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Inventory

# Checklist of dragonflies and damselflies (Insecta: Odonata) of the Amazonas state, Brazil

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***Abstract:*** Here we provide a checklist of the odonates from Amazonas state, Brazil. We registered 324 species and 101 genera, making Amazonas the Brazilian state with the most Odonata species recorded. The families with the highest number of species were Coenagrionidae with 32 genera and 101 species, followed by Libellulidae with 28 genera and 100 species and Gomphidae with 12 genera and 45 species. Some regions of Amazonas state remain poorly explored, such as the southern area, and large municipalities, such as São Gabriel da Cachoeira. This work underlines the importance of the biological diversity from Amazonas state and the Amazonian Biome for Odonata species richness in Brazil and shows that many areas in the world's largest tropical forest have not yet been sampled.
***Keywords:*** *Aquatic insects, List of species, Anisoptera, Zygoptera, Amazon, Neotropical region.*

## Checklist das libélulas (Insecta: Odonata) do estado do Amazonas, Brasil

***Resumo:*** Aqui nós apresentamos a lista de espécies de libélulas presentes no estado do Amazonas, Brasil. Nós registramos 324 espécies e 101 gêneros, tornando o estado com o maior número de espécies de libélulas registradas no país. As famílias com maior número de espécies foram Coenagrionidae, com 32 gêneros e 101 espécies, seguido por Libellulidae, com 28 gêneros e 100 espécies e Gomphidae com 12 gêneros e 45 espécies. Regiões do estado do Amazonas permanecem pouco exploradas, como a parte sul e os municípios com grande extensão territorial, como São Gabriel da Cachoeira. Este trabalho reconhece a importância da diversidade biológica do estado do Amazonas e do bioma Amazônico para a riqueza de espécies de Odonata no Brasil e mostra que ainda existem muitas áreas não amostradas na maior floresta tropical do mundo.
***Palavras-chave:*** *Insetos aquáticos, lista de espécies, Anisoptera, Zygoptera, Amazônia, região Neotropical.*

## Introduction

Considered one of the most diverse regions for Odonata, the Neotropical region has more than 1,700 species, and in Brazil 749 species are registered (Olaya 2019). Dragonflies and damselflies (Insecta: Odonata) constitute an important group of aquatic insects characterized by their extensive predation, with larvae being important links for fish and other aquatic vertebrates in food webs. Besides their ecological importance, odonates have great artistic appeal, and have been used in environmental quality assessments using several environmental quality metrics (Abbott 2015).

Even with such importance, the taxonomic knowledge about Odonata in Brazil is still heterogeneous. As evidenced by Dalzochio et al. (2018), Brazilian studies concerning Odonata fauna are mainly concentrated in the south-center of Brazil, with species lists registered for the states of São Paulo (Costa et al. 2000), Rio de Janeiro (Costa & Santos 2000), Mato Grosso do Sul (Koroiva et al. 2017; Rodrigues et al. 2018), Rio Grande do Sul (Dalzochio et al. 2018; Pires et al. 2019), Espírito Santo (Costa & Oldrini 2005), Goiás and the Federal District (Nóbrega & De Marco 2011). Despite the increasing number of new species descriptions, the lack of species lists in other regions and states make the analysis of current sampling distributions and knowledge about Odonata species distribution inviable, which directly affects large-scale conservation assessments (Silveira et al. 2010).

The Amazonas state located in the northern region of Brazil, presents the largest territorial extension and stands out (IBGE 2019) as it encompasses Amazonian and Cerrado biomes (Parédio 2012). In recent years, political issues and increased deforestation rates in both biomes have raised concerns for the maintenance of their forested areas and associated fauna (Rochedo et al. 2018, Fearnside 2019). Regarding Odonata, several studies have been dedicated to increasing knowledge about its fauna in Amazonas state in the last 120 years, however, almost all of them are restricted to taxonomic descriptions and ecological analysis and do not provide information about the total number of species. In the most recent estimate, Neiss & Hamada (2014) indicated about 262 Odonata species in Amazonas, representing 35% of the known species from Brazil. Considering this information gap in Amazonas, the main objective of this work was to present the diversity of Odonata species in this state, as well as their known locations in the municipalities.

## Materials and Methods

### *1. Study area*

The state of Amazonas has an area of 1,559,168 km² (IBGE 2019) and stands out due to the predominant presence of the Amazonian Biome. The state shares borders with Pará, Mato Grosso, Rondônia, Acre and Roraima states and with the countries of Venezuela, Peru and Colombia (Figure 1). The geographical relief of Amazonas state is constituted by depressions (Western Amazon Depression, Northern Amazonian Depression and Southern Amazon Depression), plains, and plateaus (North-Amazonian Residual Plateau and Plateau of the Eastern Amazon). Its hydrology is formed mainly by the eastern basin of the Amazon River and is composed of most of the rivers from this hydrographic basin, whose tributaries are the rivers Negro, Japurá, Solimões, Juruá, Purus and Madeira. The northern and eastern regions of the state are located in the northern Amazonian plateau, which contain the highest altitudes (above 2,950 m) in Brazil: "Pico da Neblina" and "31 de Março" mountains (Parédio 2012). The vegetation types vary from Ombrophylous Forest to "Campinarana" and Savana in the Amazon and Cerrado biomes. According to Köppen's climatic classification, the predominant climate is Af type, tropical without dry season, except in the southern part of the state, which is considered Am, tropical monsoon. The average annual precipitation varies between 1,900 mm in the extreme southwest and above 3,000 mm in other areas and average temperatures are above 23° C (Alvares et al. 2013).

### *2. Elaboration of the list*

To prepare the list, we gathered information from the Invertebrates Collection at the Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Brazil. Additional data were collected from 102 publications, published between 1897 and 2019, the sites SpeciesLink (http://splink.cria.org.br/) and "Catálogo Taxonômico da Fauna do Brasil" (http://fauna.jbrj.gov.br ; "Brazilian Fauna Taxonomic Catalog" in English; Pinto 2019) (see Table 1). We also gathered information about the municipalities where the species were collected (Table 1). For systematic classification, we followed Dijkstra et al. (2014, 2013) and Fleck (2018).

## Results

The total number of Odonata species recorded in Amazonas is 324 (Table 2). Some species recorded in this study are shown in Figure 2. The total number of genera recorded for the state is 101, distributed in 16 families; this number include one genus from the Calopterygoidea "*Incertae sedis* group 3" and one genus from the Libelluloidea "*incertae sedis*". Coenagrionidae is the family with the highest number of records, with 32 genera and 101 species, followed by Libellulidae with 28 genera and 100 species, Gomphidae with 12 genera and 45 species, and Aeshnidae with eight genera and 27 species. The other families are: Calopterygidae (two genera, 12 species), Corduliidae (two genera, four species), Dicteriadidae (two genera, two species), Heteragrionidae (two genera, seven species), Lestidae (one genus, one species), Megapodagrionidae (one genus, one species), Perilestidae (two genera, seven species), Philogeniidae (one genus, two species), Platystictidae (one genus, one species), Polythoridae (three genera, 10 species), Rimanellidae (one genus, one species) and Oxygastridae *sensu* Fleck (2018) (one genus, one species). Calopterygoidea "*incertae sedis* group 3" was represented by one genus and one species and Libelluloidea *incertae sedis* was also represented by one genus and one species.

Considering the territorial divisions of the state, Manaus (code number 1) municipality has the most species registered, 163 species, followed by Presidente Figueiredo (code number 2), 100 species, and Barcelos (code number 4), 71 species. In addition, only 33 of the 62 municipalities in Amazonas have published Odonata records.

