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and tribe level classification used below follows the findings of Brothers (1999), Melo (1999), and Prentice (1998, unpublished Ph.D. thesis, validated by Hanson and Menke, 2006).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 Bembicinae follows Nemkov and Lelej, 2013, and the authorship of Palarini and Xenosphecini is as corrected by Menke and Pulawski (2002). Because Dinetinae have a single tribe I am not using this category for them. 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 indicated.

The recent cladistic analyses of Hymenoptera by Branstetter et al (2017) and by Peters and al. (2017) are not considered here, as they took into account only a limited representation of Sphecidae s.l., and they have not changed the established classification. On the other hand, Sann, Niehuis, Peters, Mayer, Kozlov, Podsadlowski, Bank, Meusemann, Misof, Bleidorn, and Ohl (2018) proposed a radically new classification of the traditional Sphecidae s.l. They recognized the following 10 families: Ammoplanidae, Ampulicidae, Astatidae, Bembicinae, Crabronidae, Mellinidae, Pemphredonidae, Philanthidae, Psenidae, and Sphecidae (with Heterogynaidae included into Bembicinae, and Entomosericini and Eremiasphecini omitted from the analysis). The last two tribes where raised to families by Sann, Meusemann, Niehuis, Escalona, Mokrousov, Ohl, Paul, and Schmid-Egger, 2021. This classification is not accepted here because: 1. it was based on molecular characters only, to the exclusion of morphological characters, 2. it is likely to change with the next cladistic analysis, 3. recognition of so many families is an exaggeration, and 4. stability of nomenclature has been threatened.

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).

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

Extant families are listed below 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.

I sincerely thank Helen K. Court, Jean Leclercq, Arnold S. Menke, and Alexander P. Rasnitsyn, who reviewed earlier versions of this document, as well as Vassiliy Belov, Helen K. Court, Alexander V.
Antropov, John S. Ascher, Andrew Debevec, Melody Doering, Jere S. Schweikert, and Sara Alexander, who helped correct a number of mistakes or omissions.

**Superfamily: Apoidea**

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

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

**Family: Heterogynaidae**

Ohl’s and Bleidorn’s (2006) molecular cladistic analysis suggests that Heterogynaidae are members of Crabronidae. Sann et al., 2018 in their molecular cladistic analysis, confirm this opinion.


**Subfamily: Ptilocosminae** B. Rosa and Melo, 2021:29. Based on Ptilocosmus B. Rosa and Melo, 2021:29 (stem: Ptilocosm-).

**Family: Ampulicidae**

Ampulicidae Shuckard, 1840:178, 180. Based on Ampulex Jurine, 1807 (stem: Ampulic-).

**Subfamily: Ampulicinac** Shuckard, 1840:178, 180. Based on Ampulex Jurine, 1807 (stem: Ampulic-).

**Tribe: Ampulicini** Shuckard, 1840:178, 180. Based on Ampulex Jurine, 1807 (stem: Ampulic-).

Included genera: Ampulex Jurine, 1807, Triрогyna Westwood, 1841
Tribe: †Cretampulicini Antropov, 2000a. Based on Cretampulex Antropov, 2000 (stem: Cretampulic-).


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


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


Tribe unknown within Ampulicidae


Family: Sphecidae (sensu stricto)

Sphecidae Latreille, 1802b:331 (November). Based on Sphex Linnaeus, 1758 (stem: Sphec-). Originally spelled Sphegime, 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.). Fernald (1905:166) and Tillyard (1926:300) first demonstrated the proper stem.

The molecular cladistic analysis by Sann et al., 2018 suggests that Sphecidae are members of Crabronidae.

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


Subfamily: Chloriontinae Fernald, 1905:166. Based on Chlorion Latreille, 1802 (stem: Chloriont-). Originally spelled Chlorioninae.

Included genus: Chlorion Latreille, 1802.
**Subfamily: Sceliphrinae** Ashmead, 1899:349 (1815). Based on *Sceliphron* Klug, 1801 (stem: *Sceliphr*). Originally spelled Sceliphroninae. Menke (1997) retained the name, a junior synonym of Pelopeini Leach, 1815, as valid because of its nearly universal use (Article 40.2.1 of the Code).


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

Include Podiini + Sceliphrinae.

