



Checklist of Myrmeleontidae (Insecta: Neuroptera) of Taiwan

Yu-Hsiu Lin¹, Yu-Jen Tsao^{1,2}, Chiun-Cheng Ko^{1*}

¹ Department of Entomology, National Taiwan University, Taipei City 10617, Taiwan

² Department of Life Sciences, Ministry of Science and Technology, Taipei City 10622, Taiwan

* Corresponding email: kocc2501@ntu.edu.tw

Received: 21 November 2019 Accepted: 7 April 2020 Available online: 1 May 2020

ABSTRACT

The family Myrmeloentidae comprises approximately 1,700 species worldwide. This updated checklist presents one subfamily, five tribes, 13 genera, and 23 species in Taiwan, and we have provided synonyms and informations regarding type localities, type deposition, distributions, and Chinese common names.

Key words: Myrmeleontidae, Taiwan, checklist, Chinese common name

Introduction

Myrmeleontidae (antlions) is the largest family in the order Neuroptera, with approximately 1,700 species recorded worldwide (Stange, 2004; Oswald, 2018). The larvae of antlions display a variety of predation strategies, with the most specialized and well-known being pitfall trap building strategy, which has been observed within several genera (Mansell, 1996, 1999). As an example of an optimal foraging strategy of sit-and-wait predators, the unique behavior of building pitfall traps has drawn attention of many scientists (Scharf and Ovadia, 2006; Scharf *et al.*, 2011; Tsao and Okuyama, 2012). Trap-building larvae only appear in several genera; the larvae of many species remain undiscovered, and their morphology and biology are unknown (Stange *et al.*, 2003). Because of the unknowns and new findings regarding Myrmeleontidae in Taiwan, we present a checklist to provide a reference for

further studies.

In Taiwan, studies of antlions were initiated in the early 20th century, when entomologists described several species based on specimens collected from Taiwan (Okamoto, 1910; Nakahara, 1913, 1971; Esben-Petersen, 1921; Banks, 1937). Stange *et al.* collected antlions from across Taiwan during a four week period in 1998, and they reported 12 new species from five genera, identifying a total of five tribes, 12 genera, and 22 species (Miller *et al.*, 1999; Stange *et al.*, 2003). The existence of some species has been reported in Taiwan (Okamoto, 1926; Kuwayama, 1959, 1962, 1964; Krivokhatsky, 1997; Yang, 1997; Stange, 2004; Wang *et al.*, 2018), although Stange *et al.* (2003) did not report these species. Stange (2004) maintained documentation on distribution of these species in Taiwan in a world antlions catalog. Miller *et al.* (1999) reported two unknown species with unique larvae in Taiwan; in addition, a species complex within the genus

Myrmeleon was reported, and the larval biology of several species remains unknown. A total of 23 antlion species, including 12 endemic species were recorded in Taiwan. Krivokhatsky (2011) synonymized *Paraglenurus littoralis* Miller & Stange and *P. riparius* Miller & Stange as *P. japonicus* (McLachlan) by stating that these two species were variants of *P. japonicus*. The synonyms of these two *Paraglenurus* species should be revised.

The updated checklist presents one subfamily, five tribes, 13 genera, and 23 species from Taiwan. Revised synonyms and information about type localities, type habitats, type deposition, distributions and Chinese common names are also included.

Materials and Methods

The valid species names were mainly derived from Oswald (2018). The Chinese common names were obtained from Stange *et al.* (2003) and Wang *et al.* (2018), and the most suitable name was selected if different Chinese common names existed. The abbreviations of the depositories of type specimens are listed below.

BMNH, British Museum (Natural History), London, England.

EIHU, Entomological Institute, Hokkaido University, Sapporo, Japan.

EMAU, Ernst-Moritz-Arndt Universität Greifswald, Zoologisches Institut und Museum, Greifswald, Germany.

FSCA, Florida State Collection of Arthropods, Gainesville, Florida, USA.

MCZC, Museum of Comparative Zoology, Harvard, Cambridge, Massachusetts.

ZMHB, Museum für Naturkunde der Humboldt Universität zu Berlin, Bereich Zoologisches Museum, Berlin, Germany.

ZMUC, Zoologisk Museum, University of Copenhagen, København, Denmark.

ZMUN, Zoological Museum, University of Oslo, Oslo, Norway.

Family MYRMELEONTIDAE Latreille 蟻蛉科

Myrmeleontidae Latreille, 1802: 22.

Myrmeleonides Latreille, 1802: 22.

Myrmecoleonides Latreille, 1825: 433.

Myrmeleonidae Stephens, 1829: 310.

Myrmecoleontoides Burmeister, 1829: 22.

Myrmecoleontidae Burmeister, 1839: 988.

Myrmeleonites Brullé, 1832: 276.

Myrmeleonites Newman, 1838: 399.

Myrmeleones Ehrenberger, 1836.

Myrmecoleontinae Swainson & Shuckard, 1840: 335.

Myrmelionidae Westwood, 1840.

Myrmeleontides Billberg, 1820: 96.

Myrmeleontina Newman, 1853: cxcviii.

Myrmeleontidae Newman, 1853: cxcix.

Stilboptericidae Newman, 1853: cxcix.

Archaemyrmeleonidae Esben-Petersen, 1918: 3.

Palparidae Fraser, 1953: 1525.

Mermeleontidae Palmar, 1975.

Subfamily MYRMELEONTINAE Latreille

蟻蛉亞科

Myrmeleontinae Latreille, 1802: 22.

Section Goniophlebia Navás, 1921a: 384 (Nomen nudum).

Neomyrmeleonidae Esben-Petersen, 1918: 104 (Nomen nudum).

Neomyrmeleonida Esben-Petersen, 1920a: 194 (Nomen nudum).

Dendroleontinae Banks, 1911: 1 (after Stange, 1970:2).

Macronemurinae Banks, 1927: 5 (after Stange, 1970:2).

Acanthaclisinae Banks, 1943: 162.

Tribe DENDROLEONTINI Banks, 1899 樹蟻蛉族

Dendroleoni Banks, 1899: 68.

Dendroleonini Navás, 1912d: 233; Banks, 1927: 6; Markl, 1954: 219; Hölzel, 1972: 8.

Dendroleontini Banks, 1899: 68; Stange, 1976: 268; New, 1985: 2; Stange & Miller, 1990; Stange, 1994, 2004: 75.

Genus *Dendroleon* Brauer, 1866 樹蟻蛉屬

Dendroleon Brauer, 1866: 42.

Negulurus Navás, 1912a: 171.

Borbon Navás, 1914a: 111.

Pantherleon Yang, 1986: 431.

Type species: *Myrmeleon pantherinus* Fabricius, 1787: 249; by subsequent designation by Hagen, 1873: 394.

1. *Dendroleon esbenpeterseni* Miller &

Stange in Miller *et al.*, 1999 少紋樹蟻蛉

Dendroleon esbenpeterseni Miller & Stange in Miller *et al.*, 1999:48; Stange *et al.*, 2003: 71; Stange, 2004: 84; Wang *et al.*, 2018: 38.

Type locality: Yunghua, Taoyuan County, Taiwan.

Type deposition: FSCA.

Distribution: Taiwan (Yilan, Nantou, Taoyuan).

Genus *Gatzara* Navás, 1915 錦蟻蛉屬

Gatzara Navás, 1915a: 385.

Gatzara Sharp, 1918: 193. Misspelling. Synonymized by Stange, 2004: 90.

Type species: *Gatzara jubilaea* Navás, 1915a: 385; by original designation and monotypy.

2. *Gatzara petrophila* Miller & Stange in Miller *et al.*, 1999 麗紋錦蟻蛉

Gatzara petrophila Miller & Stange in Miller *et al.*, 1999:50; Stange *et al.*, 2003: 75; Stange, 2004: 91; Wang *et al.*, 2012: 42; Wang *et al.*, 2018: 59.

Type locality: Meifeng, Nantou County, Taiwan, 2200m.

Type deposition: FSCA.

Distribution: Taiwan (Hsinchu, Kaohsiung, Nantou, Taichung).

Genus *Layahima* Navás, 1912 雅蟻蛉屬

Layahima Navás, 1912b: 36.

