

Last updated: 27 May 2018

## **MELLINUS**

*Mellinus* Fabricius, 1790:226. Type species: *Vespa arvensis* Linnaeus, 1758, designated by Curtis, 1836:text for pl. 580.

*Millimus* Gimmerthal, 1836:449. Lapsus for *Mellinus* Fabricius, 1790.

*Trachogorytes* R. Bohart, 2000:167. Type species: *Trachogorytes costaricae* R. Bohart, 2000, by original designation and monotypy. Synonymized with *Mellinus* by Pulawski, 2007b:295.

Review of genus: Siri and R. Bohart, 1974.

Revision: Menke, 1996a (Neotropical species).

Key: Nemkov, 2008a (Russian species).

Review of biology: Kazenas, 2001b:212.

### **1. abdominalis Cresson**

*Mellinus abdominalis* Cresson, 1882a:xxxix, ♀, ♂. Lectotype: ♀, USA: Montana: no specific locality (ANSP), designated by Cresson, 1916:102. – Cresson, 1887:283 (in catalog of North American Hymenoptera); Handlirsch, 1888a:292 (original description translated into German); W. Fox, 1894e:202 (in revision of North American *Mellinus*); Handlirsch, 1895:849 (reference to W. Fox, 1894); Dalla Torre, 1897:558 (in catalog of world Sphecidae); Ashmead, 1899d:300 (in checklist of North American Crabronidae); H. Smith, 1908b:351 (in revision of Nebraskan Sphecidae); Mickel, 1918b:395 (in catalog of Nebraskan Sphecidae); Maidl and Klima, 1939:42 (in catalog of world Astatinae and Bembicinae); Krombein *in* Muesebeck et al., 1951:980 (in catalog of North American Hymenoptera); Siri and R. Bohart, 1974:170 (in key to world *Mellinus*), 170 (in review of world *Mellinus*); R. Bohart and Menke, 1976:449 (in checklist of world Sphecidae); Krombein, 1979b:1684 (in catalog of North American Hymenoptera); Menke, 1983b:21 (Nebraska: Hooker County: Mullen area); Hilchie, 1982:106 (prey of *Philanthus albosilosus*), 107 (Alberta: Empress); Johnson, 1985:236 (Idaho, Alberta); Weissmann and Kondratieff, 1999:78 (Colorado: Great Sand Dunes National Monument); Buck, 2004:27 (in checklist of Crabronidae of Ontario, Canada), 30 (distribution within Ontario), 60 (first records from Ontario and Saskatchewan: list of localities).

*Mellinus abdominalis* var. *personatus* W. Fox, 1894d:202, ♀. Lectotype: ♀, USA: Montana: no specific locality (ANSP), designated by Cresson, 1928:51. Synonymized with *Mellinus abdominalis* by Siri and R. Bohart, 1974:170 and by R. Bohart *in* Bohart and Menke, 1976:449 (as new synonym). – Maidl and Klima, 1939:43 (in catalog of world Astatinae and Bembicinae); Strickland, 1947:128 (Canada: Alberta: Lethbridge, Medicine Hat, as *abdominalis personatus*); Krombein *in* Muesebeck et al., 1951:980 (in catalog of North American Hymenoptera).

### **2. alpestris Cameron**

*Mellinus alpestris* Cameron, 1890a:85, ♀. Holotype or syntypes: ♀, Mexico: Guerrero: Xucumanatlán west of Chilpancingo (BMNH). – W. Fox, 1894e:202 (in revision of North American *Mellinus*); Handlirsch, 1895:849 (original description translated into German); Dalla Torre, 1897:558 (in catalog of world Sphecidae); Ashmead, 1899d:300 (in checklist of North American Crabronidae); H. Smith, 1908a:300 (in key to *Mellinus*); Maidl and Klima, 1939:43 (in catalog of world Astatinae and Bembicinae); Siri and R. Bohart, 1974:170 (in key to world *Mellinus*), 172 (in review of world *Mellinus*); R. Bohart and Menke, 1976:449 (in checklist of world Sphecidae); Hanson and Menke, 1995:644 (known from Costa Rica); Menke, 1996a:129 (in revision of Neotropical *Mellinus*), 140 (in key to Neotropical *Mellinus*); Amarante, 2002:20 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:665 (in checklist of Mexican Sphecidae); Cambra and Santos, 2010:111 (first record from Panama: Chiriquí: Parque Internacional La Amistad: Jurutungo).

As *Mellinus pygmaeus* (♂ only): Siri and R. Bohart, 1974:175, corrected to *Mellinus alpestris* by Menke, 1996a:130.