## Discussion

The 324 species listed from Amazonas state represent about 43% of the known species in Brazil (749 species). This number increases the species records for the state by 23% (Neiss & Hamada 2014). With the results presented in this study, Amazonas state is the Brazilian state with the highest number of Odonata species recorded, followed by

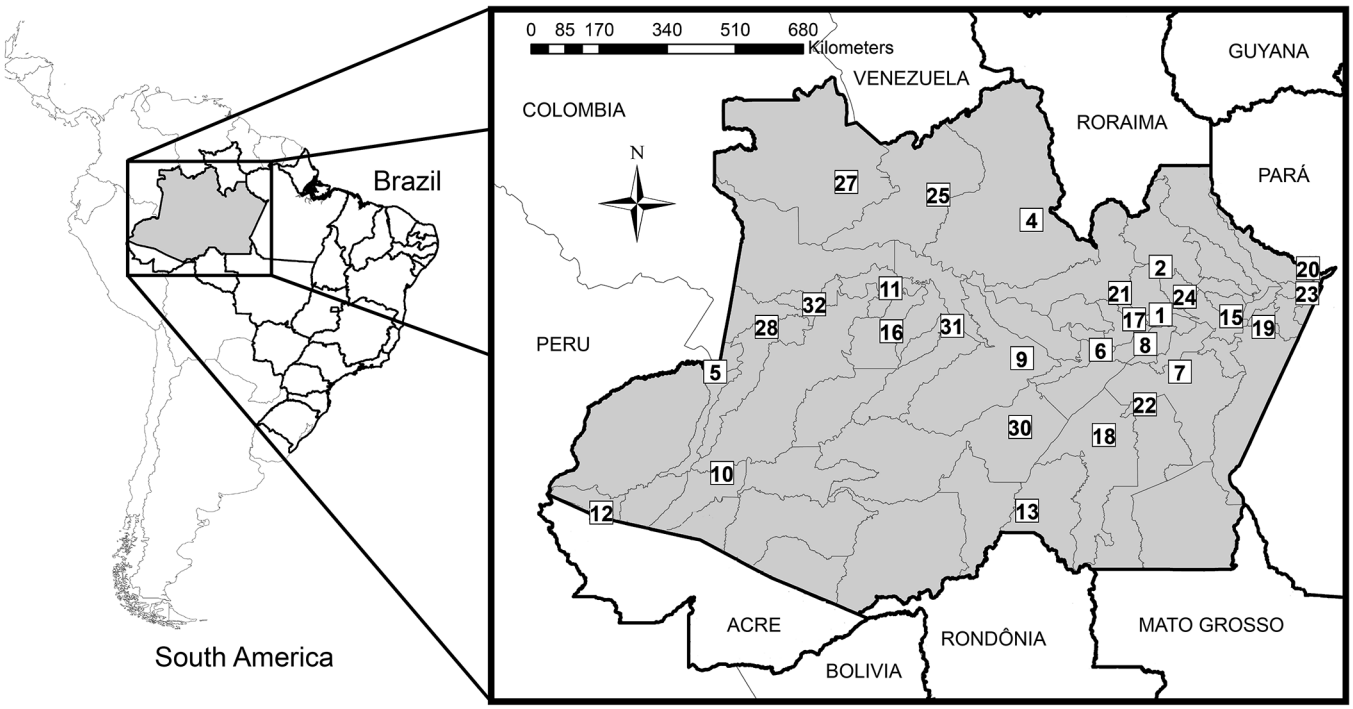


**Figure 1.** Left, Map of South America highlighting the geopolitical division of Brazil and Amazonas State (grey) (Datum: WGS 84); Right, Municipalities with Odonata recorded in Amazonas State. For code numbers see Table 1.

**Table 1.** Numbers and codes for municipalities and references used in the list of Odonata species from Amazonas state, Brazil. Where the municipality is unknown, only the state is provided.

| Municipalities | Code | Number | References | Number |
|---|---|---|---|---|
| State of Amazonas (municipality not informed) | AMZ | - | Heckman 2006 | 1 |
| Manaus | MAO | 1 | Pinto 2019 | 2 |
| Presidente Figueiredo | PRF | 2 | Neiss 2012 | 3 |
| Atalaia do Norte | ATA | 3 | Belle 1973 | 4 |
| Barcelos | BAR | 4 | Belle 1983 | 5 |
| Benjamin Constant | BEC | 5 | Belle 1984 | 6 |
| Beruri | BER | 6 | Belle 1989 | 7 |
| Borba | BOR | 7 | Belle 1994 | 8 |
| Careiro/Careiro da Várzea | CAR | 8 | Belle 1998 | 9 |
| Coari | COA | 9 | Bick & Bick 1985 | 10 |
| Eirunepé | EIR | 10 | Bick & Bick 1986 | 11 |
| Fonte Boa | FOB | 11 | Bick & Bick 1988 | 12 |
| Guajará | GJR | 12 | Borror 1931 | 13 |
| Humaitá | HMT | 13 | Borror 1942 | 14 |
| Iranduba | IRN | 14 | | |
| Itacoatiara | ITA | 15 | Calvert 1908 | 15 |
| Juruá | JUR | 16 | Costa & Oldrini 2003 | 16 |
| Manacapuru | MPU | 17 | Costa & Santos 1997 | 17 |
| Manicoré | MNE | 18 | Costa 1990 | 18 |
| Maués | MAU | 19 | Costa et al. 2002 | 19 |
| Nhamundá | NHA | 20 | Lencioni 2005 | 20 |
| Novo Airão | NAI | 21 | De Marco 1998 | 21 |

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| Municipalities | Code | Number | References | Number |
|---|---|---|---|---|
| Novo Aripuanã | NRP | 22 | De Marmels & Rácenis 1982 | 22 |
| Parintins | PAR | 23 | De Marmels 1987 | 23 |
| Rio Preto da Eva | RPE | 24 | De Marmels 1989 | 24 |
| Santa Isabel do Rio Negro | SIR | 25 | De Marmels 2001 | 25 |
| Santo Antônio do Içá | SAI | 26 | De Marmels & Neiss 2011 | 26 |
| São Gabriel da Cachoeira | SGC | 27 | De Marmels & Neiss 2013 | 27 |
| São Paulo de Olivença | SPO | 28 | Dunkle 1991 | 28 |
| Tabatinga | TAB | 29 | Fleck & Neiss 2012 | 29 |
| Tapauá | TAP | 30 | Fulan et al. 2015 | 30 |
| Tefé | TEF | 31 | Garrison & Ellenrieder 2006 | 31 |
| Tonantins | TON | 32 | Garrison & Ellenrieder 2009 | 32 |
| | | | Garrison & Ellenrieder 2015 | 33 |
| | | | Garrison 1990 | 34 |
| | | | Garrison 1999 | 35 |
| | | | Garrison 2004 | 36 |
| | | | Garrison 2006 | 37 |
| | | | Garrison 2009 | 38 |
| | | | Garrison 2014 | 39 |
| | | | Geijskes 1963 | 40 |
| | | | Geijskes 1970 | 41 |
| | | | Geijskes 1984 | 42 |
| | | | Guillermo-Ferreira et al. 2014 | 43 |
| | | | Hamada & Oliveira 2003 | 44 |
| | | | Kirby 1897 | 45 |
| | | | Lencioni 2006 | 46 |
| | | | Lencioni 2013 | 47 |
| | | | Leonard 1977 | 48 |
| | | | Machado & Lacerda 2017 | 49 |
| | | | Machado 2002 | 50 |
| | | | Machado 2007 | 51 |
| | | | Machado 2009a | 52 |
| | | | Machado 2009b | 53 |
| | | | Machado 2012 | 54 |
| | | | Machet 1990 | 55 |
| | | | May 1991 | 56 |
| | | | Monteiro-Júnior et al. 2013 | 57 |
| | | | Montgomery 1940 | 58 |
| | | | Neiss & Hamada 2010 | 59 |
| | | | Neiss & Hamada 2016 | 60 |
| | | | Neiss et al. 2008 | 61 |
| | | | Neiss et al. 2013 | 62 |
| | | | Pessacq 2014 | 63 |
| | | | Pessacq et al. 2012 | 64 |
| | | | Pinto & Carvalho 2010 | 65 |
| | | | Pinto & Lamas 2010 | 66 |

