

# FAMILY GROUP NAMES AND CLASSIFICATION

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compiled by

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The family and tribe level classification used below follows the findings of Brothers (1999), Melo (1999), and Prentice (1998, unpublished Ph.D. thesis, validated by Hanson and Menke, 2006). Their systems differ at the tribal level, and that of Prentice is accepted here as it is based on a much larger data set, but his one new tribe and one new subtribe are not included since they were not published. The classification of Ampulicidae is as proposed by Ohl and Spahn, 2009, the classification of Bembicini follows Nemkov and Ohl, 2011, and the authorship of Palarini and Xenosphecini is as corrected by Menke and Pulawski (2002). Because Astatinae and Dinetinae each have a single tribe I am not using them in this catalog. The names, authorship, dates, stems, and other pertinent information, are from Menke (1997), who was advised by Don Cameron, a Latin and Greek scholar at the University of Michigan, about the proper formation of names. All genera described subsequent to Bohart and Menke (1976) have been added (both extant and fossil), and recently established synonymies are also indicated.

Menke (1997) commented that “Ammophilomorpha, Sphecinomorpha, and Palmodomorpha could be construed as valid [correctly: available] since they are based on generic names with -morpha endings”. Article 11.7.1.3 of the Code (Fourth Edition) leaves no doubt that these names are available, with their original authorship and date, but with a correct suffix (as specified in Article 29.2).

All the family group names of Apoidea (including Sphecidae sensu lato treated here) were reviewed by Engel, 2005 (Family-group names for bees (Hymenoptera: Apoidea). American Museum Novitates 3476:33 pp.).

Families are listed in the presumed phylogenetic order, whereas subfamilies and tribes are listed alphabetically within each family, as are the subtribes within each tribe. The dagger symbol (†) indicates fossil taxa.

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## **Superfamily: Apoidea**

Apoidea Latreille, 1802a:425 (April). Based on *Apis* Linnaeus, 1758 (stem: *Ap-*).

Sphecoidea Latreille, 1802b:331 (November). Based on *Sphex* Linnaeus, 1758 (stem: *Spheci-*).

## **Family: Heterogynaidae**

Ohl's and Bleidorn's (2006) molecular cladistic analysis suggests that Heterogynaidae are members of Crabronidae.

Heterogynaidae Nagy, 1969:7. Based on *Heterogyna* Nagy (stem: *Heterogyna*-). Originally spelled Heterogynidae (stem: *Heterogyn*-), a junior homonym of Heterogynidae Rambur, 1866, based on *Heterogynis* Rambur, 1837. Both family name and stem emended by International Commission on Zoological Nomenclature, 1987:150, in Opinion 1445, as proposed by Day, 1985b:385.

Included genus: *Heterogyna* Nagy, 1969 (= *Daycatinca* Argaman, 1985, = *Daya* Antropov and Gorbatovskiy, 1992).

### Family: Ampulicidae

Ampulicidae Shuckard, 1840:178, 180. Based on *Ampulex* Jurine (stem: *Ampulic*-).

**Subfamily: Ampulicinae** Shuckard, 1840:178, 180. Based on *Ampulex* Jurine (stem: *Ampulic*-).

**Tribe: Ampulicini** Shuckard, 1840:178, 180. Based on *Ampulex* Jurine (stem: *Ampulic*-).

Included genera: *Ampulex* Jurine, 1807, *Trirogma* Westwood, 1841

**Tribe: †Cretampulicini** Antropov, 2000. Based on *Cretampulex* Antropov, 2000 (stem: *Cretampulic*-).

Included genus: †*Cretampulex* Antropov, 2000.

**Tribe: †Mendampulicini** Antropov, 2000. Based on *Mendampulex* Antropov, 2000 (stem: *Mendampulic*-).

Included genus: †*Mendampulex* Antropov, 2000.

**Subfamily: Dolichurinae** Dahlbom, 1842:3. Based on *Dolichurus* Latreille, 1809 (stem: *Dolichur*-). Originally spelled Dolichuridae. Menke (1997:250) incorrectly attributed authorship to Lepeletier de Saint Fargeau, 1845.

**Tribe: Aphelotomini** Ohl and Spahn, 2009. Based on *Aphelotoma* Westwood, 1841 (stem: *Aphelotom*-).

Included genera: *Aphelotoma* Westwood, 1841, *Riekefella* Özdikmen, 2005 (= *Austrotoma* Riek, 1955).

**Tribe: †Apodolichurini** Antropov, 2000. Based on *Apodolichurus* Antropov, 2000 (stem: *Apodolichur*-).

Included genus: †*Apodolichurus* Antropov, 2000.

**Tribe: Dolichurini** Dahlbom, 1842:3. Based on *Dolichurus* Latreille, 1809 (stem: *Dolichur*-). Originally spelled Dolichuridae. Menke (1997:250) incorrectly attributed authorship to Lepeletier de Saint Fargeau, 1845.

Included genera: *Dolichurus* Latreille, 1809, *Paradolichurus* F. Williams, 1960, †*Protodolichurus* Nemkov, 1988.

**Tribe unknown within Ampulicidae**

†*Cariridris* Brandão and Martins-Neto, 1889:201, †*Longivenula* Zhang, 1989.