### 3. *andinus* Menke

*Mellinus andinus* Menke, 1996a:133, ♀, ♂. Holotype: ♂, Venezuela: Merida: Macui near Tabai (USNM). – Menke, 1996a:140 (in key to Neotropical *Mellinus*); Fernández and Menke, 1999:110 (Colombia); Amarante, 2002:20 (in catalog of Neotropical Crabronidae).

### 4. *arvensis* (Linnaeus)

NOTE: Following Dalla Torre, 1897:559, Bohart and Menke (1976:449) listed *Sphex annularis* Christ, 1791:290 as a synonym of *Mellinus arvensis*. Christ, however, did not propose this name: he only transferred to *Sphex* the species described as *Vespa annularis* by Linnaeus, 1763:413 and now placed in *Polistes* (Christ's reference to Linnaeus, 1758:573 is erroneous as it leads to *Vespa coarctata*). In addition, Christ provided an illustration of his *Vespa annularis*, which is clearly a vespid. Gimmerthal, 1836:449 transferred *Sphex annularis* of Christ to *Mellinus* and misspelled it *Millinus annulatus*.

*Vespa arvensis* Linnaeus, 1758:573, sex not indicated. Lectotype: ♀, Europe: no specific locality (Linnean Society, London), designated by Day, 1979:50. – Fabricius, 1775:368 (redescription); Geoffroy in de Fourcroy, 1785:431 (France: Paris area, redescription); Schrank, 1781:392 (in revision of insects of Austria); Christ, 1791:234 and 269 (redescription); Dwigubsky, 1802:170 (Russia: Moskva area); Illiger, 1807b:144 (synonymy, redescription); Benson, Ferrière, and Richards, 1947g:219 (proposal to International Commission on Zoological Nomenclature to preserve the specific epithet *arvensis*); Day and Fitton, 1978:194 (recuration of Linnean type material). – **As *Mellinus arvensis***: Fabricius, 1790:227 (new combination, redescription), 1793:287 (redescription), 1796:98 (in Index to his Entomologia Systematica, 1793), 1804:299 (redescription); Latreille, [1805]:319 (redescription); Panzer, 1806:163 (in critical review of his earlier work); Spinola, 1806:94 (Italy: Liguria); Jurine, 1807:191 (in list of European *Mellinus*); Latreille, 1825:49 (in review of *Mellinus*); Billberg, 1829:107 (specimens from Sweden in collection Billberg); Stephens, 1829a:367 (in catalog of British insects), 1829b:34 (in checklist of British insects); Vander Linden, 1829:86 (bibliographic references, redescription, Belgium: Bruxelles, all Europe); Haliday, 1833:516 (Ireland: eastern coast north of Dublin); Guérin-Méneville, 1835:pl. 71, Fig. 6 (illustration of habitus); Shuckard, 1836:57 (preying on Diptera), 1837a:203 (in revision of British Aculeata); Zetterstedt, 1838:440 (in revision of insects of Lapland); von Siebold, 1839:51 (Germany: Danzig, now Poland: Gdańsk); Herrich-Schaeffer, 1840:292 (Germany: Bayern: Regensburg area); Dahlbom, 1942a:16 (in review of Scandinavian aculeates), 1844:226 (in revision of Sphecidae and Pompilidae); Guérin-Méneville, 1844:42 (occurs in Europe); Dahlbom, 1845:XXIII (study of specimens in collection Fabricius), 1845:503 (in key to European *Mellinus*); Lepeletier de Saint Fargeau, 1845:91 (in revision of world Hymenoptera); Eversmann, 1849:409 (Russia: foothills of Ural Mountains); Kiesenwetter, 1849:90 (Germany: Kingdom of Saxony); F. Smith, 1849b:2551 (waiting on cow and horse dung for fly prey to arrive); Wissmann, 1849:13 (Germany: Kingdom of Hannover: sandy habitats); Tischbein, 1850:9 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Wesmael, 1852:109 (Belgium); Belke, 1853:433 (Ukraine: Kamieniec Podolski); Kirschbaum, 1853:46 (Germany: Herzogtum Nassau: Mainz-Mombach); Kirchner, 1854:312 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); F. Smith, 1856:374 (in catalog of Hymenoptera in British Museum); Kawall, 1857:24 (Kurland, now Latvia); Ruthe and Stein, 1857:314 (Germany: Berlin area); Schenck, 1857:185 (in revision of fossorial wasps of Nassau Region, Germany); F. Smith, 1858c:113 (in review of British Aculeata, redescription); Taschenberg, 1858:79 (in key to Sphecidae of Germany); Assmus, 1859:613 (Russia: Moscow Oblast'); Funk, 1859:59 (Germany: Bayern: Bamberg); Schenck, 1860:148 (Germany: Nassau Region); Brischke, 1862:102 (Germany: Preussen Province, now Poland: Pomorze Region); Brown, 1863:182 (Great Britain: Burton-on-Trent); Brischke, 1864:209 (Germany: Preussen Province, now Poland: Pomorze Region); Siła-Nowicki, 1864:55 (Ukraine: L'viv, Podole Region), 1865:55 (western Ukraine: Galicia region: no specific locality); F. Smith, 1865b:86 (Great Britain: Dorset County: Bournemouth), 1866:132 (Great Britain: Bournemouth, preying on flies); Belke, 1866:512 (Ukraine: Zhytomyr Oblast': Radomyshl'); Taschenberg, 1866:203 (in revision of Hymenoptera of Germany); A. Costa, 1867c:99 (in revision of Italian Sphecidae); Jaennicke, 1867:147 (Germany: Hessen: Frankfurt area); Kirchner, 1867:218 (in