Noues Navás, 1919d: 13.

Asialeon Yang, 1997: 614.

Type species: *Layahima nebulosa* Navás, 1912b: 36; by original designation.

3. *Layahima elegans* (Banks, 1937) 美雅蟻蛉

Noues elegans Banks, 1937: 285.

Dendroleon melanocoris Yang, 1999: 616. Synonymized by Wan *et al.*, 2006: 35.

Dendroleon tripuntatus Yang & Wang, 2002: 297. Synonymized by Wan *et al.*, 2006: 35.

Layahima elegans (Banks, 1937): Stange, 1976: 310; Stange *et al.*, 2003: 81; Stange, 2004: 92; Wan *et al.*, 2006: 35; Wang *et al.*, 2018: 62.

Type locality: Sakahen, Formosa.

Type deposition: MCZC.

Distribution: China (Hubei, Fujiang, Hainan, Guangxi, Sichuan, Guizhou), Taiwan

(Hualien).

Tribe NEMOLEONTINI Banks, 1911 無脈蟻蛉族

Nemoleontini Banks, 1911: 2.

Genus *Pseudoformicaleo* Van der Weele, 1909 齒爪蟻蛉屬

Pseudoformicaleo Van der Weele, 1909: 25.

Tahululus Navás, 1912c: 112.

Nadal Navás, 1913: 454.

Pseudoplectron Navás, 1914b: 467.

Exiliunguleon Yang, 1999: 153.

Type species: *Myrmeleon gracilis* Klug 1834; by subsequent designation of Kuwayama, 1962: 384.

4. *Pseudoformicaleo nubecula* (Gerstaecker, 1885) 齒爪蟻蛉

Creagris nubecula Gerstaecker, 1885: 101.

Pseudoformicaleo jacobsoni Van der Weele, 1909: 25. Synonymized by Esben-Petersen, 1915: 67.

Pseudoformicaleo jacobsoni wetterensis Van der Weele, 1909: 27. Synonymized by Stange, 2004: 122.

Creagris matsuoekae Okamoto, 1910: 282. Synonymized by Adams, 1959: 15.

Creagris horikawae Nakahara, 1913: 527. Synonymized by Kuwayama, 1962: 384.

Tahululus caligatus Navás, 1912c: 113. Synonymized by Esben-Petersen, 1915: 67.

Protoplectron costatus Banks, 1910: 41. Synonymized by Esben-Petersen, 1915: 67.

Tahululus asthenicus Navás, 1914c: 140. Synonymized by Esben-Petersen, 1920b: 191.

Tahululus ignobilis Navás, 1914a: 115. Synonymized by Stange *et al.*, 2003: 102.

Exiliunguleon nanus Yang, 1999: 154. Synonymized by Krivokhatsky *et al.*, 2012: 571.

Pseudoplectron costatus (Banks, 1910): Navás, 1914b: 467.

Gama matsuoekae (Okamoto, 1910): Banks, 1937: 287.

Creoleon matsuoekae (Okamoto, 1910).

Pseudoformicaleo asthenicus (Navás, 1914).

Pseudoformicaleo caligatus (Navás, 1912).

Pseudoformicaleo nubecula (Gerstaecker, 1885):

Esben-Petersen, 1915: 67; Stange *et al.*, 2003: 102; Stange, 2004: 122; Wang *et al.*, 2018: 139.

Type locality: Rockhampton, Australia.

Type deposition: EMAU.

Distribution: Australia, China (Beijing, Shanxi, Shandong, Anhui, Zhejiang, Fujiang, Guizhou), Indonesia, Japan, Malaysia, Palau, Sri Lanka, Taiwan (Nantou, Taipei).

Genus *Distoleon* Banks, 1910 距蟻蛉屬

Distoleon Banks, 1910: 42.

Formicaleo Geoffroy 1762: 256. Unavailable name (no included species).

Formicaleo Brauer, 1855: 719.

Formicalco Navás, 1904: 8. Misspelling. Synonymized by Stange, 2004: 147.

Formicleon Banks, 1911: 16. New name for *Formicaleo* Leach, 1815. Synonymized by Banks, 1916: 210.

Fornicaleo Navás, 1914b: 473. Misspelling. Synonymized by Stange, 2004: 147.

Eidoleon Esben-Petersen, 1918: 15.

Salvaza Navás, 1917: 12.

Feinerus Navás, 1919a: 190.

Nefeirus Navás, 1926a: 103.

Dolicholeon Navás, 1929: 190.

Hyloleon Navás, 1929: 188.

Nasma Navás, 1930a: 409.

Feina Navás, 1931: 263.

Vessa Navás, 1931: 265.

Formileo Navás, 1933: 312.

Nima Navás, 1935: 53.

Type species: *Distoleon verticalis* Banks, 1910: 42; by original designation.

5. *Distoleon formosanus* (Okamoto, 1910)
毛距蟻蛉

Formicaleo formosanus Okamoto, 1910: 291.

Formicleon formosanus (Okamoto, 1910).

Feinerus formosanus Navás, 1926b: 112. Synonymized by Kuwayama, 1966: 138.

Distoleon formosanus (Navás, 1926b).

Distoleon formosanus (Okamoto, 1910): Stange *et al.*, 2003: 84; Stange, 2004: 153; Wang *et al.*, 2018: 121.

Type locality: Formosa, Horisha.

Type deposition: EIHU.

Distribution: Taiwan (Kaohsiung, Nantou, Taitung).

6. *Distoleon littoralis* Miller and Stange in Miller *et al.*, 1999 粗腿蟻蛉

Distoleon littoralis Miller & Stange in Miller *et al.*, 1999:53; Stange *et al.*, 2003: 87; Wang *et al.*, 2018: 121.

Type locality: Taiwan (Yilan).

Type deposition: FSCA.

Distribution: Taiwan (Yilan, Pingtung).

Genus *Paraglenurus* Van der Weele, 1909
白雲蟻蛉屬

Paraglenurus Van der Weele, 1909: 29.

Glenuroides Okamoto, 1910: 294.

Eoleon Navás, 1921b: 65.

Type species: *Myrmeleon scopifer* Gerstaecker, 1888: 110; by original designation.

7. *Paraglenurus japonicus* (McLachlan, 1867) 白雲蟻蛉

Glenurus japonicus McLachlan, 1867: 248.

Dendroleon japonicus (McLachlan, 1867): Okamoto, 1910: 279.

Glenuroides communis Okamoto, 1910: 295. Synonymized by Kuwayama, 1966: 138.

Glenuroides japonicus (McLachlan, 1867): Kuwayama, 1962: 383, 1966: 138.

Eoleon japonicus (McLachlan, 1867): Navás, 1921b: 65.

Paraglenurus littoralis Miller and Stange in Miller *et al.*, 1999. Synonymized by Krivokhatsky, 2011: 112.

Paraglenurus riparius Miller and Stange in Miller *et al.*, 1999. Synonymized by Krivokhatsky, 2011: 112.

Paraglenurus japonicus (McLachlan, 1867): Stange, 2004: 213; Krivokhatsky, 2011: 112; Wang *et al.*, 2018: 135.

Type locality: Japan.

Type deposition: BMNH.

Distribution: China (Shandong, Henan, Jiangsu, Anhui, Zhejiang, Hubei, Hunan, Fujiang, Guangxi), Japan, South Korea, Taiwan (Yilan, Kaohsiung, Nantou).

8. *Paraglenurus lotzi* Miller and Stange in Miller *et al.*, 1999 姬彎爪蟻蛉

Paraglenurus lotzi Miller & Stange in Miller *et al.*, 1999: 58; Stange *et al.*, 2003: 94; Stange, 2004: 213; Wang *et al.*, 2018: 137.

Type locality: Danshuei Beach, Taipei County, Taiwan.

Type deposition: FSCA.

Distribution: Taiwan (Taipei).

Genus *Thaumatoleon* Esben-Petersen, 1921

大彎爪蟻蛉屬

Thaumatoleon Esben-Petersen, 1921: 127.

Type species: *Thaumatoleon splendidus* Esben-Petersen, 1921: 127; by original designation and monotypy.