## Family: Sphecidae (sensu stricto)

Sphecidae Latreille, 1802b:331 (November). Based on *Sphex* Linnaeus, 1758 (stem: *Spheci-*). Originally spelled Sphegimes, latinized to Sphegineae by Fallén, 1812:129, to Sphecida and Sphecides by Leach, 1812 (Edinb. Encycl.), and to Sphegidae by Westwood, 1840 (Introd. Class. Ins.). Tillyard (1926:300) first demonstrated the proper stem.

**Subfamily: Ammophilinae** André, 1886:50. Based on *Ammophila* Kirby, 1798 (stem: *Ammophil-*).

= Acutoclypeata Ohl, 1996:32. Not available: not based on any of the included genera (Article 11.7.1). Genera of Acutoclypeata: *Eremnophila*, *Hoplammophila*.

= Ammophilomorpha Ohl, 1996:35 (correct spelling: Ammophilinae). Based on *Ammophila* Kirby, 1798 (stem: *Ammophil-*). Synonym and junior homonym of Ammophilinae André, 1886. Genera of Amophilomorpha: *Ammophila*, *Eremochares*, *Parapsammophila*, *Podalonia*.

Included genera: *Ammophila* W. Kirby, 1798, *Eremnophila* Menke, 1964, *Eremochares* Gribodo, 1883, *Hoplammophila* de Beaumont, 1960, *Parapsammophila* Taschenberg, 1869, *Podalonia* Fernald, 1927.

**Subfamily: Chloriontinae** Fernald, 1905:16. Based on *Chlorion* (stem: *Chloriont-*). Originally spelled Chlorioninae.

Included genus: *Chlorion* Latreille, 1802.

**Subfamily: Sceliphrinae** Ashmead, 1899:349 (1815). Based on *Sceliphron* (stem: *Sceliph-*). Originally spelled Sceliphroninae. The name, a junior synonym of Pelopeini Leach, 1815, was retained by Menke (1997) as valid because of its nearly universal use (Article 40.2.1 of the Code).

= Pelopoeinae Leach, 1815:150. Based on *Pelopoeus* Latreille, 1802. Originally spelled Pelopaeida.

= Lutifera Ohl, 1996:19. Not available: not based on any of the included genera (Article 11.7.1). Include Podiini + Sceliphriini.

**Tribe: Podiini** de Saussure, 1892. Based on *Podium* (stem: *Podi-*). Originally spelled *Podiites*, latinized to Podiinae by Ashmead, 1899:348.

Included genera: *Dynatus* Lepeletier de Saint Fargeau, 1845, *Penepodium* Menke in R. Bohart and Menke, 1976, *Podium* Fabricius, 1804, *Trigonopsis* Perty, 1833.

**Tribe: Sceliphriini** Ashmead, 1899 (1815).

Included genera: *Chalybion* Dahlbom, 1843, †*Hoplisidia* Cockerell, 1906, *Sceliphron* Klug, 1801.

**Subfamily: Sphecinae** Latreille, 1802b:331. Based on *Sphex* Linnaeus, 1758.

= *Sphecinomorpha* Ohl, 1996:24 (correct spelling: *Sphecini*). Based on *Sphex* (stem: *Spheci-*). Synonym and junior homonym of Sphecini Latreille, 1802. Include *Stangeella* + *Eusphecinomorpha* Ohl, 1996:26 (not available: not based on any of the included genera; Article 11.7.1; include Sphecini + Ammophilini except *Stangeella*).

**Tribe: Prionychini** Bohart and Menke, 1963:94, 141. Based on *Prionyx* Vander Linden, 1827 (stem: *Prionych-*). Originally spelled Prionyxina.

= Palmodomorpha Ohl, 1996:29 (correct spelling: Palmodini). Based on *Palmodes* Kohl, 1890 (stem: *Palmod-*). Genera of Palmodomorpha: *Chilosphex*, *Palmodes*.

Included genera: *Chilosphex* Menke in R. Bohart and Menke, 1976, *Palmodes* Kohl, 1890, *Prionyx* Vander Linden, 1827.

**Tribe: Sphecini** Latreille, 1802b: 331. Based on *Sphex* Linnaeus, 1758.

= Ammobiini Krombein in Krombein and Burks, 1967. Based on *Ammobia*, a junior synonym of *Sphex* (stem: *Ammobi-*). A junior homonym of Ammobiini Desbrochers des Loges, 1903 (which is a synonym of Opatrini Brullé, 1832), a tribe in Tenebrionidae.

= Eusphecinomorpha Ohl, 1996:26. Not available: not based on any of the included genera (Article 11.7.1). Include Ohl's Sphecini + Ammophilini.

Included genera: *Isodontia* Patton, 1880, *Sphex* Linnaeus, 1758.

**Tribe: Stangeellini** Bohart and Menke, 1976:87. Based on *Stangeella* (stem: *Stangeell-*).

Included genus: *Stangeella* Menke, 1962.

### **Family: Crabronidae**

Crabronidae Latreille, 1802b:340. Based on *Crabro* Fabricius, 1775 (stem: *Crabron-*). Originally spelled Crabronites, latinized to Crabronida by Leach, 1812 (Edinb. Encycl.). Four other names of Latreille (1802b) were available for this family, but Acloque (1897:80) used Crabronidi acting as first reviser.

