta\delta, \delta, \delta, 22.viii.2019. S13 - 2 \delta\delta, 29.ix.2008. S14 - 2 \delta\delta, 23.viii.2019. N6 - \delta, 7.ix.2016. N11 - 2 \delta\delta, 18.viii.2019.\]
67. *Agrionoptera insignis* (Rambur, 1842)
   \[N5 - \delta, 7.ix.2016.\]
68. *Agrionoptera sexlineata* Selys, 1879
   \[S15 - \delta, 21.xi.2007.\]
69. *Brachydiplax chalybea* Brauer, 1868
70. *Brachydiplax farinosa* Krüger, 1902
   This is *Brachydiplax farinosa* A as defined in Dow et al. (2016).
   \[S8 - \delta, 8.vi.2016. N5 - \delta, 7.ix.2016. N17 - 4 \delta\delta, 20.viii.2019.\]
71. *Brachythemis contaminata* (Fabricius, 1793)
72. *Camacinia gigantea* (Brauer, 1867) N
   \[N16 - \delta, 20.viii.2019. N17 - 3 \delta\delta, 20.viii.2019.\]
73. *Chalybeothemis chini* Dow, Choong & Orr, 2007 S
   The number of locations known for this species is steadily increasing and it now appears far less specialised than was thought when it was first discovered.
   \[S11 - 3 \delta\delta, 22.viii.2019.\]
74. *Cratilla metallica* (Brauer, 1878)


75. *Crocothemis servilia* (Drury, 1770)


76. *Diplacodes nebulosa* (Fabricius, 1793)


77. *Diplacodes trivialis* (Rambur, 1842)


78. *Hydrobasileus croceus* (Brauer, 1867)


79. *Hylaeothermis clementia* Ris, 1909

    Not often recorded in Peninsular Malaysia, but possibly this has more to do with habitat choice and wary behaviour than genuine rarity.

    S1 – ♂, 8.vi.2016.

80. *Indothemis limbata* (Selys, 1891)


81. *Lathrecista asiatica* (Fabricius, 1798)

    S8 – 2 ♂♂, 8.vi.2016.

82. *Lyriothemis biappendiculata* (Selys, 1878)


83. *Neurothemis fluctuans* (Fabricius, 1793)


84. *Onychothemis culminicola* Förster, 1904


85. *Onychothemis testacea* Laidlaw, 1902 N


86. *Orthetrum chrysis* (Selys, 1891)


87. *Orthetrum glaucum* (Brauer, 1865)


88. *Orthetrum luzonicum* (Brauer, 1868)


89. *Orthetrum purinorum schneideri* Förster, 1903


90. *Orthetrum sabina* (Drury, 1770)
|---|---|---|---|---|---|
108. Zygonyx iris Selys, 1869


**Discussion**

Of the 108 species listed above, 87 were collected in Selangor and 77 in Negeri Sembilan. Since Negeri Sembilan is relatively poorly studied for Odonata it is perhaps not surprising that the surveys reported here yielded 15 apparent first records for the state. However it is perhaps a little surprising that seven apparent new records for relatively well-studied Selangor are revealed.

Of the taxa collected during the surveys reported here, some are of particular interest: Drepanosticta sp. cf hamadryas and two Drepanosticta from the D. quadrata-group (D. cf fontinalis and D. cf sharpi) are likely to represent unnamed species, albeit known from elsewhere in Peninsular Malaysia as well as the locations reported here. Rhinocypha pelops is rarely recorded in Peninsular Malaysia. A number of the Gomphidae listed are also rarely recorded, for instance Acrogomphus *malayanus, Heligomphus kelantanensis; Onychogomphus duarius* is rarely recorded in Peninsular Malaysia but very widespread beyond Malaysia. Species such as Macromia cupricincta, Idionyx montana, Chalybeothemis chini and Hylaeothemis clementia have also not been recorded all that frequently in Malaysia but are likely to be much commoner than records suggest.

The provisional checklists given in the appendices list 116 and 171 species of Odonata from Negeri Sembilan and Selangor (including Kuala Lumpur) respectively. It is certain that the lists from both states will grow, probably significantly, with more work.

