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Monograph

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A world checklist of extant and extinct species of Megaloptera (Insecta: Neuropterida)

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Abstract. A global synonymical checklist of the species and higher taxa of the insect order Megaloptera is provided. The checklist includes both extant and extinct taxa, and recognizes 2 families, 4 subfamilies, 48 genera, 425 species, and 6 subspecies. Both families (Corydalidae and Sialidae), and three of the four subfamilies (Corydalinae, Chauliodinae, and Sialinae) are known from both extant and extinct species; the Sharasialinae (Sialidae) is entirely extinct. Country-level geographic distribution data are provided for all species and subspecies. Synoptic type data are provided for taxa in the family and genus groups. Summary data are given for the numbers of megalopteran species currently known to occur in each of the major biogeographical regions of the world, and for the world fauna. Increase of knowledge about the diversity of the world Megaloptera fauna is summarized in counts of valid species described per decade and in a global taxonomic description curve. An updated set of keys to the world families, subfamilies, and genera of the Megaloptera is also provided.

Keywords. Alderflies, dobsonflies, fishflies, biodiversity, taxonomy.

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Introduction

Megaloptera Latreille, 1802 – commonly known in English as dobsonflies, fishflies, and alderflies – is a low-diversity but widespread group of holometabolous insects with terrestrial adults and predaceous aquatic larvae. Eggs of Megaloptera are oviposited in masses that are typically deposited on tree trunks, leaves, rocks and other surfaces near or over freshwater. The masses can contain up to several thousand eggs – especially in Corydalidae Leach in Brewster, 1815, and may be uncovered and one-layered (Sialidae Leach in Brewster, 1815), or covered with a white or yellowish substance and multi-layered (Corydalidae Leach in Brewster, 1815) (New & Theischinger 1993; Rasmussen & Pescador 2002; Bentes *et al*. 2014; Ardila-Camacho & Contreras-Ramos 2018a). Megaloptera larvae range in size from small (0.8–12 mm body length – Sialidae) to large (20–90 mm body length – Corydalidae), and are generalist predators predominantly associated with perennial or (less commonly) intermittent lotic habitats, but some also inhabit lentic environments. The larvae are characterized by a dorsoventrally flattened body with 7–8 pairs of lateral abdominal filaments, a well-developed head capsule with six stemmata (per side), large chewing mouthparts, and short antennae. Adult megalopterans range from small to very large (7–100 mm forewing length), with an enlarged hind wing anal area and a prognathous head (New & Theischinger 1993; Contreras-Ramos & Harris 1998; Beutel & Friedrich 2008; Liu *et al*. 2015b, 2015c, 2016; Ardila-Camacho & Contreras-Ramos 2018a). Because of the impressive size of their larger species, megalopterans have attracted the attention of entomologists since the early days of scientific entomology in the 18th century. Nowadays, megalopterans have continued to attract attention as aquatic insects that generally inhabit clean freshwaters, and are often useful as indicator species for environmental impact studies (Bowles & Contreras-Ramos 2019).

Megalopterans (Fig. 1) belong to an ancient neuropteroid lineage of the holometabolous insects (Theischinger 1991), with its oldest known fossils dating back to the Early Jurassic of Europe, †*Dobbertinia reticulata* Handlirsch in Schröder, 1920 (Sialidae: Sialinae) and †*Nematophlebia plicata* Cockerell, 1915 (Family incertae sedis). Recent time-calibrated phylogenies suggest that the ancestors of the Megaloptera comprised a lineage distinct from other extant insect orders prior to the end of the Permian period (ca 250 Ma), and that among extant insect orders the Megaloptera form the sister group to the Neuroptera (Misoft *et al*. 2014; Y. Wang *et al*. 2017; Winterton *et al*. 2018; Vasilikopoulos *et al*. 2020). The monophyly of crown-group Megaloptera is widely accepted and supported by both morphological and molecular phylogenetic analyses (Y. Wang *et al*. 2017; Winterton *et al*. 2018; Vasilikopoulos *et al*. 2020). Some of the proposed morphological synapomorphies of Megaloptera include: a special sensillum on the antepenultimate larval antennomere, the presence of lateral abdominal filaments in all larval stages, absence of the male gonapophyses 9, absence of the male hypandrium internum, and the paired female ectoprocts (Hennig 1981; Ax 2000; Aspöck & Aspöck 2008; Beutel & Friedrich 2008; Beutel *et al*. 2014; Liu *et al*. 2016).

The episodic publication of comprehensive global checklists like the current work is a vital and enabling step for the continued advancement of biodiversity research on individual higher taxa, and provides important faunistic data to support ecological assessments at local and regional scales (Ohl 2004). In the last two decades when the taxonomic studies of Megaloptera were rapidly increasing, a notable earlier world checklist of Megaloptera was provided by Yang & Liu (2010), and a world catalogue of Sialidae was presented in Liu *et al*. (2015d), although further updates are needed at present. In the current work, we recognize a total of 425 megalopteran species (400 extant, 25 extinct; also 6 extant subspecies) and 47 genera (28 extant only, 13 extinct only, and 6 with both extant and extinct species), which are placed in two families and four subfamilies (Corydalidae: Corydalinae and Chauliodinae; Sialidae: Sialinae and †Sharasialinae) (Fig. 1). Relatively recent reviews of the general biology and/or higher-level systematics of the Megaloptera on a global scale are available in New & Theischinger (1993), Cover & Resh (2008), Liu *et al*. (2012b, 2016), Oswald & Machado (2018), Liu (2019a) and Jiang *et al*. (2021). Much of the remaining literatures on the group focused on the systematics of more restricted taxa, typically genera or intrageneric species groups (Hazard 1960; Flint 1964, 1965; Penny & Flint 1982; Glorioso & Flint 1984; Contreras-Ramos 1995, 1997, 1998; Liu & D. Yang 2004, 2005a, 2005b, 2005c, 2005d, 2006a, 2006b, 2006c, 2006d, 2006e, 2006f, 2006g, 2006h, 2007; Liu *et al*. 2005, 2006, 2007a, 2007b, 2007c, 2007d, 2008a, 2008b, 2008c, 2008d, 2009a, 2009b, 2009c, 2010a, 2010b, 2010c, 2010d, 2011a, 2011b, 2011c, 2012a, 2012b, 2013a, 2013b, 2013c, 2013d, 2015a, 2015b, 2015c, 2015d, 2015e, 2015f; Price *et al*. 2012; Jiang *et al*. 2020), or on regional geographic faunas (Davis 1903; Ross 1937; Banks 1943; Flint 1970, 1973, 1992, 2008; Evans 1972; Penny 1981, 1982; Theischinger 1983, 1999; Geijskes 1984; Hayashi & Suda 1995; Contreras-Ramos 1997, 1999, 2002, 2004, 2008; Rasmussen & Pescador 2002; Azevêdo & Hamada 2008, 2014; Thouvenot 2008; Letardi *et al*. 2012; Jung & Bae 2012; Hamada & Azevêdo 2012; Contreras-Ramos & Rosas 2013; Monserrat 2014; Bowles & Sites 2015; Liu *et al*. 2015c; Sarmiento-Cordero *et al*. 2015; Ardila-Camacho & Contreras-Ramos 2018a, 2018b; Martins 2019; Liu 2019b, and others).

To further enhance the usefulness of this work we have included an updated suite of keys to the higher taxa of world Megaloptera down to genus (for adults) or subfamily (for larvae). We also provide summary data on the distribution of megalopteran diversity at the broad level of biogeographic region, and historical data on the decadal rate of description of valid megalopteran species, including a global taxonomic description curve for the order.

Material and methods

This work follows the terminology of Liu *et al*. (2016) for terminalic structures, i.e., for males: tergite 9, sternite 9, gonocoxites 9, gonostyli 9, ectoproct, gonocoxites 10, gonostyli 10, and gonocoxites 11; and for females: gonocoxites 8, gonapophyses 8, gonocoxites 9, gonostyli 9, and ectoproct.

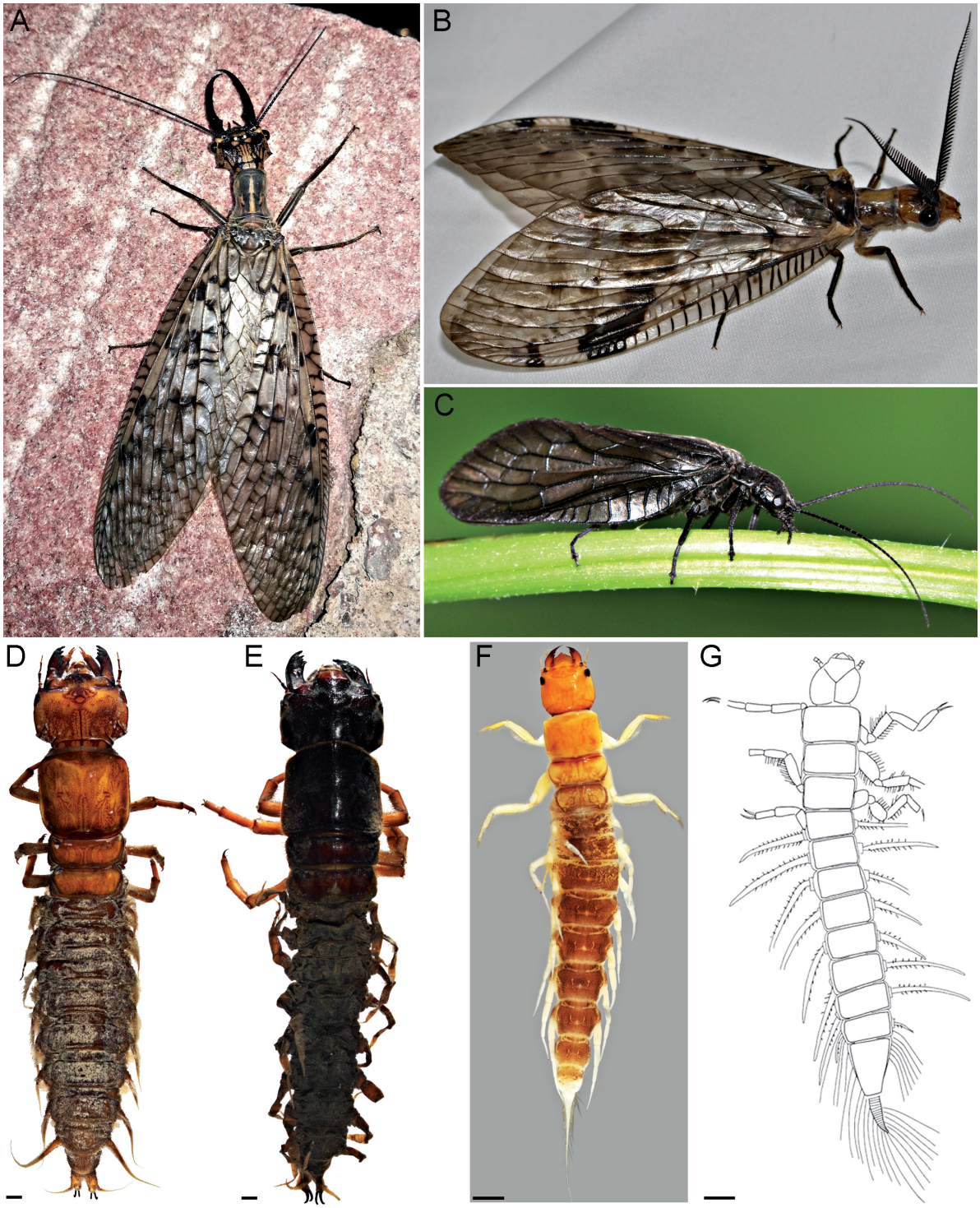

Fig. 1. Representative habitus illustrations of megalopteran families and subfamilies. **A–C**. Adults. **A**. *Acantha-corydalis orientalis* (McLachlan, 1899) (Corydalidae: Corydalinae). **B**. *Neochauliodes fraternus* (McLachlan, 1869) (Corydalidae: Chauliodinae). **C**. *Sialis sibirica* McLachlan, 1872 (Sialidae: Sialinae). **D–G**. Larvae. **D**. *Corydalus luteus* (Hagen, 1861) (Corydalidae: Corydalinae). **E**. *Orohermes crepusculus* (Chandler, 1954) (Corydalidae: Chauliodinae). **F**. *Sialis* sp. (Sialidae: Sialinae). **G**. †*Sharasialis fusiformis* Ponomarenko, 2012 (Sialidae: †Sharasialinae) (after Ponomarenko 2012). Scale bars = 1 mm. Photos A–C by ©Xingyue Liu; D–F by ©Caleb C. Martins.

Wing venation terminology follows Breitkreuz *et al.* (2017): A = anal veins; C = costa; Cu = cubitus; CuA = cubitus anterior; CuP = cubitus posterior; M = media; MA = media anterior; MP = media posterior; R = radius; RA = radius anterior; RP = radius posterior; Sc = subcosta.

The taxonomic and nomenclatural content of this fixed checklist is based primarily on the Megaloptera sections of the Catalogue of Life (Oswald 2018) and the Neuropterida Species of the World (Oswald 2021a, 2021b), together with the previous checklists of Yang & Liu (2010; Megaloptera) and Liu *et al*. (2015d; Sialidae), and contains information from relevant literature available through mid-2021.

Results

Keys to Megaloptera families, subfamilies and genera

Keys for the identification of the higher taxa of Megaloptera down to genus (for adults) or subfamily (for larvae) are presented below. Both extant and extinct taxa are included in the keys. Names for taxa that contain only extinct species known from pre-Holocene fossils are preceded by a dagger (†); names for taxa that contain both extant and extinct species are followed by "(+†)"; names for taxa that contain only extant species are unannotated.

Key 1: World families and subfamilies of Megaloptera (adult males & females)

(after New & Theischinger 1993; New 2004; adults of †Sharasialinae are unknown)

1. Forewing: length >17 mm (large species); RP many-branched (≥3 main branches) (New & Theischinger 1993: fig. 11) ..... 2 (Corydalidae)
– Forewing: length <17 mm (small species); RP few-branched (≤2 main branches) (New & Theischinger 1993: fig. 17) ..... **Sialidae: Sialinae** (+†) (cosmopolitan; Key 5)

2. Head: subquadrate, postocular ridge and spine present (New & Theischinger 1993: fig. 13); male abdomen: segment IX with well-developed gonostylus (Liu *et al*. 2016: fig. 2) .... **Corydalinae** (+†) (subcosmopolitan, not Australian; Key 3)
– Head: subtriangular, postocular ridge and spine absent (New & Theischinger 1993: figs 1b-c); male abdomen: segment IX without gonostylus (Liu *et al*. 2016: fig. 5) ....**Chauliodinae** (+†) (cosmopolitan; Key 4)

Key 2: World families and subfamilies of Megaloptera (larvae)

(after Ardila-Camacho & Contreras-Ramos 2018a)

1. Abdomen: segment 10 bearing 1 long terminal filament (Ardila-Camacho & Contreras-Ramos 2018a: fig. 8.3) .....2 (Sialidae)
– Abdomen: segment 10 bearing 2 clawed prolegs (Ardila-Camacho & Contreras-Ramos 2018a: fig. 8.4–8.5) ..... 3 (Corydalidae)

2. Abdomen: segment 8 without a pair of lateral filaments (Ardila-Camacho & Contreras-Ramos 2018a: fig. 8.3) ..... **Sialinae** (+†) (worldwide)
– Abdomen: segment 8 with a pair of lateral filaments (Ponomarenko 2012: fig. 1a) .... **†Sharasialinae** (†*Sharasialis***)** (Mongolia)

3. Abdomen: ventrolateral gill tufts present on most segments (Ardila-Camacho & Contreras-Ramos 2018a: fig. 8.3e) .....**Corydalinae** (+†) (worldwide except Australian region)
– Abdomen: ventrolateral gill tufts absent (Ardila-Camacho & Contreras-Ramos 2018a: fig. 8.7) ....**Chauliodinae** (+†) (worldwide)

Key 3: World genera of Corydalidae: Corydalinae (adult males & females)

(after Glorioso 1981; adults of †*Corydalites* Scudder, 1878 are unknown)

1. Wings: MP simple (Glorioso 1981: figs 14–15); male abdomen: gonostylus 10 digitiform (Liu *et al*. 2016: fig. 2b) 2
– Wings: MP branched (Glorioso 1981: fig. 17); male abdomen: gonostylus 10 papiliform (Liu *et al*. 2016: fig. 2e, h) or strongly associated with gonocoxite 10 (Liu *et al*. 2016: fig. 3f) 4

2. Head: postocular ridge with spine well developed (Glorioso 1981: figs 62–63); forewing: CuA 3–5-branched (Glorioso 1981: figs 14–15); male abdomen: gonostylus 9 articulated with 9th tergite (Glorioso 1981: fig. 29) 3
– Head: postocular ridge with spine poorly developed (Penny 1993: fig. 1); forewing: CuA 2-branched (Penny 1993: fig. 1); male abdomen: gonostylus 9 not articulated with 9th tergite (Liu *et al*. 2016: fig. 2b) ..... ***Chloroniella*** Esben-Petersen, 1924 (South Africa)

3. Body: generally brightly colored (especially yellow) (Ardila-Camacho & Contreras-Ramos 2018b: fig. 1b–c); head: male mandible never elongate (Glorioso 1981: fig. 62); forewing: RP with basalmost branch bifurcate (Glorioso 1981: fig. 14); CuA 3-branched (Glorioso 1981: fig. 14) ..... ***Chloronia*** Banks, 1908 (Mexico, Central and South America)
– Body: generally darkly colored (especially brown) (Ardila-Camacho & Contreras-Ramos 2018b: fig. 1f); head: male mandible usually elongate (Glorioso 1981: fig. 63); forewing: RP with basalmost branch simple (Glorioso 1981: fig. 15); CuA 4–5-branched (Glorioso 1981: fig. 15) ..... ***Corydalus*** Latreille, 1802 (+†) (New World, †Germany)

4. Head: male postocular ridge not explanate (Glorioso 1981: fig. 59); forewing: RA-RP space with > 3 crossveins (Glorioso 1981: fig. 17) 5
– Head: male postocular ridge explanate (Glorioso 1981: fig. 61); forewing: RA-RP space with 3 crossveins (Glorioso 1981: fig. 16) ..... ***Platyneuromus*** van der Weele, 1909 (Mexico, Central America)

5. Head: male antenna filiform or moniliform (Glorioso 1981: figs 59–60); forewing: A1 and A2 not fused, joined basally by a crossvein (1a1-a2; so 1A clearly 2-branched) (Glorioso 1981: figs 20–21); male abdomen: genital papilla absent (Liu *et al*. 2016: fig. 3b, e); female abdomen: gonapophysis 8 absent (Liu *et al*. 2016: fig. 12b) 6
– Head: male antenna subserrate (Glorioso 1981: figs 56–57); forewing: A1 and A2 fused basally for a short distance (giving the impression that 1A is 3-branched) (Glorioso 1981: figs 18–19); male abdomen: genital papilla present (a rugose membranous lobe beneath male gonocoxite 10) (Glorioso 1981: fig. 35); female abdomen: gonapophysis 8 present (Liu *et al*. 2016: fig. 11e–f) ..... ***Protohermes*** van der Weele, 1907 (East Asia, Southeast Asia and South Asia

6. Head: vertex lacking spines (Glorioso 1981: fig. 59); male mandible never elongate (Glorioso 1981: fig. 59); male abdomen: tergite 9 semiannular, not divided at midline into a pair of hemitergites (Liu *et al*. 2016: fig. 3a); sternite 9 without a posterolateral lobe (Liu *et al*. 2016: fig. 3b) 7
– Head: vertex bearing a pair of spines (Glorioso 1981: fig. 60); male mandible elongate (Glorioso 1981: fig. 60); male abdomen: tergite 9 divided at midline into a pair of hemitergites (Liu *et al*. 2016: fig. 4a); sternite 9 with a posterolateral lobe (Liu *et al*. 2016: fig. 4b) ..... ***Acanthacorydalis*** van der Weele, 1907 (East Asia, Southeast Asia and South Asia)

7. Head: labrum margin sparsely setose (Glorioso 1981: fig. 8); thorax: pronotum with lateral stripes (F. Yang *et al*. 2018: fig. 5d) or completely dark brown (F. Yang *et al*. 2018: fig. 5c); male abdomen: sternite 9 elongated posteromedially (Liu *et al*. 2016: fig. 3b); gonostylus 10 elongated, papiliform (Liu *et al*. 2016: fig. 3c) ..... ***Neoneuromus*** van der Weele, 1909 (East Asia, Southeast Asia and South Asia)
– Head: labrum margin more densely setose (Glorioso 1981: fig. 9); thorax: pronotum with two subrectangular lateral marks on each side (Liu *et al*., 2012a: fig. 2); male abdomen: sternite 9 not elongated posteromedially (Liu *et al*. 2016: fig. 3e); gonostylus 10 short, strongly associated with gonocoxite 10 (Liu *et al*. 2016: fig. 3f) ..... ***Nevromus*** Rambur, 1842 (East Asia, Southeast Asia and South Asia)

Key 4: World genera of Corydalidae: Chauliodinae (adult males & females)

(after Penny 1999; Liu *et al*. 2012b; Cardoso-Costa *et al*. 2013)

1. Forewing (and also hindwing): RP with basalmost branch bifurcate (Evans 1972: figs 50, 64); male abdomen: gonocoxite 9 not fused with gonocoxite 10 (Liu *et al*. 2016: fig. 8b–c) (unknown in fossil genera); female abdomen: ectoproct emarginate, bilobed posteriorly (Liu *et al*. 2016: fig. 15b) (unknown in fossil genera) 2
– Forewing (and also hindwing): RP with basalmost branch simple (Liu *et al*. 2014: figs 1–3); male abdomen: gonocoxite 9 fused with gonocoxite 10 (Liu *et al*. 2016: fig. 8e–f) (unknown in fossil genera); female abdomen: ectoproct entire, not bilobed posteriorly (Liu *et al*. 2016: fig. 15a, c) (unknown in fossil genera) 5