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| Municipalities | Code | Number | References | Number |
|---|---|---|---|---|
| | | | Pinto & Lamas 2011 | 67 |
| | | | Pinto 2013 | 68 |
| | | | Pujol-Luz & Fonseca 1997 | 69 |
| | | | Ris 1911 | 70 |
| | | | Ris 1930 | 71 |
| | | | Rodrigues et al. 2016 | 72 |
| | | | Rodríguez et al. 2015 | 73 |
| | | | Santos & Machado 1960 | 74 |
| | | | Santos 1954 | 75 |
| | | | Santos 1961 | 76 |
| | | | Santos 1967 | 77 |
| | | | Santos 1970a | 78 |
| | | | Santos 1970b | 79 |
| | | | Schmidt 1952 | 80 |
| | | | Spindola et al. 2001 | 81 |
| | | | St. Quentin 1973 | 82 |
| | | | Tennessen 2015 | 83 |
| | | | Torreias et al. 2008 | 84 |
| | | | von Ellenrieder & Garrison 2003 | 85 |
| | | | von Ellenrieder & Garrison 2008 | 86 |
| | | | Vilela et al. 2018 | 87 |
| | | | von Ellenrieder 2008 | 88 |
| | | | von Ellenrieder 2009 | 89 |
| | | | von Ellenrieder 2013 | 90 |
| | | | Walker 2009 | 91 |
| | | | Williamson & Williamson 1924b | 92 |
| | | | Williamson & Williamson 1924a | 93 |
| | | | Williamson 1923 | 94 |
| | | | Species Link website | 95 |
| | | | Neiss & Hamada 2012 | 96 |
| | | | Juen & De Marco 2011 | 97 |
| | | | Juen 2011 | 98 |
| | | | Vilaça 2017 | 99 |
| | | | Heckman 2008 | 100 |
| | | | De Marco-Júnior et al. 2015 | 101 |
| | | | Ris 1910 | 102 |
| | | | Invertebrates Collection (INPA) | 103 |
| | | | Neiss & De Marmels 2017 | 104 |
| | | | Vilela et al. 2019 | 105 |

Rio de Janeiro, 280 species (Costa & Santos 2000), Minas Gerais, 269 species (Vilela et al. 2020), São Paulo, 251 species (Costa et al. 2000), Mato Grosso do Sul, 209 species (Koroiva et al. 2017; Rodrigues et al. 2018), Rio Grande do Sul, 183 species (Pires et al. 2019), Espírito Santo, 180 species (Costa & Oldrini 2005), and Goiás and the Federal District, 152 species (Nóbrega & De Marco 2011).

We highlight that five species were not included in the results due to imprecise information. Despite being cited for Amazonas state in Heckman (2008), in the original description of *Planiplax machadoi* Santos, 1949, Santos (1949) states that the species is present in "Amazonas", but in the text the author explains that specimens came from Pará state. Similar problem occurs with *Erythrodiplax juliana* Ris, 1911 and *Erythrodiplax latimaculata* Ris, 1911. Borror (1942) states that these species are present in Amazonas state; however, the specimens were collected in Monte Roraima and Uraricoera, respectively, which currently belong to Roraima state. Finally,

**Table 2.** Odonata species recorded for Amazonas State, Brazil. For references and municipalities codes, please check Table 1.

| Species | Municipalities | References |
|---|---|---|
| **ZYGOPTERA** | | |
| **Dicteriadidae** | | |
| *Dicterias atrosanguinea Selys,* 1853 | MPU; MAO; PRF; NAI; RPE | 3; 95; 1; 57; 87; 97; 103 |
| *Heliocharis amazona Selys,* 1853 | PRF; TEF | 3; 28; 103 |
| **Calopterygidae** | | |
| *Hetaerina amazonica Sjöstedt,* 1918 | ITA; BAR; MPU; MAO; PRF; NRP; RPE; NAI | 3; 95; 1; 57; 97; 103 |
| *Hetaerina auripennis* (Burmeister, 1839*)* | AMZ | 100 |
| *Hetaerina caja* (Drury, 1773*)* | BAR | 3; 103 |
| *Hetaerina laesa* Hagen in Selys, 1853 | BAR | 3; 103 |
| *Hetaerina medinai* Rácenis, 1968 | BAR | 3; 100; 103 |
| *Hetaerina moribunda* Hagen in Selys, 1853 | MAO; NAI; PRF; RPE; MPU | 3; 100; 57; 34; 97 |
| *Hetaerina sanguinea* Selys, 1853 | MAO | 3; 95; 100; 57; 103 |
| *Hetaerina westfalli* Rácenis, 1968 | BAR; MPU; MAO; RPE; NAI | 3; 100; 34; 103 |
| *Mnesarete aenea* (Selys, 1853*)* | BER | 37; 100 |
| *Mnesarete astrape* De Marmels, 1989 | MPU; MAO; PRF; RPE; BAR; NAI | 3; 95; 100; 37; 103 |
| *Mnesarete cupraea (*Selys, 1853*)* | BAR; PRF; RPE; SPO; MAO | 3; 95; 100; 37; 103 |
| *Mnesarete loutoni* Garrison, 2006 | SPO | 1; 37; 46 |
| **Polythoridae** | | |
| *Chalcopteryx rutilans (*Rambur 1842*)* | NRP | 3 |
| *Chalcopteryx scintillans* McLachlan, 1870 | BAR; ITA; MPU; MAO; PRF; RPE; NAI; BEC; SGC; SPO | 3; 95; 1; 98; 43; 74; 57; 103 |
| *Chalcopteryx seabrai* Santos & Machado, 1961 | PRF | 3; 103 |
| *Euthore fasciata* (Hagen in Selys, 1853) | AMZ | 100 |
| *Polythore aurora* (Selys, 1879) | TEF | 100; 11; 20 |
| *Polythore batesi* (Selys, 1879) | SPO | 100; 11; 20 |
| *Polythore beata* (McLachlan, 1869) | FOB | 100; 11; 20 |
| *Polythore picta* (Rambur, 1842) | TEF | 100; 10; 20 |
| *Polythore procera* (Selys, 1869) | AMZ | 100; 20 |
| *Polythore vittata* (Selys, 1869) | CAR; PRF; BOR; FOB; MNE; SPO; TEF | 3; 100; 11; 20 |
| **Philogeniidae** | | |
| *Philogenia margarita* Selys, 1862 | TEF | 12; 100 |
| *Philogenia silvarum* Ris, 1918 | AMZ | 100 |
| **Rimanellidae** | | |
| *Rimanella arcana* (Needham, 1933) | PRF | 3; 100; 20; 44; 103 |
| *Calopterygoidea* ***incertae sedis group 3*** | | |
| *Dimeragrion percubitale Calvert,* 1913 | BAR | 3; 103 |
| **Heteragrionidae** | | |
| *Heteragrion angustipenne Selys,* 1886 | TAP | 100; 105 |
| *Heteragrion bariai De Marmels,* 1989 | PRF; MAO | 3; 95; 103 |
| *Heteragrion ictericum* Williamson, 1919 | MAO; RPE; MPU | 95; 100; 47; 57 |
| *Heteragrion icterops* Selys, 1862 | MAO; NAI; RPE | 3; 100; 23; 103 |
| *Heteragrion silvarum* Sjöstedt, 1918 | MAO | 95; 100; 23; 47; 97 |
| *Oxystigma cyanofrons* Williamson, 1919 | NAI; PRF; RPE; MAO | 3; 95; 39; 103 |
| *Oxystigma petiolatum (Selys, 1862)* | BAR; ITA; MPU; NAI; PRF; RPE; MAO | 95; 3; 39; 57; 97 |