**Subfamily: Astatinae** Lepeletier de Saint Fargeau, 1845:231. Based on *Astata* Latreille (stem: *Astat -*). Originally spelled Astatites, latinized to Astatini by de Saussure, 1867:65.

= Diploplectriini W. Fox, 1894:302. Based on *Diploplectron* (stem: *Diploplectr-*).

= Dimorphini Brues and Melander, 1932:503. Based on *Dimorpha* Panzer, 1806 (stem: *Dimorph-*).

Included genera: *Astata* Latreille, 1797 (= *Dimorpha* Panzer, 1806), *Diploplectron* W. Fox, 1893, *Dryudella* Spinola, 1843, *Uniplectron* F. Parker, 1966.

**Subfamily: Bembicinae** Latreille, 1802b:365. Based on *Bembex* Fabricius [correctly *Bembix*] (stem: *Bembi-*). Originally spelled Bembiciles, latinized to Bembicinae by Fallén, 1813.

**Tribe: Alyssontini** Dalla Torre, 1897:562. Based on *Alysson* Panzer (stem: *Alyssont-*). Originally spelled Alyssoninae, based on *Alyson* Jurine, 1807.

Included genera: *Alysson* Panzer, 1806, *Analysson* Krombein, 1985, *Didineis* Wesmael, 1852.

**Tribe: Bembicini** Latreille, 1802 b:365. Based on *Bembex* Fabricius [correctly *Bembix*] (stem: *Bembi-*).

**Subtribe: Bembicina** Latreille, 1802b:365. Based on *Bembex* Fabricius [correctly *Bembix*] (stem: *Bembi-*).

Included genera: *Bembix* Fabricius, 1775, *Bicyrtes* Lepeletier de Saint Fargeau, 1845, *Carlobembix* Willink, 1958, *Editha* J. Parker, 1929, *Hemidula* Burmeister, 1874, *Microbembex* Patton, 1979c, *Rubrica* J. Parker, 1929, *Selman* J. Parker, 1929, *Stictia* Illiger, 1807, *Trichostictia* J. Parker, 1929, , *Zyzyx* Pate, 1837.

**Subtribe: Exeirina** Dalla Torre, 1897:534. Based on *Exeirus* Shuckard (stem: *Exeir-*).

Prentice (1998) recognized the subtribe Clitemnestrina, which is a junior synonym of *Exeirina*, with the following genera included: *Clitemnestra*, *Olgi*, and *Exeirus*. I regard this as synonymizing *Exeirina* with Clitemnestrina and Olgiina.

= Clitemnestrina Nemkov and Lelej, 1996:11. Based on *Clitemnestra* Spinola (stem: *Clitemnestr-*). Synonymy resulting from Prentice's classification of 1998.

= Olgiina Nemkov and Lelej, 1996:11. Based on *Olgi* Radoszkowski (stem: *Olgi-*). Synonymy resulting from Prentice's classification of 1998.

= Argogorytina Nemkov and Lelej, 1996:11. Based on *Argogorytes* Ashmead, 1899 (stem: *Argogoryt-*). Synonymized with *Exeirina* by Nemkov and Ohl, 2011:39.

Included genera: *Argogorytes* Ashmead, 1899 (= *Malaygorytes* Nemkov, 1999), *Clitemnestra* Spinola, 1851 (= *Ochleroptera* Holmberg, 1903), *Exeirus* Shuckard, 1838, *Olgi* Radoszkowski, 1877, *Neogorytes* R. Bohart in R. Bohart and Menke, 1976, *Paraphilanthus* Vardy, 1995.

**Subtribe: Gorytina** Lepeletier de Saint Fargeau, 1845. Based on *Gorytes* Latreille (stem: *Goryt-*). Originally spelled Gorytites, latinized to Gorytinae by Dalla Torre, 1897:535. Spelled Goritini by A. Costa, 1859:3, 26, 53 (Italian vernacular), and Gorytesii by Acloque, 1897:80.

= Arpactini R. Turner, 1915:67. Based on *Arpactus* Panzer, 1805 (stem: *Arpact-*).

= Hoplisini Rohwer, 1916:654,656. Based on *Hoplilus* Lepeletier de Saint Fargeau, 1832 (stem: *Hoplis-*).

= Trichogorytina Nemkov and Pulawski, 2009. Based on *Trichogorytes* Rohwer, 1912 (stem: *Trichogoryt-*). Synonymized with Gorytina by Nemkov and Ohl, 2011:39.