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**References**


Appendix I: Checklist of Odonata recorded from Selangor and the Federal Territory of Kuala Lumpur

Where the first record from either Selangor or the Federal Territory of Kuala Lumpur is not in this publication, a citation to the first record is made in square parenthesis after the species name, followed by a KL (for a record believed to be from the Federal Territory of Kuala Lumpur) or a S (for a record from Selangor). In cases where a species was recorded from either administrative entity for the first time in a particular year but the name appears in two publications in that year we have not attempted to determine which publication appeared first but have listed both publications.
Zygoptera

Lestidae
1. Lestes praemorsus decipiens Kirby, 1894 [Choong et al. 2008] S
2. Orolestes wallacei (Kirby, 1889) [Choong 2013] S

Platystictidae
3. Drepanosticta fontinalis Lef tinck, 1937 [Lef tinck 1965a] S
4. Drepanosticta cf hamadryas Laidlaw, 1931 S
5. Drepanosticta quadrata (Selys, 1860) [Choong, Hanisah & Ng 2012] S
6. Drepanosticta sharpi (Laidlaw, 1907) [Lef tinck 1965a] S

Argiolestidae
7. Podolestes buwaldai Lef tinck, 1940 [Hämäläinen 2000] S

Calopterygidae
13. Vestalis gracilis (Rambur, 1842) [Furtado 1969] S

Chlorocyphidae
14. Aristocypha fenestrella (Rambur, 1842) [Laidlaw 1931] S
15. Helicypha biforata (Selys, 1859) [Furtado 1969] S
16. Helicypha perforata (Perc heron, 1835) [Furtado 1969] S
17. Libellago aurantiaca (Selys, 1859) [Furtado 1969] S
18. Libellago hyalina (Selys, 1859) [Choong 2013] S
20. Libellago stigmatizans (Selys, 1869) [Noorhidayah-Mamat et al. 2014] S
21. Rhinocypha pelops Laidlaw, 1936 S
22. Sundacypha petiolata (Selys, 1859) [Furtado 1969] S

Devadattidae
23. Devadatta argyoides (Selys, 1859) [Laidlaw 1931] S

Euphaeidae
24. Dysphaea dimidiata Selys, 1853 [Furtado 1969] S

Philosinidae
27. Rhinagrion macrocephalum (Selys, 1862) [Kalkman & Villaneuva 2011] S

Platycnemididae
29. Calicnemia chaseni (Laidlaw, 1928) [Furtado 1969] S
32. Coeliccia octogesima (Selys, 1863) [Choong et al. 2008; Orr 2008] S
34. Copera vittata (Selys, 1863) [Furtado 1969] S
35. Elatton eura analys (Selys, 1860) [Furtado 1969] S
36. Elatton eura aurantiaca (Selys, 1886) [Choong 2013] S
37. Indocnemis orang ( Förster in Laidlaw, 1907) [Asahina 1964] S
39. Prodasineura colllaris (Selys, 1860) [Furtado 1975] S
41. Prodasineura interrupta (Selys, 1860) [Furtado 1969] S
42. Prodasineura laidlawi ( Förster in Laidlaw, 1907) [Furtado 1969] S
43. Prodasineura notostigma (Selys, 1860) [Laidlaw 1931] S
44. Pseudocopera ciliata (Selys, 1863) [Brooks 1981 as Copera annulata] S

Coenagrionidae
45. Aciagrion hisopa (Selys, 1876) [Kalkman 2004] KL
46. Agriocnemis femina (Brauer, 1868) [Norma-Rashid 2006] S
47. Agriocnemis minima Selys, 1877 [Choong 2013] S
48. Agriocnemis nana ( Laidlaw, 1914) [Choong et al. 2008; Orr 2008] S
52. Archibasis melanocyana (Selys, 1877) [Choong 2013] S
54. Archibasis viola Lief tinck, 1949 [Laidlaw 1931] S
59. Mortonagrion aborense (Laidlaw, 1914) [Furtado 1969 as M. simile] S
60. Mortonagrion arthuri Fraser, 1942 [Dow 2011] S
61. Pseudagrion australasiae Selys, 1876 [Choong et al. 2008; Fadilawati et al. 2008] S
63. Pseudagrion pruinosum (Burmeister, 1839) [Furtado 1969 as P. perfuscatum] S
64. Pseudagrion rubriceps Selys, 1876 [Choong et al. 2008] S
65. Pseudagrion williamsoni Fraser, 1922 [Furtado 1969] S
66. Teinobasis ruficollis (Selys, 1877) [Choong 2013] S