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|---|---|---|
| **Megapodagrionidae** | | |
| *Megapodagrion megalopus* (Selys, 1862) | BAR; TAP; SGC; COA | 3; 100; 99; 25; 103 |
| **Lestidae** | | |
| *Lestes falcifer* Sjöstedt, 1918 | BAR | 3; 100; 103 |
| **Perilestidae** | | |
| *Perilestes attenuatus* Selys, 1886 | BAR; MAO; NAI; PRF | 3; 95; 100; 59; 92; 57; 103 |
| *Perilestes bispinus* Kimmins, 1958 | AMZ | 100; 20 |
| *Perilestes fragilis* Hagen in Selys, 1862 | AMZ | 100 |
| *Perilestes gracillimus* Kennedy, 1941 | MAO | 95; 100 |
| *Perissolestes cornutus* (Selys, 1886) | TEF; SPO | 100; 20; 80 |
| *Perissolestes flinti* De Marmels, 1988 | BAR | 3; 103 |
| *Perissolestes paprzyckii* Kennedy, 1941 | AMZ | 100; 20 |
| **Platystictidae** | | |
| *Palaemnema brasiliensis* Machado, 2009 | BAR; PRF | 3; 60; 103 |
| **Coenagrionidae** | | |
| *Acanthagrion adustum* Williamson, 1916 | MAO; SIR | 95; 100; 48; 57; 46 |
| *Acanthagrion amazonicum* Sjöstedt, 1918 | MAO | 95; 100; 48; 46 |
| *Acanthagrion apicale* Selys, 1876 | BAR; HMT; MAO | 3; 30; 54; 103 |
| *Acanthagrion chararum* Calvert, 1909 | BAR | 3; 103 |
| *Acanthagrion chicomendesi* Machado, 2012 | SIR; BEC; BAR; TEF; SPO | 54 |
| *Acanthagrion cuyabae* Calvert, 1909 | MAO | 3; 103 |
| *Acanthagrion flaviae* Machado, 2012 | ATA | 54 |
| *Acanthagrion kaori* Machado, 2012 | MAO | 54 |
| *Acanthagrion minutum* Leonard, 1977 | SGC | 3; 103 |
| *Acanthagrion phallicorne* Leonard, 1977 | MAO | 3; 103 |
| *Acanthagrion rubrifrons* Leonard, 1977 | MAO | 100; 48; 46 |
| *Acanthallagma caeruleum* Williamson & Williamson, 1924 | TAP | 100; 99; 93; 46 |
| *Aeolagrion dorsale* (Burmeister, 1839) | MAO | 2; 100; 57; 46 |
| *Aeolagrion inca* (Selys, 1876) | AMZ | 2; 100; 46 |
| *Amazoneura ephippigera* (Selys, 1886) | TEF | 100; 64 |
| *Argia bicellulata* (Calvert, 1909) | MAO | 3; 57; 103 |
| *Argia botacudo* Calvert, 1909 | MAO | 95 |
| *Argia collata* Selys, 1865 | AMZ | 100 |
| *Argia cuneifera* Garrison & von Ellenrieder, 2015 | BAR | 2; 33 |
| *Argia euphorbia* Fraser, 1946 | BAR; NAI; MPU; TAP | 2; 100; 33; 46 |
| *Argia fumigata* Hagen in Selys, 1865 | MAO; MPU; RPE; BAR; PRF | 95; 2; 100; 33; 46 |
| *Argia gemella* Garrison & von Ellenrieder, 2015 | MAO; BAR; PRF; RPE | 95; 2; 33 |
| *Argia hasemani* Calvert, 1909 | MAO | 100; 46; 97 |
| *Argia impura* Rambur, 1842 | AMZ | 100 |
| *Argia indicatrix* Calvert, 1902 | MAO; RPE; PRF | 3; 95; 2; 100; 33; 57; 46; 97; 103 |
| *Argia infumata* Selys, 1865 | MPU; TEF; SPO; MNE; TON; NAI | 3; 2; 100; 33; 46; 103 |
| *Argia insipida* Hagen in Selys, 1865 | MPU; MAO; PRF; BAR | 3; 2; 100; 33; 46; 103 |
| *Argia loutoni* Garrison & von Ellenrieder, 2015 | TAP; BAR; MAU | 2; 33 |
| *Argia meioura* Garrison & von Ellenrieder, 2015 | MAO; MPU; PRF | 2; 33 |

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| | | |
|---|---|---|
| *Argia mollis* Hagen in Selys, 1865 | AMZ | 100; 46 |
| *Argia oculata* Hagen in Selys, 1865 | BAR; PRF; NAI; MAO | 2; 100; 33; 46; 97 |
| *Argia palmata* Garrison & von Ellenrieder, 2015 | MAO | 2; 33 |
| *Argia pulla* Hagen in Selys, 1865 | MAO | 2; 33 |
| *Argia reclusa* Selys, 1865 | AMZ | 100; 46 |
| *Argia subapicalis* Calvert, 1909 | MAO | 97 |
| *Argia thespis* Hagen in Selys, 1865 | MAO | 97; 46 |
| *Argia tinctipennis* Selys, 1865 | AMZ | 100; 46 |
| *Argia translata* Hagen in Selys, 1865 | AMZ | 2; |
| *Bromeliagrion rehni* Garrison, 2005 | MAO | 3; 95; 100; 84; 46; 103 |
| *Calvertagrion charis* Tennessen, 2015 | AMZ | 2; 83; |
| *Calvertagrion minutissimum* (Selys, 1876) | AMZ | 2; 100; 46 |
| *Denticulobasis ariken* Machado, 2009 | MAO | 3; 103 |
| *Dolonagrion fulvellum* (Selys, 1876) | AMZ | 46 |
| *Drepanoneura muzoni von* Ellenrieder & Garrison, 2008 | BAR | 3; 103 |
| *Epipleoneura capilliformis* (Selys, 1886) | MPU; MAO; NAI; PRF; RPE | 3; 95; 63; 57; 103 |
| *Epipleoneura fuscaenea* Williamson, 1915 | NRP | 3; 103 |
| *Epipleoneura haroldoi* Santos, 1964 | MPU; MAO; NAI; PRF | 3; 100; 63; 103 |
| *Epipleoneura humeralis* (Selys, 1886) | COA | 3; 99; 63; 103 |
| *Epipleoneura kaxuriana* Machado, 1985 | MPU; MAO; NRP; PRF; RPE; NAI | 3; 100; 63; 103 |
| *Epipleoneura lamina* Williamson, 1915 | BOR | 63 |
| *Epipleoneura manauensis* Santos, 1964 | BAR; MPU; MAO; RPE; NAI | 3; 95; 100; 98; 63; 57; 96; 103 |
| *Epipleoneura metallica* Rácenis, 1955 | MAO | 97 |
| *Epipleoneura spatulata* Rácenis, 1960 | BAR | 3; 103 |
| *Epipleoneura tariana* Machado, 1985 | BAR | 3; 100; 98; 63; 103 |
| *Epipleoneura uncinata* De Marmels, 1989 | BAR | 3; 103 |
| *Epipotoneura nehalennia* Williamson, 1915 | MAO | 3; 95; 64; 86; 103 |
| *Forcepsioneura itatiaiae* (Santos, 1970) | AMZ | 99; 98 |
| *Homeoura nepos* (Selys, 1876) | MAO | 100; 88; 46 |
| *Homeoura obrieni von* Ellenrieder, 2008 | MAO | 88 |
| *Hylaeonympha magoi* Rácenis, 1968 | AMZ | 2 |
| *Inpabasis machadoi* Santos, 1961 | MPU; MAO; NAI | 3; 2; 100; 76; 46; 103 |
| *Inpabasis rosea* (Selys, 1877) | MPU; MAO | 3; 95; 2; 100; 76; 46; 103 |
| *Ischnura capreolus* (Hagen, 1861) | MPU; MAO; SGC | 3; 95; 57; 97; 103 |
| *Ischnura fluviatilis* Selys, 1876 | MAO; PRF | 3; 91; 103 |
| *Leucobasis candicans* Rácenis, 1959 | AMZ | 2 |
| *Mecistogaster linearis* (Fabricius, 1777) | BAR; MAO; NAI; PRF | 3; 72; 103 |
| *Mecistogaster lucretia* (Drury, 1773) | MAO; PRF | 3; 100; 97; 103 |
| *Mesoleptobasis acuminata* Santos, 1961 | IRN; CAR | 95; 100; 46 |
| *Mesoleptobasis cantralli* Santos, 1961 | BAR; SGC | 3; 2; 100; 98; 32; 103 |
| *Mesoleptobasis elongata* Garrison & von Ellenrieder, 2009 | CAR | 2; 32 |
| *Mesoleptobasis incus* Sjöstedt, 1918 | MPU; NAI; BOR; TEF | 3; 2; 100; 98; 99; 32; 46; 103 |
| *Metaleptobasis amazonica* Sjöstedt, 1918 | MAO | 1; 32; 46 |
| *Metaleptobasis brysonima* Williamson, 1915 | PRF | 2; 90 |