catalog of European Hymenoptera); Schenck, 1867a:356 (Germany: Nassau Region); Jaenicke, 1868:9 (Germany: Hessen: Rüsselsheim); Wierzejski, 1868:117 (Ukraine: Podole Region, L'viv); A. Costa, 1869b:115 (in revision of Italian Sphecidae); F. Smith, 1869d:77 (Great Britain: Norfolk: Cromer); von Aichinger, 1870:319 (Austria: Tirol); Bold, 1870:147 (Great Britain: Northumberland and Durham); Siła-Nowicki, 1870:(22) (Poland: Pieniny Mountains); Thomson, 1870:247 (in revision of Swedish wasps); F. Smith, 1871b:12 (in catalog of British Aculeata); P. Ivanov, 1872:152 (Ukraine: Kharkov Oblast': Kupyansk area); Schlechtendal, 1872:37 (Germany: Sachsen: Zwickau); Dours, 1874:147 (in catalog of Hymenoptera of France); Mocsáry, 1874:120 (Siebenbürgen, now Romania: Transylvania: no specific locality); Thomson, 1874:239 (in revision of Hymenoptera of Scandinavia); Wierzejski, 1874:259 (Poland: Pieniny and Tatry Mountains; Ukraine: Podole Region, Lwów, now Lviv); Marquet, 1875:208 (France: Hérault: Cette, now Sète); Taschenberg, 1875:370 (Germany: Halle); Beuthin, 1876:230 (Germany: Hamburg area); Frivaldszky, 1876:354 (Hungary: Temes Komitat: Grebenác, now in Timiș District, Romania); Daly, 1878:45 (Great Britain: Dorset: Glanville's Wootton); Girard, 1878:242 (France: Calvados: Lion-sur-Mer, coastal sand dunes), 1879:944 (morphology and habits); Kohl, 1880:175 (Austria: Tirol, and Italy: Trentino–Alto Adige), 231 (list of dipteran prey); E. Saunders, 1880:272 (in revision of British Aculeata); Siebke, 1880:66 (Norway); Marquet, 1881:180 (southern France); Schøyen, 1881:11 (correction to Siebke, 1880); Yaroshevskiy, 1881:126 (Ukraine: Khar'kiv Oblast': Khar'kiv, Kupyansk); Friese, 1883:203 (Germany: Sachsen-Anhalt: Merseburg, Weissenfels); Kohl, 1883e:670 (Switzerland); Sickmann, 1883:85 (Germany: Niedersachsen: Wellingholthausen); Dittrich, 1884:XX (Germany: Grafschaft Glazt, now Poland: Kłodzko area); Harwood, 1884:211 (England: Essex: Colchester area); von Heyden, 1884:117 (Germany: Frankfurt am Main); Wüstnei, 1886:41 (Germany: Schleswig-Holstein); André, 1888:170 (in revision of Sphecidae of Europe and Algeria), 10\* (bibliographic references); Brischke, 1888a:54 (Germany: Hela Peninsula, now Poland: Hel Peninsula), 1888b:99 (Germany: Preussen Province, now Poland: Pomorze Region); Handlirsch, 1888a:278 (revision); Brischke, 1891:56 (Germany: Steegen 1 mi off Karthaus, now Poland: 1 mi off Kartuzy); Bezzi, 1892:123 (Italy: Lombardia: Provincia