Included genera: *Afrogorytes* Menke, 1967, *Allogorytes* R. Bohart, 2000, *Arigorytes* Rohwer, 1912, *Aroliagorytes* R. Bohart, 2000, *Austrogorytes* R. Bohart, 1967, †*Biamogorytes* Nemkov, 1990, *Eogorytes* R. Bohart in Bohart and Menke, 1976, *Epigorytes* R. Bohart, 2000, *Gorytes* Latreille, 1805 (= *Pseudoplisus* Ashmead, 1899, = *Leiogorytes* R. Bohart, 2000), *Hapalomellinus* Ashmead, 1899, *Harpactostigma* Ashmead, 1899, *Harpactus* Shuckard, 1837, *Hoplisoides* Gribodo, 1884, *Lestiphorus* Lepeletier de Saint Fargeau, 1832, *Leurogorytes* R. Bohart, 2000, *Liogorytes* R. Bohart, 1967, *Megistommum* W. Schulz, 1906, *Oryttus* Spinola, 1836, *Psammaecius* Lepeletier de Saint Fargeau, 1832, *Psammaletes* Pate, 1936, *Sagenista* R. Bohart, 1967, *Saygorytes* Nemkov, 2007, *Stenogorytes* Schrottky, 1911 (= *Neoplisus* R. Bohart, 1967), *Stethogorytes* R. Bohart, 2000, *Tretogorytes* R. Bohart, 2000, *Trichogorytes* Rohwer, 1912, *Xerogorytes* R. Bohart in Bohart and Menke, 1976.

**Subtribe: Handlirschiina** Nemkov and Lelej, 1996:12. Based on *Handlirschia* Kohl (stem: *Handlirschi-*).

Included genera: *Handlirschia* Kohl, 1897, *Pterygorytes* R. Bohart, 1967.

**Subtribe: Heliocausina** Handlirsch, 1925:807. Based on *Heliocausus* Kohl (stem: *Heliocaus-*).

Included genera: *Acanthocausus* Fritz and Toro, 1977, *Heliocausus* Kohl, 1892, *Tiguipa* Fritz and Toro, 1976.

**Subtribe: Spheciina** Nemkov and Ohl, 2011:39. Based on *Sphecius* Dahlbom (stem: *Spheci-*).

Included genera: *Ammatomus* A. Costa, 1859, *Kohlia* Handlirsch, 1895, *Sphecius* Dahlbom, 1843, *Tanyoprymnus* Cameron, 1905.

**Subtribe Stictiellina** R. Bohart and Horning, 1971. Based on *Stictiella* Parker, 1917 (stem: *Stictiell-*). Synonymized with Bembicini by R. Bohart and Menke, 1976:534, resurrected as valid tribe by Nemkov and Ohl, 2011:40.

Included genera: *Chilostictia* Gillaspay, 1983, *Glenostictia* Gillaspay in Gillaspay, Evans, and Lin, 1962, *Microstictia* Gillaspay, 1963, *Steniolia* Say, 1837, *Stictiella* J. Parker, 1917, *Xerostictia* Gillaspay, 1963.

**Subtribe: Stizina** A. Costa, 1859:2, 4, 55. Based on *Stizus* Latreille (stem: *Stiz-*).

Included genera: *Bembecinus* A. Costa, 1859, *Stizoides* Guérin-Méneville, 1844, *Stizus* Latreille, 1802.

**Tribe: Nyssonini** Latreille, 1804:180. Based on *Nysson* Latreille (stem: *Nysson-*, ruled to be *Nysson-* by International Commission on Zoological Nomenclature, 1979, Opinion 1115).

Included genera: *Acanthostethus*, Smith, 1869, *Antomartinezius* Fritz, 1955, *Brachystegus* A. Costa, 1859, *Cresson* Pate, 1938, *Epinysson* Pate, 1935, *Foxia* Ashmead, 1898, *Hovanysson* Arnold, 1945, *Hyponysson* Cresson, 1882, *Idionysson* Pate, 1940, *Losada* Pate, 1940, *Metanysson* Ashmead, 1899, *Neonysson* R. Bohart, 1968, *Nippononysson* Yasumatsu and Maidl, 1936, *Nursea* Cameron, 1902, *Nysson* Latreille, [1802] (= *Synevrus* A. Costa, 1859), *Perisson* Pate, 1938, *Zanysson* Rohwer, 1921.

**Subfamily: Crabroninae** Latreille, 1802. Based on *Crabro* Fabricius, 1775 (stem: *Crabron-*). Originally spelled Crabronites.

**Tribe: Bothynostethini** W. Fox, 1894:302. Based on *Bothynostethus* Kohl, 1894 (stem: *Bothynosteth-*).

**Subtribe: Bothynostethina** W. Fox, 1894.

Included genera: *Bothynostethus* Kohl, 1894, *Sanaviron* Vardy, 1987, *Willinkiella* Menke, 1968.

**Subtribe: Scapheutina** Menke, 1968:91. Based on *Scapheutes* Handlirsch (stem: *Scapheut-*).

Included genera: *Bohartella* Menke, 1968, *Scapheutes* Handlirsch, 1887.

**Tribe: Crabronini** Latreille, 1802.

**Subtribe: Anacrabronina** Ashmead, 1899:163. Based on *Anacrabro* Packard (stem: *Anacrabron-*).

= *Karossiina* Pate, 1936:151. Based on *Karossia* Arnold, 1929 (stem: *Karossi-*).

Included genera: *Anacrabro* Packard, 1866, *Encopognathus* Kohl, 1897, *Entomocrabro* Kohl, 1905, *Entomognathus* Dahlbom, 1844.

**Subtribe: Crabronina** Latreille, 1802.

= *Lindeniina* Ashmead, 1899:163. Based on *Lindenius* Lepeletier de Saint Fargeau and Brullé, 1834 (stem: *Lindeni-*).