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| *Metaleptobasis paludicola von* Ellenrieder, 2013 | MAO | 95; 2; 90 |
| *Metaleptobasis tridentigera von* Ellenrieder, 2013 | NAI; MPU | 2; 90 |
| *Microstigma anomalum* Rambur, 1842 | MAO | 95; 100; 97 |
| *Microstigma maculatum* Hagen in Selys, 1860 | MAO; PRF | 3; 100; 61; 103 |
| *Microstigma rotundatum* Selys, 1860 | BAR; MPU; MAO; PRF; SGC; TEF; SPO; NAI | 3; 95; 100; 80; 103 |
| *Neoneura bilinearis* Selys, 1860 | BAR | 3; 103 |
| *Neoneura desana* Machado, 1989 | COA | 3; 100; 98; 103 |
| *Neoneura luzmarina* De Marmels, 1989 | BAR; NRP; PRF; RPE; SGC; MAO | 3; 100; 35; 103 |
| *Neoneura mariana* Williamson, 1917 | MAO | 95 |
| *Neoneura rufithorax* Selys, 1886 | COA; ATA | 3; 100; 35; 50; 103 |
| *Neoneura sylvatica* Hagen in Selys, 1886 | AMZ | 51 |
| *Oxyagrion terminale* Selys, 1876 | AMZ | 2; 100; 4 |
| *Phasmoneura exigua* (Selys, 1886) | ITA; MPU; MAO; NAI; PRF; RPE | 3; 95; 100; 98; 57; 103 |
| *Phoenicagrion flammeum* (Selys, 1876) | MAO; NAI | 3; 95; 2; 100; 98; 103 |
| *Platystigma buckleyi* (McLachlan, 1881) | AMZ | 100; 49 |
| *Protoneura scintilla* Gloyd, 1939 | BAR | 3; 103 |
| *Protoneura tenuis* Selys, 1860 | MAO; PRF | 3; 103 |
| *Psaironeura bifurcata* (Sjöstedt, 1918) | MPU; MAO; PRF; NAI | 3; 100; 36; 97; 103 |
| *Psaironeura tenuissima* (Selys, 1886) | MPU; MAO; PRF; RPE | 3; 95; 100; 99; 103 |
| *Telebasis abuna* Bick & Bick, 1995 | IRN | 95 |
| *Telebasis dunklei* Bick & Bick, 1995 | IRN; CAR | 95 |
| *Telebasis griffinii* (Martin, 1896) | IRN | 95; 2 |
| *Telebasis inalata* (Calvert, 1961) | AMZ | 2 |
| *Telebasis obsoleta* (Selys, 1876) | IRN; CAR | 95; 2; 38; 46 |
| *Telebasis sanguinalis* Calvert, 1909 | AMZ | 100; 46 |
| *Telebasis simulata* Tennessen, 2002 | PRF; MAO | 3; 95; 2; 100; 38; 46; 103 |
| *Tuberculobasis inversa* (Selys, 1876) | TEF | 2; 99; 52 |
| *Tukanobasis corbeti* Machado, 2009 | SGC | 2; 53 |
| **ANISOPTERA** | | |
| **Aeshnidae** | | |
| *Anax amazili* (Burmeister, 1839) | AMZ | 2 |
| *Anax concolor* Brauer, 1865 | BAR; RPE | 3; 1; 103 |
| *Castoraeschna tepuica* De Marmels, 1989 | BAR | 3; 103 |
| *Coryphaeschna adnexa* (Hagen, 1861) | BEC | 1; 78 |
| *Coryphaeschna amazonica* De Marmels, 1989 | PRF | 3; 2; 103 |
| *Coryphaeschna viriditas* Calvert, 1952 | MAO | 95 |
| *Gynacantha auricularis* Martin, 1909 | BAR; MAO; PRF | 3; 26; 103 |
| *Gynacantha dryadula* Neiss & De Marmels, 2017 | BAR; MAO | 104 |
| *Gynacantha gracilis* (Burmeister, 1839) | BAR; MAO | 3; 1; 103 |
| *Gynacantha klagesi* Williamson, 1923 | MPU | 3; 103 |
| *Gynacantha litoralis* Williamson, 1923 | MAO; SGC | 3; 1; 103 |
| *Gynacantha membranalis* Karsch, 1891 | MAO; PRF | 3; 103 |
| *Gynacantha mexicana* Selys, 1868 | MAO | 3; 103 |
| *Gynacantha nervosa* Rambur, 1842 | MAO | 95 |
| *Gynacantha tenuis* Martin, 1909 | PRF | 3; 103 |