di Pavia: vicinity of Pavia); V. Perkins, 1892:203 (Great Britain: Gloucestershire: Wotton-under-Edge); Radoszkowski, 1892:585 (male genitalia); C. Verhoeff, 1892c:696 (nesting habits); Alfken, 1893:120 (Germany: Friesian Islands: Juist Island); Kohl, 1893a:28 (Austria: Niederösterreich); F. Morawitz, 1893a:112 (Russia: Karelian Isthmus); Sickmann, 1893:89 (Germany: Niedersachsen: Iburg, list of prey); Westerlund, 1893:26 (Russia: Karelian Republic: northern shore of Lake Ladoga); De Stefani Perez, 1894:216 (Italy: Sicilia); Krieger, 1894:8 (Germany: Kingdom of Saxony); De Stefani Perez, 1895:226 (in catalog of Sicilian Hymenoptera); Handlirsch, 1895:843 (additional bibliography); Freke, 1896:40 (Ireland); Meunier, 1896:273 (Belgium: Bruxelles area); E. Saunders, 1896:114 (in revision of British Aculeata); Acloque, 1897:85 (in Sphecid Fauna of France and Algeria); Borries, 1897:59 (nesting habits); Cuní y Martorell, 1897:331 (Spain: Cataluña: villa de Calella); Dalla Torre, 1897:558 (in catalog of world Sphecidae); Lüderwaldt, 1897b:30 (Germany: Gollnow, now Poland: Pomorze Region: Goleniów); Meunier, 1897b:353 (Belgium: coastal sand dunes at Blankenberge); Mocsáry, 1897:82 (Kingdom of Hungary, some localities are in today's Croatia, Romania and Slovakia); Flamary, 1898:38 (France: Saône-et-Loire: Mâcon area); Lange, 1898:70 (Germany: Sachsen: Annaberg-Buchholz); O. Schneider, 1898:102 (Germany: Borkum Island); Strand, 1898b:94 (Norway); Fabre, 1899:344 (longevity of paralyzed prey); R. Bradley, 1900:13 (Great Britain: Birmingham); Nevinson, 1900:62 (Great Britain: Wales: Criccieth); Gardner, 1901:378 (Great Britain: well distributed in Cheshire and Lancashire); N. Arnold, 1902:90 (Russia: Mohilev Province, now Belarus'); Barnes, 1902:265 (Great Britain: Berkshire: Wellington College in Crowthorne); Chyzer, 1902:34 (Hungary); Friese, 1902:477 (occurring in Lapland according to Zetterstedt, 1838); Nevinson, 1902:12 (Great Britain: Cornwall: Newquay); E. Saunders, 1902a:52 (southwestern Ireland), 1902b:143 (British Channel Island: Guernsey Island; France: Bretagne: St. Briac); de Cobelli, 1903:105 (Italy: Province of Trentino); Adlerz, 1904:56 (nesting habits); Antiga and Bofill, 1904:14 (Spain: Cataluña Province); Aurivillius, 1904:271 (in revision of Swedish Sphecidae); Jourdain 1904:221 (Great Britain: Derbyshire: Breadsall); W. Schulz, 1904b:97 (Czechoslovakia, France, Germany: Borkum); Zilahi Kiss, 1904:77 (Hungary: Hadad);