9. *Thaumatoleon splendidus* Esben-Petersen, 1921 臺灣大彎爪蟻蛉

Thaumatoleon splendidus Esben-Petersen, 1921: 127; Krivokhatsky, 1997: 636; Stange *et al.*, 2003: 103; Stange, 2004: 221.

Type locality: Horisha, Formosa.

Type deposition: ZMUC.

Distribution: Taiwan (Nantou), Vietnam.

Tribe NESOLEONTINI Markl, 1954 無腋蟻蛉族

Nesoleontini Markl, 1954: 228.

Genus *Cueta* Navás, 1911 多脈蟻蛉屬

Cueta Navás, 1911a: 242.

Polancus Navás, 1914d: 19.

Furga Navás, 1930b: 122.

Type species: *Cueta trilineata* Navás, 1911a: 242; by original designation and monotypy.

10. *Cueta sauteri* (Esben-Petersen, 1913) 梭德氏多脈蟻蛉

Nesoleon sauteri Esben-Petersen, 1913: 222.

Cueta duplicata Navás, 1914c: 138. Synonymized by Esben-Petersen, 1920b: 193.

Cueta plicata Navás, 1914c: 136. Synonymized by Esben-Petersen, 1920b: 193.

Cueta hugeli Navás, 1914e: 239. Synonymized by Esben-Petersen, 1920b: 193.

Nesoleon (Cueta) sauteri Esben-Petersen, 1913: Esben-Petersen, 1920b: 193.

Cueta hugeli inciva Banks, 1939: 455.

Cueta sauteri (Esben-Petersen, 1913): Krivokhatsky, 1997: 810; Stange *et al.*, 2003: 130; Stange, 2004: 292; Wang *et al.*, 2018: 157.

Myrmecaelurus polyneurus Yang, 1999: 146. Synonymized by Krivokhatsky *et al.*, 2012: 576.

Myrmecaelurus ingradatus Yang in Yang & Wang, 2002: 297. Synonymized by Krivokhatsky *et al.*, 2012: 576.

Myrmecaelurus nigrigradatus Yang in Yang & Wang, 2002: 297. Synonymized by Krivokhatsky *et al.*, 2012: 576.

Type locality: Anping, Formosa.

Type deposition: ZMHB.

Distribution: China (Jiangxi, Fujiang, Guangdong, Hainan), India, Taiwan (Pingtung, Tainan), Vietnam.

Tribe MYRMELEONTINI Latreille, 1802 蟻蛉族

Myrmeleontini Latreille, 1802.

Genus *Baliga* Navás, 1912 白斑蟻蛉屬

Baliga Navás, 1912c: 110.

Baga Navás, 1930c: 37.

Type species: *Myrmeleon asakurae* Okamoto, 1910: 297; by original designation.

11. *Baliga asakurae* (Okamoto, 1910) 白斑蟻蛉

Myrmeleon asakurae Okamoto, 1910: 297.

Baliga asakurae (Okamoto, 1910): Navás, 1912c: 110; Stange *et al.*, 2003: 106; Stange, 2004: 296; Oswald, 2018.

Hagenomyia asakurae (Okamoto, 1910): Esben-Petersen, 1913: 223; Markl, 1954: 233; Wang *et al.*, 2018: 85.

Myrmeleon ochraceopennis Nakahara, 1913: 299. Synonymized by Stange *et al.*, 2003: 106.

Baliga ochraceopennis (Nakahara, 1913): Stange *et al.*, 2003: 106.

Type locality: Formosa, Horisha.

Type deposition: EIHU.

Distribution: Taiwan (Yilan, Nantou, Taipei, Taoyuan).

Genus *Hagenomyia* Banks, 1911 哈蟻蛉屬

Hagenomyia Banks, 1911: 8.

Balaga Navás, 1912c: 111.

Neeles Navás, 1911b: 244.

Type species: *Myrmeleon tristis* Walker, 1853: 373; by original designation.

12. *Hagenomyia brunneipennis* Esben-Petersen, 1913 雲志哈蟻蛉

Hagenomyia brunneipennis Esben-Petersen, 1913: 223; Wang *et al.*, 2018: 86; Oswald, 2018.

Baliga brunneipennis (Esben-Petersen, 1913): Stange *et al.*, 2003: 109; Stange, 2004: 297.

Hagenomyia pterostigma Yang, 1999: 149. Synonymized by Bao *et al.*, 2007: 45.

Baliga pterostigma (Yang, 1999): Stange, 2004: 298.

Type locality: Kosempo, Formosa.

Type deposition: ZMHB.

Distribution: China (Henan, Zhejiang, Fujian, Sichuan), Taiwan (Kaohsiung).

13. *Hagenomyia micans* (McLachlan, 1875) 閃耀哈蟻蛉

Myrmeleon micans McLachlan, 1875: 176.

Baliga micans (McLachlan, 1875): Navás, 1912c: 111.

Baliga micans (McLachlan, 1875): Stange, 2004: 297; Sekimoto, 2014: 24.

Hagenomyia micans (McLachlan, 1875): Okamoto, 1914: 250; Wang *et al.*, 2018: 91; Oswald, 2018.

Type locality: Japan.

Type deposition: BMNH.

Distribution: China (Fujian), Japan (Hokkaido, Honshu, Sadogashima Is., Shikoku, Kyushu, Tsushima Is., Tanegashima Is., Okinawajima Is.), South Korea, Taiwan (?).

Genus *Myrmeleon* Linnaeus, 1767 蟻蛉屬

Myrmeleon Linnaeus, 1767: 913.

Myrmeleo Pallas, 1771: 469. Misspelling. Synonymized by Stange, 2004: 306.

Mirmileo Radermacher, 1779: 103. Misspelling. Synonymized by Stange, 2004: 306.

Myrmecoleon Berthold, 1827: 433. Misspelling. Synonymized by Stange, 2004: 306.

Myrmekoleon Gistel, 1848: 139. Misspelling. Synonymized by Stange, 2004: 306.

Alymebon Strand, 1908: 154. Misspelling. Synonymized by Stange, 2004: 306.

Macroleon Banks, 1909: 4.

Enza Navás, 1912c: 113.

Myrmeleodes Navás, 1912d: 242.

Moreyus Navás, 1914f: 55.

Morter Navás, 1915b: 466.

Myrmeleone Navás, 1915c: 53. Misspelling. Synonymized by Stange, 2004: 306.

Neleon Navás, 1915c: 53.

Neseurus Navás, 1916: 53.

Cocius Navás, 1919b: 296.

Myrmeleonellus Esben-Petersen, 1918: 17.

Leptoleon Esben-Petersen, 1918: 18.

Dicholeon Navás, 1920: 193.

Tafanerus Navás, 1921b: 62.

Alyrmeleoni Navás, 1922: 87. Misspelling. Synonymized by Stange, 2004: 307.

Mirmeleon Navás, 1923a: 768. Misspelling. Synonymized by Stange, 2004: 307.

Talopus Navás, 1923b: 35.

Banya Navás, 1923c: 145.

Grocus Navás, 1925: 185.

Colinus Navás, 1925: 187.

Afroleon Navás, 1927: 13.

Neurocolinus Navás, 1930d: 42. New name for *Colinus* Navás, 1925. Synonymized by Stange, 2004: 307.

Nemeyus Navás, 1934a: 502.

Nezuela Navás, 1934b: 155.

Bordus Navás, 1936a: 165.

Congoleon Navás, 1936b: 337.

Hypsoleon Navás, 1936c: 103.

Nelneja Navás, 1936c: 104.

Type species: *Myrmeleon formicarium* Linnaeus, 1767: 913; by subsequent designation by Latreille, 1810: 435.

14. *Myrmeleon (Myrmeleon) alticolus* Miller and Stange in Miller *et al.*, 1999 褐跗蟻蛉

Myrmeleon alticola Miller & Stange in Miller *et al.*, 1999: 61; Stange *et al.*, 2003: 111; Wang *et al.*, 2018: 106.

Myrmeleon (Myrmeleon) alticola: Stange, 2004: 318.

Myrmeleon (Myrmeleon) alticolus: Oswald, 2018. Type locality: Da-Kwan-Shan, Giant Forest Reserve, Taoyuan County, Taiwan.