**Tribe: Podiini** de Saussure, 1892. Based on *Podium* Fabricius, 1804 (stem: *Podi*). Originally spelled *Podiites*, latinized to Podiinae by Ashmead, 1899:348.


**Tribe: †Protosceliphrina** Antropov, 2014. Based on *Protosceliphron* Antropov, 2014 (stem: Protosceliphr).”

Included genus: †*Protosceliphron* Antropov, 2014

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

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

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


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

= Ammobiini Krombein in Krombein and Burks, 1967. Based on *Ammobia* Billberg, 1820, 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.


**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 Crabronid acting as first reviser.


= Diploplectrini W. Fox, 1894:302. Based on Diploplectron W. Fox, 1893 (stem: Diploplectr-).

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


Included genera: Astata Latreille, 1796 (= Dimorpha Panzer, 1806), Diploplectron W. Fox, 1893, Dryudella Spinola, 1843, Uniplectron F. Parker, 1966.


Subtribe: Exeirina de Dalla Torre, 1897:534. Based on Exeirus Shuckard, 1838 (stem: Exeir-).

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


Subtribe: Gorytina Lepeletier de Saint Fargeau, 1845. Based on Gorytes Latreille, 1805 (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.


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


Subtribe: Spheciina Nemkov and Ohl, 2011:39. Based on Sphecius Dahlbom, 1843 (stem: Spheci-).

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


Subtribe: Stizina A. Costa, 1859:2, 4, 55. Based on Stizus Latreille, 1802 (stem: Stiz-).

Included genera: Bembecinus A. Costa, 1859, Stizoides Guérin-Méneville, 1844, Stizus Latreille, 1802.
Tribe: †Discoscapini Poinar, 2020:2. Based on Discoscapa (stem: Discoscap-). Described as family, but downgraded to tribe within Crabroninae by B. Rosa and Melo, 2021:3


Tribe: Heliocausini Handlirsch, 1925:807. Based on Heliocausus Kohl, 1892 (stem: Heliocaus-).


Subtribe: Nurseina Nemkov and Lelej, 2013. Based on Nursea Cameron, 1902 (stem: Nurse-).

Included genera: Nippononysson Yasumatsu and Maidl, 1936, Nursea Cameron, 1902.


Included genus: †Pristinopterus B. Rosa and Melo, 2021:15.

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

Originally spelled Crabronites.

Tribe: Bothynostethini W. Fox, 1894:302. Based on Bothynostethus Kohl, 1884 (stem: Bothynosteth-).

Subtribe: Bothynostethina W. Fox, 1894. Based on Bothynostethus Kohl, 1894 (stem: Bothynosteth-).


Subtribe: Scapheutina Menke, 1968:91. Based on Scapheutes Handlirsch, 1887 (stem: Scapheut-).

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

Tribe: Crabronini Latreille, 1802. Based on Crabro Fabricius, 1775 (stem: Crabron-).

Originally spelled Crabronites.

Subtribe: Anacrabronina Ashmead, 1899:163. Based on Anacrabro Packard, 1866 (stem: Anacrabron-).

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

**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* Lepeletier de Saint Fargeau and Brullé, 1835 (stem: *Thyreopod-*). Originally spelled Thyreopinae. Thyreocopidae of Strickland, 1947:127 is probably a misspelling.


= 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.


**Tribe: Larrini** Latreille, 1810:289, 438. Based on *Larra* Fabricius, 1793 (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-*).


**Subtribe: Larrina** Latreille, 1810. Based on *Larra* Fabricius, 1793 (stem: *Larr-*).


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

= Lyrodini W. Fox, 1895:302. Based on *Lyroda* Say, 1837 (stem: *Lyrod-*).
= Sericophorini Dalla Torre, 1897:577. Based on *Sericophorus* F. Smith, 1851 (stem: *Sericophor-*).

= Nitelini Dalla Torre, 1897:697. Based on *Nitela* Latreille, 1809 (stem: *Nitel-*).


Originally spelled Paranyssonaesub.


Tribe: Oxybelini Leach, 1815:152. Based on *Oxybelus* Latreille, 1796 (stem: *Oxybel-*). Originally spelled Oxybellida.


= Palarini Börner, 1919:185. Based on *Palarus* Latreille, 1802 (stem: *Palar-*).