= *Thyreopodina* Ashmead, 1899:164. Based on *Thyreopus* (stem: *Thyreopod-*). Originally spelled Thyreopinae. Thyreopidae of Strickland, 1947:127 is probably a misspelling.

= *Rhopalina* Ashmead, 1899:164. Based on *Rhopalum* Stephens, 1829 (stem: *Rhopal-*). Junior homonym of Rhopalidae Amyot and Serville, 1843, based on *Rhopalus* Schilling, 1827 (Heteroptera).

= *Soleniina* Bradley, 1926:1029. Based on *Solenius* Lepeletier de Saint Fargeau and Brullé, 1835 (stem: *Soleni-*).

= *Pemphilidina* Pate, 1935:246. Based on *Pemphilis* Risso, 1826 (stem: *Pemphilid-*). Originally spelled Pemphilidae.

Included genera: *Alinia* Antropov, 1993, *Arnoldita* Pate, 1948, *Chimila* Pate, 1944, *Chimiloides* Leclercq, 1951, *Crabro* Fabricius, 1775, *Crorhopalum* Tsuneki, 1984, *Crossocerus* Lepeletier de Saint Fargeau and Brullé, 1835 (= *Towada* Tsuneki, 1970), *Dasyproctus* Lepeletier de Saint Fargeau and Brullé, 1835, *Echucoides* Leclercq, 1957, *Ectemnius* Dahlbom, 1845 (= *Spadicocrabro* Tsuneki, 1990), *Enoplolindenius* Rohwer, 1911, *Eupliloides* Pate, 1946, *Foxita* Pate, 1942 (= *Taruma* Pate, 1944), *Hingstoniola* Turner and Waterston, 1926, *Holcorhopalum* Cameron, 1904, *Huacrabro* Leclercq, 2000, *Huaeva* Pate, 1948, *Isorhopalum* Leclercq, 1963, *Krombeinictus* Leclercq, 1996, *Leclercqia* Tsuneki, 1968, *Lecrenierus* Leclercq, 1977, *Lestica* Billberg, 1820, *Lindenius* Lepeletier de Saint Fargeau and Brullé, 1835, *Minicrabro* Leclercq, 2003, *Moniaecera* Ashmead, 1899, *Neodasyproctus* Arnold, 1926, *Notocrabro* Leclercq, 1951, *Odontocrabro* Tsuneki, 1971, *Pae* Pate, 1944 (= *Lamocrabro* Leclercq, 1951), *Papurus* Tsuneki, 1983, *Parataruma* Kimsey, 1982, *Pericrabro* Leclercq, 1954, *Piyuma* Pate, 1944b, *Piyumoides* Leclercq, 1963, *Podagritoides* Leclercq, 1957, *Podagritus* Spinola, 1851, *Pseudoturneria* Leclercq, 1954, *Quexua* Pate, 1942, *Rhopalum* Stephens, 1829, *Tracheliodes* A. Morawitz, 1866, *Tsunekiola* Antropov, 1986, *Vectitia* Pate, 1944, *Williamsita* Pate, 1947, *Zutrhopalum* Leclercq, 1998.

**Tribe: Larrini** Latreille, 1810:289, 438. Based on *Larra* Fabricius (stem: *Larr-*).

= Larradini de Saussure, 1892:471. Based on *Larrada* F. Smith, 1856 (stem: *Larrad-*).

**Subtribe: Gastrosericina** André, 1886:51. Based on *Gastrosericus* Spinola, 1838 (stem: *Gastroseric-*). Originally spelled Gasteroseriidae, corrected to Gastrosericidae by André, 1888:211.

= Tachytina G. Bohart, 1951:945. Based on *Tachytes* Panzer, 1806 (stem: *Tachyt-*).

Included genera: *Ancistromma* W. Fox, 1893, *Gastrosericus* Spinola, 1839, *Holotachysphex* de Beaumont, 1940, *Kohliella* Brauns, 1910, *Larropsis* Patton, 1892, *Parapiagetia* Kohl, 1897, *Prosopigastra* A. Costa, 1867, *Tachysphex* Kohl, 1883, *Tachytella* Brauns, 1906, *Tachytes* Panzer, 1806.

**Subtribe: Larrina** Latreille, 1810.

Included genera: *Dalara* Ritsema, 1884, *Dicranorhina* Shuckard, 1840, *Larra* Fabricius, 1793, *Liris* Fabricius, 1804, *Paraliris* Kohl, 1884.

**Tribe: Miscophini** W. Fox, 1894:302. Based on *Miscophus* Jurine, 1807 (stem: *Miscoph-*).

= Lyrodini W. Fox, 1895:302. Based on *Lyroda* Say (stem: *Lyrod-*).

= Sericophorini Dalla Torre, 1897:577. Based on *Sericophorus* F. Smith (stem: *Sericophor-*).

= Nitelini Dalla Torre, 1897:697. Based on *Nitela* Latreille (stem: *Nitel-*).

= Paranyssontini R. Turner, 1914:337. Based on *Paranysson* Guérin-Méneville (stem: *Paranyssont-*). Originally spelled Paranyssoninae.