Type deposition: FSCA.

Distribution: Taiwan (Taoyuan, Taipei).

15. *Myrmeleon (Myrmeleon) bore* (Tjeder, 1941) 鈎臀蟻蛉

Grocus bore Tjeder, 1941: 74.

Enza otiosa Navás, 1912c: 114. Synonymized by Kuwayama, 1962: 389.

- Myrmeleon exigus* Yang, 1999: 148.
Synonymized by Bao *et al.*, 2009: 18.
- Myrmeleon bore* (Tjeder, 1941): Matsura, 1987: 543; Sekimoto, 2014: 13; Wang *et al.*, 2018: 96.
- Myrmeleon (Myrmeleon) bore* (Tjeder, 1941): Stange, 2004: 320; Oswald, 2018.
- Type locality: Oland, Boda, Bryum, Sweden.
Type deposition: ZMUN.
Distribution: Austria, China (Beijing, Hebei, Shanxi, Shandong, Henan, Shaanxi, Hubei, Fujian, Sichuan), Czech, Estonia, Finland, France, Germany, Hungary, Latvia, Italy, Japan, Norway, Pakistan, Poland, Russia, Slovakia, South Korea, Spain, Sweden, Switzerland, Taiwan (?), Ukraine, Uzbekistan.
- 16. *Myrmeleon (Myrmeleon) heppneri* Miller and Stange in Miller *et al.*, 1999**
海氏蟻蛉
- Myrmeleon heppneri* Miller & Stange in Miller *et al.*, 1999: 63; Stange *et al.*, 2003: 114; Wang *et al.*, 2018: 106.
- Myrmeleon (Myrmeleon) heppneri*: Stange, 2004: 327; Oswald, 2018.
- Myrmeleon heppneri* Stange *et al.*, 2003: 114.
Misspelling.
- Type locality: Danshuei Beach, Taipei County, Taiwan.
Type deposition: FSCA.
Distribution: Taiwan (Taipei).
- 17. *Myrmeleon (Myrmeleon) littoralis* Miller and Stange in Miller *et al.*, 1999**
胸紋蟻蛉
- Myrmeleon littoralis* Miller & Stange in Miller *et al.*, 1999: 64; Stange *et al.*, 2003: 116; Wang *et al.*, 2018: 106.
- Myrmeleon (Myrmeleon) littoralis*: Stange, 2004: 331; Oswald, 2018.
- Type locality: Tonshou Resort Beach, Miaoli County, Taiwan.
Type deposition: FSCA.
Distribution: Taiwan (Yilan, Miaoli, Pingtung, Taitung, Taipei, Nantou).
- 18. *Myrmeleon (Myrmeleon) persimilis* Miller and Stange in Miller *et al.*, 1999**
臀腋蟻蛉
- Myrmeleon persimilis* Miller & Stange in Miller *et al.*, 1999: 67; Stange *et al.*, 2003: 118; Wang *et al.*, 2018: 107.
- Myrmeleon (Myrmeleon) persimilis*: Stange, 2004: 334; Oswald, 2018.
- Type locality: Feiha-Tre-Sha area, Kenting National Park, Pingtung County, Taiwan.
Type deposition: FSCA.
Distribution: Taiwan (Miaoli, Pingtung, Taipei).
- 19. *Myrmeleon (Myrmeleon) punctinervis* Banks, 1937**
沙阱蟻蛉
- Myrmeleon punctinervis* Banks, 1937: 287; Stange *et al.*, 2003: 121; Wang *et al.*, 2018: 107.
- Myrmeleon (Myrmeleon) punctinervis*: Stange, 2004: 335; Oswald, 2018.
- Type locality: Hori, Formosa.
Type deposition: MCZC.
Distribution: Taiwan (Yilan, Kaohsiung, Nantou, Taipei).
- 20. *Myrmeleon (Myrmeleon) taiwanensis* Miller and Stange in Miller *et al.*, 1999**
臺灣蟻蛉
- Myrmeleon taiwanensis* Miller & Stange in Miller *et al.*, 1999: 69; Stange *et al.*, 2003: 123; Sekimoto, 2014: 21; Wang *et al.*, 2018: 107.
- Myrmeleon (Myrmeleon) taiwanensis*: Stange, 2004: 336; Oswald, 2018.
- Type locality: Feiha-Tre-Sha area, Kenting National Park, Pingtung County, Taiwan.
Type deposition: FSCA.
Distribution: Japan (Okinawajima Island, Iriomotejima Island), Taiwan (Pingtung).
- 21. *Myrmeleon (Myrmeleon) wangi* Miller and Stange in Miller *et al.*, 1999**
王氏蟻蛉
- Myrmeleon wangi* Miller & Stange in Miller *et al.*, 1999: 70; Stange *et al.*, 2003: 126; Wang *et al.*, 2018: 107.
- Myrmeleon (Myrmeleon) wangi*: Stange, 2004: 338; Oswald, 2018.
- Type locality: Tayuling, Hualien County, Taiwan.
Type deposition: FSCA.
Distribution: Taiwan (Hualien, Yilan, Kaohsiung, Nantou).
- Tribe ACANTHACLISINI Navás, 1912**
棘蟻蛉族
- Acanthaclisini Navás, 1912b: 40.

Uncinati Navás, 1912b: 50. Nomen nudum.
Uncati Navás, 1912b: 50. Nomen nudum.

Genus *Centroclisis* Navás, 1909 中大蟻蛉屬

Centroclisis Navás, 1909: 71.
Neboda Navás, 1911c: 116.
Sogra Navás, 1911b: 240.
Neoclis Navás, 1914g: 205.
Sograssa Navás, 1924: 71.
Sogrossa Fraser, 1951: 352. Misspelling of
Sograssa. Synonymized by Stange, 2004:
343.
Stenoclis Navás, 1932: 62.
Alloclisis Yang in Yang & Wang, 2002: 299.

Type species: *Centroclisis lanosa* Navás, 1909:
71; by original designation and monotypy.

22. *Centroclisis negligens* Navás, 1911 單中
大蟻蛉

Neboda negligens Navás, 1911c: 116.
Sogra negligens (Navás, 1911c)
Alloclisis hainanica Yang in Yang & Wang, 2002:
299. Synonymized by Bao & Wang, 2004:
510.
Centroclisis negligens: Markl, 1954: 231; Stange
et al., 2003: 62; Stange, 2004: 348; Bao &
Wang, 2004: 510; Wang *et al.*, 2018: 70.

Type locality: China, Hong Kong.

Type deposition: BMNH.

Distribution: China (Guangdong, Hainan,
Hongkong), Malaysia, Taiwan (Pingtung).

Genus *Synclisis* Navás, 1919 擊大蟻蛉屬

Synclisis Navás, 1919c: 218.
Sinclisis Steinmann, 1963: 215. Misspelling.
Synonymized by Stange, 2004: 358.

Type species: *Acanthaclisis baetica* Sekimoto,
1842; by original designation. Synonymized
by Stange, 2004: 358.

23. *Synclisis kawaii* (Nakahara, 1913) 南擊
大蟻蛉

Acanthaclisis kawaii Nakahara, 1913: 297.
Heoclis *kawaii*: Banks, 1937: 288; Bao & Wang,
2004: 512.
Synclisis kawaii: Miller *et al.*, 1999: 73; Stange
et al., 2003: 64; Stange, 2004: 359; Wang *et al.*,
2018: 73.

Type locality: Formosa, Banshoryo.

Type deposition: not located.

Distribution: China (Fujian, Hainan), Taiwan.

Acknowledgement

The authors wish to acknowledge the help of
Dr. Jhih-Rong Liao (NTU, Taiwan) for giving
advices to the manuscript.