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|---|---|---|
| *Neuraeschna calverti* Kimmins, 1951 | PRF; MAO | 3; 1; 7; 103 |
| *Neuraeschna capillata* Machet, 1990 | MAO | 55 |
| *Neuraeschna claviforcipata* Martin, 1909 | BAR; MAO | 1; 27; 7 |
| *Neuraeschna costalis* (Burmeister, 1839) | AMZ | 1 |
| *Neuraeschna harpya* Martin, 1909 | AMZ | 1; 98 |
| *Rhionaeschna planaltica* (Calvert, 1952) | BAR | 3; 103 |
| *Staurophlebia gigantula* Martin, 1909 | AMZ | 1 |
| *Staurophlebia wayana* Geijskes, 1959 | PRF | 3; 103 |
| *Triacanthagyna dentata* (Geijskes, 1943) | AMZ | 85 |
| *Triacanthagyna ditzleri* Williamson, 1923 | MAO; SGC | 3; 103 |
| *Triacanthagyna satyrus* (Martin, 1909) | MAO | 3; 103 |
| *Triacanthagyna septima* (Selys in Sagra, 1857) | MAO | 95; 85 |
| **Gomphidae** | | |
| *Agriogomphus sylvicola* Selys, 1869 | PRF; TEF | 3; 99; 82; 103 |
| *Aphylla barbata* Belle, 1994 | AMZ | 1 |
| *Aphylla brasiliensis* Belle, 1970 | AMZ | 2; 1 |
| *Aphylla dentata* Selys, 1859 | AMZ | 2 |
| *Aphylla edentata* Selys, 1869 | AMZ | 2; 99 |
| *Aphylla molossus* Selys, 1869 | AMZ | 2 |
| *Cacoides latro* (Erichson in Schomburgk, 1848) | PRF | 3; 103 |
| *Desmogomphus tigrivensis* Williamson, 1920 | PRF; RPE; MAO | 3; 82; 103 |
| *Diaphlebia angustipennis* Selys, 1854 | MAO; PRF | 3; 95; 2; 1; 57; 97; 103 |
| *Epigomphus hylaeus* Ris, 1918 | MAO; PRF; NAI | 3; 1; 82; 103 |
| *Gomphoides infumata* (Rambur, 1842) | MAO | 82 |
| *Peruviogomphus bellei* Machado, 2005 | AMZ | 1; 99 |
| *Phyllocycla armata* Belle, 1977 | MAO; RPE; PRF | 3; 103 |
| *Phyllocycla diphylla* (Selys, 1854) | AMZ | 1 |
| *Phyllocycla modesta* Belle, 1970 | MAO | 95 |
| *Phyllocycla neotropica* Belle, 1970 | PRF | 3; 103 |
| *Phyllocycla ophis* (Selys, 1869) | AMZ | 1 |
| *Phyllocycla pegasus* (Selys, 1869) | AMZ | 1 |
| *Phyllocycla volsella* (Calvert, 1905) | MAO | 95 |
| *Phyllogomphoides andromeda* (Selys, 1869) | AMZ | 98 |
| *Phyllogomphoides angularis* Belle, 1982 | AMZ | 1 |
| *Phyllogomphoides atlanticus* (Belle, 1970) | PRF | 3; 103 |
| *Phyllogomphoides major* Belle, 1984 | SGC | 3; 103 |
| *Phyllogomphoides pedunculus* Belle, 1984 | AMZ | 2; 1 |
| *Phyllogomphoides pseudangularis* Belle, 1994 | COA | 2; 1; 99; 8 |
| *Phyllogomphoides selysi* (Navás, 1924) | AMZ | 95; 2; 1; 6 |
| *Phyllogomphoides undulatus* (Needham, 1944) | MAO; PRF; SGC | 3; 103 |
| *Progomphus amazonicus* Belle, 1973 | MPU | 2; 1; 4 |
| *Progomphus angeloi* Belle, 1994 | AMZ | 2; 1; 99 |
| *Progomphus approximatus* Belle, 1966 | MAO; PRF | 3; 103 |
| *Progomphus cf. boliviensis* Belle, 1973 | RPE | 3; 103 |
| *Progomphus cf. phyllochromus* Ris, 1918 | PRF | 3; 103 |
| *Progomphus cf. tibialis* Belle, 1973 | SGC | 3; 103 |

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| *Progomphus delicatus* Belle, 1973 | NAI; PRF | 3; 103 |
| *Progomphus fassli* Belle, 1973 | AMZ | 1 |
| *Progomphus guyanensis* Belle, 1966 | MAO; PRF | 3; 103 |
| *Progomphus intricatus* Hagen in Selys, 1858 | AMZ | 2 |
| *Progomphus maculatus* Belle, 1984 | MAO | 3; 103 |
| *Progomphus perpusillus* Ris, 1918 | AMZ | 2; 1; 4 |
| *Progomphus pijpers*i Belle, 1966 | AMZ | 2 |
| *Zonophora batesi* Selys, 1869 | AMZ | 2; 1; 99 |
| *Zonophora calippus* Selys, 1869 | TEF | 2; 1; 99; 5 |
| *Zonophora nobilis* Belle, 1983 | SGC | 2; 1; 5 |
| *Zonophora supratriangularis* Schmidt, 1941 | MAO; TEF | 95; 2; 1; 99; 5 |
| *Zonophora wucherpfennigi* Schmidt, 1941 | MAO; PRF; RPE | 3; 2; 1; 99; 103 |
| **Oxygastridae** | | |
| *Neocordulia batesi* (Selys, 1871) | SPO | 56; 66 |
| **Corduliidae** | | |
| *Aeschnosoma auripennis* Geijskes, 1970 | MPU; MAO; PRF; NAI; BAR | 66; 3; 2; 62; 21; 103 |
| *Aeschnosoma forcipula* Hagen in Selys, 1871 | BAR; MPU; MAO; NAI; PRF | 3; 95; 2; 1; 41; 103 |
| *Aeschnosoma hamadae* Fleck & Neiss, 2012 | MAO; PRF; NAI | 3; 2; 29; 103 |
| *Paracordulia sericea* (Selys, 1871) | BAR | 2; 29; 3; 103 |
| **Libelluloidea *incertae sedis*** | | |
| *Lauromacromia cf. dubitalis* (Fraser, 1939) | MAO | 65 |
| **Libellulidae** | | |
| *Anatya guttata* (Hoffmansegg in Schomburgk, 1848) | COA | 70 |
| *Argyrothemis argentea* Ris, 1911 | MAO; MPU; NAI | 3; 16 |
| *Brachymesia herbida* (Gundlach, 1889) | MAO; PRF | 95; 98; 91; 21; 15 |
| *Brechmorhoga nubecula* (Rambur, 1842) | BAR; MAO; PRF | 3; 103 |
| *Brechmorhoga praedatrix* Calvert, 1909 | PRF | 3; 103 |
| *Dasythemis esmeralda* Ris, 1910 | PRF; RPE; MAO | 3; 95; 57; 103 |
| *Dasythemis essequiba* Ris, 1919 | AMZ | 1 |
| *Diastatops estherae* Montgomery, 1940 | BAR; MAO; MAU; SGC; TON | 3; 1; 45; 58; 101; 103 |
| *Diastatops maxima* Montgomery, 1940 | PRF; TEF | 1; 99; 58; 101 |
| *Diastatops nigra* Montgomery, 1940 | BAR; MAO; MAU; PAR; PRF; SGC | 3; 1; 98; 58; 101; 103 |
| *Diastatops obscura* (Fabricius, 1775) | MAO | 102 |
| *Diastatops pullata* (Burmeister, 1839) | BAR; PRF; MAU; MAO; MPU; SPO | 3; 1; 98; 99; 58; 103 |
| *Elasmothemis williamsoni* (Ris, 1919) | MAO; PRF | 3; 103 |
| *Elga leptostyla* Ris, 1911 | NAI; MAO; NRP; PRF | 3; 103 |
| *Erythemis attala* (Selys in Sagra, 1857) | NAI; PRF; MAO; BEC; PAR; SPO | 3; 95; 2; 99; 73; 15; 68; 97; 103 |
| *Erythemis carmelita* Williamson, 1923 | BEC; TEF | 1; 94; 68 |
| *Erythemis haematogastra* (Burmeister, 1839) | MAO; BAR; PRF; PAR; MNE; BEC | 3; 95; 21; 91; 73; 15; 68; 103 |
| *Erythemis mithroides* (Brauer, 1900) | PAR | 73 |
| *Erythemis peruviana* (Rambur, 1842) | IRN; NRP; MAO; PAR; ITA | 3; 95; 98; 45; 73; 15; 68; 103 |
| *Erythemis plebeja* (Burmeister, 1839) | MAO | 73 |
| *Erythemis vesiculosa* (Fabricius, 1775) | IRN; MAO; NAI; PRF; MNE | 3; 21; 91; 73; 15; 68; 103 |
| *Erythrodiplax amazonica* Sjöstedt, 1918 | BAR; PRF; MAO; MAO | 3; 95; 2; 1; 14; 103 |
| *Erythrodiplax anatoidea* Borror, 1942 | MAO; PRF | 3; 103 |