Freke, 1905:151 (Ireland, fighting among males), 152 (hunting); Kubes, 1905:84 (Czech Republic: Kolín, Sušice); Luff, 1905:385 (British Channel Islands: Herm Island); Mortimer, 1905:261 (Great Britain: Wales: Aberdovey); Mosolov, 1905:19 (Russia: Moscow Government: Mikhailovskoye); von Heyden, 1905:81 (Germany: Hessen: Frankfurt); Móczár and Henter, 1907:205 (Hungary: Tiszaalpár); Schmiedeknecht, 1907:224 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:120 (in catalog of French Hymenoptera); Strand, 1906:101 (Norway: Aal); Morley, 1908b:276 (Ireland: Glengarriff), 1909:305 (Great Britain: Isle of Wight); Orr, 1909a:25 (Ireland: Down County); Cavro, 1910:685 (France: Département du Nord); Dittrich, 1911b:23 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Graeffe, 1911:47 (Italy: Trieste area); Morley, 1911:24 (Western Ireland: Clare Island, Westport); Schirmer, 1912:167 (Germany: Berlin area); Birula, 1913:532 (citation of Belke, 1866); Hallett, 1913:99 (Great Britain: Glamorgan: Porthcawl); Kohl, 1913b:16 (Russia: Voronezh Oblast: Valuyki at 50°14'N 38°08'E); Torka, 1913:34 (Germany: Provinz Posen, now Poland: Poznań Region); Alfken, 1914:280 (northwestern Germany, list of prey); Birula, 1914:386 (Belarus: Ambrosovich, Luskopol, and Korolevo near Vitebsk); Dusmet, 1915:87 (Spain: Aragón); Schütze, 1916:42 (Germany: Sachsen: Rachlau, visiting flowers of parsley, *Petroselinum crispum*); Rabaud, 1917:331 (hunting and stinging sequence); Dubois, 1919:96 (Belgium: Bruxelles: Uccle); Kerenskiy, 1919:33 (Russia: Penza Government); O. Meyer, 1919:154 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:33 (Germany: Lower Elbe region); Dubois, 1921c:204 (in key to Belgian Sphecidae); Strand, 1921:33 (Germany: Bayern: Kulmbach); Fahringer, 1922:180 (Turkey); Gennerich, 1922:42 (cleaning apparatus); Hedicke, 1922:271 (Germany: Brandenburg: Gross Machnow Weinberg); Herold, 1922:459 (preying on *Musca domestica*); Strand, 1922:197 (Germany: Bayern: Kulmbach); Alfken, 1924:426 (Germany: Memmert Island); Chevalier, 1924b:60 (nesting and preying behavior); Leininger, 1924:121 (Germany: Baden-Württemberg: Karlsruhe); R. Perkins, 1924:228 (Great Britain: Devon); Berland, 1925d:94 (in Sphecidae Fauna of France); Bischoff, 1925:300 (Latvia; Poland: Białowieża and Grajewo area); Coulon, 1925:119 (France); Maréchal, 1925:11 (Belgium; on human excrements among *Lucilla*, *Sarcophaga*, and *Scatophaga*); R. Perkins, 1925:154 (Great Britain: Gloucestershire: Wotton, and Somersetshire: Leigh Woods to Exmoor and Crewkerne); Schütze, 1925:113 (Germany: Lausitz Region); Shestakov, 1925:36 (Russia: Yaroslavl' area); K. Strohm, 1925:211 (Germany: Baden-Württemberg: Baden in Kaiserstuhl); Friese, 1926:164 (in key to Sphecidae of Central Europe, short morphological and biological characteristics, list of prey species); Hémon, 1926:199 (France: Finistère: Fouesnant); K. Strohm, 1926:74 (reference to Baader in Brahm, 1791, and Roth von Schreckenstein, 1802); Bouwman, 1927:51 (in revision of Sphecidae of Netherlands); Stelfox, 1927:307 (Ireland: list of localities); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Bristowe, 1928:9 (hunting behavior); Lieftinck, 1928:324 (Netherlands: Texel Island); Spooner, 1928:64 (Great Britain: Dorset: Warmwell Heath, prey transportation, list of prey); van der Vecht, 1928:93 (Netherlands: Meijendel sand dunes); Blüthgen, 1929:83 (Germany: Saale River valley: Naumburg); Krauss, 1929:159 (one nest requires evacuation of about 30 cubic cm of sand); Hamm and Richards, 1930:96 (summary of nesting habits), 122 (list of prey); Schmiedeknecht, 1930:686 (in keys to Hymenoptera of North and Central Europe); Butterfield and Fordham, 1931:155 (Great Britain: Yorkshire); Grandi, 1931:57 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Hobby, 1931:109 (prey of undetermined spider), 1931c:110 (females fighting at nesting sites), 1931d:68 (nesting habits, hunting); W. Johnson, 1931:139 (Great Britain: Down County: Greencastle); Minkiewicz, 1931b:205 (nesting habits); Molitor, 1931a:88 (preying behavior); Oudemans, 1931:182 (relationship to flowers); Pulkkinen, 1931:65 (in revision of Sphecidae of Finland); Spooner, 1931:14 (Great Britain: Cambridgeshire); Thomas, 1931:275 (male behavior, prey paralyzing); Bondroit, 1932:32 (Belgium: common in Bruxelles area); Hobby, 1932:68 (nesting habits, hunting, list of 97 prey species); Jones, 1932:82 (Great Britain: Nottinghamshire); Thornley, 1932:1 (list of six prey species); Bondroit, 1934:60 (Belgium: Ostende); Chambers, 1933:188 (Great Britain: Bedfordshire); Drogoszewski, 1933:118 (Poland: Łowicz); E. Nielsen, 1933:301 (summary of nesting habits); Routledge, 1933:88 (England: Cumberland); Balles, 1934:20 (Germany: Baden-Württemberg: Oberachern); Jansson, 1934:290 (Sweden); Minkiewicz, 1934:216 (nesting behavior); Spooner, 1934:278 (Great Britain: Devon:

Braunton Burrows); Forsius *in* Forsius and Hellén, 1935:11 (in checklist of Hymenoptera of Finland); Marchand and Dulac, 1935:61 (France: Saône-et-Loire: Saint Laurent d'Andenay); Minkiewicz, 1935:196 (Poland: Kazimierz on Wisła at 51°20'N 21°58'E), 212 (Poland: Piaski-Gardzienice, 51°05'N 22°50'E), 215, 219, 222 (Poland: Lake Garbaś 20 km W Suwałki); E. Nielsen, 1935:203 (metabolism of paralyzed prey is not different from that of not-paralyzed specimens); Vergne, 1935:118 (France: Auvergne: common); Crèvecoeur and Maréchal, 1936:253 (in catalog of Belgian Hymenoptera); Faris, 1936:144 (Ireland: Cavan County); Dulac, 1937:11 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Goebel, 1937:42 (Poland: Poznań District: Poznań-Dębina, Sławie, Strzeszyn, Strzeszynek); Hallett, 1937:73 (Great Britain: Herefordshire: Mathon); Richards, 1937b:108 (in checklist of British aculeates); Zavadil, Šusterka, and Baťa, 1937:194 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938c:81 (Hungary: Kőszeg Hills); Redikortsev, 1938:144 (Russia: Mordovian State Nature Reserve); A. Wagner, 1938a:121 (northwestern Germany); Guichard, 1939b:78 (Great Britain: Surrey: Limpsfield Common); Maidl and Klima, 1939:33 (in catalog of world Astatinae and Bembicinae); Maneval, 1939:61 (nest, prey paralyzing, description of larva); A. Wagner, 1939a:35 (preying on a window inside a house); Yarrow, 1939:16 (Great Britain: Dorset: Lytchett Minster); Dovnar-Zapolskiy, 1940:304 (Russia: Kursk Oblast'); Balthasar, 1941b:112 (Czech Republic: eastern Moravia); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Cardiff, Somerford, and Wilmslow); Leclercq, 1941b:13 (Belgium: Liège area); Paul, 1941:44 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Schneid, 1941:1042 (Germany: Bayern: Bamberg area); Alfken, 1942:231 (Germany: Niedersachsen: Lüneburger Heide); J. Perkins, 1942:199 (Sweden: Skåne: Genarp and Löderup); Spooner, 1942:110 (Great Britain: Bedfordshire: Warren); Giner Marí, 1943a:165 (in Sphecidae Fauna of Spain); Spooner, 1943:75 (Great Britain); Guiglia, 1944a:147 (Cyprus: Limassol), 1944b:22 (Italy; color variation); Richards, 1944a:118 (Great Britain: Wales: Cardigan); T. Fletcher, 1945:54 (Great Britain: Gloucestershire: Mitcheldean, Rodborough, Wotton); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Deleurance, 1946b:63 (prey: *Enoplopteryx ciliatocosta*), 67 (France: Bouche-du-Rhône: Camargue: Bois des Rièges); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Bristowe, 1948:26 (nesting habits); de Hennin and Anciaux, 1948:76 (Belgium: between Sambre and Meuse rivers); Guichard and Yarrow, 1948:93 (Great Britain: London: Hampstead Heath); Šnoflak *in* Zavadil and Šnoflak, 1948:84 (in key to Sphecidae of Czechoslovakia); Wahis, 1948:51 (Belgium: Herbst, on flowers of *Hedera helix* L.); Ceballos, 1949:101 (Spain); Chambers, 1949:232 (Great Britain: Bedfordshire); de Andrade, 1949:17 (Portugal); Wahis, 1949:202 (list of prey); Cavro, 1950:37 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); Niesiolowski, 1950:225 (Poland: Lubasz 40 km north of Tarnów); Pittioni, 1950:23 (Cyprus); Richards, 1950:79 (Great Britain: Wales: Pembrokeshire: Cwm-yr-Eglwys); Szulczewski, 1950:108 (Poland: Wielkopolski National Park 15 km south of Poznań); de Beaumont, 1951g:317 (Italy); Leclercq, 1951b:67 (yellow body pigments are pterines); Bonelli, 1952:137 (nesting habits); Caruel, 1952a:62 (France: Marne Department); Richards, 1952:142 (Great Britain: Anglesea; prey); Cleu, 1953:50 (France: Ardèche River basin); Głowacki, 1953:519 (Poland: Warszawa area); Móczár, 1953:310 (Hungary); Nouvel and Ribaut, 1953:178 (France: Central Pyrénées: common everywhere); Bischoff and Stadler, 1954:126 (Germany: Bayern: Romberg); Fahlander, 1954:251 (Sweden: Gästrikland Region); Grandi, 1954:144 (nesting habits), 231 (Italy); Hertzog, 1954:101 (France: Bouches-du-Rhône: Camargue); Aerts, 1955:62 (Germany: Rheinland); Steiner, 1955:145 (France: Dordogne); Teschner, 1955:57 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Vogrin, 1955:35 (Yugoslavia); Ceballos, 1956:379 (in catalog of Hymenoptera of Spain); Hertzog, 1956:182 (carrying prey dorsum up, keeping it with mandibles by mouthparts); Bajári, 1957a:117 (in key to Hungarian Sphecidae); Zirngiebl, 1957:182 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:10 (in review of Dutch Sphecidae); de Beaumont, 1958c:204 (Swiss National Park); Puławski, 1958a:170 (Bulgaria: Vitosha Mountain near Sofia); Tonapi, 1958a:510 (spiracular structures), 1958b:250 (respiratory system); Nelson, 1958:154 (Great Britain: Isle of Man); de Beaumont, 1959a:23 (Italy); Diniz, 1959:29 (Portugal: Buçaco, Évora, Sintra); Evans, 1959b:146 (description of larva); Leclercq, 1959c:246 (females feeding on Diptera); Olberg, 1959:31 (rarely visit-