2. Forewing: ≤2 nygmata (Liu *et al*. 2012b: figs 1g, 2d); MA with > 1 branch (Liu *et al*. 2012b: figs 1g, 2d) 3
– Forewing: ≥5 nygmata (Evans 1972: fig. 64); MA simple (Evans 1972: fig. 64) 4

3. Forewing: RP 3-branched (Liu *et al*. 2012b: fig. 1g); MA 2-branched (Liu *et al*. 2012b: fig. 1g); hindwing: MA 2-branched (Liu *et al*. 2012b: fig. 1g); MP simple (Liu *et al*. 2012b: fig. 1g) ..... †***Eochauliodes*** Liu, Y. Wang, Shih, Ren & D. Yang, 2012 (China)
– Forewing: RP 5-branched (Liu *et al*. 2012b: fig. 2d); MA 3-branched (Liu *et al*. 2012b: fig. 2d); hindwing: MA 4-branched (Liu *et al*. 2012b: fig. 2d); MP 2-branched (Liu *et al*. 2012b: fig. 2d) .... †***Jurochauliodes*** B. Wang & Zhang, 2010 (China)

4. Hindwing: MP 2-branched (Evans 1972: fig. 50); male abdomen: ectoproct long, bilobed posteriorly (Liu *et al*. 2016: fig. 8c); female abdomen: spiracle 8 posteriorly placed, opening near posterior margin of tergite 8 (Evans 1972: fig. 56) ..... ***Dysmicohermes*** Munroe, 1953 (Canada, USA)
– Hindwing: MP simple (Evans 1972: fig. 64); male abdomen: ectoproct short, not bilobed posteriorly (Evans 1972: fig. 65); female abdomen: spiracle 8 anteriorly placed, opening near middle of tergite 8 (Evans 1972: fig. 67) ..... ***Orohermes*** Evans, 1984 (USA)

5. Hindwing: MA 2-branched (Flint 1983: fig. 1) 6
– Hindwing: MA simple (Liu *et al*. 2014: figs 1–3) 9

6. Hindwing: RP with second branch from base 2-branched (Tillyard 1926: fig. U1); male abdomen: gonocoxite 9 with small setae (Liu & Winterton 2016: fig. 4l, o) (unknown in fossil genus) 7
– Hindwing: RP with second branch from base simple (Flint 1983: fig. 1); male abdomen: gonocoxite 9 asetose (Flint 1983: fig. 4) ..... ***Nothochauliodes*** Flint, 1983 (Chile)

7. Hindwing: radiomedial area with three crossveins (Tillyard 1926: fig. U1); RP with >2 crossveins between its two basalmost branches (Tillyard 1926: fig. U1) 8
– Hindwing: radiomedial area with four crossveins (Ponomarenko 1980: fig. 43); RP with one crossvein between its two basalmost branches (Ponomarenko 1980: fig. 43) ....†***Cretochaulus*** Ponomarenko, 1976 (Russia)

8. Head: male antenna filiform, without whorls of prominently erect setae on each flagellomere; female flagellomeres subtrapezoidal; female abdomen: gonostylus 9 thick, robust (Flint 1973: fig. 26) ....***Protochauliodes*** van der Weele, 1909 (Canada, USA, Chile, Australia)
– Head: male antenna moniliform, with whorls of prominently erect setae on each flagellomere (Liu & Winterton 2016: fig. 1a); female flagellomeres ovoid; female abdomen: gonostylus 9 slender or absent (Liu & Winterton 2016: fig. 5a-c) .....***Neohermes*** Banks, 1908 (Mexico, USA)

9. Male abdomen: gonocoxite 9 with small setae (Liu *et al*. 2016: fig. 8e); genital papilla present (a rugose membranous lobe beneath male gonocoxite 10) (Liu *et al*. 2016: fig. 8h); female abdomen: gonostylus 9 present, conoidal (Liu *et al*. 2016: fig. 15a) 10
– Male abdomen: gonocoxite 9 asetose (Liu *et al*. 2016: fig. 5b); genital papilla absent (Liu *et al*. 2016: fig. 5e); female abdomen: gonostylus 9 absent (Liu *et al*. 2016: fig. 13c) or pulvinate (Liu *et al*. 2016: fig. 13b) 11

10. Forewing: A1 and A2 fused basally for a short distance (Liu *et al*. 2013d: fig. 1); male abdomen: sternite 9 rectangular in ventral view, apex as wide as base (Liu *et al*. 2016: fig. 8h); female abdomen: gonapophysis 8 present (Liu *et al*. 2016: fig. 15a) ....***Taeniochauliodes*** Esben-Petersen, 1924 (South Africa)
– Forewing: A1 and A2 not fused, joined basally by a crossvein (1a1-a2) (Liu *et al*. 2014: figs 1–3); male abdomen: sternite 9 trapezoidal in ventral view, apex narrower than base (Liu *et al*. 2016: fig. 8e); female abdomen: gonapophysis 8 absent (Liu *et al*. 2016: fig. 15c) ....***Madachauliodes*** Paulian, 1951 (Madagascar)

11. Forewing: crossvein 1a1-a2 arising from anterior branch of A2 (Bowles & Sites 2015: figs 48–49); male abdomen: ectoproct bearing claw-like setae on apex (Liu *et al*. 2016: fig. 5b–c) 12
– Forewing: crossvein 1a1-a2 arising from stem of A2 (Bowles & Sites 2015: figs 50–51); male abdomen: ectoproct lacking claw-like setae on apex (Liu *et al*. 2016: fig. 7b–c) 13

12. Forewing: A1 3- or 4-branched (Yang & Liu 2010: fig. 13a); male abdomen: gonocoxite 10 with median plate not bifurcate (Liu *et al*. 2016: fig. 5b) ....***Anachauliodes*** Kimmins, 1954 (China, India, Vietnam)
– Forewing: A1 2-branched (Bowles & Sites 2015: figs 48–49); male abdomen: gonocoxite 10 with median plate bifurcate (Liu *et al*. 2016: fig. 5e) ....***Chauliodes*** Latreille, 1796 (+†) (†Russia, Canada, USA)

13. Male abdomen: gonocoxite 10 with median plate not bifurcate (Liu *et al*. 2016: fig. 7h); female abdomen: tergite 9 height ca 2× height of tergite 8 in lateral view (Liu *et al*. 2016: fig. 13b); gonocoxite 8 subtriangular in ventral view 14
– Male abdomen: gonocoxite 10 with median plate bifurcate (Liu *et al*. 2016: fig. 7e); female abdomen: tergite 9 height ca 1–1.5× height of tergite 8 in lateral view (Liu *et al*. 2016: fig. 14a); gonocoxite 8 subquadrate in ventral view (Liu *et al*. 2016: fig. 14d) 17

14. Hindwing: crossvein 1rp-ma (sigmoid vein) connected to MP by a crossvein (Bowles & Sites 2015: figs 50–51); male abdomen: tergite 9 ca 3× as long as sternite 9 in lateral view (i.e., sternite 9 much shorter than tergite 9) (Liu *et al*. 2016: fig. 6f) 15
– Hindwing: crossvein 1rp-ma (sigmoid vein) not connected to MP by a crossvein (Cardoso-Costa *et al*. 2013: fig. 2); male abdomen: tergite 9 ca 1–1.5× as long as sternite 9 in lateral view (i.e., sternite 9 almost as long as tergite 9) (Liu *et al*. 2016: fig. 7i) ..... ***Puri*** Cardoso-Costa, Azevêdo & Ferreira, 2013 (Brazil)

15. Head: male antenna subserrate (Liu & Ansorge 2020: fig. 4e); forewing: RP with second and third branches from base straight (Bowles & Sites 2015: figs 50–51); 2A with both branches strongly curved (Bowles & Sites 2015: figs 50–51) 16
– Head: male antenna pectinate (Liu & Ansorge 2020: fig. 4b); forewing: RP with second and third branches from base strongly curved posteriorly (Liu & Ansorge 2020: fig. 4b); 2A with both branches weakly curved (Liu & Ansorge 2020: fig. 4b) ..... ***Neochauliodes*** van der Weele, 1909 (East Asia, Southeast Asia and South Asia)

16. Male abdomen: ectoproct without brush-like setae (Liu *et al*. 2016: fig. 6c); gonocoxite 11 present (Liu *et al*. 2016: fig. 6b); female abdomen: gonostylus 9 present (Liu *et al*. 2016: fig. 13b) ..... ***Nigronia*** Banks, 1908 (+†) (USA, Mexico, †Russia)
– Male abdomen: ectoproct with brush-like setae (Liu *et al*. 2016: fig. 6e); gonocoxite 11 absent (Liu *et al*. 2016: fig. 6f); female abdomen: gonostylus 9 absent (Liu *et al*. 2016: fig. 13d) ..... ***Parachauliodes*** van der Weele, 1909 (China, Japan, South Korea)

17. Head: male antenna not pectinate (Liu *et al*. 2011c: fig. 1); hindwing: crossvein 1rp-ma (sigmoid vein) not connected to MP by a crossvein (Theischinger 1999: fig. 7); male abdomen: ectoproct densely covered by spinous setae (Liu *et al*. 2016: fig. 7e); female abdomen: gonocoxites 8 fused, present as a single broad plate (Liu *et al*. 2016: fig. 14d) 18
– Head: male antenna pectinate (Liu & Ansorge 2020: fig. 4a); hindwing: crossvein 1rp-ma (sigmoid vein) connected to MP by a crossvein (Liu & Ansorge 2020: fig. 4a); male abdomen: ectoproct without spinous setae (Liu *et al*. 2016: fig. 7b–c); female abdomen: gonocoxites 8 free, present as a pair of separate plates (Liu *et al*. 2016: fig. 14b) ..... ***Ctenochauliodes*** van der Weele, 1909 (China, India, Myanmar, Vietnam, Thailand)

18. Forewing: CuA 2-branched (Liu *et al*. 2011c: figs 1–6); male abdomen: ectoproct without a ventral lobe (Liu *et al*. 2016: fig. 7d); female abdomen: gonostylus 9 absent (Liu *et al*. 2016: fig. 14c) 19
– Forewing: CuA simple (Theischinger 1999: fig. 7); male abdomen: ectoproct with a ventral lobe (Theischinger 1983: fig. 9); female abdomen: gonostylus 9 present (Theischinger 1983: fig. 12) .... ***Apochauliodes*** Theischinger, 1983 (Australia)

19. Male abdomen: sternite 9 with a membranous distal lobe (Theischinger 1983: figs 8–11); female abdomen: gonapophysis 8 large, plate-like ..... ***Archichauliodes*** van der Weele, 1909 (Chile, New Zealand, Australia)
– Male abdomen: sternite 9 without a membranous distal lobe (Theischinger 1983: figs 8–11); female abdomen: gonapophysis 8 narrow, subtriangular ..... ***Platychauliodes*** Esben-Petersen, 1924 (South Africa)

Key 5: World genera of Sialidae: Sialinae (adult males & females)

(after Liu *et al*. 2015d; Ardila-Camacho *et al*. 2021; adults of Sharasialinae [†*Sharasialis* Ponomarenko, 2012] are unknown)

1. Forewing: MA 2-branched (Liu *et al*. 2015d: fig. 8a-c) 2
– Forewing: MA simple (Liu *et al*. 2015d: fig. 8g–i) 6

2. Forewing: costal area weakly broadened proximally (maximum proximal width 1–1.5× width of distal costal area) (Liu *et al*. 2015d: fig. 8a–b); simple distal part of MA1 ca 0.8–1.5× length of simple distal part of MP1 (Liu *et al*. 2015d: fig. 8a–b) 3
– Forewing: costal area strongly broadened proximally (maximum proximal width ca 2× width of distal costal area) (Liu *et al*. 2015d: fig. 8l); simple distal part of MA1 ca 2× length of simple distal part of MP1 (Liu *et al*. 2015d: fig. 8l) ..... †***Proindosialis*** Nel, 1988 (France)

3. Forewing: ra-rp crossveins all more or less perpendicular to RA and RP (Liu *et al*. 2015d: fig. 8a, g); male abdomen: gonocoxite 10 present (as a weakly sclerotized lobe) (Liu *et al*. 2015d: fig. 9a–d) 4
– Forewing: 1–2 ra-rp crossveins inwardly oblique (i.e., proximal angle of crossvein with RA >> distal angle) (Liu *et al*. 2015d: fig. 8b–c); male abdomen: gonocoxite 10 absent (Liu *et al*. 2015d: figs 10a–d, 11a–d) 5

4. Forewing: medio-cubital space with 2 crossveins (Liu *et al*. 2015d: figs 1a, 8a); CuA 2-branched (Liu *et al*. 2015d: figs 1a, 8a) .....***Austrosialis*** Tillyard, 1919 (Australia)
– Forewing: medio-cubital space with 1 crossvein (Liu *et al*. 2015d: fig. 8j); CuA 3-branched (Liu *et al*. 2015d: fig. 8j) ..... †***Dobbertinia*** Handlirsch in Schröder, 1920 (Germany)

5. Forewing: costal space with proximal subcostal veinlets not strongly oblique (Liu *et al*. 2015d: fig. 8b); male abdomen: tergite 9 without a digitiform posteroventral process (Liu *et al*. 2015d: fig. 10c); female abdomen: gonocoxites 8 fused, present as a single sclerite (Liu *et al*. 2015d: fig. 10f) .....***Stenosialis*** Tillyard, 1919 (Australia)
– Forewing: costal space with (most) proximal subcostal veinlets strongly oblique (Liu *et al*. 2015d: fig. 8c); male abdomen: tergite 9 with a digitiform posteroventral process (Liu *et al*. 2015d: fig. 11c); female abdomen: gonocoxites 8 free, present as a pair of sclerites (Liu *et al*. 2015d: fig. 11f) .... ***Leptosialis*** Esben-Petersen, 1920 part (*L. necopinata*) (South Africa)

6. Forewing (and also hindwing): RP 4-branched (Liu *et al*. 2015d: fig. 8e, g); male abdomen: gonocoxites 9 widely separated (Liu *et al*. 2015d: fig. 16b, d) 7
– Forewing (and also hindwing): RP ≥5-branched (Liu *et al*. 2015d: fig. 18h–i); male abdomen: gonocoxites 9 closely adjacent medially (Liu *et al*. 2015d: fig. 18h, l) ....***Sialis*** Latreille, 1802 (+†) (Asia, †Europe and North America)

7. Forewing: MP simple (Liu *et al*. 2015d: figs 1c, 8e) 8
– Forewing: MP 2-branched (Liu *et al*. 2015d: fig. 8f–g) 10

8. Wings: RP with basalmost branch bifurcate (Liu *et al*. 2015d: fig. 8e–f) 9
– Wings: RP with basalmost branch simple (Liu *et al*. 2015d: fig. 1c) .... ***Leptosialis*** Esben-Petersen, 1920 part (*L. africana*) (South Africa)

9. Hindwing: MA-MP space with 2 crossveins (Liu *et al*. 2015d: fig. 8e); male abdomen: sternite 9 without an elongate median lobe (Liu *et al*. 2015d: fig. 13b–c) ....***Indosialis*** Lestage, 1927 (+†) (East Asia, Southeast Asia and South Asia, †Turkey)
– Hindwing: MA-MP space with 1 crossvein (Liu *et al*. 2015d: fig. 8k); male abdomen: sternite 9 with an elongate median lobe (Nel *et al*. 2002: fig. 5) .... †***Eosialis*** Nel, Menier, De Ploëg, Hodebert & Danvin, 2002 (France)

10. Male abdomen: gonostylus 9 absent (Liu *et al*. 2015d: fig. 14c–d); female abdomen: gonocoxite 8 without longitudinal median incision (Liu *et al*. 2015d: fig. 15d) 11
– Male abdomen: gonostylus 9 present (Ardila-Camacho *et al*. 2021: figs 3–5); female abdomen: gonocoxite 8 with longitudinal median incision (Ardila-Camacho *et al*. 2021: fig. 6c–d) ....***Caribesialis*** Ardila-Camacho, Martins & Contreras-Ramos, 2021 (Cuba)

11. Male abdomen: gonocoxite 9 large, not subtriangular (Liu *et al*. 2015d: fig. 14c); ectoprocts free (Liu *et al*. 2015d: fig. 14c–d); female abdomen: tergite 9 in lateral view with posterodorsal margin not projected, dorsal region planar (Liu *et al*. 2015d: fig. 15c) 12
– Male abdomen: gonocoxite 9 small, subtriangular (Liu *et al*. 2015d: fig. 16c); ectoprocts fused sagittally and closely surrounding anus (Liu *et al*. 2015d: fig. 16c–d); female abdomen: tergite 9 in lateral view with posterodorsal margin projected, generating a dorsal convex curvature (Liu *et al*. 2015d: fig. 16e) .....***Protosialis*** van der Weele, 1909 (USA)

12. Forewing: crossvein 1r-m arising from MA (generally near its base) (Liu *et al*. 2015d: fig. 8f); base of CuP clearly distant from base of A1 (Liu *et al*. 2015d: fig. 8e); male abdomen: median process of gonocoxite 11 directed posteroventrad (Liu *et al*. 2015d: fig. 14c–d) 13
– Forewing: crossvein 1r-m arising from stem of M (Liu *et al*. 2015d: fig. 8d); base of CuP very close to base of A1 (Liu *et al*. 2015d: fig. 8d); male abdomen: median process of gonocoxite 11 directed posterodorsad (Liu *et al*. 2015d: fig. 12c–d) .....***Haplosialis*** Navás, 1927 (Madagascar)

13. Forewing: subcostal veinlets absent in pterostigma region (Huang *et al*. 2016: fig. 2a); crossvein 1a2-a3 absent (Huang *et al*. 2016: fig. 2a); male abdomen: ectoproct with a slender, weakly sclerotized projection (Huang *et al*. 2016: fig. 2b) .... †***Haplosialodes*** Huang, Azar, Engel, Cai, Garrouste & Nel, 2016 (Myanmar)
– Forewing: subcostal veinlets present in pterostigma region (Liu *et al*. 2015d: fig. 8f); crossvein 1a2-a3 present (Liu *et al*. 2015d: fig. 8f); male abdomen: ectoproct without a slender, weakly sclerotized projection (Liu *et al*. 2015d: fig. 14c) .... ***Ilyobius*** Enderlein, 1910 (+†) (Mexico, Central and South America)

Checklist of Megaloptera species and subspecies

Checklist entries are formatted as follows. All entries for valid taxa are arranged alphabetically within the next-higher valid taxon. All valid taxon entries include the scientific name of the taxon, followed by its author(s) and date. Entries for family- and genus-group taxa contain citations to the page on which the name was established, and information on associated nomenclatural types (including designation kind).

Each species entry includes the currently recognized valid combination, followed by a list of all known synonymous invalid combinations (if any). Invalid synonyms are listed in approximately the chronological order in which they appeared in the literature. Species-level distribution data are reported by biogeographic region(s) and country(ies); uncertain records are flagged with a question mark (?). Chronostratigraphic ages for extinct species are reported in standard International Commission on Stratigraphy units (Gradstein *et al*. 2020).

Class Insecta Linnaeus, 1758
Subclass Pterygota Lang, 1888
Infraclass Neoptera Martynov, 1923
Superorder Neuropterida Boudreaux, 1979
Order Megaloptera Latreille, 1802

Family **Corydalidae** Leach in Brewster, 1815

Corydalidae Leach in Brewster, 1815: 138 (as Corydalida) [type genus: *Corydalus* Latreille, 1802: 290].
— Newman, 1853: ccii [= 202] (as Corydalidae).

Subfamily **Corydalinae** Leach in Brewster, 1815

Corydalinae Leach in Brewster, 1815: 138 (as Corydalida) [type genus: *Corydalus* Latreille, 1802: 290].
— Davis 1903: 452 (as Corydalinae).
Nevrominae van der Weele, 1909: 250 (as Neurominae) [type genus: *Nevromus* Rambur, 1842: 441].
Doeringiini Navás, 1925b: 210 (as Doeringini) [type genus: *Doeringia* Navás, 1925b: 207].
Hermini Banks, 1940: 179 (as Hermesini) [type genus: *Hermes* Gray in Cuvier, 1832: 332].

Genus ***Acanthacorydalis*** van der Weele, 1907

Acanthacorydalis van der Weele, 1907: 228. Type species. *Corydalis asiatica* Wood-Mason, 1884: 110 (by subsequent designation by Glorioso 1981: 281).

Included species

Acanthacorydalis asiatica (Wood-Mason, 1884)
Corydalis asiatica Wood-Mason, 1884

Oriental (China, India, Myanmar, Thailand).

Acanthacorydalis fruhstorferi van der Weele, 1907

Oriental (China, Vietnam).

Acanthacorydalis horrenda Navás, 1931

Oriental (India).

Acanthacorydalis imperatrix Navás, 1917a

Oriental (Laos, Vietnam).

Acanthacorydalis orientalis (McLachlan, 1899)
Corydalis orientalis McLachlan, 1899
Acanthacorydalis kolbei van der Weele, 1907

Palaearctic (China); Oriental (China).

Acanthacorydalis sinensis C.-K. Yang & D. Yang, 1986

Oriental (China).

Acanthacorydalis unimaculata C.-K. Yang & D. Yang, 1986

Oriental (China, Vietnam (?)).

Acanthacorydalis yunnanensis C.-K. Yang & D. Yang, 1988

Oriental (China).

Genus ***Chloronia*** Banks, 1908

Chloronia Banks, 1908: 30 (as subgenus of *Nevromus* Rambur, 1842). Type species. *Hermes corripiens* Walker, 1860: 180 (by subsequent designation by van der Weele 1909: 252).