References

- Adams PA.** 1959. Neuroptera: Myrmeleontidae
and Chrysopidae. Ins Micronesia 8: 13-33.
Banks N. 1899. A classification of the North
American Myrmeleontidae. Can Entomol 31:
67-71.
Banks N. 1909. New genera and species of
tropical Myrmeleontidae. J New York
Entomol S 17: 1-4.
Banks N. 1910. Myrmeleontidae from Australia.
Ann Entomol Soc Am 3: 40-44.
Banks N. 1911. Notes on African Myrmeleontidae.
Ann Entomol Soc Am 4: 1-31.
Banks N. 1916. Neuropteroid insects of the
Philippine Islands. Philipp J Sci 11: 195-217.
Banks N. 1927. Revision of the Nearctic
Myrmeleontidae [sic]. Bull Mus Comp Zool
68: 1-84.
Banks N. 1937. Neuropteroid insects from
Formosa. Philipp J Sci 62: 255-291.
Banks N. 1939. New genera and species of
neuropteroid insects. Bull Mus Comp Zool
85: 439-504.
Banks N. 1943. Neuroptera of northern South
America. Part II. Myrmeleontidae. Bol
Entomol Venez 2: 161-173.
Bao R, Wang XL. 2004. A review of the species of
the tribe Acanthaclisini from China
(Neuroptera, Myrmeleontidae). Acta
Zootaxon Sin 29: 509-515.
Bao R, Shen ZR, Wang XL. 2007. A review of the
species of *Hagenomyia* from China
(Neuroptera: Myrmeleontidae). Ann Soc
Entomol Fr (N.S.) 43: 45-48.
Bao R, Wang XL, Liu JZ. 2009. A review of the
species of *Myrmeleon* Linnaeus, 1767
(Neuroptera: Myrmeleontidae) from
mainland China, with the description of a
new species. Entomol News 120: 18-24.
Berthold AA. 1827. Latreille's, Natürliche
familien des thierreichs. Aus dem

- Französischen. Mit anmerkungen und zusätzen von Dr. Arnold Adolph Berthold. Weimar. 606 pp. (in German)
- Billberg GJ.** 1820. Enumeratio Insectorum in Museo Gust. Joh. Billberg. Typis Gadelianis, [Holmiae]. 138 pp. (in Latin)
- Brauer F.** 1855. Beiträge zur Kenntniss des inneren Baues und der Verwandlung der Neuropteren. Verh Zool-Bot Ver Wien 5: 701-726. (in German)
- Brauer F.** 1866. Reise der Osterreichischen Fregatta Novara um die Erde, in den Jahren 1857, 1858, 1859, unter den Befehlen des Commodore B. von Wüllerstorff-Urbair, H. K. von Scherzer, ed. Zoologischer Theil, Bd. 2, No. 4 (Neuroptera). Wien. K. Gerold, Wien. 104 pp. (in German)
- Brullé GA.** 1832. Expédition scientifique de Morée. Tome 3, Part 1 (Zoologie), Section 2 (Des animaux articulés). Levrault, Paris. pp 193-288. (in French)
- Burmeister HCC.** 1829. Die insectorum systemate naturali. Dissertatio inauguralis quam consensu Facultatis medicae Halensis ut doctoris ultriusque medicinae gradum rite adipiscatur die IV. Novembris 1829. Hales Saxonum (Grunertorum Partis Filiique). pp 1-45. (in Latin)
- Burmeister HCC.** 1839. Handbuch der Entomologie. Zweiter Band. Besondere Entomologie. Zweite Abtheilung. Kaukerfe. Gymnognatha. (Zweite Hälfte; vulgo Neuroptera). Enslin, Berlin. pp 757-1050. (in German)
- Ehrenberger FJ.** 1836. Dissertatio inauguralis zoologica de Neuroptorum anatomia et phisio-biologia. J. H. Pospjil, Pragae. 21 pp.
- Esben-Petersen P.** 1913. H. Sauter's Formosa-Ausbeute. Planipennia II, Megaloptera and Mecoptera. Ent Mitt 2: 222-228, 257-265.
- Esben-Petersen P.** 1915. Australian Neuroptera. Part ii. Proc Linn Soc N S W 40: 56-74.
- Esben-Petersen P.** 1918. Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia 1910-1913. 18. Neuroptera and Mecoptera. Ark f Zool 11: 1-37.
- Esben-Petersen P.** 1920a. Altering of names. Entomol Medd 13: 194.
- Esben-Petersen P.** 1920b. Revision of some of the type-specimens of Myrmeleonidae, described by Navas and placed in the Vienna Museum. Ann Ent Soc Belg 60: 190-196.
- Esben-Petersen P.** 1921. Description of a new genus and species of Myrmeleonidae from Japan. Vidensk Med Dansk Natur Foren 72: 127-128.
- Fabricius JC.** 1787. Mantissa Insectorvm sistens eorvm species nvper detectas adjectis characteribvs genericis, differentiis specificis, emendationibvs, observationibvs. Tome 1. Chr. G. Proft, Hafniae. 519 pp. (in Latin)
- Fraser FC.** 1951. Notes on the Neuroptera of Madagascar. Part 2. The Myrmeleontidae and Ascalaphidae. Mém Inst Scient Madagascar (A)5: 347-357.
- Fraser FC.** 1953. Contribution à l'étude de la zone d'inondation du Niger (mission G. Remaudière 1950). I. Odonata, Neuroptera and Mecoptera. Bull l'Inst Franc d'Afr Noire 15: 1523-1528.
- Geoffroy ÉL.** 1762. Histoire abregée des insectes qui se trouvent aux environs de Paris; dans laquelle ces animaux sont rangés suivant un ordre méthodique. Vol. 2. Durand, Paris. 690 pp. (in French)
- Gerstaecker [CE]A.** 1885. Zwei fernere Decaden Australischer Neuroptera Megaloptera. Mitt Naturw Ver Neu-Vorpomm 16: 84-116. (in German)
- Gerstaecker [CE]A.** 1888. Weitere Beiträge zur artenkenntniss der Neuroptera Megaloptera. Mitt Naturw Ver Neu-Vorpomm 19: 89-130. (in German)
- Gistel J von NFX.** 1848. Naturgeschichte des thierreichs für höhere schulen. 1st Edition. Hoffmansche, Stuttgart. 216 pp. (in German)
- Hagen HA.** 1873. Die Larven von *Myrmeleon*. Stett Ent Ztg 34: 249-295, 377-398. (in German)
- Hölzel H.** 1972. Die Neuropteren Vorderasiens IV. Myrmeleonidae. Beiträge zur Naturkundlichen Forschung in Südwestdeutschland, Beiheft 1: 3-103. (in German)
- Klug JCF.** 1834. Symbolae physicae, seu icones et descriptiones corporum naturalium novorum aut minus cognitorum, quae ex itineribus per Libyam, Aegyptum, Nubiam, Dongalam, Syriam, Arabiam et Habessiniam... P. C. Hemprich et C. G. Ehrenberg à studio annis 1820-25 redierunt.