Included genera: *Aha* Menke, 1977, *Auchenophorus* R. Turner, 1907, *Larrisson* Menke, 1967, *Lyroda* Say, 1837, *Miscophoidellus* Menke in Bohart and Menke, 1976, *Miscophoides* Brauns in Kohl, 1897, *Miscophus* Jurine, 1807, *Namiscophus* Lomholdt, 1985, *Nitela* Latreille, 1809, *Paranysson* Guérin-Méneville, 1844, *Plenoculus* W. Fox, 1893, *Saliostethoides* Arnold, 1924, *Saliostethus* Brauns in Kohl, 1897, *Sericophorus* F. Smith, 1851, *Solierella* Spinola, 1851, *Sphodrotes* Kohl, 1889.

**Tribe: Oxybelini** Leach, 1815:152. Based on *Oxybelus* Latreille (stem: *Oxybel-*). Originally spelled Oxybellida.

Included genera: *Belarnoldus* Antropov, 2007, *Belokohlus* Antropov, 2007, *Belomicrinus* Antropov, 2000, *Belomicroides* Kohl, 1899, *Belomicrus* A. Costa, 1871, *Brimocelus* Arnold, 1927, *Enchemicrum* Pate, 1929, *Gessus* Antropov, 2001, *Guichardus* Antropov, 2007, *Minimicroides* Antropov, 2000, *Nototis* Arnold, 1927,

*Oxybelomorpha* Brauns, 1897, *Oxybelus* Latreille, 1797, *Pseudomicroides* Antropov, 2001, *Wojus* Antropov, 1999.

**Tribe: Palarini** Schrottky, 1909:249. Based on *Palarus* Latreille, 1802 (stem: *Palar-*). Originally spelled Palaridae.

= Palarini Börner, 1919:185. Based on *Palarus* Latreille (stem: *Palar-*).

= Mesopalarini Lomholdt, 1985:22. Based on *Mesopalarus* Brauns (stem: *Mesopalar-*). Synonymized with Palarini by Pulawski and Prentice (2008:311).

Included genera: *Mesopalarus* Brauns, 1899, *Palarus* Latreille, 1802.

**Tribe: Protomicroidini** Antropov, 2010b:66 and 2010c:313. Based on *Protomicroides* Antropov, 2010b:67 and 2010c:313 (stem: *Protomicroid-*).

Included genus: †*Protomicroides* Antropov, 2010b and 2010c.

**Tribe: Trypoxylini** Lepeletier de Saint Fargeau, 1845:224. Based on *Trypoxylon* Latreille (stem: *Trypoxyl-*). Originally spelled Trypoxylites, latinized to Trypoxylidae by Thomson, 1870:207, and incorrectly to Trypoxylonidae in subsequent publications.

= Pisini Ashmead, 1899:241 (originally spelled Pisoninae). Based on *Pison* Jurine, Greek for pea, and also one of the rivers in the Garden of Eden (stem: *Pis-*). May have been based on the Roman family name *Pison*, in which case the stem would be *Pison-*.

Included genera: *Aulacophilinus* Lomholdt, 1980, *Aulacophilus* F. Smith, 1869, †*Eopison* Nel, 2005, †*Megapison* Zhang, 1989, *Pison* Jurine in Spinola, 1808, *Pisonopsis* W. Fox, 1893, *Pisoxylon* Menke, 1968, *Trypoxylon* Latreille, 1796.

**Subfamily: Dinetinae** W. Fox, 1895:305. Based on *Dinetus* Panzer (stem: *Dinet-*).

Included genus: *Dinetus* Panzer, 1806.

**Subfamily: Eremiasphecinae** Menke, 1967:148. Based on *Eremiasphecium* Kohl, 1897 (stem: *Eremiasphec-*).

**Tribe: Eremiasphecini** Menke, 1967.

Included genus: *Eremiasphecium* Kohl, 1897 (= *Taukumia* Kazenas, 1991, = *Xanthosphecium* Simon Thomas, 1994).

**Tribe: Laphyragogini** R. Bohart and Menke, 1976:217. Based on *Laphyragogus* Kohl (stem: *Laphyragog-*).

Included genus: *Laphyragogus* Kohl, 1889.

**Subfamily: Mellininae** Latreille, 1802b:337. Based on *Mellinus* Fabricius (stem: *Mellin-*). Originally spelled Melliniores, latinized to Mellinii by Fallén, 1812:130.

**Tribe: Mellinini** Latreille, 1802.

Included genus: *Mellinus* Fabricius, 1790 (= *Trachogorytes* R. Bohart, 2000).

**Tribe: Xenosphecini** F. Parker, 1966:195. Based on *Xenosphecx* F. Williams (stem: *Xenosphec-*).

= Xenosphecini R. Bohart and Menke, 1976:437. Based on *Xenosphecx* F. Williams (stem: *Xenosphec-*).

Included genus: *Xenosphecx* F. Williams, 1954.



**Subfamily: Pemphredoninae** Dahlbom, 1835:2, 6, 8. Based on *Pemphredon* Latreille (stem: *Pemphredon*-). Nomen protectum (Article 23.9). Originally spelled Pemphredonides, corrected to Pemphredonides in Isis von Oken, 1936, Heft 4:col. 288, and spelled Pemphredonidae by Dahlbom, 1842:1.