Included species

Chloronia absona Flint, 1992

Neotropical (Costa Rica).

Chloronia antilliensis Flint, 1970

Neotropical (Dominica, Guadeloupe (?)).

Chloronia banksiana Penny & Flint, 1982

Neotropical (Venezuela).

Chloronia bogotana van der Weele, 1909

Neotropical (Colombia, Bolivia (?), Ecuador (?), Peru (?), Venezuela (?)).

Chloronia convergens Contreras-Ramos, 1995

Neotropical (Ecuador).

Chloronia corripiens (Walker, 1860)
Hermes corripiens Walker, 1860
Corydalis livida Hagen, 1861 (unavailable)
Nevromus corripiens (Walker, 1860)
Nevromus winthemi Davis, 1903
Nevromus (*Chloronia*) *corripiens* (Walker, 1860)
Chloronia meridionalis van der Weele, 1909
Chloronia winthemi (Davis, 1903)
Chloronia ocellaris Navás, 1934a

Neotropical (Brazil).

Chloronia gaianii Contreras-Ramos, 2002

Neotropical (Venezuela).

Chloronia gloriosoi Penny & Flint, 1982

Neotropical (Colombia, Costa Rica, Nicaragua, Panama).

Chloronia hieroglyphica (Rambur, 1842)
Nevromus hieroglyphicus Rambur, 1842
Hermes hieroglyphicus (Rambur, 1842)
Corydalus hieroglyphicus (Rambur, 1842)
Nevromus (*Chloronia*) *hieroglyphicus* Rambur, 1842
Corydalis hieroglyphica (Rambur, 1842)

Neotropical (Argentina (?), Brazil, French Guiana, Guyana, Panama (?), Peru, Venezuela).

Chloronia marthae Contreras-Ramos, 2002

Neotropical (Colombia, Venezuela).

Chloronia mexicana Stitz, 1914

Nearctic (Mexico); Neotropical (Costa Rica, Honduras, Guatemala, Mexico).

Chloronia mirifica Navás, 1925a
Chloronia hieratica Navás, 1928a

Neotropical (Brazil, Colombia, Costa Rica, Ecuador, Honduras, Guatemala, Mexico, Panama, Peru, Venezuela).

Chloronia osae Flint, 1992

Neotropical (Costa Rica).

Chloronia pallida (Davis, 1903)
Nevromus pallidus Davis, 1903
Corydalis cornuta f. *pallida* (Davis, 1903)
Corydalus pallidus (Davis, 1903)

Neotropical (Mexico).

Chloronia pennyi Contreras-Ramos, 2000

Neotropical (Brazil).

Chloronia plaumanni Penny & Flint, 1982

Neotropical (Brazil).

Chloronia yungas Contreras-Ramos, 2006a

Neotropical (Bolivia, Peru).

Chloronia zacapa Contreras-Ramos, 1995

Neotropical (Guatemala, Honduras, Nicaragua).

Genus ***Chloroniella*** Esben-Petersen, 1924

Chloroniella Esben-Petersen, 1924: 151. Type species. *Chloroniella peringueyi* Esben-Petersen, 1924: 152 (by original designation).

Included species

Chloroniella peringueyi Esben-Petersen, 1924

Afrotropical (South Africa).

Genus †***Corydalites*** Scudder, 1878

†*Corydalites* Scudder, 1878: 537. Type species. †*Corydalites fecundum* Scudder, 1878: 537 (by monotypy).

Included species

†*Corydalites fecundum* Scudder, 1878

Nearctic (USA); Paleartic (France) [Late Cretaceous].

Genus ***Corydalus*** Latreille, 1802

Corydalus Latreille, 1802: 290. Type species. *Hemerobius cornutus* Linnaeus, 1758: 551 (by monotypy).
Corydalis Latreille, 1805: 44 (an unavailable incorrect subsequent spelling of *Corydalus* Latreille, 1802).
Corydalis Latreille, 1807: 199 (an available unjustified emendation of *Corydalus* Latreille, 1802).
Corydalium Oken, 1815: 856 (an unavailable incorrect subsequent spelling of *Corydalus* Latreille, 1802) (see Oswald & Penny 1991: 61).
Corydalia Billberg, 1820: 95 (an available unjustified emendation of *Corydalus* Latreille, 1802) (see Oswald & Penny 1991: 61).

Included species

Corydalus affinis (Burmeister, 1839)
Corydalis affinis Burmeister, 1839
Corydalis ancilla Hagen, 1861 (unavailable)
Corydalus ancillus (Hagen, 1861) (unavailable)

Neotropical (Argentina, Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Venezuela).

Corydalus amazonas Contreras-Ramos, 1998

Neotropical (Brazil).

Corydalus armatus (Hagen, 1861)
Corydalis armata Hagen, 1861
Corydalus quadrispinosus Stitz, 1914

Neotropical (Argentina, Bolivia, Brazil, Colombia, Ecuador, Peru, Venezuela).

Corydalus arpi Navás, 1936a

Neotropical (Brazil, Venezuela).

Corydalus australis Contreras-Ramos, 1998

Neotropical (Argentina, Brazil, Uruguay).

Corydalus batesii (McLachlan, 1867)
Corydalis batesii McLachlan, 1867

Neotropical (Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, Venezuela).

Corydalus bidenticulatus Contreras-Ramos, 1998

Nearctic (USA); Neotropical (Honduras, Mexico).

Corydalus cephalotes (Rambur, 1842)
Corydalis cephalotes Rambur, 1842

Nevromus cephalotes (Rambur, 1842)
Corydalus intricatus Navás, 1921

Neotropical (Brazil).

Corydalus clauseni Contreras-Ramos, 1998

Neotropical (Colombia, Costa Rica, Ecuador).

Corydalus clavijoi Contreras-Ramos, 2002

Neotropical (Venezuela).

Corydalus colombianus Contreras-Ramos, 1998

Neotropical (Colombia).

Corydalus cornutus (Linnaeus, 1758)
Hemerobius cornutus Linnaeus, 1758
Raphidia cornuta (Linnaeus, 1758)
Corydalis cornuta (Linnaeus, 1758)
Corydalis cognata Hagen, 1861
Corydalis cornuta f. *cognata* Hagen, 1861
Corydalus cognatus (Hagen, 1861)
Corydalus cornutus f. *cognatus* (Hagen, 1861)
Corydalus cornutus var. *cognatus* (Hagen, 1861)

Nearctic (Canada, USA).

Corydalus crossi Contreras-Ramos, 2002

Neotropical (Venezuela).

Corydalus diasi Navás, 1915a
Corydalis armigera Hagen, 1861 (unavailable)
Corydalis vetula Hagen, 1861 (unavailable)
Corydalus armigerus (Hagen, 1861) (unavailable)
Corydalus vetulus (Hagen, 1861) (unavailable)
Corydalus finoti Navás, 1921
Chauliodes finoti (Navás, 1921)

Neotropical (Argentina, Brazil, Paraguay).

Corydalus ecuadorianus Banks, 1948

Neotropical (Ecuador).

Corydalus flavicornis Stitz, 1914
Corydalus armatus var. *flavicornis* Stitz, 1914
Corydalus armatus flavicornis Stitz, 1914
Corydalus nevermanni Navás, 1934b
Corydalus camposi Navás, 1935

Neotropical (Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Panama, Peru, Venezuela).

Corydalus flinti Contreras-Ramos, 1998

Neotropical (Venezuela).

Corydalus hayashii Contreras-Ramos, 2002

Neotropical (Venezuela).

Corydalus hecate (McLachlan, 1866)
Corydalis hecate McLachlan, 1866
Corydalus raymundoi Navás, 1920
Corydalus sallei Navás, 1920

Neotropical (Brazil, Peru (?), Venezuela (?)).

Corydalus holzenthali Contreras-Ramos, 1998

Neotropical (Bolivia, Peru).

Corydalus ignotus Contreras-Ramos, 1998

Neotropical (Brazil, French Guiana).

Corydalus imperiosus Contreras-Ramos, 1998

Neotropical (Argentina).

Corydalus liui Ardila-Camacho & Contreras-Ramos, 2018b

Neotropical (Colombia).

Corydalus longicornis Contreras-Ramos, 1998

Neotropical (Argentina, Bolivia, Ecuador).

Corydalus luteus (Hagen, 1861)
Corydalis lutea Hagen, 1861
Corydalis crassicornis McLachlan, 1867
Corydalis inamabilis McLachlan, 1867
Corydalis cornuta f. *crassicornis* McLachlan, 1867
Corydalis cornuta f. *inamabilis* McLachlan, 1867
Corydalis cornuta f. *lutea* Hagen, 1861
Corydalus cornutus f. *crassicornis* (McLachlan, 1867)
Corydalus cornutus f. *inamabilis* (McLachlan, 1867)
Corydalus cornutus f. *luteus* (Hagen, 1861)
Corydalus armatus var. *laevicornis* Stitz, 1914
Corydalus cornutus var. *crassicornis* (McLachlan, 1867)
Corydalus armatus laevicornis Stitz, 1914
Corydalus crassicornis (McLachlan, 1867)
Corydalus inamabilis (McLachlan, 1867)

Nearctic (USA); Neotropical (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama).

Corydalus magnus Contreras-Ramos, 1998

Neotropical (Costa Rica, El Salvador, Honduras, Guatemala, Mexico, Nicaragua).

Corydalus mayri Contreras-Ramos, 2002

Neotropical (Venezuela).

Corydalus muzoensis Ardila-Camacho, 2014

Neotropical (Colombia).

Corydalus neblinensis Contreras-Ramos, 1998

Neotropical (Venezuela).

Corydalus nubilus (Erichson in Schomburgk, 1848)
Corydalis nubila Erichson in Schomburgk, 1848
Corydalus titschacki Navás, 1928a

Neotropical (Brazil, Colombia, French Guiana, Guyana, Venezuela).

Corydalus parvus Stitz, 1914

Neotropical (Ecuador, Peru).

Corydalus peruvianus (Davis, 1903)
Corydalis peruviana Davis, 1903
Corydalus primitivus var. *ferus* Navás, 1927a
Corydalus primitivus ferus Navás, 1927a

Neotropical (Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Nicaragua, Mexico, Panama, Peru, Venezuela).

Corydalus primitivus van der Weele, 1909
Corydalus primitivus primitivus van der Weele, 1909

Neotropical (Argentina, Bolivia).

Corydalus sophiae Ardila-Camacho & Contreras-Ramos, 2018b

Neotropical (Colombia).

Corydalus tesselatus Stitz, 1914
Corydalus batesii var. *tesselatus* Stitz, 1914
Corydalus bolivari Banks, 1943

Neotropical (Colombia, Venezuela).

Corydalus testaceus (Le Peletier de Saint Fargeau & Audinet-Serville in Latreille *et al*., 1828) (doubtful identity)
Corydalis testacea Le Peletier de Saint Fargeau & Audinet-Serville in Latreille *et al*., 1828

Taxonomic notes
This species was originally described within *Corydalis*; however, it is probably an error because this genus is known only from the New World. This species has not been recorded since its original description, so it is not possible to confirm its actual identity.

Oriental (Indonesia).

Corydalus texanus (Banks, 1903a)
Corydalis texana Banks, 1903a
Corydalis cornuta f. *texana* Banks, 1903a
Corydalus cornutus f. *texanus* (Banks, 1903a)
Corydalus similis Stitz, 1914
Corydalus constellatus Navás, 1934b

Nearctic (USA); Neotropical (Mexico, Guatemala (?)).

Corydalus tridentatus Stitz, 1914
Corydalus tridentatus var. *nigripes* Stitz, 1914

Neotropical (Brazil).

†*Corydalus vetustus* Oppenheim, 1888
Corydalis vetusta Hagen, 1862 (unavailable)
Corydalus vetustus (Hagen, 1862) (unavailable)

Palaearctic (Germany) [Late Jurassic].

Corydalus wanningeri Contreras-Ramos & von der Dunk, 2010

Neotropical (Venezuela).

Genus ***Neoneuromus*** van der Weele, 1909

Neoneuromus van der Weele, 1909: 251. Type species. *Neuromus fenestralis* McLachlan, 1869: 42 (by subsequent designation by van der Weele 1910: 24).

Included species

Neoneuromus coomani Lestage, 1927

Oriental (China, Laos, Thailand, Vietnam).

Neoneuromus fenestralis (McLachlan, 1869)
Nevromus fenestralis fenestralis McLachlan, 1869
Nevromus fenestralis McLachlan, 1869
Corydalis territans Needham, 1909
Neoneuromus fenestralis fenestralis (McLachlan, 1869)
Neoneuromus territans (Needham, 1909)
Neoneuromus fenestralis var. *zurbitui* Navás, 1929a

Oriental (China, Myanmar, India).

Neoneuromus ignobilis Navás, 1932
Corydalis huangshanensis Ôuchi, 1939
Nevromus ignobilis (Navás, 1932)
Corydalus huangshanensis (Ôuchi, 1939)

Oriental (China, Laos, Vietnam, Thailand).

Neoneuromus indistinctus Liu, Hayashi & D. Yang in F. Yang *et al*., 2018

Oriental (China, Laos, Thailand).

Neoneuromus latratus (McLachlan, 1869)
Nevromus latratus latratus McLachlan, 1869
Nevromus latratus McLachlan, 1869
Neoneuromus latratus latratus (McLachlan, 1869)

Oriental (India, Myanmar).

Neoneuromus maclachlani (van der Weele, 1907)
Nevromus fenestralis maclachlani van der Weele, 1907
Neoneuromus fenestralis maclachlani (van der Weele, 1907)
Nevromus maclachlani van der Weele, 1907

Oriental (China).

Neoneuromus maculatus Liu, Hayashi & D. Yang in F. Yang *et al*., 2018

Oriental (Vietnam).

Neoneuromus niger Liu, Hayashi & D. Yang in F. Yang *et al*., 2018

Oriental (Vietnam).

Neoneuromus orientalis Liu & D. Yang, 2004

Oriental (China, Vietnam).

Neoneuromus sikkimmensis (van der Weele, 1907)
Nevromus sikkimmensis van der Weele, 1907

Oriental (China, India).

Neoneuromus similis Liu, Hayashi & D. Yang in F. Yang *et al*., 2018

Oriental (China).

Neoneuromus tonkinensis (van der Weele, 1907)
Nevromus latratus tonkinensis van der Weele, 1907
Neoneuromus latratus tonkinensis (van der Weele, 1907)
Nevromus latratus var. *tonkinensis* van der Weele, 1907
Neoneuromus latratus var. *tonkinensis* (van der Weele, 1907)

Oriental (China, Vietnam).

Neoneuromus vanderweelei Liu, Hayashi & D. Yang in F. Yang *et al*., 2018

Oriental (China, Vietnam).

Genus ***Nevromus*** Rambur, 1842

Nevromus Rambur, 1842: 441. Type species. *Nevromus testaceus* Rambur, 1842: 442 (by subsequent designation by van der Weele 1906a: 210).
Neuromus Walker, 1853: 201 (as a synonym of *Hermes* Gray in Cuvier, 1832) (an unavailable incorrect subsequent spelling of *Nevromus* Rambur, 1842) (see Oswald & Penny 1991: 62).

Included species

Nevromus aspoeck Liu, Hayashi & D. Yang in Liu *et al*., 2012a

Oriental (Cambodia, China, Thailand).

Nevromus austroindicus Liu & Viraktamath in Liu *et al*., 2012a

Oriental (India).

Nevromus exterior Navás, 1927b
Nevromus sinensis C.-K. Yang & D. Yang, 1986

Oriental (China, Laos, Thailand, Vietnam).

Nevromus gloriosoi Liu, Hayashi & D. Yang in Liu *et al*., 2012a

Oriental (Brunei, Indonesia, Malaysia).

Nevromus intimus McLachlan, 1869

Oriental (China, India, Myanmar, Nepal, Pakistan).

Nevromus jeenthongi Piraonapicha, Jaitrong, Liu & Sangpradub, 2021

Oriental (Myanmar, Thailand).

Nevromus testaceus Rambur, 1842
Chauliodes testaceus (Rambur, 1842)
Nevromus (*Hermes*) *testaceus* Rambur, 1842
Hermes testaceus (Rambur, 1842)
Corydalus testaceus (Rambur, 1842)

Oriental (Indonesia, Malaysia, Vietnam (?)).

Genus ***Platyneuromus*** van der Weele, 1909

Platyneuromus van der Weele, 1909: 252. Type species. *Corydalus soror* Hagen, 1861: 193 (by original designation).
Doeringia Navás, 1925b: 207. Type species. *Doeringia christel* Navás, 1925b: 209 (by monotypy).

Included species

Platyneuromus honduranus Navás, 1928b
Platyneuromus soror var. *honduranus* Navás, 1928b
Platyneuromus auritus Kimmins, 1928
Platyneuromus soror honduranus Navás, 1928b
Doeringia aurita (Kimmins, 1928)

Neotropical (Guatemala, Honduras, Mexico).

Platyneuromus reflexus Glorioso & Flint, 1984

Neotropical (Honduras, Guatemala, Mexico).

Platyneuromus soror (Hagen, 1861)
Corydalis soror Hagen, 1861
Corydalus soror (Hagen, 1861)
Nevromus soror (Hagen, 1861)
Nevromus (*Chloronia*) *soror* (Hagen, 1861)
Doeringia christel Navás, 1925b
Platyneuromus christel (Navás, 1925b)

Nearctic (Mexico); Neotropical (Costa Rica, Honduras, Mexico, Panama).

Genus ***Protohermes*** van der Weele, 1907

Protohermes van der Weele, 1907: 243. Type species. *Hermes costalis* Walker, 1853: 207 (by present designation; see Nomenclatural notes below).
Hermes Gray in Cuvier, 1832: 332. Type species. *Chauliodes maculipennis* Gray in Cuvier, 1832: 332 (by original designation).
Neurhermes Navás, 1915b: 391. Type species. *Chauliodes maculipennis* Gray in Cuvier, 1832: 332 (by monotypy [of *Hermes* Gray in Cuvier, 1832]).
Allohermes Lestage, 1927: 100. Type species. *Protohermes davidi* van der Weele, 1909: 254 (by original designation).

Nomenclatural notes

Oswald & Penny (1991) identified *Protohermes* as a genus name based on a misidentified type species and a name whose type species had yet to be validly fixed. They noted that the case (at that time) required referral to the Commission for type species fixation under Art. 70b of the Code (3rd edition, ICZN 1985). We are not aware of any nomenclatural acts published since 1991 that have validly fixed the type species of *Protohermes* under either the 3rd or 4th editions of the Code. To resolve this long-standing issue, we act here to formally fix the type species of *Protohermes* under Art. 70.3 (4th edition, ICZN 1999) in a manner that is in accordance with long-accepted usage. Van der Weele (1907) originally included five valid nominal species in *Protohermes* – *Hemerobius grandis* Thunberg, 1781; *Hermes anticus* Walker, 1853; *Hermes albipennis* Walker, 1853; *Nevromus montanus* McLachlan, 1869; and *Nevromus dichrous* Brauer, 1878 – and explicitly designated *Hermes anticus* Walker, 1853 (as "*N.* [sic] *anticus* Wlk.") as its type species. Kimmins (1949) presented evidence that the *Protohermes anticus* of van der Weele (1907) was not conspecific with *Hermes anticus* Walker, but was, rather, a misidentification of the taxonomic species *Hermes costalis* Walker, 1853. Based on this situation Kimmins recommended that "*Hermes anticus* Weele 1907 (nec *Hermes anticus* Walker, 1853) (= *Hermes costalis* Walker, 1853)" (a nominal species not originally included in *Protohermes*) be treated as the de facto type species of *Protohermes*. Kimmins' proposal has been accepted and adopted by all subsequent workers on the Corydalidae. Accordingly, we here fix (under Art. 70.3.2 of the Code) as the type species of *Protohermes* the nominal species *Hermes costalis* Walker, 1853 [the original combination of the current taxonomic species *Protohermes costalis* (Walker, 1853)], which was misidentified as *Hermes anticus* Walker, 1853 in the original designation of van der Weele (1907).

Included species

Protohermes acutatus Liu, Hayashi & D. Yang, 2007a

Oriental (China).

Protohermes albipennis (Walker, 1853)
Hermes albipennis Walker, 1853
Corydalis albipennis (Walker, 1853)
Corydalus albipennis (Walker, 1853)
Nevromus albipennis (Walker, 1853)

Oriental (India, Nepal).

Protohermes arunachalensis Ghosh, 1991

Oriental (China, India, Myanmar).

Protohermes assamensis Kimmins, 1949

Oriental (India, Myanmar).

Protohermes axillatus Navás, 1932

Oriental (Vietnam).

Protohermes basimaculatus Liu, Hayashi & D. Yang 2007a

Oriental (China).

Protohermes bellulus Banks, 1931

Oriental (Malaysia).

Protohermes burmanus Liu & Dvořák, 2017

Oriental (Myanmar).

Protohermes cangyuanensis C.-K. Yang & D. Yang, 1988

Oriental (China).

Protohermes cavaleriei Navás, 1925c

Oriental (China).

Protohermes changninganus C.-K. Yang & D. Yang, 1988

Oriental (China).

Protohermes chebalingensis Liu & D. Yang, 2006a

Oriental (China).

Protohermes concolorus C.-K. Yang & D. Yang, 1988

Oriental (China).

Protohermes congruens Liu, Hayashi & D. Yang, 2009a

Oriental (Nepal).

Protohermes costalis (Walker, 1853)
Hermes costalis Walker, 1853
Corydalis costalis (Walker, 1853)
Corydalus costalis (Walker, 1853)
Protohermes griseus Stitz, 1914
Protohermes costalis (Walker, 1853)

Oriental (China).