Anisoptera

Aeshnidae

67. Anax guttatus (Burmeister, 1839) [Laidlaw 1931] S
68. Anax panybeus Hagen, 1867 [Choong et al. 2008; Orr 2008] S
74. Heliaeschna idae (Brauer, 1865) [Laidlaw 1931] KL, [Laidlaw 1931] S
75. Indaeschna grubaueri (Förster, 1904) [Laidlaw 1931] S
76. Oligoaeschna foliacea Lefètinck, 1968 [Choong et al. 2018] S
77. Tetracanthagyna brunnea McLachlan, 1898 [Laidlaw 1931] S
78. Tetracanthagyna plagia (Waterhouse, 1877) [Choong et al. 2018] S

Gomphidae

79. Acrogomphus ?malayanus Laidlaw, 1925 [Furtado 1969 listed Acrogomphus species on the basis of larvae, exuviae and one or more teneral specimens, it is likely that these are from A. malayanus] S
80. Burmagomphus arthuri Lefètinck, 1953 [Choong et al. 2018] S
82. Burmagomphus williamsoni Förster, 1914 S
83. Gomphidia abbotti Williamson, 1907 [Furtado 1969] S
84. Gomphidictinus perakensis (Laidlaw, 1902) [Furtado 1969] S
85. Heliogomphus kelantanensis (Laidlaw, 1902) [Furtado 1969] S
87. Leptogomphus species [Furtado 1969] S
89. Megalogomphus sumatranus (Krüger, 1899) [Furtado 1969] S
90. Merogomphus femoralis Laidlaw, 1931 [Laidlaw 1931] KL, [Furtado 1969: larval records assigned to this species, but it is not clear to us whether these are even really Merogomphus] S
91. Merogomphus parvus (Krüger, 1899) [Lieftinck 1964] S
92. Microgomphus chelifer Selys, 1858 [Furtado 1969, intriguingly in the same publication a “Microgomphus sp. nov” is listed on the basis of larvae, exuviae and one or more tenereal individuals] S
93. Nepogomphus fruhstorferi (Lieftinck, 1934) [Vick 1993 as N. modestus; earlier Furtado 1969 recorded Onychogomphus (?) fruhstorferi on the basis of larvae] S
94. Nepogomphus walli (Fraser, 1924) [Asahina 1986] S
95. Onychogomphus duaricus Fraser, 1924 S
97. Orientogomphus minor (Laidlaw, 1931) [Laidlaw 1931] KL
98. Paragomphus capricornis (Förster, 1914) [Laidlaw 1931] KL, [Laidlaw 1931] S

Chlorogomphidae

100. Chlorogomphus species [Furtado 1969 – larval record as C. dyak] S

Macromiidae

103. Macromia cincta Rambur, 1842 [Furtado 1969] S
104. Macromia cupricincta Fraser, 1924 S
106. Macromia sp. or spp. [Furtado 1969 lists larval records of M. arachnomima and M. (?) moorei fumata, we are not sure if these identifications are correct but are convinced that they do represent at least one species distinct from the others listed here] S

Synthemistidae

107. Idionyx yolanda Selys, 1871 [Lieftinck 1971, but Furtado 1969 recorded Idionyx (?) yolanda on the basis of a larva] S