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Sachsen: Muskauer Heide); Ljubomirov, 2006:541 (Bulgaria: Rhodope Mountains: Mutenitsa River valley); Magdalou, 2006a:7, 11 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane); Peeters, Krekels, and Megens, 2006:22 (Netherlands: Reichswald forest near Nijmegen); N. Schneider, 2006:134, 137, 138, 142 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:113 (Belarus': Polesye Radiological Nature Reserve); Vepřek, 2006:510 (Czech Republic: Kokořínsko area); Archer, 2007a:151 (Great Britain: Norfolk: Thetford Warren Lodge); Baghirov, 2007:93 (Russia: southwestern Siberia); Baños-Picón, Gayubo, Asís, and González, 2007:257, 259 (Spain: Zamora: Cabañas de Aliste); Beavis, 2007:97 (Great Britain: Tunbridge Wells and Central High Weald); Dorow, 2007:264 (Germany: Hessen: Niddahänge Forest Reserve); Guldmond, Pijfers, and den Belder, 2007:203 (Netherlands: Gelderland: dairy farm in de Graafschap); Hallin, 2007b:25 (Sweden: Blekinge Province); Herrmann, 2007a:52 (Germany: Niedersachsen: Ostfriesland); Jacobs, 2007:158 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:24 (Germany: northwestern Sachsen); Józán, 2007:173, 180 (Hungary: Zselic hills); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Lee and Scott, 2007:22 (Great Britain: East Anglian wetlands); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:299 (Belarus': Berezinsky Nature Reserve), 2007b:364 (Ukraine: Chernobyl area); Shoreenko, 2007b:258 (Ukraine: Crimea: Feodosiya); Smit and Megens, 2007:17 (Netherlands: Noort Brabant: vicinity of Leende); Vago, 207:174 (France: départements d'Aisne, Nord, Pas-de-Calais, and Somme), 176 (France: département du Nord: Bugnicourt); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:207 (in catalog of Sphecidae of Czech Republic and Slovakia); Winkler, 2007:30 (Germany: Niedersachsen: eastern Friesland); Archer, 2008a:144 (Great Britain: Cumbria: North Walney Nature Reserve, Sandscale Haws, Lindisfarne Nature Reserve, and Bamburgh Dunes); Gayubo, González, Tormos, and Asís, 2008:139 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Haeseler, 2008:308 (Germany: Friesian Islands); Larnhof, 2008:46 (Austria: Niederösterreich: Nature Reserve “in den Sandbergen” near Drösing); Kochetkov, Bol'shakova, Butenko, and Priklonskiy, 2008:261 (Russia: Ryazan' Oblast': Oka Nature Reserve); Livory, Chevin, Lair, Sagot, and Baldock, 2008:28 (France: Département de la Manche); Ljubomirov and Yildirim, 2008:188 (in catalog of Crabronidae of Turkey); Löhr, 2008:9 (Germany: Hessen: Mücke); Nemkov, 2008a:20 (in key to *Mellinus* of Russia), 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Rudnick, 2008:37 (Germany: Mecklenburg: Ruscher Tannen); Theunert, 2008:46 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009:24 (Great Britain: Yorkshire: Sheffield); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); U. Frommer, 2009a:28 (Germany: in checklist of Sphecidae of Hessen); Gayubo, González, Tormos, and Asís, 2009:364 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:625 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Hessling, 2009:104 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Humala and Polevoi, 2009:63 (Russia: Republic of Karelia east of Lake Onega); Kowalczyk, Kurzac, and Nadolski, 2009:63 (Poland: between Warta and Widawka rivers); Mokrousov, Antropov, Ruchin, and Bugayev, 2009:78 (Russia: Republic of Mordovia); Nemkov, 2009b:125 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Ruchin, Antropov, and Shibayev, 2009:170 (Russia: Republic of Mordovia); Shoreenko, 2009:368 (in list of Sphecidae s.l. of Crimea); Straka, Dvořák, and Bogusch, 2009:262 (Czech Republic: Jizerské Mountains and Frýdlant region); van Diemen, 2009:49 (Netherlands: airbase Gilze-Rijen); Venne, 2009:111 (Germany: Nordrhein-Westfalen: Holte-Stukenbrock, associated with *Frangula alnus* Miller, Rhamnaceae); Archer, 2010a:52 (Great Britain: Watsonian Nottinghamshire: Spalford Warren), 2010b:99 (Great Britain: Watsonian Staffordshire: Cannock Chase Country Park); Bitsch, 2010:107 (in supplement to vol. II of Faune de France, 1997: France: first records from Alpes-Maritimes: Castérine, and Haut-Rhin: Munster); Ermilov and Mokrousov: 2010:91 (Russia: phoretic mites *Calvolia* sp., *Probonomoia pini*, and *Schulzea caucasica* in Middle Volga Region); Esser, Fuhrmann, and Venne, 2010:37 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Falk, 2010:93 (Great Britain: heathland sites in West Midlands region); Jakubzik and Cölln, 2010:1187 (Germany: Rheinland-Pfalz: Bruchertseifen near