Protohermes costatostriatus (van der Weele, 1907)
Hermes costatostriatus van der Weele, 1907
Neurhermes costatostriatus (van der Weele, 1907)

Oriental (India).

Protohermes curvicornis Liu, Hayashi & D. Yang, 2013a

Oriental (China, India, Myanmar).

Protohermes davidi van der Weele, 1909
Allohermes davidi (van der Weele, 1909)

Oriental (China).

Protohermes decemmaculatus (Walker, 1860)
Hermes decemmaculatus Walker, 1860
Nevromus decemmaculatus (Walker, 1860)

Oriental (India).

Protohermes decolor Navás, 1931

Oriental (Malaysia).

Protohermes dichrous (Brauer, 1878)
Nevromus dichrous Brauer, 1878
Hermes dichrous (Brauer, 1878)

Oriental (Indonesia, Malaysia).

Protohermes differentialis (C.-K. Yang & D. Yang, 1986)
Neurhermes differentialis C.-K. Yang & D. Yang, 1986
Neurhermes guangxiensis C.-K. Yang & D. Yang, 1992a
Neurhermes fangchengensis D. Yang in D. Yang *et al*., 2004

Oriental (China, Vietnam).

Protohermes dimaculatus C.-K. Yang & D. Yang, 1988

Oriental (China).

Protohermes disjunctus Liu, Hayashi & D. Yang, 2007a

Oriental (Japan).

Protohermes dulongjiangensis Liu, Hayashi & D. Yang, 2010b

Oriental (China).

Protohermes festivus Navás, 1932

Oriental (China).

Protohermes flavinervus Liu, Hayashi & D. Yang, 2009a

Oriental (China).

Protohermes flavipennis Navás, 1929b

Oriental (China).

Protohermes flinti Liu, Hayashi & D. Yang, 2007b

Oriental (Laos).

Protohermes fruhstorferi (van der Weele, 1907)
Hermes fruhstorferi van der Weele, 1907

Allohermes fruhstorferi (van der Weele, 1907)

Oriental (China, Vietnam).

Protohermes fujianensis C.-K. Yang & D. Yang, 1999

Oriental (China).

Protohermes furcatus Liu, Hayashi & D. Yang, 2008b

Oriental (Thailand).

Protohermes goodgeri Liu, Hayashi & D. Yang, 2013b

Oriental (Malaysia).

Protohermes grandis (Thunberg, 1781)
Hemerobius grandis Thunberg, 1781
Corydalis grandis (Thunberg, 1781)
Corydalus grandis (Thunberg, 1781)
Hermes grandis (Thunberg, 1781)
Chauliodes grandis (Thunberg, 1781)
Nevromus grandis (Thunberg, 1781)

Palaearctic (Japan).

Protohermes guangxiensis C.-K. Yang & D. Yang, 1986

Oriental (China, Vietnam).

Protohermes gutianensis D. Yang & C.-K. Yang, 1995

Oriental (China).

Protohermes hainanensis C.-K. Yang & D. Yang, 1990

Oriental (China).

Protohermes horni Navás, 1932

Oriental (China).

Protohermes hubeiensis D. Yang & C.-K. Yang, 1992b

Oriental (China).

Protohermes hunanensis D. Yang & C.-K. Yang, 1992a

Oriental (China).

Protohermes immaculatus Kuwayama, 1964

Oriental (Japan).

Protohermes impunctatus Liu, Hayashi & D. Yang, 2008b

Oriental (Myanmar).

Protohermes infectus (McLachlan, 1869)
Nevromus infectus McLachlan, 1869

Protohermes anticus var. *striolatus* Stitz, 1914
Protohermes anticus striolatus Stitz, 1914
Protohermes tibetanus C.-K. Yang & D. Yang in Huang *et al*., 1988
Neochauliodes anticus striolatus (Stitz, 1914)

Oriental (China, India, Myanmar).

Protohermes ishizukai Liu, Hayashi & D. Yang, 2009b

Oriental (Laos, Vietnam).

Protohermes karubei Liu, Hayashi & D. Yang, 2013b

Oriental (Malaysia).

Protohermes latus Liu & D. Yang, 2006b

Oriental (China).

Protohermes lii Liu, Hayashi & D. Yang, 2007a

Oriental (China, Vietnam).

Protohermes maculiferus (Walker, 1853)
Hermes maculiferus maculiferus Walker, 1853
Hermes maculiferus Walker, 1853
Neurhermes maculiferus (Walker, 1853)

Oriental (India).

Protohermes maculipennis (Gray in Cuvier, 1832)
Chauliodes (*Hermes*) *maculipennis* Gray in Cuvier, 1832
Chauliodes maculipennis Gray in Cuvier, 1832
Nevromus ruficollis Rambur, 1842
Hermes ruficollis (Rambur, 1842)
Hermes maculipennis (Gray in Cuvier, 1832)
Nevromus maculipennis (Gray in Cuvier, 1832)
Neurhermes maculipennis (Gray in Cuvier, 1832)

Oriental (India (?), Indonesia, Malaysia (?)).

Protohermes montanus (McLachlan, 1869)
Nevromus montanus McLachlan, 1869

Oriental (India).

Protohermes motuoensis Liu & D. Yang, 2006b

Oriental (Bhutan, China, India, Nepal, Pakistan).

Protohermes niger C.-K. Yang & D. Yang, 1988

Oriental (China).

Protohermes nigerescens (Liu, Hayashi & D. Yang, 2015f)
Neurhermes nigerescens Liu, Hayashi & D. Yang, 2015f

Oriental (India).

Protohermes ohli Liu, Hayashi & D. Yang, 2013a

Oriental (India, Myanmar).

Protohermes orientalis Liu, Hayashi & D. Yang, 2007a

Oriental (China).

Protohermes owadai Liu, Hayashi & D. Yang, 2007c

Oriental (Vietnam).

Protohermes parcus C.-K. Yang & D. Yang, 1988

Oriental (China).

Protohermes pennyi Liu, Hayashi & D. Yang, 2009a

Oriental (Nepal).

Protohermes piaoacanus Liu, Hayashi & D. Yang, 2008b

Oriental (Vietnam).

Protohermes sabahensis Liu, Hayashi & D. Yang, 2008c

Oriental (Malaysia).

Protohermes selysi (van der Weele, 1909)
Hermes selysi van der Weele, 1909
Neurhermes bipunctatus C.-K. Yang & D. Yang, 1988
Neurhermes selysi (van der Weele, 1909)

Oriental (Bangladesh, China, India, Myanmar).

Protohermes similis C.-K. Yang & D. Yang, 1988
Protohermes sichuanensis D. Yang & C.-K. Yang, 1997

Oriental (China).

Protohermes sinensis D. Yang & C.-K. Yang, 1992a

Oriental (China).

Protohermes sinuolatus Liu, Hayashi & D. Yang, 2009b

Oriental (Vietnam).

Protohermes sonus Liu, Hayashi & D. Yang, 2013c

Oriental (Myanmar).

Protohermes spectabilis Liu, Hayashi & D. Yang, 2008c

Oriental (Malaysia).

Protohermes stangei Liu & Dobosz, 2019

Oriental (Vietnam).

Protohermes stigmosus Liu, Hayashi & D. Yang, 2007a

Oriental (China).

Protohermes striatulus Navás, 1926
Protohermes basiflavus D. Yang in D. Yang *et al*., 2004

Oriental (China, Myanmar, Vietnam).

Protohermes sublunatus Liu, Hayashi & D. Yang, 2013c

Oriental (India).

Protohermes subnubilus Kimmins, 1949
Protohermes tengchongensis C.-K. Yang & D. Yang, 1988

Oriental (China, Myanmar).

Protohermes subparcus Liu & D. Yang, 2006c

Oriental (China).

Protohermes sumatrensis (van der Weele, 1909)
Hermes sumatrensis van der Weele, 1909
Neurhermes sumatrensis (van der Weele, 1909)

Oriental (Indonesia, Malaysia).

Protohermes tenellus Liu, Hayashi & D. Yang, 2007b

Oriental (Thailand).

Protohermes tonkinensis (van der Weele, 1909)
Hermes maculiferus tonkinensis van der Weele, 1909
Hermes tonkinensis van der Weele, 1909
Hermes maculiferus var. *tonkinensis* van der Weele, 1909
Neurhermes tonkinensis (van der Weele, 1909)

Oriental (China, Laos, Thailand, Vietnam).

Protohermes tortuosus Liu, Hayashi & D. Yang, 2008c

Oriental (Malaysia).

Protohermes trapezius Li & Liu, 2021

Oriental (China).

Protohermes triangulatus Liu, Hayashi & D. Yang, 2007a

Oriental (China, Laos, Thailand, Vietnam).

Protohermes uniformis Banks, 1931

Oriental (Malaysia).

Protohermes vitalisi Navás, 1919a

Oriental (Vietnam).

Protohermes walkeri Navás, 1929b

Oriental (India, Nepal, Pakistan).

Protohermes weelei Navás, 1925c

Oriental (China, Laos).

Protohermes wuyishanicus Li & Liu, 2021

Oriental (China).

Protohermes xanthodes Navás, 1914
Protohermes rubidus Stitz, 1914
Protohermes martynovae Vshivkova, 1995

Palaearctic (China, North Korea, Russia, South Korea); Oriental (China).

Protohermes xingshanensis Liu & D. Yang, 2005a

Oriental (China).

Protohermes yangi Liu, Hayashi & D. Yang, 2007a

Oriental (China, Laos,Vietnam).

Protohermes yunnanensis C.-K. Yang & D. Yang, 1988

Oriental (China, Vietnam).

Protohermes zhuae Liu, Hayashi & D. Yang, 2008b

Oriental (China).

Subfamily **Chauliodinae** Newman, 1853

Chauliodinae Newman, 1853: ccii [= 202] (as Chauliodesidae) [type genus: *Chauliodes* Latreille, 1796: 182]. — Handlirsch 1906: 39 (as Chauliodidae). — Tillyard 1919: 820 (as Chauliodinae).

Genus ***Anachauliodes*** Kimmins, 1954

Anachauliodes Kimmins, 1954: 427. Type species. *Anachauliodes tonkinicus* Kimmins, 1954: 428 (by original designation).

Included species

Anachauliodes laboissierei (Navás, 1913)
Neochauliodes laboissierei Navás, 1913
Parachauliodes laboissierei (Navás, 1913)
Anachauliodes tonkinicus Kimmins, 1954
Anachauliodes sinensis D. Yang & C.-K. Yang, 1992c

Oriental (China, India, Vietnam).

Genus ***Apochauliodes*** Theischinger, 1983

Apochauliodes Theischinger 1983: 80 (as subgenus of *Archichauliodes* van der Weele, 1909). Type species. *Archichauliodes* (*Apochauliodes*) *cervulus* Theischinger, 1983: 80 (by original designation).

Included species

Apochauliodes cervulus Theischinger, 1983
Archichauliodes (*Apochauliodes*) *cervulus* Theischinger, 1983
Archichauliodes cervulus Theischinger, 1983

Australian (Australia).

Genus ***Archichauliodes*** van der Weele, 1909

Archichauliodes van der Weele, 1909: 257. Type species. *Hermes diversus* Walker, 1853 (by present designation; see Nomenclatural notes below).

Nomenclatural notes

Oswald & Penny (1991) identified *Archichauliodes* as a genus name based on a misidentified type species and a name whose type species had yet to be validly fixed. They noted that the case (at that time) required referral to the Commission for type species fixation under Art. 70b of the Code (3rd edition, ICZN 1985). We are not aware of any nomenclatural acts published since 1991 that have validly fixed the type species of *Archichauliodes* under either the 3rd or 4th editions of the Code. To resolve this long-standing issue, we act here to formally fix the type species of *Archichauliodes* under Art. 70.3 (4th edition, ICZN 1999) in a manner that is in accordance with long-accepted usage. Van der Weele (1909) origionally included three valid nominal species in *Archichauliodes* – *Hermes dubitatus* Walker, 1853 (as "*Ch[auliodes]. dubitatus* Wlk."), *Hermes guttiferus* Walker, 1853 (as "*Ch[auliodes]. guttiferus* Wlk."), and *Chauliodes pusillus* McLachlan, 1867 (as "as "*Ch[auliodes]. pusillus* Mc. Lachl.") – and he explicitly designated "*Ch. dubitatus* Wlk. from New Zealand" as its type species. Kimmins (1938) presented evidence that the *Archichauliodes dubitatus* of van der Weele (1909) was not conspecific with *Hermes dubitatus* Walker, but was, rather, a misidentification of the taxonomic species *Hermes diversus* Walker, 1853. Based on this situation Kimmins recommended that *Hermes diversus* Walker (a nominal species not originally included in *Archichauliodes*) be treated as the de facto type species of *Archichauliodes*. Kimmins' proposal has been accepted and adopted by all subsequent workers on the Corydalidae. Accordingly, we here fix (under Art. 70.3.2 of the Code) as the type species of *Archichauliodes* the nominal species *Hermes diversus* Walker, 1853 [the original combination of the current taxonomic species *Archichauliodes diversus* (Walker, 1853)], which was misidentified as *Archichauliodes dubitatus* (Walker, 1853) [*Hermes*] in the original designation of van der Weele (1909).

Included species

Archichauliodes chilensis Kimmins, 1954

Neotropical (Chile).

Archichauliodes pinares Flint, 1973

Neotropical (Chile).

Archichauliodes (*Archichauliodes*) *anagaurus* Riek, 1954
Archichauliodes anagaurus Riek, 1954
Archichauliodes australicus Kimmins, 1954

Australian (Australia).

Archichauliodes (Archichauliodes) diversus (Walker, 1853)
Hermes diversus Walker, 1853
Chauliodes diversus (Walker, 1853) stat. nov.

Australian (New Zealand).

Archichauliodes (*Archichauliodes*) *simpsoni* Theischinger, 1983
Archichauliodes simpsoni Theischinger, 1983

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *collifer* Theischinger, 1983
Archichauliodes (*Archichauliodes*) *collifer* Theischinger, 1983
Archichauliodes collifer Theischinger, 1983

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *conversus* Theischinger, 1983
Archichauliodes (*Archichauliodes*) *conversus* Theischinger, 1983
Archichauliodes conversus Theischinger, 1983

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *cuspidatus* Theischinger, 1983
Archichauliodes (*Archichauliodes*) *cuspidatus* Theischinger, 1983
Archichauliodes cuspidatus Theischinger, 1983

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *deceptor* Kimmins, 1954
Archichauliodes deceptor Kimmins, 1954
Archichauliodes (*Archichauliodes*) *deceptor* Kimmins, 1954

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *glossa* Theischinger, 1988
Archichauliodes (*Archichauliodes*) *glossa* Theischinger, 1988
Archichauliodes glossa Theischinger, 1988

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *guttiferus* (Walker, 1853)
Hermes guttiferus Walker, 1853
Chauliodes guttiferus (Walker, 1853)
Archichauliodes guttiferus (Walker, 1853)
Archichauliodes guttiferus guttiferus (Walker, 1853)
Archichauliodes (*Archichauliodes*) *guttiferus* (Walker, 1853)

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *isolatus* Theischinger, 1983
Archichauliodes (*Archichauliodes*) *isolatus* Theischinger, 1983
Archichauliodes isolatus Theischinger, 1983

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *lewis* Theischinger, 1983
Archichauliodes (*Archichauliodes*) *lewis* Theischinger, 1983
Archichauliodes lewis Theischinger, 1983

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *neoguttiferus* Theischinger, 1983
Archichauliodes (*Archichauliodes*) *neoguttiferus* Theischinger, 1983
Archichauliodes neoguttiferus Theischinger, 1983

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *phaeoscius* Riek, 1954
Archichauliodes guttiferus phaeoscius Riek, 1954
Archichauliodes (*Archichauliodes*) *phaeoscius* Riek, 1954
Archichauliodes phaeoscius Riek, 1954

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *pictus* Theischinger, 1983
Archichauliodes (*Archichauliodes*) *pictus* Theischinger, 1983
Archichauliodes pictus Theischinger, 1983

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *piscator* Theischinger, 1983
Archichauliodes (*Archichauliodes*) *piscator* Theischinger, 1983
Archichauliodes piscator Theischinger, 1983

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *plomleyi* Kimmins, 1954
Archichauliodes plomleyi Kimmins, 1954
Archichauliodes (*Archichauliodes*) *plomleyi* Kimmins, 1954

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *polypastus* Riek, 1954
Archichauliodes guttiferus polypastus Riek, 1954
Archichauliodes (*Archichauliodes*) *polypastus* Riek, 1954
Archichauliodes polypastus Riek, 1954

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *rieki* Theischinger, 1983
Archichauliodes (*Archichauliodes*) *rieki* Theischinger, 1983
Archichauliodes rieki Theischinger, 1983

Australian (Australia).

Archichauliodes (*Riekochauliodes*) *uncinatus* Theischinger, 1983
Archichauliodes (*Archichauliodes*) *uncinatus* Theischinger, 1983
Archichauliodes uncinatus Theischinger, 1983

Australian (Australia).

Genus ***Chauliodes*** Latreille, 1796

Chauliodes Latreille, 1796: 102. Type species. *Hemerobius pectinicornis* Linnaeus, 1763 in Linnaeus & Johansson: 412 (by subsequent monotypy in Latreille 1802: 290).
Chauliodus Billberg, 1820: 95. (An available unjustified emendation of *Chauliodes* Latreille, 1796) (see Oswald & Penny 1991: 61).
Chauleodes Goldberger, 1852: 39. (An unavailable incorrect subsequent spelling of *Chauliodes* Latreille, 1796) (see Oswald & Penny 1991: 61).

Included species

†*Chauliodes carsteni* Wichard, 2003

Palaearctic (Russia) (Baltic amber) [Eocene].

Chauliodes pectinicornis (Linnaeus, 1763)
Hemerobius pectinicornis Linnaeus, 1763
Hemerobius virginiensis Drury, 1773
Semblis pectinicornis (Linnaeus, 1763)
Chauliodes virginiensis (Drury, 1773)
Hermes pectinicornis (Linnaeus, 1763)
Chauliodus virginiensis (Drury, 1773)

Nearctic (Canada, USA).

†*Chauliodes priscus* Pictet in Berendt, 1856
Chauliodes priscus Hagen, 1854 (unavailable)

Palaearctic (Russia) (Baltic amber) [Eocene].

Chauliodes rastricornis Rambur, 1842
Chauliodes denticornis Harris in Hitchcock, 1833 (unavailable)
Hermes indecisus Walker, 1853

Nearctic (Canada, USA).

Genus †***Cretochaulus*** Ponomarenko, 1976

†*Cretochaulus* Ponomarenko, 1976: 425. Type species. †*Cretochaulus lacustris* Ponomarenko, 1976: 426 (by original designation).

Included species

†*Cretochaulus lacustris* Ponomarenko, 1976

Palaearctic (Russia) [Early Cretaceous].

Genus ***Ctenochauliodes*** van der Weele, 1909

Ctenochauliodes van der Weele, 1909: 257. Type species. *Chauliodes nigrovenosus* van der Weele, 1907: 257 (by original designation).

Included species

Ctenochauliodes abnormis C.-K. Yang & D. Yang, 1986

Oriental (China, Vietnam).

Ctenochauliodes denticulatus Liu, Hayashi & Letardi, 2021

Oriental (Vietnam).

Ctenochauliodes digitiformis Liu & D. Yang, 2006d

Oriental (China).

Ctenochauliodes elongatus Liu & D. Yang, 2006d

Oriental (China).

Ctenochauliodes fujianensis C.-K. Yang & D. Yang, 1999

Oriental (China).

Ctenochauliodes griseus C.-K. Yang & D. Yang, 1992a
Ctenochauliodes moganshanus C.-K. Yang & D. Yang, 1992b

Oriental (China).

Ctenochauliodes khasianus (van der Weele, 1909)
Neochauliodes khasianus van der Weele, 1909

Oriental (India, Myanmar).

Ctenochauliodes meridionalis C.-K. Yang & D. Yang, 1986

Oriental (China).

Ctenochauliodes nigrovenosus (van der Weele, 1907)
Chauliodes nigrovenosus van der Weele, 1907
Ctenochauliodes friedrichi Navás, 1932
Ctenochauliodes forcipatus Kimmins, 1954

Oriental (China, Vietnam).

Ctenochauliodes punctulatus C.-K. Yang & D. Yang, 1990

Oriental (China).

Ctenochauliodes sagittiformis Liu & D. Yang, 2006d

Oriental (China).

Ctenochauliodes similis Liu & D. Yang, 2006d

Oriental (China).

Ctenochauliodes stigmosus Liu, Hayashi & D. Yang, 2011a

Oriental (China).

Ctenochauliodes yangi Liu & D. Yang, 2006d

Oriental (China, Vietnam, Thailand).

Genus ***Dysmicohermes*** Munroe, 1953

Dysmicohermes Munroe, 1953: 191. Type species. *Chauliodes disjunctus* Walker in Lord, 1866: 334 (by original designation).

Included species

Dysmicohermes disjunctus (Walker in Lord, 1866)
Chauliodes disjunctus Walker in Lord, 1866
Neohermes disjunctus (Walker in Lord, 1866)
Protochauliodes disjunctus (Walker in Lord, 1866)

Nearctic (Canada, USA).

Dysmicohermes ingens Chandler, 1954

Nearctic (USA).

Genus †***Eochauliodes*** Liu, Y. Wang, Shih, Ren & D. Yang, 2012

†*Eochauliodes* Liu, Y. Wang, Shih, Ren & D. Yang, 2012b: 2. Type species. †*Eochauliodes striolatus* Liu, Y. Wang, Shih, Ren & D. Yang, 2012: 2 (by original designation).

Included species

†*Eochauliodes striolatus* Liu, Y. Wang, Shih, Ren & D. Yang, 2012b

Oriental (China) [Middle Jurassic].