- Pars Zoologica, C. G. Ehrenberg, ad Berolini. Mittler, Berlin. 1829-45, 5 vols) 4: sheets a-1, 10 color Plates (Plates 35 and 36 with Neuropterida figures). (in Latin)
- Krivokhatsky VA.** 1997. New and little known species of ant-lions (Neuroptera, Myrmeleontidae) from Indo-China. Entomol Obozr 76:631-640, 731 (abstract). (in Russian)
- Krivokhatsky VA.** 2011. Antlions (Neuroptera: Myrmeleontidae) of Russia. KMK Scientific Press, St. Petersburg. 334 pp. (in Russian)
- Krivokhatsky VA, Wang ZL, Wang XL.** 2012. New records and new synonyms of ant-lions (Neuroptera, Myrmeleontidae) from China. Entomol Obozr 91: 569-582. (in Russian)
- Kuwayama S.** 1959. On the genera *Myrmeleon* and *Grocus* in Japan and adjacent territories. Kontyû 27: 66-69.
- Kuwayama S.** 1962. A revisional synopsis of the Neuroptera in Japan. Pac Insects 4: 325-412.
- Kuwayama S.** 1964. On the Neuroptera of the Ryukyus. Insecta Matsum 27: 38-48.
- Kuwayama S.** 1966. The type specimens of the Neuroptera in the collection of the Entomological Institute, Hokkaido University. Insecta Matsum 28: 133-140.
- Latreille PA.** 1802. Histoire naturelle, générale et particulière de Crustacés et des Insectes. Vol. 3. Familles naturelles des genres. F. Dufart, Paris. 467 pp. (in French)
- Latreille PA.** 1810. Considérations générales sur l'ordre naturel des animaux composant les classes des Crustacés, des Arachnides, et des Insectes; avec un tableau méthodique de leurs genres, disposés en familles. Schoell, Paris. 444 pp. (in French)
- Latreille PA.** 1825. Familles naturelles du règne animal, exposées succinctement et dans un ordre analytique, avec l'indications de leurs genres. J.-B. Baillièrre, Paris: 432-439. [vi] + 570 pp. (in French)
- Leach WE.** 1815. Entomology. pp. 57-172. In: Brewster D (ed). Edinburgh Encyclopaedia, Edinburgh 9 (1): 57-172.
- Linnaeus C.** 1767. Systema Natura per Regna Tria Naturae Secundum Classes, Ordines, Genera, Species, Cum Characteribus, Differentiis, Synonymis, Locis. Edition 12. Vol. 1, pt. 2. Laurentii Salvii, Holmiae. pp 533-1327. (in Latin)
- Mansell MW.** 1996. Predation strategies and evolution in antlions (Insecta: Neuroptera: Myrmeleontidae). pp. 161-169. In: Canard M, Aspöck H, Mansell MW (eds). Pure and Applied Research in Neuropterology. Proceedings of the Fifth International Symposium on Neuropterology; 1994 May 2-6; Cairo, Egypt: Privately printed, Toulouse, France. 341 pp.
- Mansell MW.** 1999. Evolution and success of antlions (Neuroptera: Neuroptera: Myrmeleontidae). In: Aspöck H (ed). Neuroptera: Raphidioptera, Megaloptera, Neuroptera. Kamelhäse, Schlammfliegen, Ameisenlöwen. Stapfia 60: 49-58.
- Markl W.** 1954. Vergleichend-morphologische Studien zur Systematik und Klassifikation der Myrmeleoniden (Insecta, Neuroptera). Verh Naturforsch Ges Basel 65: 178-263 [Errata: 66:140]. (in German)
- Matsura T.** 1987. Nomenclature of the Japanese pit-building antlions (Neuroptera, Myrmeleontidae). Kontyû 55: 543-548. (in Japanese)
- McLachlan R.** 1867. New genera and species, &c., of neuropterous insects; and a revision of Mr. F. Walker's British Museum Catalogue of Neuroptera, part ii. (1853), as far as the end of the genus *Myrmeleon*. Zool J Linn Soc 9: 230-281 [Errata: 9:281].
- McLachlan R.** 1875. A sketch of our present knowledge of the neuropterous fauna of Japan (excluding Odonata and Trichoptera). T Roy Ent Soc London 23[=1875]: 167-190.
- Miller RB, Stange LA, Wang HY.** 1999. New species of antlions from Taiwan (Neuroptera: Myrmeleontidae). J Natn Taiwan Mus 52: 47-78.
- Nakahara W.** 1913. On three new species of Myrmeleonidae from Japan and Formosa (Neur. Planip.). Entomol News 24: 297-301.
- Nakahara W.** 1971. On three species of the Myrmeleontidae from Formosa (Neuroptera). Kontyû 39: 61.
- Navás L.** 1904. Notas neuropterológicas. V. Myrmeleonidos de España. Butll Inst Catalana Hist Natur 4: 6-10, 19-25. (in Spanish)
- Navás L.** 1909. Notas neuropterológicas. XI. Mirmeleónido nuevo de Madagascar. Butll Inst Catalana Hist Natur (1) 9: 71-72. (in

- Spanish)
- Navás L.** 1911a. Notes sur quelques Névroptères. I. Insecta, Rennes 1: 239-246. (in French)
- Navás L.** 1911b. Notes sur quelques Névroptères d'Afrique. I. Rev Zool Afr 1: 230-244. (in French)
- Navás L.** 1911c. Névroptères nouveaux de l'extrême Orient. Russk Ent Obozr 11: 111-117. (in French)
- Navás L.** 1912a. Insectos neurópteros nuevos ó poco conocidos. Mem R Acad Cienic Artes Barcelona (3) 10: 135-202. (in Spanish)
- Navás L.** 1912b. Notas sobre Mirmeleónidos (Ins. Neur.). Brotéria (Zoológica) 10: 29-75, 85-97. (in Spanish)
- Navás L.** 1912c. Myrmeléonides nouveaux de l'extrême Orient (Neuroptera). Russk Ent Obozr 12: 110-114. (in French)
- Navás L.** 1912d. Myrmeléonides (Ins. Névr.) nouveaux ou peu connus. Ann Soc Sci Bruxelles 36 (pt. 2): 203-248. (in French)
- Navás L.** 1913. Expedition to the central western Sahara. X. Quelques Névroptères du Sahara Français. Novitates Zool 20: 444-458. (in French)
- Navás L.** 1914a. Neurópteros nuevos o poco conocidos (Segunda y Tercera [II and III] series). Mem R Acad Cienic Artes Barcelona 11: 105-119, figures 1-6; 193-205, figures 1-14. (in Spanish)
- Navás L.** 1914b. Neurópteros de Oceanía. Primera [I] serie. Rev Real Acad Cienc Exact Fís Nat Madrid 12: 464-483. (in Spanish)
- Navás L.** 1914c. Névroptères de l'Indo-Chine. 1re série. Insecta, Rennes 4: 133-142. (in French)
- Navás L.** 1914d. Voyage de Ch. Alluaud et R. Jeannel en Afrique Orientale (1911-1912). Résultats scientifiques. Insectes Névroptères. I. Planipennia et Mecoptera. Paris. 52 pp. (in French)
- Navás L.** 1914e. Myrmeléonides (Ins. Névr.) nouveaux ou critiques [I]. Ann Soc Sci Bruxelles 38 (pt. 2): 229-254. (in French)
- Navás L.** 1914f. Neurópteros sudamericanos. Primera [I] serie. Brotéria (Zoológica) 12: 45-56, 215-234. (in Spanish)
- Navás L.** 1914g. Neurópteros de la Tripolitania. II serie. Ann Mus Ci Stor Nut Giacomo Doria 46: 202-209. (in Spanish)
- Navás L.** 1915a. Neurópteros nuevos o poco conocidos (Cuarta [IV] serie). Mem R Acad Cienic Artes Barcelona 11: 373-398. (in Spanish)
- Navás L.** 1915b. Neurópteros nuevos o poco conocidos (Quinta [V] serie). Mem R Acad Cienic Artes Barcelona 11: 455-480. (in Spanish)
- Navás L.** 1915c. Some Neuroptera from the United States. Bull Brooklyn Entom Soc 10: 50-54.
- Navás L.** 1916. Neuroptera nova Africana. VII Series. Mem Acad Pont Nuovi Lincei 2: 51-58. (in Latin)
- Navás L.** 1917. Névroptères de l'Indo-Chine. 2e série. Insecta, Rennes 7: 8-17. (in French)
- Navás L.** 1919a. Névroptères de l'Indo-Chine. 3e série. Insecta, Rennes 9: 185-194. (in French)
- Navás L.** 1919b. Comunicaciones entomológicas. 3. Insectos exóticos. Rev Acad Cienc Ex Fis-Quim Nat Zaragoza (1) 4: 287-306. (in Spanish)
- Navás L.** 1919c. Neurópteros de España nuevos. Segunda [II] serie. Bol Soc Ent Esp 2: 218-223. (in Spanish)
- Navás L.** 1919d. Insecta nova. VI Series. Mem Accad Pontif Nuovi Lincei 5: 11-19.
- Navás L.** 1920. Sur des Névroptères nouveaux ou critiques. Deuxième [II] série. Ann Soc Sci Bruxelles 39 (pt. 2): 189-203. (in French)
- Navás L.** 1921a. Dos nuevas tribus de Mirmeleónidos (Ins. Neur.). Mem R Acad Cienic Artes Barcelona 16: 379-384. (in Spanish)
- Navás L.** 1921b. Comunicaciones entomológicas. 4. Insectos exóticos nuevos, críticos o poco conocidos. Rev Acad Cienc Ex Fis-Quim Nat Zaragoza 6: 61-81. (in Spanish)
- Navás L.** 1922. Algunos insectos del Museo Entomológico de Berlín "Deutsches Entomologisches Museum." Brotéria (Zoológica) 20: 87-92. (in Spanish)
- Navás L.** 1923a. Algunos insectos del Brasil. 2.a série. Rev Mus Paul 13: 767-774. (in Spanish)
- Navás L.** 1923b. Insecta orientalia. I Series. Mem Acad Pont Nuovi Lincei 6: 29-41. (in Latin)
- Navás L.** 1923c. Quelques Myrmeléonides (Ins. Névr.) d'Afrique. Ann Soc Sci Bruxelles 43 (pt. 1): 143-147. (in French)
- Navás L.** 1924. Myrmeléonides (Ins. Névr.) nouveaux ou critiques. 2me série. Ann Soc Sci Bruxelles 44 (pt. 1): 70-74. (in French)

