

# 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The family and tribe level classification used below follows the findings of M. Prentice (1998, unpublished Ph.D. thesis) and Melo (1999). 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 names, authorship, dates, stems, and other pertinent information, are from Menke (1997), who was advised by Don Cameron, a Latin and Greek expert at the University of Michigan, about the proper formation of names. The authorship of Palarini and Xenosphecini is as corrected by Menke and Pulawski (2002). I follow both Melo and Prentice in recognizing only the tribes within the families Ampulicidae and Sphecidae (rather than raising these tribes to subfamilies, the correct first degree subdivisions). Because Astatinae and Dinetinae each have a single tribe I am not using them in this catalog. All genera described subsequent to Bohart and Menke (1976) have been added (both extant and fossil), and recently established synonymies are also indicated. A full list of family-group names of Sphecidae s.l. can also be found in M. Engel (2005).

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).

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

## **Superfamily: Apoidea**

(= Sphecoidea)

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

## **Family: Heterogynaidae**

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.

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*-). Genera assigned to tribes according to Bohart and Menke (1976).

**Tribe: Ampulicini** Shuckard, 1840.

Included genus: *Ampulex* Jurine, 1807.

**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: *Aphelotoma* Westwood, 1841, *Riekefella* Özdikemen, 2005 (= *Austrotoma* Riek, 1955), *Dolichurus* Latreille, 1809, *Paradolichurus* Williams, 1960, †*Protodolichurus* Nemkov, 1988, *Trirogma* Westwood, 1841.

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

Included genus: †*Apodolichurus* Antropov, 2000.

**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.

**Tribe unknown**

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

### **Family: Sphecidae (sensu stricto)**

Sphecidae Latreille, 1802b:331 (November). Based on *Sphex* (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 (Intro. Class. Ins.). Tillyard (1926:300) first demonstrated the proper stem.

**Tribe: Ammophilini** 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: Ammophilini). Based on *Ammophila* Kirby, 1798 (stem: *Ammophil*-). Synonym and junior homonym of Ammophilini 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.

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

Included genus: *Chlorion* Latreille, 1809.

**Tribe: Sceliphринi** Ashmead, 1899:349 (1815). Based on *Sceliphron* (stem: *Sceliphr-*). 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).

= Pelopoeini 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 Podiina + Sceliphrina.

**Subtribe: Podiina** 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.

**Subtribe: Sceliphrina** Ashmead, 1899 (1815).

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

**Tribe: Sphecini** Latreille, 1802 (same data as for the family)

= *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*).

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

= *Palmodomorpha* Ohl, 1996:29 (correct spelling: *Palmodina*). 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.

**Subtribe: Sphecina** Latreille, 1802.

= *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: *Sphex* Linnaeus, 1758, *Isodontia* Patton, 1880.

**Subtribe: Stangeellina** 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.

= Diploplectrini 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 Bembecinae by Fallén, 1813.

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

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

**Tribe: Bembicini** Latreille, 1802.

**Subtribe: Bembicina** Latreille, 1802

= Stictiellina R. Bohart and Horning, 1971. Based on *Stictiella* Parker, 1917 (stem: *Stictiell-*).

Included genera: *Bembix* Fabricius, 1775, *Bicyrtes* Lepeletier de Saint Fargeau, 1845, *Carlobembix* Willink, 1958, *Chilostictia* Gillaspay, 1983, *Editha* J. Parker, 1929, *Glenostictia* Gillaspay in Gillaspay, Evans, and Lin, 1962, *Hemidula* Burmeister, 1874, *Microbembex* Patton, 1979c, *Microstictia* Gillaspay, 1963, *Rubrica* J. Parker, 1929, *Selman* J. Parker, 1929, *Steniolia* Say, 1837, *Stictia* Illiger, 1807, *Stictiella* J. Parker, 1917, *Trichostictia* J. Parker, 1929, *Xerostictia* Gillaspay, 1963, *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: *Ochleroptera*, *Clitemnestra*, *Olgia*, 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 *Olgia* Radoszkowski (stem: *Olgi-*). Synonymy resulting from Prentice's classification of 1998.

Included genera: *Clitemnestra* Spinola, 1851 (= *Ochleroptera* Holmberg, 1903), *Exeirus* Shuckard, 1838, *Olgia* Radoszkowski, 1877.

**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 *Hoplisus* Lepeletier de Saint Fargeau, 1832 (stem: *Hoplis-*).

= Argogorytina Nemkov and Lelej, 1996:11. Based on *Argogorytes* Ashmead, 1899 (stem: *Argogoryt-*).