Genus †***Jurochauliodes*** B. Wang & Zhang, 2010

†*Jurochauliodes* B. Wang & Zhang, 2010: 777. Type species. †*Jurochauliodes ponomarenkoi* B. Wang & Zhang, 2010: 777 (by original designation).

Included species

†*Jurochauliodes ponomarenkoi* B. Wang & Zhang, 2010

Oriental (China) [Middle Jurassic].

Genus ***Madachauliodes*** Paulian, 1951

Madachauliodes Paulian, 1951: 59. Type species. *Madachauliodes torrentialis* Paulian, 1951: 60 (by original designation).

Included species

Madachauliodes bicuspidatus Liu, Price & Hayashi in Liu *et al*., 2014

Afrotropical (Madagascar).

Madachauliodes ranomafana Penny, 1999

Afrotropical (Madagascar).

Madachauliodes torrentialis Paulian, 1951

Afrotropical (Madagascar).

Genus ***Neochauliodes*** van der Weele, 1909

Neochauliodes van der Weele, 1909: 257. Type species. *Chauliodes sinensis* Walker, 1853: 199 (by subsequent designation by van der Weele 1910: 60).

Included species

Neochauliodes acutatus Liu & D. Yang, 2005b

Oriental (China).

Neochauliodes amamioshimanus Liu, Hayashi & D. Yang, 2007d

Oriental (Japan).

Neochauliodes azumai Asahina, 1988

Oriental (Japan).

Neochauliodes bachmanus Liu, Hayashi & D. Yang, 2010c

Oriental (Vietnam).

Neochauliodes bicuspidatus Liu & D. Yang, 2006e

Oriental (China, Vietnam).

Neochauliodes borneensis van der Weele, 1909
Neochauliodes sundaicus borneensis van der Weele, 1909

Oriental (Indonesia, Malaysia).

Neochauliodes bowringi (McLachlan, 1867)
Hermes sinensis Walker, 1853
Chauliodes sinensis (Walker, 1853)
Chauliodes bowringi McLachlan, 1867
Hermes bowringi (McLachlan, 1867)
Neurhermes bowringi (McLachlan, 1867)

Nomenclatural / taxonomic notes

Walker (1853) established two different fishfly species using the species-group name '*sinensis*': *Chauliodes sinensis* (on p. 199) and *Hermes sinensis* (on p. 203). McLachlan (1867) transferred *Hermes sinensis* to *Chauliodes*, establishing the two *sinensis* names as secondary homonyms. In the same work, McLachlan established *bowringi* as a replacement name for *sinensis* [*Hermes*], thus also establishing the precedence of the two Walker names by first reviser action. The two biological species involved are currently treated as congeners in *Neochauliodes*, i.e., *Neochauliodes bowringi* (McLachlan, 1867) and *Neochauliodes sinensis* (Walker, 1853).

Oriental (China, Vietnam).

Neochauliodes cambodianus Jiang, G. Wang & Liu, 2012

Oriental (Cambodia).

Neochauliodes confusus Liu, Hayashi & D. Yang, 2010c

Oriental (China, Vietnam).

Neochauliodes digitiformis Liu & D. Yang, 2005c

Oriental (China).

Neochauliodes dispar (van der Weele, 1906a)
Chauliodes dispar van der Weele, 1906a

Oriental (Indonesia, Vietnam (?)).

Neochauliodes fletcheri Kimmins, 1954

Oriental (India).

Neochauliodes flinti Liu & Hayashi, 2019

Oriental (India).

Neochauliodes formosanus (Okamoto, 1910)
Chauliodes formosanus Okamoto, 1910
Parachauliodes formosanus (Okamoto, 1910)

Palaearctic (China, Japan, North Korea, South Korea); Oriental (China, Vietnam).

Neochauliodes fraternus (McLachlan, 1869)
Chauliodes fraternus McLachlan, 1869
Neochauliodes sinensis fraternus (McLachlan, 1869)
Neochauliodes discretus D. Yang & C.-K. Yang, 1993
Chauliodes sinensis fraternus McLachlan, 1869

Palaearctic (China); Oriental (China, Vietnam).

Neochauliodes fuscus Liu & D. Yang, 2005b

Oriental (China).

Neochauliodes guangxiensis D. Yang & C.-K. Yang, 1997

Oriental (China).

Neochauliodes guixianus Jiang, G. Wang & Liu, 2012

Oriental (China).

Neochauliodes indicus (van der Weele, 1907)
Chauliodes indicus van der Weele, 1907

Oriental (Bhutan, India).

Neochauliodes jiangxiensis C.-K. Yang & D. Yang, 1992a

Oriental (China).

Neochauliodes koreanus van der Weele, 1909

Oriental (China, South Korea (?), Vietnam).

Neochauliodes latus D. Yang in D. Yang *et al*., 2004

Oriental (China).

Neochauliodes maculatus Stitz, 1914
Neochauliodes punctatoguttatus var. *maculatus* Stitz, 1914
Neochauliodes punctatoguttatus maculatus Stitz, 1914

Oriental (Indonesia).

Neochauliodes meridionalis van der Weele, 1909
Neochauliodes sinensis meridionalis van der Weele, 1909
Neochauliodes sinensis var. *meridionalis* van der Weele, 1909
Neochauliodes sinensis f. *medirionalis* van der Weele, 1909

Oriental (China, Vietnam, Thailand).

Neochauliodes moriutii Asahina, 1988

Oriental (China, Laos, Myanmar, Thailand).

Neochauliodes nepalensis Liu, Hayashi & D. Yang, 2010d

Oriental (Nepal).

Neochauliodes nigris Liu & D. Yang, 2005b

Oriental (China, Japan).

Neochauliodes obscurus van der Weele, 1909

Oriental (India).

Neochauliodes occidentalis van der Weele, 1909
Neochauliodes sinensis occidentalis van der Weele, 1909
Neochauliodes sinensis var. *ocidentalis* van der Weele, 1909

Oriental (China).

Neochauliodes parasparsus Liu & D. Yang, 2005c

Palaearctic (China); Oriental (China).

Neochauliodes parcus Liu & D. Yang, 2006e

Oriental (China).

Neochauliodes parvus Liu, Hayashi & Flint in Liu *et al*., 2010a

Oriental (Indonesia).

Neochauliodes peninsularis Liu, Hayashi & Flint in Liu *et al*., 2010a

Oriental (Malaysia).

Neochauliodes punctatoguttatus (van der Weele, 1906b)
Chauliodes punctatoguttatus van der Weele, 1906b
Neochauliodes punctatoguttatus punctatoguttatus (van der Weele, 1906b)

Oriental (Indonesia).

Neochauliodes punctatolosus Liu & D. Yang, 2006e

Oriental (China, Laos, Myanmar, Thailand, Vietnam).

Neochauliodes robustus Liu, Hayashi & D. Yang, 2007d
Neochauliodes ruidus D. Yang & Liu, 2010 (unavailable)

Oriental (China).

Neochauliodes rotundatus Tjeder, 1936

Palaearctic (China); Oriental (China).

Neochauliodes simplex (Walker, 1853)
Chauliodes simplex Walker, 1853
Neochauliodes simplex var. *guttatus* Navás, 1919b
Neochauliodes simplex guttatus Navás, 1919b

Oriental (India).

Neochauliodes sinensis (Walker, 1853)
Chauliodes sinensis Walker, 1853
Hermes anticus Walker, 1853
Protohermes anticus (Walker, 1853)
Neochauliodes sinensis sinensis (Walker, 1853)
Neochauliodes sinensis var. *formosensis* Navás, 1930a
Neochauliodes anticus (Walker, 1853)

Nomenclatural / taxonomic notes
For notes on the junior secondary homonym *Chauliodes sinensis* (Walker, 1853) [*Hermes*], see *Neochauliodes bowringi* (McLachlan, 1867) above.

Oriental (China).

Neochauliodes sparsus Liu & D. Yang, 2005c

Palaearctic (China); Oriental (China).

Neochauliodes subfasciatus (Westwood, 1847)
Chauliodes subfasciatus Westwood, 1847

Oriental (Bangladesh, Myanmar).

Neochauliodes sundaicus (van der Weele, 1906b)
Chauliodes sundaicus van der Weele, 1906b
Neochauliodes sundaicus sundaicus (van der Weele, 1906b)

Oriental (Indonesia, Malaysia).

Neochauliodes tamdaoensis Liu, Hayashi & D. Yang, 2010c

Oriental (Vietnam).

Neochauliodes tonkinensis (van der Weele, 1907)
Chauliodes tonkinensis van der Weele, 1907
Chauliodes kawarayamanus Okamoto, 1910
Neochauliodes kawarayamanus (Okamoto, 1910)
Neochauliodes yunnanensis Navás, 1930b
Neochauliodes orientalis C.-K. Yang & D. Yang, 1991

Parachauliodes kawarayamanus (Okamoto, 1910)

Oriental (China, Laos, Myanmar, Vietnam, Thailand).

Neochauliodes triangulatus Tu & Liu, 2021

Oriental (China).

Neochauliodes truncatus Kimmins, 1954
Neochauliodes sinensis truncatus Kimmins, 1954

Oriental (India, Myanmar).

Neochauliodes umbratus Kimmins, 1954
Neochauliodes furcatus C.-K. Yang & D. Yang, 1986

Oriental (China, Vietnam).

Neochauliodes wuminganus C.-K. Yang & D. Yang, 1986

Oriental (China).

Genus ***Neohermes*** Banks, 1908

Neohermes Banks, 1908: 29. Type species. *Chauliodes filicornis* Banks, 1903b: 238 (by original designation; incorrect type species designation by van der Weele 1910: 52 of *Chauliodes californicus* Walker, 1853).

Included species

Neohermes angusticollis (Hagen, 1861)
Chauliodes angusticollis Hagen, 1861

Nearctic (USA).

Neohermes californicus (Walker, 1853)
Chauliodes californicus Walker, 1853

Nearctic (USA).

Neohermes concolor (Davis, 1903)
Chauliodes concolor Davis, 1903
Nigronia concolor (Davis, 1903)

Nearctic (USA).

Neohermes filicornis (Banks, 1903b)
Chauliodes filicornis Banks, 1903b

Nearctic (Mexico, USA); Neotropical (Mexico (?)).

Neohermes inexpectatus Liu & Winterton, 2016

Nearctic (USA).

Neohermes matheri Flint, 1965

Nearctic (USA).

Genus ***Nigronia*** Banks, 1908

Nigronia Banks, 1908: 30. Type species. *Chauliodes serricornis* Say in Keating, 1824: 307 (by subsequent designation by van der Weele 1910: 70).

Included species

Nigronia fasciata (Walker, 1853)
Chauliodes fasciatus Walker, 1853
Chauliodes lunatus Hagen in Walsh, 1863

Nearctic (USA).

†*Nigronia prussia* Liu & Ansorge, 2020

Palaearctic (Russia) [Eocene].

Nigronia serricornis (Say in Keating, 1824)
Chauliodes serricornis Say in Keating, 1824
Nevromus maculatus Rambur, 1842
Chauliodes maculatus (Rambur, 1842)
Hermes maculatus (Rambur, 1842)
Chauliodes unifasciatus Hagen, 1861 (unavailable)

Nearctic (Canada, USA).

Genus ***Nothochauliodes*** Flint, 1983

Nothochauliodes Flint, 1983: 15. Type species. *Nothochauliodes penai* Flint, 1983: 17 (by original designation).

Included species

Nothochauliodes penai Flint, 1983

Neotropical (Chile).

Genus ***Orohermes*** Evans, 1984

Orohermes Evans, 1984: 1. Type species. *Dysmicohermes crepusculus* Chandler, 1954: 107 (by original designation).

Included species

Orohermes crepusculus (Chandler, 1954)
Dysmicohermes crepusculus Chandler, 1954

Nearctic (USA).

Genus ***Parachauliodes*** van der Weele, 1909

Parachauliodes van der Weele, 1909: 257. Type species. *Chauliodes japonicus* McLachlan, 1867: 232 (by original designation).
Metachauliodes van der Weele, 1910: 46. Type species: *Chauliodes japonicus* McLachlan, 1867: 232 (by monotypy).

Sinochauliodes Liu & D. Yang, 2006f: 663. Type species. *Sinochauliodes squalidus* Liu & D. Yang, 2006f: 663 (by original designation).

Included species

Parachauliodes asahinai Liu, Hayashi & D. Yang, 2008d
Parachauliodes inopinatus Shimonoya, 2015

Oriental (Japan, South Korea).

Parachauliodes buchi Navás, 1924
Sinochauliodes buchi (Navás, 1924)
Neochauliodes griseus D. Yang & C.-K. Yang, 1992a
Sinochauliodes griseus (D. Yang & C.-K. Yang, 1992a)
Neochauliodes pielinus Navás, 1933a

Oriental (China).

Parachauliodes continentalis van der Weele, 1909
Neochauliodes continentalis (van der Weele, 1909)

Palaearctic (Japan).

Parachauliodes fujianensis (C.-K. Yang & D. Yang, 1999)
Neochauliodes fujianensis C.-K. Yang & D. Yang, 1999
Sinochauliodes fujianensis (C.-K. Yang & D. Yang, 1999)

Oriental (China).

Parachauliodes japonicus (McLachlan, 1867)
Chauliodes japonicus McLachlan, 1867
Chauliodes (*Sialis*) *japonicus* McLachlan, 1867
Dilar (*Chauliodes*) *japonicus* (McLachlan, 1867)
Dilar japonicus (McLachlan, 1867)
Metachauliodes japonicus (McLachlan, 1867)
Chauliodes magotaro Sasaki, 1915
Neochauliodes japonicus (McLachlan, 1867)

Palaearctic (Japan).

Parachauliodes maculosus (Liu & D. Yang, 2006f)
Sinochauliodes maculosus Liu & D. Yang, 2006f

Oriental (China).

Parachauliodes nebulosus (Okamoto, 1910)
Chauliodes nebulosus Okamoto, 1910

Oriental (China, Japan).

Parachauliodes niger Liu, Hayashi & D. Yang, 2008d

Oriental (Japan).

Parachauliodes rastellus Shimonoya, 2019

Oriental (Japan).

Parachauliodes squalidus (Liu & D. Yang, 2006f)
Sinochauliodes squalidus Liu & D. Yang, 2006f

Oriental (China).

Parachauliodes yanbaru Asahina, 1987

Oriental (Japan).

Genus ***Platychauliodes*** Esben-Petersen, 1924

Platychauliodes Esben-Petersen, 1924: 155. Type species. *Chauliodes pusillus* McLachlan, 1867: 231 (by original designation).

Included species

Platychauliodes capensis Barnard, 1931

Afrotropical (South Africa).

Platychauliodes pusillus (McLachlan, 1867)
Chauliodes pusillus McLachlan, 1867
Chauliodes tenuis McLachlan, 1869
Archichauliodes pusillus (McLachlan, 1867)
Leptochauliodes tenuis (McLachlan, 1869)
Platychauliodes tenuis (McLachlan, 1869)
Platychauliodes woodi Barnard, 1931

Afrotropical (South Africa).

Platychauliodes thornei Barnard, 1940

Afrotropical (South Africa).

Genus ***Protochauliodes*** van der Weele, 1909

Protochauliodes van der Weele, 1909: 257. Type species. *Chauliodes cinerascens* Blanchard in Gay, 1851: 134 (by original designation).
Austrochauliodes Riek, 1954: 137. Type species. *Protochauliodes biconicus* Kimmins, 1954: 443 (by present designation; see Nomenclatural botes below). syn. nov.

Taxonomic notes

Austrochauliodes, whose type species is fixed below, is formally established here as a new junior subjective synonym of *Protochauliodes*.

Nomenclatural notes

Oswald & Penny (1991) identified *Austrochauliodes* as a genus name based on a misidentified type species and a name whose type species had yet to be validly fixed. They noted that the case (at that time) required referral to the Commission for type species fixation under Art. 70b of the Code (3rd edition, ICZN 1985). We are not aware of any nomenclatural acts published since 1991 that have validly fixed the type species of *Austrochauliodes* under either the 3rd or 4th editions of the Code. To resolve this long-standing issue, we act here to formally fix the type species of *Austrochauliodes* under Art. 70.3 (4th edition, ICZN 1999) in a manner that is in accordance with currently-accepted usage. Riek (1954) originally included a single valid nominal species in *Austrochauliodes* – *Hermes dubitatus* Walker,

1853 – which he explicitly designated as its type species. Theischinger (1983) provided evidence that the *Austrochauliodes dubitatus* of Riek (1954) was not conspecific with *Hermes dubitatus* Walker, but was, rather, conspecific with the taxonomic species *Protochauliodes biconicus* Kimmins, 1954, a new species that was established by Kimmins independent of Riek's work. Based on this situation Theischinger treated *Protochauliodes biconicus* Kimmins (a nominal species not originally included in *Austrochauliodes*) as the de facto type species of *Austrochauliodes*. Theischinger's treatment has been accepted and adopted by all subsequent workers on the Corydalidae. Accordingly, we here fix (under Art. 70.3.2 of the Code) as the type species of *Austrochauliodes* the nomial (and also currently valid taxonomic) species *Protochauliodes biconicus* Kimmins, 1954, which was misidentified as *Hermes dubitatus* Walker, 1853 in the original designation of Riek (1954).

Included species

Protochauliodes aridus Maddux, 1954

Nearctic (USA).

Protochauliodes biconicus biconicus Kimmins, 1954
Protochauliodes biconicus Kimmins, 1954
Austrochauliodes dubitatus (Walker, 1853)

Australian (Australia).

Protochauliodes biconicus incertus Theischinger, 1983

Australian (Australia).

Protochauliodes biconicus tooloomensis Theischinger, 1983

Australian (Australia).

Protochauliodes bullocki Flint, 1973

Neotropical (Chile).

Protochauliodes cascadius Evans, 1984
Protochauliodes cascadius Evans, 1972 (unavailable)

Nearctic (USA).

Protochauliodes cinerascens cinerascens (Blanchard in Gay, 1851)
Chauliodes cinerascens Blanchard in Gay, 1851
Chauliodes chilensis Hagen, 1861 (unavailable)

Neotropical (Chile).

Protochauliodes cinerascens fumipennis Flint, 1973

Neotropical (Chile).

Protochauliodes cinerascens reedi Kimmins, 1954

Neotropical (Chile).

Protochauliodes dubitatus (Walker, 1853)
Hermes dubitatus Walker, 1853
Chauliodes dubitatus (Walker, 1853)

Archichauliodes dubitatus (Walker, 1853)
Austrochauliodes dubitatus (Walker, 1853)

Neotropical (?) (South America (?)).

Protochauliodes eungella Theischinger, 1988

Australian (Australia).

Protochauliodes humeralis (Banks, 1908)
Neohermes humeralis Banks, 1908

Neotropical (Chile).

Protochauliodes kirramae Theischinger, 1983

Australian (Australia).

Protochauliodes minimus (Davis, 1903)
Chauliodes minimus Davis, 1903
Neohermes infuscatus Caudell, 1933
Neohermes nigrinus Van Dyke, 1944
Protochauliodes infuscatus (Caudell, 1933)

Nearctic (USA).

Protochauliodes montivagus Chandler, 1954

Nearctic (USA).

Protochauliodes simplus Chandler, 1954

Nearctic (USA).

Protochauliodes spenceri Munroe, 1953

Nearctic (Canada, USA).

Genus ***Puri*** Cardoso-Costa, Azevêdo & Ferreira, 2013

Puri Cardoso-Costa, Azevêdo & Ferreira, 2013: 392. Type species. *Puri aleca* Cardoso-Costa, Azevêdo & Ferreira, 2013: 392 (by original designation).

Included species

Puri aleca Cardoso-Costa, Azevêdo & Ferreira, 2013

Neotropical (Brazil).

Genus ***Taeniochauliodes*** Esben-Petersen, 1924

Taeniochauliodes Esben-Petersen, 1924: 153. Type species. *Taeniochauliodes ochraceopennis* Esben-Petersen, 1924: 154 (by original designation).
Leptochauliodes Esben-Petersen, 1924: 157. Type species. *Leptochauliodes esbenpeterseni* Kimmins, 1930: 663 (by present designation; see Nomenclatural notes below).

Nomenclatural notes

Taeniochauliodes. The genus name *Taeniochauliodes* has priority over the concurrently-published name *Leptochauliodes* based on the First Reviser action of Liu *et al*. (2013d), who treated *Taeniochauliodes* as valid and *Leptochauliodes* as its invalid synonym.

Leptochauliodes. Oswald & Penny (1991) identified *Leptochauliodes* as a genus name based on a misidentified type species and a name whose type species had yet to be validly fixed. They noted that the case (at that time) required referral to the Commission for type species fixation under Art. 70b of the Code (3rd edition, ICZN 1985). We are not aware of any nomenclatural acts published since 1991 that have validly fixed the type species of *Leptochauliodes* under either the 3rd or 4th editions of the Code. To resolve this long-standing issue, we act here to formally fix the type species of *Leptochauliodes* under Art. 70.3 (4th edition, ICZN 1999) in a manner that is in accordance with long-accepted usage. Esben-Petersen (1924) origionally included a single nominal species in *Leptochauliodes* – *Chauliodes tenuis* McLachlan, 1869 – which he explicitly designated as its type species ("genotype"). Kimmins (1930) presented evidence that the *Leptochauliodes tenuis* of Esben-Petersen (1924) was not conspecific with *Chauliodes tenuis* McLachlan, but was, rather, a new species, which Kimmins redescribed as *Leptochauliodes esbenpeterseni* (as "esben-peterseni" [sic]). Based on this situation Kimmins treated *Leptochauliodes esbenpeterseni* Kimmins (a nominal species not originally included in *Leptochauliodes*) as the de facto type species of *Leptochauliodes*. Kimmins' proposal has been accepted and adopted by all subsequent workers on the Corydalidae. Accordingly, we here fix (under Art. 70.3.2 of the Code) as the type species of *Leptochauliodes* the nominal species *Leptochauliodes esbenpeterseni* Kimmins, 1930 [the original combination of the current taxonomic species *Taeniochauliodes esbenpeterseni* (Kimmins, 1930)], which was misidentified as *Chauliodes tenuis* McLachlan, 1869 in the original designation of Esben-Petersen (1924). Liu *et al*.'s (2013d) citation of the same species is an indicator of recent usage, but is invalid as a type species fixation because it does not cite Art. 70.3 as an indicator of the intent to fix (rather than merely cite) a type species, as explicitly required in Art. 70.3.2.