- Navás L.** 1925. Insectos exóticos nuevos o poco conocidos. Segunda [II] serie. Mem R Acad Cienic Artes Barcelona (3) 19: 181-200. (in Spanish)
- Navás L.** 1926a. Insecta nova. Series XI. Mem Acad Pont Nuovi Lincei 9: 101-110. (in Latin)
- Navás L.** 1926b. Insecta orientalia. IV series. Mem Acad Pont Nuovi Lincei 9: 111-120. (in Latin)
- Navás L.** 1927. Insectos del Museo de París. 4.a serie. Brotéria (Zoológica) 24: 5-33. (in Spanish)
- Navás L.** 1929. Comunicaciones entomológicas. 10. Insectos de la India. 1.a serie. Rev Acad Cienc Ex Fis-Quim Nat Zaragoza 12: 177-197. (in Spanish)
- Navás L.** 1930a. Insecta nova. Series XV. Mem Acad Pont Nuovi Lincei 14: 409-418. (in Latin)
- Navás L.** 1930b. Insectos del Museo de París. 6.a série. Brotéria (Zoológica) 26: 120-144. (in Spanish)
- Navás L.** 1930c. Comunicaciones entomológicas. 12. Insectos de la India. 2.a serie. Rev Acad Cienc Ex Fis-Quim Nat Zaragoza (1) 13: 29-48. (in Spanish)
- Navás L.** 1930d. [*Neurocolinus* nom. nov. for *Colinus* Navas, 1925 and *Chenbergus* nom. nov. for *Brachycentrus* Taschenberg, 1865.] Bol Soc Ent Esp 13: 42-43. (in Spanish)
- Navás L.** 1931. Insectes du Congo Belge (Série V). Rev Zool Bot Afric 20: 257-279. (in French)
- Navás L.** 1932. Décadas de insectos nuevos. Década 19. Brotéria (Ciências Naturais) 28: 62-73. (in Spanish)
- Navás L.** 1933. Insectes du Congo Belge. Série VIII. Rev Zool Bot Afric 23: 308-318. (in French)
- Navás L.** 1934a. Insectos del Museo de Hamburgo. 2.a serie. Mem R Acad Cienic Artes Barcelona 23: 499-508. (in Spanish)
- Navás L.** 1934b. Insectos suramericanos. Novena [IX] serie. Rev Real Acad Cienc Exact Fis Nat Madrid 31: 155-184. (in Spanish)
- Navás L.** 1935. Spedizione zoologica del Marchese Saverio Patrizi nel Basso Giuba e nell'Oltregiuba Giugno-Agosto 1934 XII. Neurotteri. Ann Mus Ci Stor Nut Giacomo Doria 58: 50-55. (in Italian)
- Navás L.** 1936a. Décadas de insectos nuevos. Década 28. Brotéria (Ciências Naturais) 32: 161-170. (in Spanish)
- Navás L.** 1936b. Insectes du Congo Belge. Série IX. Rev Zool Bot Afric 28: 333-368. (in French)
- Navás L.** 1936c. Mission Scientifique de l'Omo. Tome III. Fascicule 19. Neuroptera, Embioptera, Plecoptera, Ephemeroptera et Trichoptera. Mem Mus Natl Hist Nat (N.S.) 4: 101-128. (in French)
- New TR.** 1985. A revision of the Australian Myrmeleontidae (Insecta: Neuroptera). I. Introduction, Myrmeleontini, Protoplectrini. Aust J Zool Suppl Series 104: 1-90.
- Newman E.** 1838. Entomological Notes. Ent Mag 5: 168-181, 372-402, 483-500.
- Newman E.** 1853. Proposed division of Neuroptera into two classes. Zoologist 11 (Appendix): clxxxi-cciv [=181-204].
- Okamoto H.** 1910. Die Myrmeleoniden Japans. Wien Ent Zeit 29: 275-300. (in German)
- Okamoto H.** 1914. Verzeichnis der japanischen Myrmeleoniden. Dobutsugaku zasshi 26: 249-250. (in Japanese)
- Okamoto H.** 1926. Some Myrmeleonidae and Ascalaphidae from Corea. Insecta Matsum 1: 18-22.
- Oswald JD.** 2018. Neuropterida Species of the World. URL: <http://lacewing.tamu.edu/SpeciesCatalog/Main>. Last accessed [2020 February 14].
- Pallas PS.** 1771. *Myrmeleo trigrammus*. pp 469. In: Reise durch verschiedene Provinzen des Russischen Reichs. Kayserlichen Academie der Wissenschaften, St. Petersburg. Vol. 1 [of 3]. (in German)
- Palmar EL.** 1975. Fieldbook of Natural History. 2nd edition (revised by H. Seymour Fowler; 1st edition 1949). McGraw Hill Book Co., New York. 779 pp.
- Radermacher JCM.** 1779. Register der Geslagten van de drie Ryken der Natur naar den 12. druk, van het Systhema Natura van Carolus Linnaeus tot No. 1228 van de vegetabilia vervolgens naar de herbarius ambonensis. Verh Bat Gen 1: 87-109. (in Dutch)
- Rambur JP.** 1842. Histoire naturelle des insectes, névroptères. Librairie encyclopédique de Roret. Fain et Thunot, Paris. 534 pp. (in French)