Corduliidae

Libellulidae

110. Aethriamanta brevipennis (Rambur, 1842) [Choong et al. 2008] S
111. Aethriamanta gracilis (Brauer, 1878) [Laidlaw 1902 as Brachydiplax melanops] S
112. Agrionoptera insignis (Rambur, 1842) [Raja Zalinda et al. 2006] S
118. Camacinia gigantea (Brauer, 1867) [Brooks 1981] KL
119. Camacinia harterti Karsch, 1890 [Ris 1913b] S
120. Chalybeothemis chini Dow, Choong & Orr, 2007 S
121. Chalybeothemis fluviatilis Lieftinck, 1933 [Furtado 1969] S
122. Cratilla lineata [Brauer, 1878] [Choong & Ng 2009] S
125. Diplacodes nebulosa (Fabricius, 1793) [Laidlaw 1931] KL, [Furtado 1969] S
129. Indothemis limbata (Selys, 1891) [Choong et al. 2008] S
130. Lathrecista asiatica (Fabricius, 1798) [Laidlaw 1931] KL, [Norma-Rashid 2006] S
131. Lyriothemis biappendiculata (Selys, 1878) [Laidlaw 1931] S
134. Nesoxenia lineata (Selys, 1868) [Brooks 1981] S
135. Neurothemis fluctuans (Fabricius, 1793) [Laidlaw 1931] S
137. Neurothemis fullia (Drury, 1773) [Fadilawati et al. 2008] S
139. Onychothemis culminicola Förster, 1904 [Furtado 1969] S
140. Onychothemis testacea Laidlaw, 1902 [Furtado 1969] S
142. Orthetrum chrysis (Selys, 1891) [Furtado 1969] S
143. Orthetrum glaucum (Brauer, 1865) [Laidlaw 1931] KL, [Laidlaw 1931] S
144. Orthetrum luzonicum (Brauer, 1868) [Kalkman 2004] KL, [Laidlaw 1931] S
146. Orthetrum sabina (Drury, 1770) [Laidlaw 1931] KL, [Laidlaw 1931] S
147. Orthetrum testaceum (Burmeister, 1839) [Laidlaw 1931] KL, [Laidlaw 1931] S
148. Orthetrum triangulare malaccensis Förster, 1903 [Ris 1909] S
149. Pantala flavescens (Fabricius, 1798) [Laidlaw 1931] KL, [Laidlaw 1931] S
151. Potamarcha congener (Rambur, 1842) [Laidlaw 1931 as P. obscura] S
153. Rhodothemis rufa (Rambur, 1842) [Choong et al. 2008; Fadilawati et al. 2008a] S
154. Rhyothemis aterrima Selys, 1891 [Laidlaw 1931] S
157. Rhyothemis plutonia Selys, 1883 S
159. Tetrathemis hyalina Kirby, 1889 [Choong et al. 2008] S
161. Tramea transmarina euryale (Selys, 1878) [Furtado 1969] S
162. Trithemis aurora (Burmeister, 1839) [Laidlaw 1931] KL, [Asahina 1966] S
163. Trithemis festiva (Rambur, 1842) [Asahina 1966] S
164. Trithemis pallidinervis (Kirby, 1889) [Laidlaw 1931] KL, [Furtado 1969] S
165. Tyriobapta kuekenthalii (Karsch, 1903) [Hämäläinen 2000] S
168. Zygyonx ida Hagen, 1867 [Laidlaw 1931] S
169. Zygonyx iris Selys, 1869 [Laidlaw 1931] S
170. Zyxomma obtusum Albarda, 1881 [Choong & Ng 2009] S
171. Zyxomma petiolatum Rambur, 1842 [Choong et al. 2008] S

Appendix II: Checklist of Odonata recorded from Negeri Sembilan

Where the first record from Negeri Sembilan is not in this publication, a citation to the first record is made in square parenthesis after the species name.

Lestidae

1. Lestes praeornons decipiens Kirby, 1894
2. Orolestes wallacei (Kirby, 1889) [Raja Zalinda et al. 2006]

Platystictidae

3. Drepanosticta fontinalis Lieftinck, 1937 [Orr 2008]
4. Drepanosticta hamadryas Laidlaw, 1931

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5. Drepanosticta quadrata (Selys, 1860) [Norma-Rashid 2009]
6. Drepanosticta cf sharpi (Laidlaw, 1907)

Calopterygidae

7. Echo modesta Laidlaw, 1902 [Norma-Rashid 2009]
8. Neurobasis chinensis (Linnaeus, 1758) [Raja Zalinda et al. 2006]
10. Vestalis amoena Hagen in Selys, 1853 [Lieftinck 1965b]
11. Vestalis gracilis (Rambur, 1842) [Norma-Rashid 2009]

Chlorocyphidae

12. Aristocypha fenestrella (Rambur, 1842) [Raja Zalinda et al. 2006]
13. Heliocepha biforata (Selys, 1859) [Raja Zalinda et al. 2006]
14. Heliocepha perforata (Percheron, 1835) [Norma-Rashid 2009]
15. Libellago hyalina (Selys, 1859) [Raja Zalinda et al. 2006]
16. Libellago stigmatizans (Selys, 1859)
17. Libellago lineata (Burmeister, 1839) [Choong 2010]
18. Sundacypha petiolata (Selys, 1859) [Choong & Rahim 2014]