Included species

Taeniochauliodes angustus Liu & Price in Liu *et al*., 2013d

Afrotropical (South Africa).

Taeniochauliodes attenuatus Liu & Price in Liu *et al*., 2013d

Afrotropical (South Africa).

Taeniochauliodes barnardi Liu & Hayashi in Liu *et al*., 2013d

Afrotropical (South Africa).

Taeniochauliodes esbenpeterseni (Kimmis, 1930)
Leptochauliodes esbenpeterseni Kimmins, 1930

Afrotropical (South Africa).

Taeniochauliodes fuscus Liu & Price in Liu *et al*., 2013d

Afrotropical (South Africa).

Taeniochauliodes minutus Liu & Hayashi in Liu *et al*., 2013d

Afrotropical (South Africa).

Taeniochauliodes natalensis Liu & Price in Liu *et al*., 2013d

Afrotropical (South Africa).

Taeniochauliodes ochraceopennis Esben-Petersen, 1924

Afrotropical (South Africa).

Subfamily incertae sedis

Genus †***Cratocorydalopsis*** Jepson & Heads, 2016

†*Cratocorydalopsis* Jepson & Heads, 2016: 136. Type species. †*Cratocorydalopsis brasiliensis* Jepson & Heads, 2016: 136 (by original designation).

Taxonomic notes

†*Cratocorydalopsis* is a monotypic and extinct genus only known by one species, †*Cratocorydalopsis brasiliensis*, from the Early Cretaceous Crato Formation of Brazil. This genus was placed in Corydalidae by Jepson & Heads (2016) based on the structure of the fourth tarsomere (simple) and general wing venation pattern; nevertheless, the subfamily placement of †*Cratocorydalopsis* is difficult to determine due to the preservation of the fossil, which makes observation of the necessary characters to identify the subfamily difficult.

Included species

†*Cratocorydalopsis brasiliensis* Jepson & Heads, 2016

Neotropical (Brazil) [Early Cretaceous].

Genus †***Lithocorydalus*** Jepson & Heads, 2016

†*Lithocorydalus* Jepson & Heads, 2016: 139. Type species. †*Lithocorydalus fuscata* Jepson & Heads, 2016: 139 (by original designation).

Taxonomic notes

†*Lithocorydalus* is an extinct genus known only from one Early Cretaceous species, †*Lithocorydalus fuscata*, from the Brazilian Crato Formation. Jepson & Heads (2016) described this genus as belonging to Corydalidae and, similar to †*Cratocorydalopsis*, its subfamily placement is doubtful due to the preservation of the fossil.

Included species

†*Lithocorydalus fuscata* Jepson & Heads, 2016

Neotropical (Brazil) [Early Cretaceous].

Family **Sialidae** Leach in Brewster, 1815

Sialidae Leach in Brewster, 1815: 139 (as Sialida) [type genus: *Sialis* Latreille, 1802: 290]. — Newman 1853: ccii [= 202] (as Sialidae).
†Dobbertiniidae Handlirsch in Schröder, 1920: 198 [type genus: †*Dobbertinia* Handlirsch in Schröder, 1920: 199].

Subfamily †**Sharasialinae** Liu, Hayashi & D. Yang, 2015

†Sharasialinae Liu, Hayashi & D. Yang, 2015d: 28 [type genus: †*Sharasialis* Ponomarenko, 2012: 49].

Genus †***Sharasialis*** Ponomarenko, 2012

†*Sharasialis* Ponomarenko, 2012: 49. Type species: †*Sharasialis fusiformis* Ponomarenko, 2012: 379 (by original designation).

Included species

†*Sharasialis fusiformis* Ponomarenko, 2012

Palaearctic (Mongolia) [Late Jurassic].

Subfamily **Sialinae** Leach in Brewster, 1815

Sialinae Leach in Brewster, 1815: 139 (as Sialida) [type genus: *Sialis* Latreille, 1802: 290]. — Davis 1903: 443 (Sialidinae). — Nakahara 1914: 274 (as Sialinae).
†Dobbertiniinae Handlirsch, 1920 in Schröder: 199 [type genus: †*Dobbertinia* Handlirsch in Schröder, 1920: 199]. — Wichard & Engel 2006: 6.

Genus ***Austrosialis*** Tillyard, 1919

Austrosialis Tillyard, 1919: 821. Type species. *Austrosialis ignicollis* Tillyard, 1919: 823 (by original designation).

Taxonomic notes

In addition to the two named extant species listed below, Lambkin (1992) reported an unnamed *Austrosialis* species from the Paleocene of Australia.

Included species

Austrosialis ignicollis Tillyard, 1919

Australian (Australia).

Austrosialis maxmouldsi Theischinger, 1983

Australian (Australia).

Genus ***Caribesialis*** Ardila-Camacho, Martins & Contreras-Ramos in Ardila-Camacho *et al*., 2021

Caribesialis Ardila-Camacho, Martins & Contreras-Ramos in Ardila-Camacho *et al*., 2021: X24. Type species. *Sialis bifasciata* Hagen, 1861: 188 (by original designation).

Included species

Caribesialis bifasciata (Hagen, 1861)
Sialis bifasciata Hagen, 1861
Protosialis bifasciata (Hagen, 1861)

Neotropical (Cuba).

Genus †***Dobbertinia*** Handlirsch in Schröder, 1920

†*Dobbertinia* Handlirsch, 1920: 199. Type species. †*Dobbertinia reticulata* Handlirsch in Schröder, 1920: 199 (by original designation).

Included species

†*Dobbertinia reticulata* Handlirsch in Schröder, 1920

Palaearctic (Germany) [Early Jurassic].

Genus †***Eosialis*** Nel, Menier, De Ploëg, Hodebert & Danvin, 2002

†*Eosialis* Nel, Menier, De Ploëg, Hodebert & Danvin, 2002: 314. Type species. †*Eosialis dorisi* Nel, Menier, De Ploëg, Hodebert & Danvin, 2002: 314 (by original designation).

Included species

†*Eosialis dorisi* Nel, Menier, De Ploëg, Hodebert & Danvin, 2002

Palaearctic (France) [Eocene].

Genus ***Haplosialis*** Navás, 1927

Haplosialis Navás, 1927a: 31. Type species. *Protosialis madegassa* Navás, 1927a: 30 (by original designation).

Included species

Haplosialis afra (Navás, 1936b)
Protosialis afra Navás, 1936b

Afrotropical (Madagascar).

Haplosialis madegassa (Navás, 1927a)
Protosialis madegassa Navás, 1927a

Afrotropical (Madagascar).

Genus †***Haplosialodes*** Huang, Azar, Engel, Cai, Garrouste & Nel, 2016

†*Haplosialodes* Huang, Azar, Engel, Cai, Garrouste & Nel, 2016: 8. Type species. †*Haplosialodes liui* Huang, Azar, Engel, Cai, Garrouste & Nel, 2016: 8 (by original designation).

Included species

†*Haplosialodes liui* Huang, Azar, Engel, Cai, Garrouste & Nel, 2016

Oriental (Myanmar) [Late Cretaceous].

Genus ***Ilyobius*** Enderlein, 1910

Ilyobius Enderlein, 1910: 381. Type species. *Sialis flavicollis* Enderlein, 1910: 380 (by original designation).

Included species

†*Ilyobius balticus* (Wichard, 1997)
Sialis (*Protosialis*) *baltica* Wichard, 1997
Sialis baltica Wichard, 1997
Protosialis baltica (Wichard, 1997)

Palaearctic (Europe, country unknown) (Baltic amber) [Eocene].

Ilyobius bimaculatus (Banks, 1920)
Protosialis bimaculata Banks, 1920

Neotropical (Bolivia).

†*Ilyobius cascus* (Engel & Grimaldi, 2007)
Sialis (*Protosialis*) *casca* Engel & Grimaldi, 2007
Sialis casca Engel & Grimaldi, 2007
Protosialis casca (Engel & Grimaldi, 2007)

Neotropical (Dominican Republic) (Dominican amber) [Miocene].

Ilyobius chilensis (McLachlan, 1871)
Sialis chilensis McLachlan, 1871
Protosialis chilensis (McLachlan, 1871)

Neotropical (Argentina, Chile).

Ilyobius curvatus Liu, Hayashi & D. Yang, 2015b

Neotropical (Colombia, Panama).

Ilyobius flammatus (Penny, 1981)
Protosialis flammata Penny, 1982

Neotropical (Brazil, Peru).

Ilyobius flavicollis (Enderlein, 1910)
Sialis flavicollis Enderlein, 1910
Protosialis flavicollis (Enderlein, 1910)

Neotropical (Colombia).

Ilyobius hauseri (Contreras-Ramos, Fiorentin & Urakami, 2005)
Protosialis hauseri Contreras-Ramos, Fiorentin & Urakami, 2005

Neotropical (Brazil).

†*Ilyobius herrlingi* (Wichard, 2002)
Sialis (*Protosialis*) *herrlingi* Wichard, 2002
Sialis herrlingi Wichard, 2002
Protosialis herrlingi (Wichard, 2002)

Palaearctic (Russia) (Baltic amber) [Eocene].

Ilyobius mexicanus (Banks, 1901)
Sialis mexicana Banks, 1901
Protosialis mexicana (Banks, 1901)

Neotropical (Mexico, Panama).

Ilyobius nigrocephalus Ardila-Camacho, Martins & Contreras-Ramos in Ardila-Camacho *et al*., 2021

Neotropical (Ecuador).

Ilyobius nubilus (Navás, 1933b)
Protosialis nubila Navás, 1933b

Protosialis brasiliensis Navás, 1936a
Sialis nubila (Navás, 1933b)

Neotropical (Brazil).

Ilyobius ranchograndis (Contreras-Ramos, 2006b)
Protosialis ranchograndis Contreras-Ramos, 2006b

Neotropical (Venezuela).

Genus ***Indosialis*** Lestage, 1927

Indosialis Lestage, 1927: 118. Type species. *Protosialis minora* Banks, 1920: 325 (by monotypy).

Included species

Indosialis bannaensis Liu, D. Yang & Hayashi, 2006

Oriental (China, Laos, Thailand, Vietnam).

†*Indosialis beskonakensis* Nel, 1988

Palaearctic (Turkey) [Oligocene].

Indosialis indica Liu, Flint & D. Yang, 2008a

Oriental (India).

Indosialis minora (Banks, 1920)
Protosialis minora Banks, 1920

Oriental (Malaysia, Singapore).

Indosialis siamensis Piraonapicha, Sangpradub, Jaitrong & Liu, 2020

Oriental (Thailand).

Genus ***Leptosialis*** Esben-Petersen, 1920

Leptosialis Esben-Petersen, 1920: 502. Type species. *Leptosialis africana* Esben-Petersen, 1920: 502 (by original designation).

Included species

Leptosialis africana Esben-Petersen, 1920

Afrotropical (South Africa).

Leptosialis necopinata Price, Liu, de Moor & Villet, 2012

Afrotropical (South Africa).

Genus †***Proindosialis*** Nel, 1988

†*Proindosialis* Nel, 1988: 41. Type species. †*Proindosialis cantalensis* Nel, 1988: 41 (by monotypy).

Included species

†*Proindosialis cantalensis* Nel, 1988

Palaearctic (France) [Miocene].

Genus ***Protosialis*** van der Weele, 1909

Protosialis van der Weele, 1909: 263. Type species. *Semblis americana* Rambur, 1842: 447 (by original designation).

Included species

Protosialis americana (Rambur, 1842)
Semblis americana Rambur, 1842
Sialis ferruginea Walker, 1853
Sialis americana (Rambur, 1842)
Sialis vanderweelei U. Aspöck & H. Aspöck, 1983

Nearctic (USA).

Protosialis glabella (Ross, 1937)
Sialis glabella Ross, 1937

Nearctic (USA).

Genus ***Sialis*** Latreille, 1802

Sialis Latreille, 1802: 290. Type species. *Hemerobius lutarius* Linnaeus, 1758: 550 (by monotypy).
Nipponosialis Kuwayama, 1962: 329. Type species. *Sialis jezoensis* Okamoto, 1910: 258 (by original designation).

Included species

Sialis abchasica Vshivkova, 1985

Palaearctic (Georgia, Russia).

Sialis aequalis Banks, 1920

Nearctic (USA).

Sialis annae Vshivkova, 1979

Palaearctic (China, Russia, South Korea).

Sialis arvalis Ross, 1937

Nearctic (USA).

Sialis atra Navás, 1928c (nom. dub.)

Palaearctic (Spain).

Sialis australis Liu, Hayashi & D. Yang, 2015c

Oriental (China, Vietnam).

Sialis bifida Hayashi & Suda, 1997

Palaearctic (Japan).

Sialis bilobata Whiting, 1991

Nearctic (USA).

Sialis californica Banks, 1920

Nearctic (Canada, USA).

Sialis concava Banks, 1897

Nearctic (Canada, USA).

Sialis contigua Flint, 1964

Nearctic (USA).

Sialis cornuta Ross, 1937

Nearctic (Canada, USA).

Sialis didyma Navás, 1917b (nom. dub.)
Sialis didyma Navás, 1916 (unavailable)

Palaearctic (Spain).

Sialis dreisbachi Flint, 1964

Nearctic (USA).

Sialis elegans Liu & D. Yang, 2006g

Oriental (China).

Sialis fuliginosa Pictet, 1836
Semblis fuliginosa (Pictet, 1836)
Sialis dorochovae Vshivkova, 1985
Sialis gonzalezi Vshivkova, 1985

Palaearctic (Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, Germany, Great Britain, Italy, Liechtenstein, Luxemburg, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain, Sweden, Switzerland).

Sialis fumosa Navás, 1915

Palaearctic (Portugal, Spain).

†*Sialis groehni* Wichard, 1997

Palaearctic (Europe, country unknown) (Baltic amber) [Eocene].

Sialis hamata Ross, 1937

Nearctic (Canada, USA).

Sialis hasta Ross, 1937

Nearctic (USA).

Sialis henanensis Liu & D. Yang, 2006h

Palaearctic (China); Oriental (China).

Sialis infumata Newman, 1838

Sialis maurus Harris in Hitchcock, 1833 (unavailable)

Nearctic (Canada, USA).

Sialis iola Ross, 1937

Nearctic (Canada, USA).

Sialis itasca Ross, 1937

Nearctic (Canada, USA).

Sialis japonica van der Weele, 1909
Sialis mitsuhashii Okamoto, 1910
Sialis diminuta Nakahara, 1915
Sialis nikkoensis Nakahara, 1915
Sialis iyoensis Kuwayama, 1965

Palaearctic (Japan).

Sialis jezoensis Okamoto, 1910
Nipponosialis jezoensis (Okamoto, 1910)
Nipponosialis jezoensis jezoensis (Okamoto, 1910)

Palaearctic (Japan, Russia).

Sialis jianfengensis D. Yang, C.-K. Yang & Hu, 2002

Oriental (China).

Sialis jiyuni Liu, Hayashi & D. Yang, 2015c

Oriental (China).

Sialis joppa Ross, 1937

Nearctic (Canada, USA).

Sialis klingstedti Vshivkova, 1985

Palaearctic (Kazakhstan, Russia).

Sialis koreana Jung & Bae, 2012

Oriental (South Korea).

Sialis kumejimae Okamoto, 1910
Sialis formosana Esben-Petersen, 1913
Nipponosialis amamiensis Kuwayama, 1964
Nipponosialis kumejimae (Okamoto, 1910)

Oriental (China, Japan).

Sialis kunmingensis Liu & D. Yang, 2006g

Oriental (China).

Sialis kuwayamai (Hayashi & Suda, 1995)
Nipponosialis jezoensis kuwayamai Hayashi & Suda, 1995

Nipponosialis kuwayamai Hayashi & Suda, 1995

Palaearctic (Japan).

Sialis kyushuensis Hayashi & Suda, 1995
Sialis melania kyushuensis Hayashi & Suda, 1995

Palaearctic (Japan).

Sialis levanidovae Vshivkova, 1980

Palaearctic (Russia).

Sialis longidens Klingstedt, 1932

Palaearctic (China, Japan, North Korea, Mongolia, Russia).

Sialis luohanbaensis Liu, Hayashi & F. Yang, 2011b

Oriental (China).

Sialis lutaria (Linnaeus, 1758)
Hemerobius lutarius Linnaeus, 1758
Semblis lutaria (Linnaeus, 1758)
Hemerobius aquaticus Retzius, 1783
Perla lutaria (Linnaeus, 1758)
Sialis nigra Latreille, 1805
Sialis excelsior Navás, 1916 (unavailable)
Sialis excelsior Navás, 1917b

Palaearctic (Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Ireland, Italy, Liechtenstein, Luxemburg, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain, Sweden, Switzerland).

Sialis martynovae Vshivkova, 1980

Palaearctic (Russia).

Sialis melania Nakahara, 1915
Sialis nakaharai Kuwayama, 1965
Sialis melania melania Nakahara, 1915

Palaearctic (Japan).

Sialis mohri Ross, 1937

Nearctic (Canada, USA).

Sialis morio Klingstedt, 1933

Palaearctic (Austria, Croatia, Italy, Norway, Romania, Russia, Finland, Sweden, Turkey).

†*Sialis muratensis* Nel, 1988

Palaearctic (France) [Miocene].

Sialis navasi Liu, Hayashi & F. Yang, 2009c

Oriental (China).

Sialis nevadensis Davis, 1903
Sialis morrisoni Davis, 1903

Nearctic (USA).

Sialis nigripes Pictet, 1865

Palaearctic (Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Liechtenstein, Netherlands, Norway, Poland, Portugal, Serbia, Slovenia, Spain, Switzerland, Turkey).

Sialis nina Townsend, 1939

Nearctic (USA).

Sialis occidens Ross, 1937

Nearctic (USA).

Sialis primitiva Liu, Hayashi & F. Yang, 2015e

Oriental (China).

Sialis rotunda Banks, 1920

Nearctic (Canada, USA).

Sialis sibirica McLachlan, 1872
Sialis frequens Okamoto, 1905

Palaearctic (China, Finland, Japan, Mongolia, Norway, Russia, Sweden).

Sialis sinensis Banks, 1940

Oriental (China, Japan).

Sialis sordida Klingstedt, 1933

Palaearctic (Finland, Germany, Kazakhstan, Norway, Russia, Sweden).

Sialis spangleri Flint, 1964

Nearctic (USA).

†*Sialis strausi* Illies, 1967

Palaearctic (Germany) [Pliocene].

Sialis tohokuensis Hayashi & Suda, 1995
Sialis melania tohokuensis Hayashi & Suda, 1995

Palaearctic (Japan).

Sialis toyamaensis Hayashi & Suda, 1995
Sialis melania toyamaensis Hayashi & Suda, 1995

Palaearctic (Japan).

Sialis vagans Ross, 1937

Nearctic (Canada, USA).

Sialis velata Ross, 1937

Nearctic (Canada, USA).

Sialis versicoloris Liu & D. Yang, 2006g

Oriental (China).

†*Sialis voigti* Wichard & Engel, 2006
Sialis (*Protosialis*) *voigti* Wichard & Engel, 2006
Protosialis voigti (Wichard & Engel, 2006)

Palaearctic (Europe, contry unknown) (Baltic amber) [Eocene].

Sialis yamatoensis Hayashi & Suda, 1995

Palaearctic (Japan).

Sialis zhiltzovae Vshivkova, 1985

Palaearctic (Georgia, Russia (?)).

Genus ***Stenosialis*** Tillyard, 1919

Stenosialis Tillyard, 1919: 823. Type species. *Stenosialis australiensis* Tillyard, 1919: 824 (by original designation).

Included species

Stenosialis australiensis Tillyard, 1919
Protosialis australis Navás, 1927a
Austrosialis australiensis (Tillyard, 1919)
Protosialis australiensis (Tillyard, 1919)
Stenosialis tambourinensis Kimmins, 1970 (unavailable)

Australian (Australia).

Stenosialis hollowayi Theischinger, 1983

Australian (Australia).

Family incertae sedis

Genus †***Chauliosialis*** Ponomarenko, 1976

†*Chauliosialis* Ponomarenko, 1976: 431. Type species. †*Chauliosialis sukatshevae* Ponomarenko, 1976: 431 (by original designation). stat. nov.

Taxonomic notes

The extinct genus †*Chauliosialis* contains one species – †*Chauliosialis sukatshevae* – which is known only from a single early instar larva preserved in Late Cretaceous Taymyr amber. Ponomarenko's (1976) original description noted that the larval structure of †*Chauliosialis* differed significantly from that of all other known megalopteran larvae, for instance in possessing the smallest number of lateral abdominal filaments in the order Megaloptera. We treat †*Chauliosialis* here as Megaloptera incertae sedis, rather than as Corydalidae: Chauliodinae, as it has sometimes been treated in prior literature.

Included species

†*Chauliosialis sukatshevae* Ponomarenko, 1976

Palaearctic (Russia) [Late Cretaceous].

Genus †***Nematophlebia*** Cockerell, 1915

†*Nematophlebia* Cockerell, 1915: 475. Type species. †*Nematophlebia plicata* Cockerell, 1915: 476 (by original designation).