- Scharf I, Ovidia O.** 2006. Factors influencing site abandonment and site selection in a sit-and-wait predator: a review of pit-building antlion larvae. *J Insect Behav* 19: 197-218.
- Scharf I, Lubin Y, Ovidia O.** 2011. Foraging decisions and behavioural flexibility in trap-building predators: a review. *Biol Rev* 86: 626-639.
- Sekimoto S.** 2014. Review of Japanese Myrmeleontide (Neuroptera). *Insecta Matsum (N.S.)* 70: 1-87.
- Sharp D.** 1918. Neuroptera (incl. Panorpatae). *Zool Rec* 55 (XII=Insecta): 193-195.
- Stange LA.** 1970. A generic revision and catalog of the western Hemisphere Glenurini with the description of a new genus and species from Brazil (Neuroptera: Myrmeleontidae). Los Angeles County Museum, Contributions in Science 186: 1-28.
- Stange LA.** 1976. Clasificación y catálogo mundial de la tribu Dendroleontini con la redescrición del género *Voltor* Navás (Neuroptera: Myrmeleontidae). *Acta Zool Lilloana* 31:2 61-320. (in Spanish)
- Stange LA.** 1994. Reclassification of the New World antlion genera formerly included in the tribe Brachynemurini (Neuroptera: Myrmeleontidae). *Insecta Mundi* 8:67-119.
- Stange LA.** 2004. A systematic catalog, bibliography and classification of the world antlions (Insecta: Neuroptera: Myrmeleontidae). *Mem Am Entomol Inst* 74: [iv]+565.
- Stange LA, Miller RB.** 1990. Classification of the Myrmeleontidae based on larvae (Insecta: Neuroptera). In: Mansell MW, Aspöck H (eds). *Advances in Neuropterology. Proceedings of the 3rd International Symposium on Neuropterology; 1988 Feb 3-4; Berg en Dal, Kruger National Park, South Africa.* South African Department of Agricultural Development, Pretoria. pp 151-169
- Stange LA, Miller RB, Wang HY.** 2003. Identification and biology of Myrmeleontidae (Neuroptera) in Taiwan. I-Lan County Museum of Natural History. 159 pp.
- Steinmann H.** 1963. Magyarország hangyalesól (Neuroptera) [=Myrmeleontidae of Hungary (Neuroptera)]. *Fol Entomol Hung (N.S.)* 16: 211-226. (in Hungarian)
- Stephens JF.** 1829. A systematic catalogue of British insects: being an attempt to arrange all the hitherto discovered indigenous insects in accordance with their natural affinities. Containing also the references to every English writer on entomology, and to the principal foreign authors. With all the published British genera to the present time. Vol. 1. Baldwin & Cradock, London. [xxxvi] + 416 pp.
- Strand E.** 1908. A review of Esben-Petersen (1906): 'Neuroptera Danica. Planipennia'. *Zool Zentralbl* 15: 154. (in German)
- Swainson W, Shuckard WE.** 1840. On the Neuroptera. pp 335-358. In: Longman *et al.* (ed). *On the history and natural arrangement of insects.* London.
- Tjeder B.** 1941. A new species of Myrmeleontidae from Scandinavia. Preliminary description. *Opusc Ent* 6: 73-74.
- Tsao YJ, Okuyama T.** 2012. Foraging strategy switching in an antlion larva. *Behav Process* 91: 1-7.
- Van der Weele HW.** 1909. Mecoptera and Planipennia of Insulinde, with biological notes. *Notes Leyden Mus* 31: 1-100.
- Walker F.** 1853. List of the specimens of neuropterous insects in the collection of the British Museum. Part II.--(Sialidae--Nemopterides). British Museum, London. pp 193-476.
- Wan X, Wang XL, Yang XK.** 2006. Study on the genus *Layahima* Navás (Neuroptera: Myrmeleontidae) from China. *Proc Entomol Soc Wash* 108: 35-44.
- Wang XL, Ao WG, Wang ZL, Wan X.** 2012. Review of the genus *Gatzara* Navás, 1915 from China (Neuroptera: Myrmeleontidae). *Zootaxa* 3408: 34-46.
- Wang XL, Zhan QB, Wang AQ.** 2018. Fauna Sinica. Insecta Vol. 68. Neuroptera, Myrmeleontoidea. Science Press, Beijing. 285 pp. (in Chinese)
- Westwood JO.** 1840. Synopsis of genera of British Insects. London. 158 pp.
- Yang CK.** 1986. Thirty new species and four new genera of Neuroptera from Yunnan, and the family Nemopteridae new to China. *Acta Agriculturae Universitatis Pekinensis* 12: 153-166, 423-434. (in Chinese)

Yang CK. 1997. Neuroptera: Myrmeleonidae. pp 613-620. In: Yang XK (ed). Insects of the Three Gorge Reservoir area of Yangtze river. Vol. 1. Chongqing Publishing House, Chongqing, China.

Yang CK. 1999. Myrmeleonidae. pp 143-154, 165-167. In: Huang BK (ed). Fauna of

Insects Fujian Province of China. Vol. 3. Fujian Science and Technology Press, Fuzhou, China.

Yang CK, Wang XL. 2002. Neuroptera: Myrmeleontidae. pp 296-299. In: Huang FS. (chief ed). Forest insects of Hainan. Science Press, Beijing, China.

Appendix: Species list of Myrmeleontidae (Insecta: Neuroptera) of Taiwan

附錄：臺灣產蟻蛉科物種名錄（昆蟲綱：脈翅目）

Family MYRMELEONTIDAE Latreille, 1802 蟻蛉科

Subfamily MYRMELEONTINAE Latreille, 1802 蟻蛉亞科

Tribe DENDROLEONTINI Banks, 1899 樹蟻蛉族

Genus *Dendroleon* Brauer, 1866 樹蟻蛉屬

1. *Dendroleon esbenpeterseni* Miller & Stange in Miller *et al.*, 1999 少紋樹蟻蛉

Genus *Gatzara* Navás, 1915 錦蟻蛉屬

2. *Gatzara petrophila* Miller & Stange in Miller *et al.*, 1999 麗紋錦蟻蛉

Genus *Layahima* Navás, 1912 雅蟻蛉屬

3. *Layahima elegans* (Banks, 1937) 美雅蟻蛉

Tribe NEMOLEONTINI Banks, 1911 無脈蟻蛉族

Genus *Pseudoformicaleo* Van der Weele, 1909 齒爪蟻蛉屬

4. *Pseudoformicaleo nubecula* (Gerstaecker, 1885) 齒爪蟻蛉

Genus *Distoleon* Banks, 1910 距蟻蛉屬

5. *Distoleon formosanus* Okamoto, 1910 毛距蟻蛉

6. *Distoleon littoralis* Miller and Stange in Miller *et al.*, 1999 粗腿蟻蛉

Genus *Paraglenurus* Van der Weele, 1909 白雲蟻蛉屬

7. *Paraglenurus japonicus* (McLachlan, 1867) 白雲蟻蛉

8. *Paraglenurus lotzi* Miller and Stange in Miller *et al.*, 1999 姬彎爪蟻蛉

Genus *Thaumatoleon* Esben-Petersen, 1921 大彎爪蟻蛉屬

9. *Thaumatoleon splendidus* Esben-Petersen, 1921 臺灣大彎爪蟻蛉

Tribe NESOLEONTINI Markl, 1954 無腋蟻蛉族

Genus *Cueta* Navás, 1911 多脈蟻蛉屬

10. *Cueta sauteri* (Esben-Petersen, 1913) 梭德氏多脈蟻蛉

Tribe MYRMELEONTINI Latreille, 1802 蟻蛉族

Genus *Baliga* Navás, 1912 白斑蟻蛉屬

11. *Baliga asakurae* (Okamoto, 1910) 白斑蟻蛉

Genus *Hagenomyia* Banks, 1911 哈蟻蛉屬

12. *Hagenomyia brunneipennis* Esben-Petersen, 1913 雲痣哈蟻蛉

13. *Hagenomyia micans* (McLachlan, 1875) 閃耀哈蟻蛉

Genus *Myrmeleon* Linneaus, 1767 蟻蛉屬

14. *Myrmeleon (Myrmeleon) alticolus* Miller and Stange in Miller *et al.*, 1999 褐跗蟻蛉

15. *Myrmeleon (Myrmeleon) bore* (Tjeder, 1941) 鈎臀蟻蛉

16. *Myrmeleon (Myrmeleon) heppneri* Miller and Stange in Miller *et al.*, 1999 海氏蟻蛉

17. *Myrmeleon (Myrmeleon) littoralis* Miller and Stange in Miller *et al.*, 1999 胸紋蟻蛉

18. *Myrmeleon (Myrmeleon) persimilis* Miller and Stange in Miller *et al.*, 1999 臀腋蟻蛉

19. *Myrmeleon (Myrmeleon) punctinervis* Banks, 1937 沙阱蟻蛉

20. *Myrmeleon (Myrmeleon) taiwanensis* Miller and Stange in Miller *et al.*, 1999 臺灣蟻蛉

21. *Myrmeleon (Myrmeleon) wangi* Miller and Stange in Miller *et al.*, 1999 王氏蟻蛉

Tribe ACANTHACLISINI Navás, 1912 棘蟻蛉族

Genus *Centroclisis* Navás, 1909 中大蟻蛉屬

22. *Centroclisis negligens* Navás, 1911 單中大蟻蛉

Genus *Synclisis* Navás, 1919 擊大蟻蛉屬

23. *Synclisis kawaii* (Nakahara, 1913) 南擊大蟻蛉

臺灣產蟻蛉科名錄 (昆蟲綱：脈翅目)

林育脩¹、曹又仁^{1,2}、柯俊成^{1*}

¹ 國立臺灣大學昆蟲學系

² 科技部生命科學研究發展司

* 通訊作者 email: kocc2501@ntu.edu.tw

收件日期：2019年11月21日 接受日期：2020年4月7日 線上刊登日期：2020年5月1日

摘 要

全世界已知的蟻蛉科物種約1,700種。本名錄提供臺灣1亞科、5族、13屬、23種的蟻蛉科物種學名、中文名錄、異名表、模式產地、模式標本存放處以及分布地區等資訊。

關鍵詞：蟻蛉科、臺灣、名錄、中文名