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| *Erythrodiplax attenuata* (Kirby, 1889) | MAO; MNE | 1; 98; 99; 14; 70 |
| *Erythrodiplax basalis* (Kirby, 1897) | COA; MPU; MAO; RPE; NRP | 3; 95; 1; 57; 14; 103 |
| *Erythrodiplax castanea* (Burmeister, 1839) | MAO; MPU; PRF; NAI; RPE | 3; 95; 1; 57; 103 |
| *Erythrodiplax famula* (Erichson in Schomburgk, 1848) | BAR; MAO; PRF; RPE | 3; 57; 14; 103 |
| *Erythrodiplax fusca* (Rambur, 1842) | MPU; MAO; PRF; NRP; RPE; ITA; NAI | 3; 95; 1; 99; 57; 103 |
| *Erythrodiplax lativittata* Borror, 1942 | MPU; MAO; PRF; RPE; SGC; NAI; NRP | 3; 98; 99; 21; 103 |
| *Erythrodiplax laurentia* Borror, 1942 | PRF | 3; 103 |
| *Erythrodiplax longitudinalis* (Ris, 1919) | AMZ | 1 |
| *Erythrodiplax solimaea* Ris, 1911 | TEF | 1; 99; 14 |
| *Erythrodiplax umbrata* (Linnaeus, 1758) | MPU; MAO; PRF; SPO; COA | 3; 95; 1; 99; 21; 14; 103 |
| *Erythrodiplax unimaculata* (de Geer, 1773) | MAO; ITA; MNE; TEF; SPO | 95; 1; 99; 14 |
| *Erythrodiplax venusta* (Kirby, 1897) | RPE; MAO | 3; 95; 1; 14; 103 |
| *Fylgia amazonica* Kirby, 1889 | MAO; NAI; PRF | 3; 95; 97; 103 |
| *Gynothemis pumila* (Karsch, 1890) | BAR; MPU; MAO; NRP; PRF; RPE; NAI | 3; 57; 31; 95; 103 |
| *Idiataphe amazonica* (Kirby, 1889) | AMZ | 1 |
| *Idiataphe cubensis* (Scudder, 1866) | PRF | 3; 103 |
| *Libellula herculea* Karsch, 1889 | BAR; PRF; MAO | 3; 95; 103 |
| *Macrothemis brevidens* Belle, 1983 | MPU; PRF | 3; 103 |
| *Macrothemis idalia* Ris, 1919 | BAR; PRF; MPU | 3; 103 |
| *Macrothemis newtoni* Costa, 1990 | MAO | 1; 18 |
| *Macrothemis nobilis* Rácenis, 1957 | AMZ | 1 |
| *Macrothemis rupicola* Rácenis, 1957 | BAR | 3; 103 |
| *Macrothemis taurepan* De Marmels, 2008 | BAR | 3; 103 |
| *Miathyria marcella* (Selys in Sagra, 1857) | MPU; IRN; MAO | 3; 98; 21; 15; 102; 103 |
| *Miathyria simplex* (Rambur, 1842) | PRF | 3; 21; 103 |
| *Micrathyria artemis* Ris, 1911 | MAO | 1; 19 |
| *Micrathyria atra* (Martin, 1897) | PRF; MAO; ITA | 3; 95; 1; 19; 68; 103 |
| *Micrathyria cambridgei* Kirby, 1897 | AMZ | 1 |
| *Micrathyria catenata* Calvert, 1909 | NHA; MAO | 1; 19; 24 |
| *Micrathyria hippolyte* Ris, 1911 | MAO | 3; 103 |
| *Micrathyria laevigata* Calvert, 1909 | MNE | 99; 75 |
| *Micrathyria pseudeximia* Westfall, 1992 | MAO | 1; 19 |
| *Micrathyria romani* Sjöstedt, 1918 | MAO | 1; 40 |
| *Micrathyria spinifera* Calvert, 1909 | MAO | 3; 1; 103 |
| *Micrathyria venezuelae* De Marmels, 1989 | BAR | 3; 103 |
| *Misagria calverti* Geijskes, 1951 | NAI | 3; 103 |
| *Misagria divergens* De Marmels, 1981 | BAR | 3; 103 |
| *Misagria parana* Kirby, 1889 | MAO | 3; 95; 1; 103 |
| *Oligoclada abbreviata* (Rambur, 1842) | BAR; MAO | 3; 95; 1; 98; 13; 103 |
| *Oligoclada amphinome* Ris, 1919 | NRP; MAO | 3; 95; 1; 13; 103 |
| *Oligoclada monosticha* Borror, 1931 | NRP; BAR | 3; 103 |
| *Oligoclada pachystigma* Karsch, 1890 | BAR; COA | 3; 42; 103 |
| *Oligoclada risi* Geijskes, 1984 | PRF; MAO | 3; 103 |
| *Oligoclada sylvia* (Kirby, 1889) | BAR; PRF | 3; 1; 98; 99; 13; 67; 103 |
| *Oligoclada walkeri* Geijskes, 1931 | PRF; BAR | 3; 98; 99; 13; 103 |
| *Oligoclada xanthopleura* Borror, 1931 | MAO | 1; 13 |

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| *Orthemis aequilibris* Calvert, 1909 | MPU; MAO | 3; 89; 103 |
| *Orthemis attenuata* (Erichson in Schomburgk, 1848) | RPE | 3; 103 |
| *Orthemis biolleyi* Calvert, 1906 | MAO; NRP; PRF; RPE | 3; 57; 102; 103 |
| *Orthemis cultriformis* Calvert, 1899 | SPO | 1; 77 |
| *Orthemis discolor* (Burmeister, 1839) | MPU; MAO; RPE; NAI | 3; 103 |
| *Orthemis ferruginea* (Fabricius, 1775) | MAO | 15; 57 |
| *Pantala flavescens* (Fabricius, 1798) | MPU; MAO; PRF | 3; 2; 21; 57; 103 |
| *Perithemis bella* Kirby, 1889 | MAO; SPO | 3; 1; 102; 103 |
| *Perithemis cornelia* Ris, 1910 | TEF | 1; 99; 71 |
| *Perithemis electra* Ris, 1930 | BEC | 79 |
| *Perithemis lais* (Perty, 1834) | BAR; MAO; SGC | 3; 2; 1; 98; 99; 91; 71; 103 |
| *Perithemis mooma* Kirby, 1889 | MAO | 3; 103 |
| *Perithemis thais* Kirby, 1889 | BAR; PRF; BEC | 3; 1; 81; 103 |
| *Rhodopygia cardinalis* (Erichson in Schomburgk, 1848) | MAO | 1; 68; |
| *Rhodopygia geijskesi* Belle, 1964 | MAO; SAI | 9; 68 |
| *Rhodopygia hollandi* Calvert, 1907 | AMZ | 1 |
| *Tauriphila australis* (Hagen, 1867) | MAO | 3; 98; 103 |
| *Tholymis citrina* Hagen, 1867 | BAR; ITA; MAO; NRP; PRF; MNE | 3; 95; 103 |
| *Tramea binotata* (Rambur, 1842) | BAR | 3; 103 |
| *Tramea calverti* Muttkowski, 1910 | RPE; ITA; PRF; MAO; TEF | 3; 95; 2; 1; 99; 21; 22; 103 |
| *Tramea minuta* De Marmels & Rácenis, 1982 | BAR; SPO | 3; 2; 1; 22; 103 |
| *Tramea rustica* De Marmels & Rácenis, 1982 | MAO | 2; 22 |
| *Uracis fastigiata* (Burmeister, 1839) | PRF; SPO; MAO; MNE; JUR; GJR; EIR; BEC; TAB | 3; 1; 98; 99; 70; 17; 103 |
| *Uracis imbuta* (Burmeister, 1839) | MAO; NRP; CAR; ATA; MNE; SPO; BEC; TAB; SGC | 3; 95; 1; 98; 99; 57; 70; 17; 103 |
| *Uracis infumata* (Rambur, 1842) | PRF; MAO; SPO; EIR | 3; 1; 17; 103 |
| *Uracis ovipositrix* Calvert, 1909 | NAI; MAO; SPO; MNE; SGC | 3; 95; 1; 98; 99; 70; 17; 103 |
| *Uracis siemensi* Kirby, 1897 | PRF; BAR; MAO; NRP; PAR; MNE; EIR; SPO | 3; 95; 1; 99; 17; 103 |
| *Zenithoptera anceps* Pujol-Luz, 1993 | MAO; ITA | 2; 69 |
| *Zenithoptera fasciata* (Linnaeus, 1758) | MPU; PRF; MAO; BOR; ITA; PAR | 3; 2; 57; 95; 69; 102; 103 |
| *Zenithoptera lanei* Santos, 1941 | NAI; PRF; ITA; MAO; TAB | 3; 2; 98; 69; 103 |
| *Zenithoptera viola* Ris, 1910 | ITA | 95; 2 |