Devadatidae

19. Devadatta argyoides (Selys, 1859) [Raja Zalinda et al. 2006]

Euphaeidae

20. Dysphaea dimidiata Selys, 1853 [Norma-Rashid 2009]
21. Euphaea impar Selys, 1859 [Choong 2010b]
22. Euphaea ochracea Selys, 1859 [Raja Zalinda et al. 2006]

Philosinidae

23. Rhinagrion viridatum Fraser, 1938

Platycnemididae

24. Calicnemia chaseni (Laidlaw, 1928) [Norma-Rashid 2009]
25. Coelicia albicauda (Förster in Laidlaw, 1907) [Norma-Rashid 2009]
26. Coelicia erici Laidlaw, 1917 [Choong 2010 as C. kimurai Asahina]
27. Copera marginipes-\(^{-}\) (Rambur, 1842) [Norma-Rashid 2009]
28. Copera vittata (Selys, 1863) [Raja Zalinda et al. 2006]
29. Indocnemis oranp (Förster in Laidlaw, 1907) [Norma-Rashid 2009]
30. Prodasineura collaris (Selys, 1860) [Choong 2010]
31. Prodasineura humeralis (Selys, 1860) [Norma-Rashid 2009]
32. Prodasineura laidlawi (Förster in Laidlaw, 1907) [Norma-Rashid 2009]
33. Pseudocopera ciliata (Selys, 1863) [Raja Zalinda et al. 2006]
Coenagrionidae

34. Aciagrion hisopa (Selys, 1876) [Norma-Rashid 2009]
35. Agriocnemis minima Selys, 1877 [Norma-Rashid 2009]
36. Amphicnemis gracilis Krüger, 1898 [Norma-Rashid 2009]
37. Archibasis incisura Lief tinck, 1949 [Raja Zalinda et al. 2006]
38. Agriocnemis rubescens rubeola Selys, 1877 [Norma-Rashid 2009]
39. Agriocnemis species [Choong 2010]
40. Ceriagrion cerinorubellum (Brauer, 1865) [Norma-Rashid 2009]
41. Ceriagrion chaoi Schmidt, 1964
42. Ceriagrion fallax pendlebury Laidlaw, 1931 [Norma-Rashid 2009]
43. Ischnura senegalensis (Rambur, 1842) [Norma-Rashid 2009]
44. Pseudagrion australasiae Selys, 1876 [Choong 2010]
45. Pseudagrion microcephalum (Rambur, 1842) [Norma-Rashid 2009]
46. Pseudagrion pruinorum (Burmeister, 1839) [Choong 2010]
47. Pseudagrion rubriceps Selys, 1876 [Choong 2010]

Aeshnidae

48. Anax guttatus (Burmeister, 1839) [Norma-Rashid 2009]
49. Gynacantha bayadera Selys, 1891 [Norma-Rashid 2009]
50. Gynacantha limbalis Karsch, 1892 [Norma-Rashid 2009]
51. Gynacantha sp. [Norma-Rashid 2009 list G. dravida Lief tinck, 1960 from Negeri Sembilan; we have severe doubts over the occurrence of this Indian species in Malaysia but the record is likely to represent a Gynacantha species distinct from the others recorded from the state]
52. Gynacantha subinterrupta Rambur, 1842 [Raja Zalinda et al. 2006]
53. Indaeschna grubaueri ( Förster, 1904) [Laidlaw 1931]
54. Tetracanthagynna species [Norma-Rashid 2009]

Gomphidae

55. Gomphidia abbotti Williamson, 1907
56. Gomphidictinus perakensis (Laidlaw, 1902) [Raja Zalinda et al. 2006]
57. Heliogomphus kelantanensis (Laidlaw, 1902) [Norma-Rashid 2009]
58. Ictinogomphus decoratus melaenops Selys, 1857 [Norma-Rashid 2009]
60. Megalogomphus sumatranus (Krüger, 1899) [Norma-Rashid 2009]
61. Microgomphus chelifer Selys, 1858
62. Nepogomphus fruhstorferi (Lief tinck, 1934)
63. Nepogomphus walli (Fraser, 1924) [Choong & Rahim 2014]
64. Onychogomphus castor Lief tinck, 1941 [Choong & Rahim 2014]
65. Onychogomphus thienemanni Schmidt, 1934 [Choong & Rahim 2014]
66. Paragomphus capricornis (Förster, 1914)