= Cemoninae Fallén, 1812:131. Based on *Cemonus* Panzer, 1806 (stem: *Cemon*-), a junior synonym of *Pemphredon*. Nomen oblitum (Article 23.9). Originally spelled Cemonii. Not listed by Menke, 1997.

**Tribe: Entomosericipini** Dalla Torre, 1897:557. Based on *Entomosericus* Dahlbom (stem: *Entomoseric*-).

Included genus: *Entomosericus* Dahlbom, 1845.

**Tribe: Odontosphecini** Menke, 1967:144. Based on *Odontosphech* Arnold (stem: *Odontosphec*-).

Included genus: *Odontosphech* Arnold, 1951.

**Tribe: Pemphredonini** Dahlbom, 1835:2, 6, 8. Based on *Pemphredon* Latreille (stem: *Pemphredon*-).

**Subtribe: Ammoplanina** Evans, 1959:182, 189. Based on *Ammoplanus* Giraud (stem: *Ammoplan*-).

Included genera: *Ammoplanellus* Gussakovskij, 1931, *Ammoplanops* Gussakovskij, 1931, *Ammoplanus* Giraud, 1869, *Ammostigmus* Antropov, 2010, *Parammoplanus* Pate, 1939, *Protostigmus* Turner, 1918 (= *Anomiopteryx* Gussakovskij, 1935), *Pulverro* Pate, 1937, *Timberlakena* Pate, 1939.

**Subtribe: Pemphredonina** Dahlbom, 1835.

Included genera: *Diodontus* Curtis, 1834, *Passaloecus* Shuckard, 1837, *Pemphredon* (= †*Sinostigma* Hong, 1984), *Polemistus* de Saussure, 1892, †*Rovnoecus* Antropov and Perkovsky, 2009.

**Subtribe: Spilomenina** Menke, 1989:740. Based on *Spilomena* Shuckard (stem: *Spilomen*-).

Included genera: *Arpactophilus* F. Smith, 1863, *Microstigmus* Ducke, 1907, †*Palarpactophilus* Ohl and Bennett, 2009, *Spilomena* Shuckard, 1838, *Xysma* Pate, 1937.

**Subtribe: Stigmina** R. Bohart and Menke, 1976:175, 185. Based on *Stigmus* Panzer (stem: *Stigm*-).

Included genera: *Allostigmus* Melo and Naumann, 1999, *Araucastigmus* Finnamore, 1995, *Aykhustigmus* Finnamore, 1995, *Ceratostigmus* Melo and Naumann, 1999, *Carinostigmus* Tsuneki, 1954, *Incastigmus* Finnamore, 1995, *Llaqhastigmus* Finnamore, 1995, *Paracrabro* Turner, 1907, *Parastigmus* Antropov, 1992, *Stigmus* Panzer, 1804, *Tzustigmus* Finnamore, 1995.

**Fossil genera of Pemphredoninae not assigned to tribes.**

†*Cretoecus* Budrys, 1993, †*Cretospilomena* Antropov, 2000, †*Eomimesa* Budrys, 1993, †*Eopinoecus* Budrys, 1993, †*Eoxyloecus* Budrys, 1993, †*Iwestia* Rasnitsyn and Jarzembowski in Rasnitsyn, Jarzembowski, and Ross, 1998, †*Lisponema* Evans, 1969, †*Palanga* Budrys, 1993, †*Pittoecus* Evans, 1973, †*Prolemistus* Antropov, 2000, †*Psolimena* Antropov, 2000, †*Succinoecus* Budrys, 1993.

**Tribe: Psenini** A. Costa, 1858:4, 21. Based on *Psen* Latreille (stem: *Psen*-).

= Mimesini Cresson, 1887:119. Based on *Mimesa* Shuckard (stem: *Mimes*-).

= Psenulini Gittins, 1969:50. Based on *Psenulus* Kohl (stem: *Psenul-*). Originally spelled Psenuli.

Included genera: *Ammopsen* Krombein, 1959, *Deinomimesa* Perkins, 1899, *Lithium* Finnamore, 1987, *Mimesa* Shuckard, 1937, *Mimumesa* Malloch, 1933, *Nesomimesa* Malloch, 1933, *Odontopsen* Tsuneki, 1964, *Pluto* Pate, 1937, *Psen* Latreille, 1796, *Pseneo* Malloch, 1933, *Psenulus* Kohl, 1897.

**Subfamily: Philanthinae** Latreille, 1802b:365. Based on *Philanthus* Fabricius (stem: *Philanth-*). Originally spelled Philanthores, spelled *Philanthoidae* by Agassiz, 1847:284.

**Tribe: Aphilanthopini** R. Bohart, 1966. Based on *Aphilanthops* Patton (stem: *Aphilanthop-*). Originally spelled Aphilanthopsina.

Included genera: *Aphilanthops* Patton, 1881, *Clypeadon* Patton, 1897 (= *Listropygia* R. Bohart, 1959).

**Tribe: Cercerini** Lepeletier de Saint Fargeau, 1845:1. Based on *Cerceris* Latreille, 1802 (stem: *Cercer-*). Originally spelled Cercérites, latinized to Cerceridae by A. Costa, 1860:6.