Taxonomic notes

†*Nematophlebia* is an extinct genus known only from one Early Jurassic species, †*Nematophlebia plicata*, from Gloucestershire or Warwickshire, England (without further locality). The original species description reports only a few general venational characteristics, which are not enough to confidently include this species in any specific megalopteran family.

Included species

†*Nematophlebia plicata* Cockerell, 1915

Palaearctic (England) [Early Jurassic].

Taxa excluded from the Megaloptera

In addition to the species above, which we recognize here as belonging to the order Megaloptera, several other taxa have been placed in the order by some authors. We list below the taxa that are known to us that have previously been included in the Megaloptera by one or more previous authors, but which are now excluded. For each taxon we provide brief taxonomic notes about its current placement. In the synonymical listings in this section we make no attempt to be comprehensive. We present only enough synonymy to document original taxon placements, prominent intermediate placements (in some cases), and current placements (outside Megaloptera). Because our primary intent is to document the exclusion of certain taxa from Megaloptera, we make no attempt to provide comprehensive sub-taxon listings (e.g., of genera within families, or species within genera) of the higher taxa included in the list below.

Class Insecta Linnaeus, 1758
Subclass Pterygota Lang, 1888
Infraclass Neoptera Martynov, 1923
Superorder Xenonomia Terry & Whiting, 2005
Order Grylloblattodea Walker, 1914

Family †**Euchauliodidae** Riek, 1974

†Euchauliodidae Riek, 1974: 22 [type genus: †*Euchauliodes* Riek, 1974: 22]. — Ansorge 2001: 555. — Archibald & Makarkin 2015: 569.

Taxonomic notes

†Euchauliodidae was originally treated by Riek (1974) as belonging to an extinct family of Megaloptera, based on the single species †*Euchauliodes distinctus* Riek, 1974, which was described from an incomplete forewing from the Molteno Formation (Late Triassic). Ansorge (2001) suggested that this species belonged to the Grylloblattodea, a conclusion later supported by Archibald & Makarkin (2015), who treated Euchauliodidae as Grylloblattodea incertae sedis.

Superorder Neuropterida Boudreax, 1979
Order Raphidioptera Martynov, 1925

Family †**Nanosialidae** Shcherbakov, 2013

†Nanosialidae Shcherbakov, 2013: 50 [type genus: †*Nanosialis* Shcherbakov, 2013: 51]. — Engel *et al*. 2018: 535.

Taxonomic notes

†Nanosialidae was originally described by Shcherbakov (2013), who included in it four new extinct genera and placed it in †Siarapha, a new suborder of Megaloptera. Shcherbakov considered †Siarapha to be transitional between Megaloptera and Raphidioptera. Here, we follow Engel *et al*. (2018) in treating this family, and all of its originally-included genera (†*Hymega* Shcherbakov, 2013, †*Lydasialis* Shcherbakov, 2013, †*Nanosialis* Shcherbakov, 2013, and †*Raphisialis* Shcherbakov, 2013) and species from the Russian Poldarsa Formation (Permian: Lopingian), as stem-group Raphidioptera.

Family †**Parasialidae** Ponomarenko, 1977

†Parasialidae Ponomarenko, 1977: 79 [type genus: †*Parasialis* Ponomarenko, 1977: 80]. — Engel 2004: 119. — Engel & Grimaldi 2008: 8. —Shcherbakov 2013: 49. — Engel *et al*. 2018: 535.

Taxonomic notes

Ponomarenko (1977) described †Parasialidae, which he placed in Megaloptera, based on two extinct genera (†*Parasialis* Ponomarenko, 1977 and †*Sojanasialis* Ponomarenko, 1977) from the Russian Iva-Gora beds (Permian: Guadalupian). Parasialids have been treated variously as stem-group megalopterans (e.g., Engel 2004 [who placed them in a new megalopteran suborder, †Archimegaloptera], Grimaldi & Engel 2005), stem-group Raphidioptera + Megaloptera (e.g., Engel & Grimaldi 2008; Shcherbakov 2013), or as stem-group Raphidioptera (e.g., Engel *et al*. 2018). Here, we follow the latter interpretation, treating the family in Raphidioptera, although the true affinities of †Parasialidae remain uncertain.

Order Neuroptera Linnaeus, 1758
Superfamily Coniopterygoidea Burmeister, 1839
Family Coniopterygidae Burmeister, 1839

Subfamily **Brucheiserinae** Navás, 1927

Brucheiserinae Navás, 1927c: 63 (as Brucheiseridae, in Megaloptera) [type genus: *Brucheiser* Navás, 1927c: 62]. — Riek 1975: 118 (as Brucheiseridae). — New 1989: 12 (as Brucheiserinae). — Meinander 1990: 32 (as Brucheiserinae).

Taxonomic notes

Navás (1927c) described a new extant genus and species from Argentina – *Brucheiser argentinus* – which he placed in a new family, Brucheiseridae, in the order Megaloptera. Riek (1975) described a second species of this same genus and transferred Brucheiseridae to the order Neuroptera. New (1989) demoted Brucheiseridae to a subfamily of Coniopterygidae, a placement that was adopted in Meinander's (1990) world catalogue of the Coniopterygidae, and subsequently by all later authors. Brucheiserinae currently contains two genera – *Brucheiser* and *Flintoconis* Sziráki, 2007 – both extant, and only the first of which has ever been placed in Megaloptera.

Superfamily Chrysopoidea Schneider, 1851

Family †**Corydasialidae** Wichard, Chatterton & Ross, 2005

†Corydasialidae Wichard, Chatterton & Ross, 2005: 279 [type genus: †*Corydasialis* Wichard, Chatterton & Ross, 2005: 279]. — Archibald & Makarkin 2005: 570. — Liu *et al*. 2017: 572.

Taxonomic notes

Wichard *et al*. (2005) described the family †Corydasialidae in Megaloptera based on a single species, †*Corydasialis inexspectata*, from the Baltic amber of Kaliningrad, Russia (Eocene). Corydasialids have been treated as belonging to either the Megaloptera (e.g., Wichard *et al.* 2005) or the Neuroptera (e.g., Liu *et al*. 2017). In the present work, we follow Liu *et al.* (2017) in treating corydasialids as chrysopoid neuropterans. Currently †Corydasialidae contains four extinct genera, †*Cratochrysa* Martins Neto, 1994, †*Megalopteroneura* Liu, Lu & Zhang, 2017, †*Corydasialis* Wichard, Chatterton & Ross, 2005, and †*Ypresioneura* Archibald & Makarkin, 2015, but only the two later have ever been placed in Megaloptera.

Superorder Antliophora Hennig, 1969
Order Mecoptera Packard, 1886

Family †**Permochoristidae** Tillyard, 1918

†Permochoristidae Tillyard, 1918: 732 [type genus: †*Permochorista* Tillyard, 1918: 732].

†Tychtodelopteridae Ponomarenko, 1977: 83 [type genus: †*Tychtodelopterum* Martynova, 1958: 2]. — Novokshonov 2002: 198. — Grimaldi & Engel 2005: 341.

Taxonomic notes

Martynova (1958) described the genus †*Tychtodelopterum* based on a single species from the Russian Permian, placing it in the family †Archaemiopteridae Guthorl, 1939 (†Miomoptera). Ponomarenko (1977) created for this genus the new family †Tychtodelopteridae, placing it in Megaloptera. Here, we follow Novokshonov (2002) in treating †Tychtodelopteridae as a synonym of †Permochoristidae in the order Mecoptera.

Infraclass Neoptera incertae sedis

Family †**Permosialidae** Martynov, 1928

†Permosialidae Martynov, 1928: 93 [type genus: †*Permosialis* Martynov, 1928: 94]. — Riek 1976: 772. — Carpenter 1992: 205. — Storozhenko & Novokshonov 1999: 3. — Prokop *et al*. 2017: 5.

Taxonomic notes

Martynov (1928) described and placed in the order Megaloptera the extinct family †Permosialidae, which he based on one new genus and two new species – †*Permosialis paucinervis* Martynov, 1928 and †*Permosialis lata* Martynov, 1928. Permosialids have been treated variously as megalopterans (e.g., Martynov 1928, Martynova 1962), Neoptera incertae sedis (e.g., Carpenter 1992; Prokop *et al*. 2017), or †Miomoptera Martynov, 1928 (e.g., Riek 1976; Storozhenko & Novokshonov 1999; Aristov *et al*. 2013). In the present work, we follow Prokop *et al*. (2017) in treating †Permosialidae as Neoptera incertae sedis, and thus exclude it from the Megaloptera. The family currently contains three genera (PBDB 2022), of which only †*Permosialis* Martynov, 1928 has previously been placed in Megaloptera.

Superorder Neuropterida incertae sedis

Family †**Permithonidae** Tillyard, 1922

†Permithonidae Tillyard, 1922: 289 [type genus: †*Permithone* Tillyard, 1922: 289].

†Sialidopsidae M.D. Zalessky, 1928: 693 [type genus: †*Sialidopsis* M.D. Zalessky, 1926: 76]. — Prokop *et al*. 2015: 265.

Taxonomic notes

Zalessky (1928) described the family †Sialidopsidae – based on the single genus †*Sialidopsis* M.D. Zalesky, 1926 – which Martynov (1928) placed in the order Megaloptera. Here, we follow Prokop *et al*. (2015) in treating †*Sialidopsis* in the family †Permithonidae, and Engel *et al*. (2018) in treating †Permithonidae as Neuropterida incertae sedis. †Permithonidae currently contains >20 genera, of which only †*Sialidopsis* appears to have been previously placed in Megaloptera.

Discussion

The extant species of Megaloptera are present in all of the major biogeographical regions of the world (Table 1), but they are more than twice as speciose in northern regions (Nearctic + Palearctic + Oriental; 282 species) than they are in southern regions (Neotropical + Afrotropical + Australian; 124 species) and are particularly depauperate in the Australian (27 species) and Afrotropical (19) regions. Although present in cool-temperate latitudes (particularly in the Northern Hemisphere), megalopterans are absent from the more extreme near-polar regions of the Arctic and Antarctic, and are also absent from oceanic islands that lie distant from continental source areas. Among the six biogeographic regions, the Oriental region possesses the largest number of recorded extant species, 205, slightly more than half (51%) of the total number of extant megalopteran species (400). The Neotropical region has the second-most diverse fauna with 78 extant species, followed by the Nearctic (49), Palearctic (36), Australian (27), and Afrotropical (19) regions.

Extant corydalid diversity displays a pattern similar to that of total-order extant diversity, but the Australian, rather than the Palaearctic, has the fourth-largest number of species, and the Palearctic and Afrotropical faunas are both small (less than 15 species). With respect to extant sialid diversity, the Palearctic region possesses the largest number of species (26), followed by the Nearctic (24), Oriental (17), Neotropical (11), Australian (4), and Afrotropical (4) regions. The extant megalopteran faunas of four biogeographic regions are strongly dominated by corydalid species: Oriental (92% of species), Neotropical (86%), Australian (85%), Afrotropical (79%); one region is dominated by sialid species: Palearctic (69% Sialidae, 31% Corydalidae); and one region contains approximately equal numbers of species in both families: Nearctic (51% Sialidae, 49% Corydalidae). In the Palearctic, extant Corydalidae are restricted to eastern Asia and are notably absent from Europe. As insects with aquatic larvae, megalopterans are rare or absent in most arid areas of the world, including northern Africa and most of Australia. Anomalously, no megalopteran species have yet been reported from the wet tropical areas of western and central Africa.

Extinct megalopteran species, summarized in Table 2, are known from the Early Jurassic through the Miocene from fossils found on the continents of Europe (15 species), Asia (7), North America (2), and South America (2); no fossil megalopterans are currently known from Africa, and an unnamed *Austrosialis* species is reported to from the Paleocene of Australia (Lambkin 1992). For convenience and consistency of numerical treatment, we include extinct megalopterans within the Holocene biogeographic framework in Table 1, but it is understood that the recent factors responsible for delimiting those regions are not applicable to the extinct species. Of the 25 extinct megalopteran species known: 13 are Cenozoic

Table 1 (continued on next two pages). Megaloptera species counts by family, subfamily, genus, and biogeograhic region († = taxon known only from extinct species; * = genus placement questionable).

FAMILY SUBFAMILY *Genus*	NEARCTIC			NEOTROPICAL			PALAEARCTIC			AFROTROPICAL			ORIENTAL			AUSTRALIAN			WORLD		
	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total
CORYDALIDAE Leach in Brewster, 1815	**25**	**1**	**26**	**67**	**2**	**69**	**10**	**6**	**16**	**15**	–	**15**	**188**	**2**	**190**	**23**	–	**23**	**315**	**10**	**325**
CORYDALINAE Leach in Brewster, 1815	**6**	**1**	**7**	**58**	–	**58**	**3**	**2**	**5**	**1**	–	**1**	**116**	–	**116**	–	–	–	**177**	**2**	**179**
Acanthacorydalis van der Weele, 1907	–	–	–	–	–	–	1	–	1	–	–	–	8	–	8	–	–	–	8	–	8
Chloronia Banks, 1908	1	–	1	18	–	18	–	–	–	–	–	–	–	–	–	–	–	–	18	–	18
Chloroniella Esben-Petersen, 1924	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	1	–	1
†*Corydalites* Scudder, 1878	–	1	1	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	1	1
Corydalus Latreille, 1802	4	–	4	37	–	37	–	1	1	–	–	–	1*	–	1*	–	–	–	39	1	40
Neoneuromus van der Weele, 1909	–	–	–	–	–	–	–	–	–	–	–	–	13	–	13	–	–	–	13	–	13
Nevromus Rambur, 1842	–	–	–	–	–	–	–	–	–	–	–	–	7	–	7	–	–	–	7	–	7
Platyneuromus van der Weele, 1909	1	–	1	3	–	3	–	–	–	–	–	–	–	–	–	–	–	–	3	–	3
Protohermes van der Weele, 1907	–	–	–	–	–	–	2	–	2	–	–	–	87	–	87	–	–	–	87	–	87
CHAULIODINAE Newman, 1853	**19**	–	**19**	**9**	–	**9**	**7**	**4**	**11**	**14**	–	**14**	**72**	**2**	**74**	**23**	–	**23**	**138**	**6**	**144**
Anachauliodes Kimmins, 1954	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	1	–	1
Apochauliodes Theischinger, 1983	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	1	–	1
Archichauliodes van der Weele, 1909	–	–	–	2	–	2	–	–	–	–	–	–	–	–	–	19	–	19	21	–	21
Chauliodes Latreille, 1802	2	–	2	–	–	–	–	2	2	–	–	–	–	–	–	–	–	–	2	2	4
†*Cretochaulus* Ponomarenko, 1976	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	1	1
Ctenochauliodes van der Weele, 1909	–	–	–	–	–	–	–	–	–	–	–	–	14	–	14	–	–	–	14	–	14
Dysmicohermes Munroe, 1953	2	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	2
†*Eochauliodes* Liu, Y. Wang, Shih, Ren & D. Yang, 2012	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	1	1

Table 1 (continued). Megaloptera species counts by family, subfamily, genus, and biogeograhic region († = taxon known only from extinct species; * = genus placement questionable).

FAMILY SUBFAMILY *Genus*	NEARCTIC			NEOTROPICAL			PALAEARCTIC			AFROTROPICAL			ORIENTAL			AUSTRALIAN			WORLD		
	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total
†*Jurochauliodes* B. Wang & Zhang, 2010	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	1	1
Madachauliodes Paulian, 1951	–	–	–	–	–	–	–	–	–	3	–	3	–	–	–	–	–	–	3	–	3
Neochauliodes van der Weele, 1909	–	–	–	–	–	–	5	–	5	–	–	–	48	–	48	–	–	–	48	–	48
Neohermes Banks, 1908	6	–	6	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	6	–	6
Nigronia Banks, 1908	2	–	2	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	2	1	3
Nothochauliodes Flint, 1983	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Orohermes Evans, 1984	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Parachauliodes van der Weele, 1909	–	–	–	–	–	–	2	–	2	–	–	–	9	–	9	–	–	–	11	–	11
Platychauliodes Esben-Petersen, 1924	–	–	–	–	–	–	–	–	–	3	–	3	–	–	–	–	–	–	3	–	3
Protochauliodes van der Weele, 1909	6	–	6	4	–	4	–	–	–	–	–	–	–	–	–	3	–	3	13	–	13
Puri Cardoso-Costa, Azevêdo & Ferreira, 2013	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Taeniochauliodes Esben-Petersen, 1924	–	–	–	–	–	–	–	–	–	8	–	8	–	–	–	–	–	–	8	–	8
SUBFAMILY INCERTAE SEDIS	–	–	–	–	**2**	2	–	–	–	–	–	–	–	–	–	–	–	–	–	**2**	**2**
†*Cratocorydalopsis* Jepson & Heads, 2016	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
†*Lithocorydalus* Jepson & Heads, 2016	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
SIALIDAE Leach in Brewster, 1815	**24**	–	**24**	**11**	**1**	**12**	**26**	**11**	**37**	**4**	–	**4**	**17**	**1**	**18**	**4**	–	**4**	**85**	**13**	**98**
†SHARASIALINAE Liu, Hayashi & D. Yang, 2015	–	–	–	–	–	–	–	**1**	**1**	–	–	–	–	–	–	–	–	–	–	**1**	**1**
†*Sharasialis* Ponomarenko, 2012	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	1	1
SIALINAE Leach in Brewster, 1815	**24**	–	**24**	**11**	**1**	**12**	**26**	**10**	**36**	**4**	–	**4**	**17**	**1**	**18**	**4**	–	**5**	**85**	**12**	**97**
Austrosialis Tillyard, 1919	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	3	2	1	3

Table 1 (continued). Megaloptera species counts by family, subfamily, genus, and biogeograhic region († = taxon known only from extinct species; * = genus placement questionable).

FAMILY SUBFAMILY *Genus*	NEARCTIC			NEOTROPICAL			PALAEARCTIC			AFROTROPICAL			ORIENTAL			AUSTRALIAN			WORLD		
	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total	Extant	Extinct	Total
Caribesialis Ardila-Camacho, Martins & Contreras-Ramos., 2021	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
†*Dobbertinia* Handlirsch in Schröder, 1920	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	1	1
†*Eosialis* Nel, Menier, De Ploëg, Hodebert & Danvin, 2002	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	1	1
Haplosialis Navás, 1927	–	–	–	–	–	–	–	–	–	2	–	2	–	–	–	–	–	–	2	–	2
†*Haplosialodes* Huang, Azar, Engel, Cai, Garrouste & Nel, 2016	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	1	1
Ilyobius Enderlein, 1910	–	–	–	10	1	11	–	2	2	–	–	–	–	–	–	–	–	–	10	3	13
Indosialis Lestage, 1927	–	–	–	–	–	–	–	1	1	–	–	–	4	–	4	–	–	–	4	1	5
Leptosialis Esben-Petersen, 1920	–	–	–	–	–	–	–	–	–	2	–	2	–	–	–	–	–	–	2	–	2
†*Proindosialis* Nel, 1988	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	1	1
Protosialis van der Weele, 1909	2	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	2
Sialis Latreille, 1802	22	–	22	–	–	–	26	4	30	–	–	–	13	–	13	–	–	–	60	4	64
Stenosialis Tillyard, 1919	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	2	2	–	2
FAMILY INCERTAE SEDIS	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**2**	**2**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**2**	**2**
†*Chauliosialis* Ponomarenko, 1976 stat. nov.	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	1	1
†*Nematophlebia* Cockerell, 1915	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	1	1
MEGALOPTERA Latreille, 1802	**49**	**1**	**50**	**78**	**3**	**81**	**36**	**19**	**55**	**19**	**–**	**19**	**205**	**3**	**208**	**27**	**–**	**27**	**400**	**25**	**425**

An unknown fossil species of *Austrosialis* is recorded for Paleocene Redbank Plains Formation of Queensland, Australia (see Lambkin 1992), nevertheless it is not added in this table.

(8 Eocene) and 12 are Mesozoic (Jurassic and Cretaceous); 14 are compression fossils and 11 are amber inclusions. One species is reported only from fossil egg masses, 18 are reported only from adults, 2 are reported only from larvae, and 4 are reported from both larvae and adults. While the reported larvae and adults of species in the later category are known from similar horizons, the conspecificity of the reported larva/adult associations remains speculative.

Records for extinct Corydalidae range from Middle Jurassic to Eocene, while records for Sialidae span a wider range from Early Jurassic to Pliocene. The extinct Early Jurassic species †*Nematophlebia plicata* – known only from a forewing fragment from England – remains incertae sedis, as does †*Chauliosialis sukatshevae* from Late Cretaceous Taymyr amber. Extinct sialid species are known from North America, Europe, and Asia (also an unnamed *Austrosialis* specimen from northeastern Australia), while extinct Corydalidae are known from these same continents plus South America. It is interesting to note that extinct sialid species are more frequently preserved in amber than corydalid species (7 of 13 species [54%] vs 4 of 11 species [36%]). This taphonomic difference is probably related to the markedly different average size of species in the two families, with the larger corydalids being both less likely to have become caught by ancient resin flows and, if caught, less likely to have become fully entombed in such resins to facilitate their long-term preservation as amber inclusions.

The first extant Megalopteran species were described in the 1750s, while the first extinct species was described almost 100 years later in the 1850s. Up to the present day, a total of 425 species have been described – 400 extant, 25 extinct. The rate of description of new species has been quite variable, with periods of active description interspersed with periods of minimal description (Figs 2–3). The first important period of descriptive work occurred between 1830 and 1870, during which European explorations and collectors around the world brought large numbers of new insect species back to Europe for description. Notable workers active during this period were Hermann Hagen (1817–1893)†, Robert McLachlan (1837–1904)† and Francis Walker (1809–1874)†.