Macromiidae
67. Macromia callisto Laidlaw, 1922

Synthemistidae
68. Idionyx montana Karsch, 1891
69. Idionyx yolanda Selys, 1871 [Norma-Rashid 2009]

Libellulidae
70. Acisoma panorpoides Rambur, 1842 [Tsuda & Kitagawa 1987]
71. Aethriamanta gracilis (Brauer, 1878) [Norma-Rashid 2009]
72. Agrionoptera insignis (Rambur, 1842) [Raja Zalinda et al. 2006]
73. Agrionoptera sexlineata Selys, 1879 [Norma-Rashid 2009]
74. Brachydiplax chalybea Brauer, 1868 [Norma-Rashid 2009]
76. Brachythemis contaminata (Fabricius, 1793) [Norma-Rashid 2009]
77. Camacinia gigantea (Brauer, 1867)
78. Cratilla lineata (Brauer, 1878) [Raja Zalinda et al. 2006]
79. Cratilla metallica (Brauer, 1878) [Raja Zalinda et al. 2006]
80. Crocothemis servilia (Drury, 1770) [Norma-Rashid 2009]
81. Diplacodes trivialis (Rambur, 1842) [Tsuda & Kitagawa 1987]
82. Hydrobasileus croceus (Brauer, 1867) [Norma-Rashid 2009]
83. Lathrecista asiatica (Fabricius, 1798) [Norma-Rashid 2009]
84. Lyriothemis biappendiculata (Selys, 1878) [Raja Zalinda et al. 2006]
85. Lyriothemis cleis Brauer, 1868 [Choong 2010]
86. Nesoxenia lineata (Selys, 1868) [Raja Zalinda et al. 2006]
87. Neurothemis fluctuans (Fabricius, 1793) [Ris 1911]
88. Neurothemis fulvia (Drury, 1773) [Tsuda & Kitagawa 1987]
89. Onychothemis coccinea Lieftinck, 1953 [Choong & Rahim 2014]
90. Onychothemis culminicola Förster, 1904 [Norma-Rashid 2009]
91. Onychothemis testacea Laidlaw, 1902
92. Orthetrum pulcherima Brauer, 1878 [Norma-Rashid 2009]
93. Orthetrum chrysis (Selys, 1891) [Ris 1909]
94. Orthetrum glaucum (Brauer, 1865) [Raja Zalinda et al. 2006]
95. Orthetrum luzonicum (Brauer, 1868) [Raja Zalinda et al. 2006]
96. Orthetrum pruinum Schneider Förster, 1903 [Ris 1909]
97. Orthetrum pruinomum Schneider Förster, 1903 [Ris 1909]
98. Orthetrum sabina (Drury, 1770) [Raja Zalinda et al. 2006]
99. Orthetrum testaceum (Burmeister, 1839) [Tsuda & Kitagawa 1987]
100. Orthetrum triangulare malaccensis Förster, 1903 [Norma-Rashid 2009]
101. Pantala flavescens (Fabricius, 1798) [Norma-Rashid 2009]
102. Potamarcha congener (Rambur, 1842) [Tsuda & Kitagawa 1987]
103. Pseudothemis jorina Förster, 1904 [Norma-Rashid 2009]
104. Rhodothemis rufa (Rambur, 1842) [Norma-Rashid 2009]
105. Rhyothemis phyllis (Sulzer, 1776) [Norma-Rashid 2009]
106. Rhyothemis plutonia Selys, 1883 [Norma-Rashid 2009]
107. Rhyothemis triangularis Kirby, 1889 [Norma-Rashid 2009]
108. Tetrathemis hyalina Kirby, 1889 [Raja Zalinda et al. 2006]
109. Tetrathemis platyptera Selys, 1878 [Norma-Rashid 2009]
110. Tholymis tillarga (Fabricius, 1798) [Laidlaw 1931]
111. Tramea transmarina euryale (Selys, 1878)
112. Trithemis aurora (Burmeister, 1839) [Raja Zalinda et al. 2006]
113. Trithemis festiva (Rambur, 1842) [Raja Zalinda et al. 2006]
114. Tyriobapta torrida Kirby, 1889 [Raja Zalinda et al. 2006]
115. Urothemis signata insignata (Rambur, 1842) [Norma-Rashid 2009]
116. Zygonyx iris Selys, 1869 [Norma-Rashid 2009]
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