*Diastatops intensa* Montgomery, 1940 and *Diastatops dimidiata* Montgomery, 1940 were registered for the floodplains of the Solimões-Amazonas rivers by Nessimian et al. (2008). Although most of their sampled sites were in the Amazonas state, there are some sites in Pará state as well, and authors do not present a detailed list of where each species was found.

Despite the significant increase in the number of species known from Amazonas, some regions remain poorly explored, such as municipalities in the southwest region of the state. Besides Guajará (code number 10) and Eirunepé (code number 12), there are no published species records from municipalities located on the border with Acre state. In addition, large municipalities also appear to be under-sampled. For example, São Gabriel da Cachoeira, the third largest municipality in Brazil (109,181 km²; IBGE 2019) with an area larger than Portugal, only has 20 recorded species. In this way, we suggest that new field expeditions should focus on such large municipalities and the 29 municipalities that presented no specimen records in our survey.

In general, knowledge about the Odonata order in Amazonas state has improved, especially in the last two decades. However, limitations on sampling still underestimate the number of odonates species, both for new species and new records. Therefore, this work recognizes the importance of the biological diversity in Amazonas state and the Amazonian Biome for species richness of Brazil and shows that we still do not entirely know the odonatofauna in the world's largest tropical forest.

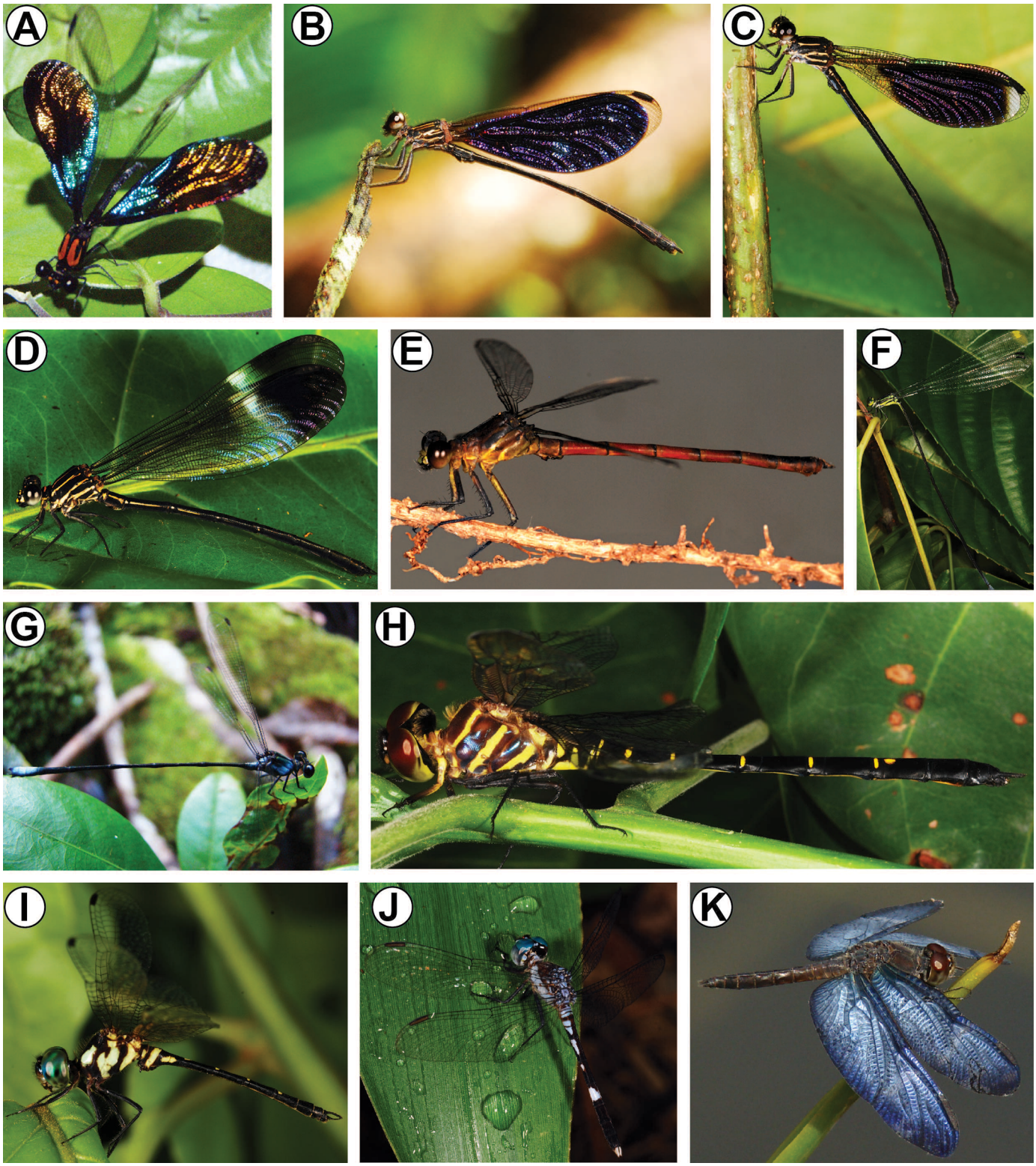


**Figure 2.** Some Odonata species recorded in Amazonas State, Brazil. A, *Chalcopteryx rutilans* (Rambur 1842); B, *Chalcopteryx scintillans* McLachlan, 1870; C, *Chalcopteryx seabrai* Santos & Machado, 1961; D, *Polythore vittata* (Selys, 1869); E, *Rimanella arcana* (Needham, 1933); F, *Mecistogaster linearis (*Fabricius, 1777); G, *Dimeragrion percubitale* Calvert, 1913; H, *Aeschnosoma hamadae* Fleck & Neiss, 2012; I, *Elga leptostyla* Ris, 1911; J, *Erythrodiplax anatoidea* Borror, 1942; K, *Zenithoptera lanei* Santos, 1941.


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## Author Contributions

Ricardo Koroiva: Contribution to data collection and manuscript preparation; Substantial contribution in the concept and design of the study; Contribution to critical revision, adding intellectual content.

Ulisses Gaspar Neiss: Contribution to data collection and manuscript preparation; Substantial contribution in the concept and design of the study; Contribution to critical revision, adding intellectual content.

Günther Fleck: Contribution to manuscript preparation; Contribution to critical revision, adding intellectual content.

Neusa Hamada: Contribution to data collection and manuscript preparation; Contribution to critical revision, adding intellectual content.

## Conflicts of Interest

The authors declare that they have no conflict of interest related to the publication of this manuscript.

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