A second period of active description occurred from 1900 to the mid 1930s and was contributed to by numerous neuropterists, including Nathan Banks (1868–1953)†, Peter Esben-Petersen (1869–1942)†, Douglas Eric Kimmins (1905–1985)†, Longinos Navás Ferrer (1858–1938)†, and Herman Willem van der Weele (1879–1910)†. The first major monograph dedicated solely to the Megaloptera – van der Weele (1910) – was published during this period. Subsequently, description rates declined during WWII and were slow to recover. Starting in the 1980s, however, a new generation of workers renewed descriptive work on the Megaloptera.

The ca 40-period since 1980 is notable for its increased focus on previously under-studied areas of the globe, particularly the neotropics and southeastern Asia. More than half of the currently-known extant megalopteran species, and approximately two-thirds of its known extinct species, have been described since 1980. During this period the megalopteran fauna of the New World was studied by several entomologists, especially Oliver S. Flint Jr (1931–2019)†, Michael J. Glorioso (1956–1980)†, Norman D. Penny (1946–2016)†, Elwin D. Evans, and Atilano Contreras-Ramos. Southeastern Asia has proven to contain an unexpectedly rich and diverse fauna of megalopterans (particularly corydalids), which has been described by several workers including Fumio Hayashi, Ding Yang, and Xingyue Liu. Several other workers have described species of other biogeographic regions, notably Günther Theischinger for the Australian region.

Despite the comparatively large size and ecological importance of Megaloptera immatures, the taxonomy of the order is based principally upon adult characters, and relatively few species (only ca 20%) are known from one or more immature stages. No immature stages are known for five (of 35) extant and seven (of 13) fossil genera (Table 3). Only 34 species (8%) are known from eggs, and even fewer,

Table 2 (continued on next page). Extinct Megaloptera: a summary by taxon, life stage, preservation, distribution, and chronostratigraphic age.

FAMILY SUBFAMILY *Species*	LIFE STAGE			PRESERVATION		DISTRIBUTION				CHRONOSTRATIGRAPHIC AGE								
	Egg	Larva	Adult	Amber	Compression	North America	South America	Europe	Asia	Early Jurassic	Middle Jurassic	Late Jurassic	Early Cretaceous	Late Cretaceous	Eocene	Oligocene	Miocene	Pliocene
CORYDALIDAE Leach in Brewster, 1815	**1**	**3**	**9**	**3**	**7**	**1**	**2**	**5**	**3**	**–**	**2**	**1**	**3**	**1**	**3**	**–**	**–**	**–**
CORYDALINAE Leach in Brewster, 1815	**1**	**–**	**1**	**–**	**2**	**1**	**–**	**2**	**–**	**–**	**–**	**1**	**–**	**1**	**–**	**–**	**–**	**–**
Corydalites fecundum Scudder, 1878	x	–	–	–	x	x	–	x	–	–	–		–	x	–	–	–	–
Corydalus vetustus Oppenheim, 1888	–	–	x	–	x	–	–	x	–	–	–	x	–	–	–	–	–	–
CHAULIODINAE Newman, 1853	**–**	**3**	**6**	**3**	**3**	**–**	**–**	**3**	**3**	**–**	**2**	**–**	**1**	**–**	**3**	**–**	**–**	**–**
Chauliodes carsteni Wichard, 2003	–	–	x	x	–	–	–	x	–	–	–	–	–	–	x	–	–	–
Chauliodes priscus Pictet in Berendt, 1856	–	–	x	x	–	–	–	x	–	–	–	–	–	–	x	–	–	–
Cretochaulus lacustris Ponomarenko, 1976	–	x	x	–	x	–	–	–	x	–	–	–	x	–	–	–	–	–
Eochauliodes striolatus Liu, Y. Wang, Shih, Ren & D. Yang, 2012	–	x	x	–	x	–	–	–	x	–	x	–	–	–	–	–	–	–
Jurochauliodes ponomarenkoi B. Wang & Zhang, 2010	–	x	x	–	x	–	–	–	x	–	x	–	–	–	–	–	–	–
Nigronia prussia Liu & Ansorge, 2020	–	–	x	x	–	–	–	x	–	–	–	–	–	–	x	–	–	–
SUBFAMILY INCERTAE SEDIS	**–**	**–**	**2**	**–**	**2**	**–**	**2**	**–**	**–**	**–**	**–**	**–**	**2**	**–**	**–**	**–**	**–**	**–**
Cratocorydalopsis brasiliensis Jepson & Heads, 2016	–	–	x	–	x	–	x	–	–	–	–	–	x	–	–	–	–	–
Lithocorydalus fuscata Jepson & Heads, 2016	–	–	x	–	x	–	x	–	–	–	–	–	x	–	–	–	–	–
SIALIDAE Leach in Brewster, 1815	**–**	**2**	**12**	**7**	**6**	**1**	**–**	**9**	**3**	**1**	**–**	**1**	**–**	**1**	**5**	**1**	**3**	**1**
SHARASIALINAE Liu, Hayashi & D. Yang, 2015	**–**	**1**	**–**	**–**	**1**	**–**	**–**	**–**	**1**	**–**	**–**	**1**	**–**	**–**	**–**	**–**	**–**	**–**
Sharasialis fusiformis Ponomarenko, 2012	–	x	–	–	x	–	–	–	x	–	–	x	–	–	–	–	–	–

Table 2 (continued). Extinct Megaloptera: a summary by taxon, life stage, preservation, distribution, and chronostratigraphic age.

FAMILY SUBFAMILY *Species*	LIFE STAGE			PRESERVATION		DISTRIBUTION				CHRONOSTRATIGRAPHIC AGE								
	Egg	Larva	Adult	Amber	Compression	North America	South America	Europe	Asia	Early Jurassic	Middle Jurassic	Late Jurassic	Early Cretaceous	Late Cretaceous	Eocene	Oligocene	Miocene	Pliocene
SIALINAE Leach in Brewster, 1815	**–**	**1**	**11**	**6**	**5**	**1**	**–**	**8**	**2**	**1**	**–**	**–**	**–**	**1**	**4**	**1**	**3**	**1**
Dobbertinia reticulata Handlirsch in Schröder, 1920	–	–	x	–	x	–	–	x	–	x	–	–	–	–	–	–	–	–
Eosialis dorisi Nel, Menier, De Ploëg, Hodebert & Danvin, 2002	–	–	x	x	–	–	–	x	–	–	–	–	–	–	x	–	–	–
Haplosialodes liui Huang, Azar, Engel, Cai, Garrouste & Nel, 2016	–	–	x	x	–	–	–	–	x	–	–	–	–	x	–	–	–	–
Ilyobius balticus (Wichard, 1997)	–	–	x	x	–	–	–	x	–	–	–	–	–	–	x	–	–	–
Ilyobius cascus (Engel & Grimaldi, 2007)	–	–	x	x	–	x	–	–	–	–	–	–	–	–	–	–	x	–
Ilyobius herrlingi (Wichard, 2002)	–	–	x	x	–	–	–	x	–	–	–	–	–	–	x	–	–	–
Indosialis beskonakensis Nel, 1988	–	–	x	–	x	–	–	–	x	–	–	–	–	–	–	x	–	–
Proindosialis cantalensis Nel, 1988	–	–	x	–	x	–	–	x	–	–	–	–	–	–	–	–	x	–
Sialis groehni Wichard, 1997	–	–	x	x	–	–	–	x	–	–	–	–	–	–	x	–	–	–
Sialis muratensis Nel, 1988	–	–	x	–	x	–	–	x	–	–	–	–	–	–	–	–	x	–
Sialis strausi Illies, 1967	–	x	x	–	x	–	–	x	–	–	–	–	–	–	–	–	–	x
Sialis voigti Wichard & Engel, 2006	–	–	x	x	–	–	–	x	–	–	–	–	–	–	x	–	–	–
FAMILY INCERTAE SEDIS	**–**	**1**	**1**	**1**	**1**	**–**	**–**	**1**	**1**	**1**	**–**	**–**	**–**	**1**	**–**	**–**	**–**	**–**
Chauliosialis sukatshevae Ponomarenko, 1976	–	x	–	x	–	–	–	–	x	–	–	–	–	x	–	–	–	–
Nematophlebia plicata Cockerell, 1915	–	–	x	–	x	–	–	x	–	x	–	–	–	–	–	–	–	–
TOTAL	**1**	**6**	**22**	**11**	**14**	**2**	**2**	**15**	**7**	**2**	**2**	**2**	**3**	**3**	**8**	**1**	**3**	**1**

An unknown fossil species of *Austrosialis* is recorded for Paleocene Redbank Plains Formation of Queensland, Australia (see Lambkin 1992), nevertheless it is not added in this table.

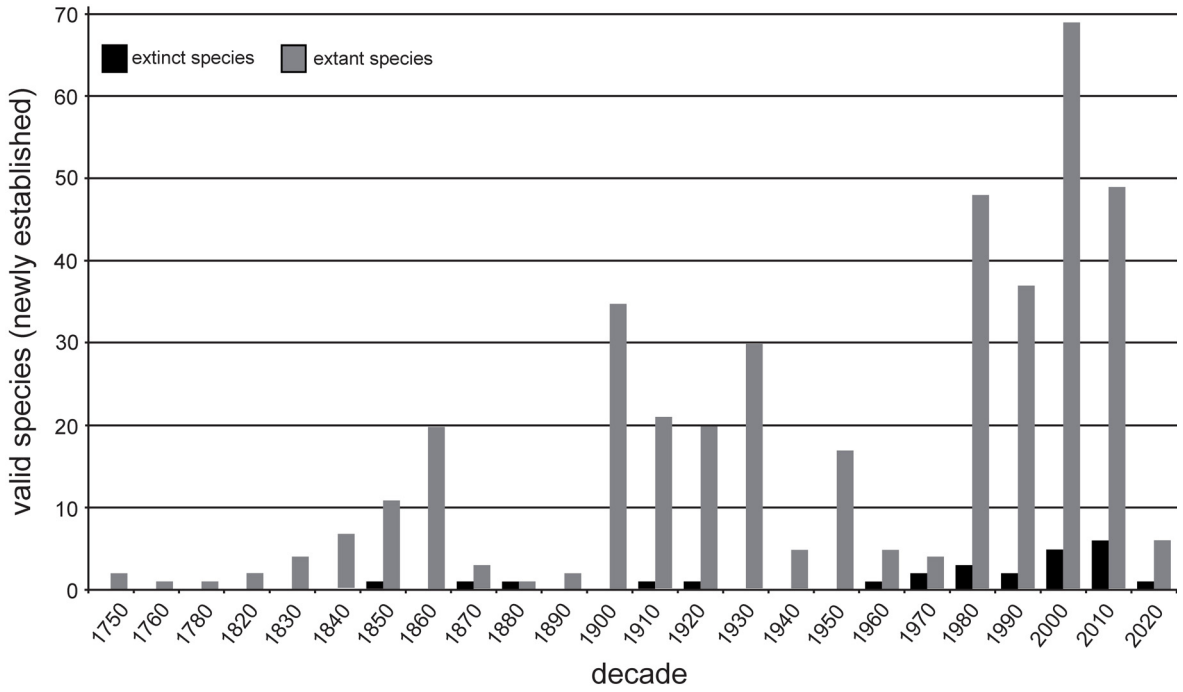

Fig. 2. Valid extant and extinct species of world Megaloptera established by decade; each species is attributed to the decade in which its currently valid species group-name was established. Subspecies are excluded.

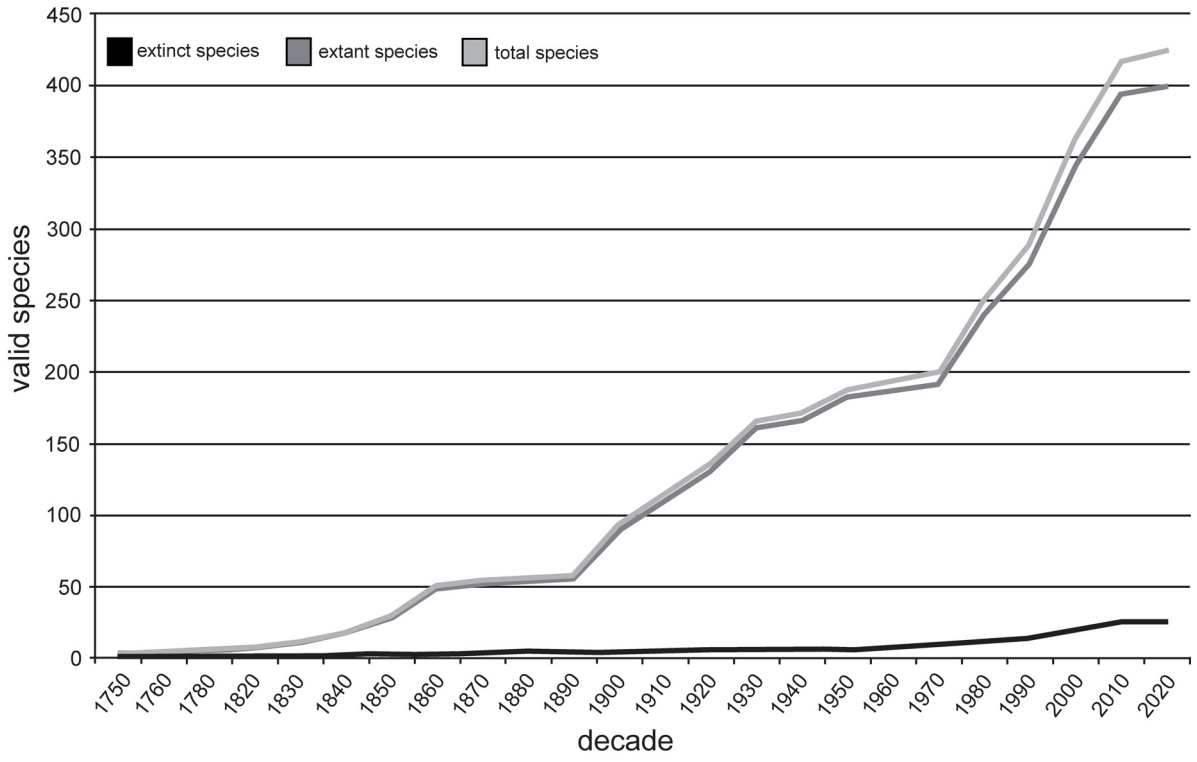

Fig. 3. Taxonomic description curve for valid extant, extinct, and total species of world Megaloptera by decade (based on data in Fig. 2).

Table 3 (continued in next two pages). Known Megaloptera immatures: species counts by family, subfamily, genus, biogeographic region, and known life stage († = taxon known only from extinct species; * = taxon identified to genus only, species unknown).

FAMILY SUBFAMILY *Genus*	NEARCTIC			NEOTROPICAL			PALAEARCTIC			AFROTROPICAL			ORIENTAL			AUSTRALIAN			WORLD		
	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa
CORYDALIDAE Leach in Brewster, 1815	**11**	**18**	**4**	**2**	**16**	**7**	**3**	**8**	**3**	**1**	**4**	**3**	**1**	**11**	**4**	–	**6**	**1**	**16**	**54**	**18**
CORYDALINAE Leach in Brewster, 1815	**3**	**6**	**2**	**2**	**14**	**5**	**3**	**4**	**3**	–	**1**	**1**	–	**4**	**4**	–	–	–	**6**	**22**	**12**
Acanthacorydalis van der Weele, 1907	–	–	–	–	–	–	–	1	1	–	–	–	–	1	1	–	–	–	–	1	1
Chloronia Banks, 1908	–	1	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–
Chloroniella Esben-Petersen, 1924	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	1	1
†*Corydalites* Scudder, 1878	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Corydalus Latreille, 1802	1	3	1	2	10	4	–	–	–	–	–	–	–	–	–	–	–	–	3	11	5
Neoneuromus van der Weele, 1909	–	–	–	–	–	–	–	1	1	–	–	–	–	2	2	–	–	–	–	2	2
Nevromus Rambur, 1842	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	1	1
Platyneuromus van der Weele, 1909	–	1	1	–	2	1	–	–	–	–	–	–	–	–	–	–	–	–	–	2	1
Protohermes van der Weele, 1907	1	1	–	–	–	–	2	2	1	–	–	–	–	–	–	–	–	–	2	2	1
CHAULIODINAE Newman, 1853	**8**	**12**	**2**	–	**2**	**2**	–	**4**	–	**1**	**3**	**2**	**1**	**7**	–	–	**6**	**1**	**10**	**32**	**6**
Anachauliodes Kimmins, 1954	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–
Apochauliodes Theischinger, 1983	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–
Archichauliodes van der Weele, 1909	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	1	–	4	1
Chauliodes Latreille, 1802	1	2	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	2	1
†*Cretochaulus* Ponomarenko, 1976	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–
Ctenochauliodes van der Weele, 1909	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table 3 (continued). Known Megaloptera immatures: species counts by family, subfamily, genus, biogeographic region, and known life stage († = taxon known only from extinct species; * = taxon identified to genus only, species unknown).

FAMILY SUBFAMILY *Genus*	NEARCTIC			NEOTROPICAL			PALAEARCTIC			AFROTROPICAL			ORIENTAL			AUSTRALIAN			WORLD		
	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa
†*Eochauliodes* Liu, Y. Wang, Shih, Ren & D. Yang, 2012	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–
†*Jurochauliodes* B.Wang & Zhang, 2010	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–
Madachauliodes Paulian, 1951	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	1	1
Neochauliodes van der Weele, 1909	–	–	–	–	–	–	–	1	–	–	–	–	–	2	–	–	–	–	–	2	–
Neohermes Banks, 1908	2	3	1	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	2	3	1
Nigronia Banks, 1908	1	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	2	–
Nothochauliodes Flint, 1983	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Orohermes Evans, 1984	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–
Parachauliodes van der Weele, 1909	–	–	–	–	–	–	–	2	–	–	–	–	1	2	–	–	–	–	1	4	–
Platychauliodes Esben-Petersen, 1924	–	–	–	–	–	–	–	–	–	–	1*	–	–	–	–	–	–	–	–	1*	–
Protochauliodes van der Weele, 1909	2	2	–	–	1	1	–	–	–	–	–	–	–	–	–	–	1	–	2	4	1
Puri Cardoso-Costa, Azevêdo & Ferreira, 2013	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Taeniochauliodes Esben-Petersen, 1924	–	–	–	–	–	–	–	–	–	1	1	1	–	–	–	–	–	–	1	1	1
SUBFAMILY INCERTAE SEDIS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
†*Cratocorydalopsis* Jepson & Heads, 2016	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
†*Lithocorydalus* Jepson & Heads, 2016	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SIALIDAE Leach in Brewster, 1815	**8**	**9**	**4**	**1**	**2**	**1**	**8**	**13**	**1**	**1**	**2**	–	–	**4**	**1**	–	**2**	–	**18**	**32**	**7**
†SHARASIALINAE Liu, Hayashi & D. Yang, 2015	–	–	–	–	–	–	–	**1**	–	–	–	–	–	–	–	–	–	–	–	**1**	–
†*Sharasialis* Ponomarenko, 2012	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–

Table 3 (continued). Known Megaloptera immatures: species counts by family, subfamily, genus, biogeograhic region, and known life stage († = taxon known only from extinct species; * = taxon identified to genus only, species unknown).

FAMILY SUBFAMILY *Genus*	NEARCTIC			NEOTROPICAL			PALAEARCTIC			AFROTROPICAL			ORIENTAL			AUSTRALIAN			WORLD		
	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa	Egg	Larva	Pupa
Austrosialis Tillyard, 1919	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1*	–	–	1*	–
Caribesialis Ardila-Camacho, Martins & Contreras-Ramos, 2021	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
†*Dobbertinia* Handlirsch in Schröder, 1920	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
†*Eosialis* Nel, Menier, De Ploëg, Hodebert & Danvin, 2002	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Haplosialis Navás, 1927	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
†*Haplosialodes* Huang, Azar, Engel, Cai, Garrouste & Nel, 2016	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ilyobius Enderlein, 1910	–	–	–	1	2	1	–	–	–	–	–	–	–	–	–	–	–	–	1	2	1
Indosialis Lestage, 1927	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	1	1
Leptosialis Esben-Petersen, 1920	–	–	–	–	–	–	–	–	–	1	2	–	–	–	–	–	–	–	1	2	–
†*Proindosialis* Nel, 1988	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Protosialis van der Weele, 1909	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Sialis Latreille, 1802	8	8	4	–	–	–	8	12	1	–	–	–	–	3	–	–	–	–	16	23	5
Stenosialis Tillyard, 1919	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1*	–	–	1*	–
FAMILY INCERTAE SEDIS	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**1**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**1**	**–**
†*Chauliosialis* Ponomarenko, 1976 stat. nov.	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–
†*Nematophlebia* Cockerell, 1915	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
MEGALOPTERA Latreille, 1802	**19**	**27**	**8**	**3**	**18**	**8**	**11**	**22**	**4**	**2**	**6**	**3**	**1**	**15**	**5**	**–**	**8**	**1**	**34**	**87**	**25**

25 (6%), have described pupae. The number of species known from described larvae, 87 (20%), is somewhat greater, but well below the level of completeness necessary to permit the group to fullfill its potential for use in ecological studies and environmental impact assessment. Perhaps predictably, the number of described immature stages varies among the biogeographic regions, with knowledge best for species found in the Nearctic and Paleartic, less knowledge for species in the Neotropical and Oriental regions, and virtually nothing known of the immature stages for Afrotropical and Australian species (Table 3), especially their eggs and pupae.

This work provides detailed, species-level, information on the diversity and distribution of world Megaloptera. We hope that its taxonomic synopsis, keys, and assessment of the known immature stages will provide part of the foundation needed to support and broaden research on this group of charismatic insects in the decades to come.

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