Included genera: *Afrogorytes* Menke, 1967, *Allogorytes* R. Bohart, 2000, *Argogorytes* Ashmead, 1899, *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, *Hapalomellinus* Ashmead, 1899, *Harpactostigma* Ashmead, 1899, *Harpactus* Shuckard, 1837, *Hoplisoides* Gribodo, 1884, *Leiogorytes* R. Bohart, 2000, *Lestiphorus* Lepeletier de Saint Fargeau, 1832, *Leurogorytes* R. Bohart, 2000, *Liogorytes* R. Bohart, 1967, *Malaygorytes* Nemkov, 1999,

*Megistommum* W. Schulz, 1906, *Neogorytes* R. Bohart in Bohart and Menke, 1976, *Oryttus* Spinola, 1836, *Paraphilanthus* Vardy, 1995, *Psammaecius* Lepeletier de Saint Fargeau, 1832, *Psammaletes* Pate, 1936, *Pseudoplisus* Ashmead, 1899, *Pterygorytes* R. Bohart, 1967, *Sagenista* R. Bohart, 1967, *Stenogorytes* Schrottky, 1911 (= *Neoplisus* R. Bohart, 1967), *Stethogorytes* R. Bohart, 2000, *Trachogorytes* 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: *Ammatomus* A. Costa, 1859, *Handlirschia* Kohl, 1897, *Kohlia* Handlirsch, 1895, *Sphecius* Dahlbom, 1843, *Tanyoprymnus* Cameron, 1905.

**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: 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: *Nyssont*-, 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, *Nippononysson* Yasumatsu and Maidl, 1936, *Neonysson* R. Bohart, 1968, *Nursea* Cameron, 1902, *Nysson* Latreille, [1802], *Perisson* Pate, 1938, *Synnevrus* A. Costa, 1859, *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*. *Thyreocopidae* 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), *Enopolindenius* 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, *Piyum* Pate, 1944b, *Piyumoides* Leclercq, 1963, *Podagrityoides* Leclercq, 1957, *Podagrityus* Spinola, 1851, *Pseudoturneria* Leclercq, 1954, *Quexua* Pate, 1942, *Rhopalum* Stephens, 1829, *Tracheliodes* A. Morawitz, 1866, *Tsunekiola* Antropov, 1986, *Vechtia* 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 *Gastrosericidae*, 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: *Belomicrinus* Antropov, 2000, *Belomicroides* Kohl, 1899, *Belomicrus* A. Costa, 1871, *Brimocelus* Arnold, 1927, *Gessus* Antropov, 2001, *Enchemicrum* Pate, 1929, *Minimicroides* Antropov, 2000, *Oxybelus* Latreille, 1797, *Pseudomicroides* Antropov, 2001, *Wojus* Antropov, 1999.

**Tribe: Palarini** Schrottky, 1919:249. 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 Prentice (1998).

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

**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.

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

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

Included genus: *Xenosphex* 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: Entomosericiini** Dalla Torre, 1897:557. Based on *Entomosericus* Dahlbom (stem: *Entomoseric*-).

Included genus: *Entomosericus* Dahlbom, 1845.

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

Included genus: *Odontosphex* Arnold, 1951.

**Tribe: Pemphredonini** Dahlbom, 1835.

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

Included genera: *Ammoplanops* Gussakovskij, 1931, *Ammoplanus* Giraud, 1869 (= *Ammoplanellus* Gussakovskij, 1931), *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.

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

Included genera: *Arpactophilus* F. Smith, 1863, *Microstigmus* Ducke, 1907, *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,

Jarzebowski, 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: *Anmopsen* Krombein, 1959, *Deinomimesa* Perkins, 1899, *Lithium* Finnamore, 1987, *Mimesa* Shuckard, 1937, *Mimumesa* Malloch, 1933, *Nesomimesa* Malloch, 1933, *Odontopsen* Tsuneki, 1964, *Pluto* Malloch, 1933, *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, 158. Based on *Aphilanthops* Patton (stem: *Aphilanthop*-). Originally spelled Aphilanthopsina.

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

**Tribe: Cercerini** Lepelletier 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, 1802.

**Subtribe: Philanthina** Latreille, 1802.

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.

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

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

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

Included genera: †*Angarosphex* Rasnitsyn, 1975 (= †*Shandongodes* Zhang, 1985), †*Archisphex* Evans, 1969 (= *Cretosphex* Rasnitsyn, 1975 = *Paleapis* Hong, 1984 = *Mateosphex* 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, †*Cretosphexium* Pulawski and Rasnitsyn, 2000, †*Eosphexium* 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.

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

Included genus: †*Cirrosphex* Antropov, 2000.

### **Genera incertae sedis**

†*Gallosphex* Schlüter, 1978, †*Trigampulex* Antropov, 2000

### **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 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).