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


= Pisini Ashmead, 1899:241 (originally spelled Pisoinae). Based on *Pison* Jurine, 1808, 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-*.


Subfamily: Dinetinae W. Fox, 1895:305. Based on *Dinetus* Panzer, 1806 (stem: *Dinet-*).

Included genus: *Dinetus* Panzer, 1806.


   Included genus: Laphyragogus Kohl, 1889.

Subfamily: Mellininae Latreille, 1802b:337. Based on Mellinus Fabricius, 1790 (stem: Mel-lini-).

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

Tribe: Mellinini Latreille, 1802. Based on Mellinus Fabricius, 1790 (stem: Mellin-).


   Included genus: Entomosericus Dahlbom, 1845.

Tribe: Odontosphecini Menke, 1967:144. Based on Odontosphex Arnold, 1951 (stem: Odontosphex-).

   Included genus: Odontosphex Arnold, 1951.


   Included genus: †Palanga Budrys, 1993.

Tribe: Pemphredonini Dahlbom, 1835:2, 6, 8. Based on Pemphredon Latreille, 1796 (stem: Pemphredon-).

Subtribe: Ammoplanina Evans, 1959:182, 189. Based on Ammoplanus Giraud, 1869 (stem: Ammoplan-).
Subtribe: Pemphredonina Dahlbom, 1835. Based on *Pemphredon* Latreille, 1796 (stem: *Pemphredon*).


Subtribe: Stigmina R. Bohart and Menke, 1976:175, 185. Based on *Stigmus* Panzer, 1804 (stem: *Stigm*).


Genus that cannot be confidently placed in Spilomenina or Stigmina: *Colmepsiterona* Cockx and Mc Keller, 2018.


Tribe: **Pseudoscoliini** Menke, 1967:148. Based on *Pseudoscolia* Radoszkowski, 1876 (stem: *Pseudoscoli*-).  

Included genus: *Pseudoscolia* Radoszkowski, 1876.

---

**Family: Apidae (sensu lato)** =  
**= Apoidea of bee workers**


**Fossil Families and Subfamilies of Uncertain Position Within Apoidea**

**Family: Angarosphecidae**

Angarosphecidae Rasnitsyn, 1975:109 Based on *Angarosphex* Rasnitsyn, 1975 (stem: *Angarosphex*-).


Included genus: †Burmastatus Antropov, 2000:60.

Fossil genera incertae sedis.


Genus and species unknown.


Family: Allomationidae


Included genus: †Allomation B. Rosa and Melo, 2021:5.

Family: Cirrosphecidae

Cirrosphecinae Antropov, 2000:61. Based on Cirrospheca Antropov, 2000 (stem: Cirrosphec-).

Raised to full family status by B. Rosa and Melo, 2021:22.


Included genera: †Cirrospheca Antropov, 2000:62, †Haptodioctes B. Rosa and Melo.

Subfamily: Glenocephalinae B. Rosa and Melo, 2021:27. Based on Glenocephalus B. Rosa and Melo, 2021:27 (stem: Glenocephal-).

Included genus: †Glenocephalus B. Rosa and Melo.

Family: Spheciellidae


Included genus: †Spheciellus B. Rosa and Melo, 2021:33.

FOSSIL TAXA DESCRIBED IN SPHECIDAE (sensu lato) AND TRANSFERRED TO OTHER FAMILIES

†Jibaissodes Ren in Ren, Lu, Guo, and Ji, 1995:120 (Chinese) and 196 (English). Type species: Jibaissodes giganteus Ren in Ren, Lu, Guo, and Ji, 1995, by original designation and monotypy. Described in Baissodidae (now Angarosphecidae), transferred to Megalomontesidae by Rasnitsyn. Testing cladograms by fossil record: the ghost range test. Contributions to Zoology 2000:252 (caption for Fig. 1, line 8).

†Nysson rottensis Meunier, 1915:… Transferred to Eumenine by Evans, 1966d:396.


– Rasnitsyn, Jarzembowski, and Ross, 1998:370 (excluded from Aculeata because of external ovipositor; ovipositor invisible on the original illustration, but detected by Rasnitsyn on the photograph received from J.F. Zhang; personal communication of A.P. Rasnitsyn of 6 August 2020).