Included genera: *Cerceris* Latreille, 1802, *Eucerceris* Cresson, 1865.

**Tribe: Philanthini** Latreille, 1802b:365. Based on *Philanthus* Fabricius (stem: *Philanth-*). Originally spelled Philanthores, spelled *Philanthoidae* by Agassiz, 1847:284.

**Subtribe: Philanthina** Latreille, 1802 b:365. Based on *Philanthus* Fabricius (stem: *Philanth-*). Originally spelled Philanthores, spelled *Philanthoidae* by Agassiz, 1847:284.

Included genera: *Philanthus* Fabricius, 1790, †*Prophilanthus*, Cockerell, 1906 (placed here tentatively), *Trachypus* Klug, 1810.

**Subtribe: Philanthinina** Menke, 1967:148. Based on *Philanthinus* de Beaumont (stem: *Philanthin-*).

Included genus: *Philanthinus*, de Beaumont, 1949.

**Tribe: Pseudoscoliini** Menke, 1967:148. Based on *Pseudoscolia* Radoszkowski (stem: *Pseudoscoli-*).

Included genus: *Pseudoscolia* Radoszkowski, 1876.

**Family: Apidae (sensu lato) =**

**= Apoidea of bee workers**

See: C.D. Michener. 2000. The bees of the world. The John Hopkins University Press, Baltimore and London. 913 pp. Second edition: 2007, 953 pp.

### **Fossil Subfamilies of Uncertain Position Within Apoidea**

**Subfamily: Angarosphecinae** Rasnitsyn, 1975:109 Based on *Angarosphech* Rasnitsyn, 1975 (stem: *Angarosphec-*). Originally spelled Angarosphecidae.

= Baissodinae Rasnitsyn, 1975:122 Based on *Baissodes* Rasnitsyn, 1975 (stem: *Baissod-*). Originally spelled Baissodidae.

Included genera: †*Angarosphech* Rasnitsyn, 1975, †*Archisphech* Evans, 1969 (= *Cretosphech* Rasnitsyn, 1975, = *Paleapip* Hong, 1984, = *Mateosphech* Zhang, 1985), †*Baissodes* Rasnitsyn, 1975, †*Cretobestiola* Pulawski

and Rasnitsyn, 2000 (= *Bestiola* Pulawski and Rasnitsyn, 1999, junior homonym of *Bestiola* Nikol'skaya, 1963, and of *Bestiola* Andronov, 1972), †*Calobaissodes* Zhang, 1992, †*Cretosphecium* Pulawski and Rasnitsyn, 2000, †*Eosphecium* Pulawski and Rasnitsyn, 2000, †*Eubaissodes* Zhang, 1992, †*Ilerdosphex* Rasnitsyn, 2000, †*Montecosphex* Rasnitsyn and Martínez-Delclòs, 2000, †*Oryctobaissodes* Rasnitsyn, 1975, †*Pompilopterus* Rasnitsyn, 1975, †*Trichobaissodes* Rasnitsyn, 1975.

**Subfamily: Burmastatinae** Antropov, 2000:60. Based on *Burmastatus* Antropov, 2000 (stem: *Burmastat*-).

Included genus: †*Burmastatus* Antropov, 2000:60.

**Subfamily: Cirrosphicinae** Antropov, 2000:61. Based on *Cirrosphex* Antropov, 2000 (stem: *Cirrosphex*-).

Included genus: †*Cirrosphex* Antropov, 2000:62.

### **Genera incertae sedis.**

†*Gallosphex* Schlüter, 1978:83, †*Trigampulex* Antropov, 2000:70.

### **Genus and species unknown.**

Rasnitsyn, Jarzembowski, and Ross, 1998:379 (England, body without head or wings); Rasnitsyn and Martínez-Delclòs, 2000:85, 86 (Spain: Lérida Province: Montsec Range).

## **FOSSIL GENERA AND SPECIES DESCRIBED IN SPHECIDAE (sensu lato) AND TRANSFERRED TO OTHER FAMILIES**

*Jibaissodes* Ren in Ren, Lu, Guo, and Ji, 1995:120. Type species: *Jibaissodes giganteus* Ren in Ren, Lu, Guo, and Ji, 1995, by original designation and monotypy. Transferred to Megalodontidae by Rasnitsyn (2002, pers. comm.).

*Taimyrisphex* Evans, 1973d. Type species: *Taimyrisphex pristinus* Evans, 1973, by original designation and monotypy. Included species: *Taimyrisphex pristinus* Evans, 1973d:168, ♂. Holotype: Russia, Taimyr Peninsula: Yantardagh Hill 3 km S up from mouth of Maimetcha River (PIN). Age: Upper Cretaceous amber. Transferred to Falsiformicidae (Scolioidea) by Rasnitsyn, 1980:28.

*Shandongodes* Zhang, 1985:35. Type species: *Shandongodes necrodes* Zhang, 1985:35. Holotype: ♀, China: Shandong Province: Laiyang District: Tuanwang (Shandong Provincial Museum, Shandong, China). Age: Lower Cretaceous (as Upper Jurassic), Laiyang Formation. – Rasnitsyn, Jarzembowski, and Ross, 1998:370 (is not a member of Aculeata because of external ovipositor).