Altenkirchen); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:62 (Russia: Kirov, Kostroma, Nizhniy Novgorod, and Yaroslavl' Oblast's, Chuvash Republic, Mordovian Republic, Tatarstan: no specific localities); Rudoiskatel', 2010:152 (Russia: central and southern Ural Mountains); Saure, 2010a:87 (Germany: Berlin-Reinickendorf: Baumberge), 2010b:175 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:16 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:136 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:24 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:102 (western Slovakia: recorded from Borská Nížina); van der Smissen, 2010a:343 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records), 2010c:396 (Sweden: Öland: Byrums Sandvik); Wurdack and Gack, 2010:153 (Germany: Baden-Württemberg: Kaiserstuhl); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:499 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Gogala, 2011:26 (Slovenia); Józán, 2011:183 (in checklist of Sphecidae s.l. of Hungary); Mokrousov, Berezin, and Egorov, 2011:78 (Russia: Chuvash Republic); Sakenin, Samin, Bagriacik and Rastegar, 2011:3 (Iran: East Azerbaijan: Tabriz); Saure, 2011a:6 (Germany: Berlin: former airport Tempelhof), 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg), 2011d:199 (Germany: Sachsen-Anhalt: conservation area "Heide südlich Burg"); Schmid-Egger, 2011c:555 (Austria: Tirol: Tiroler Lech Nature Park); Schreven, 2011:17 (Netherlands: Foerperpot in Groesbeek); Shlyakhtenok, 2011:95 (Belarus: city of Minsk); Smit, Goudsmith, and Smit, 2011:5 (Netherlands: Staphorst); Theunert, 2011a:20 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:141 (Germany: Hessen: not endangered); von der Dunk, 2011:184 (Germany: Bayern: Kaiserburg in Nürnberg); Ziska and Saure, 2011:109 (Germany: Berlin: Tegeler Fließ valley); Archer, 2012:183 (Great Britain: urban York); Boillat, 2012:227 (Switzerland: in checklist of insects of Canton de Genève); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skåne: Kullaberg Peninsula); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Prismaniy, 2012:50 (Russia: Belgorod Oblast'); Shibaev and Polumordvinov, 2012:278 (Russia: Penza Oblast'); Shlyakhtenok, 2012a:171 (Belarus, and Russia: Krasnaya Polana near Sochi': collected in private plots), 2012b:92 (Belarus: Beresina National Reserve: overgrowing dry meadow); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées-Orientales: col de Puymorens); Flügel, 2013a:120 (Germany: Brandenburg: Pimpinellenberg near Oderberg); Mokrousov, Ruchin, and Egorov, 2013:203 (Russia: of Mordovia: Mordovian State Nature Reserve); Pankov, 2013:230 (Russia: Ivanovo Oblast'); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Republic Wiesen); Shlyakhtenok, 2013:219 (in annotated catalog of aculeate wasps of Belarus'); Wiśniowski and Szczepko, 2013:37 (Poland: Kampinos National Park near Warszawa); Celary and Plewa, 2014:46 (Poland: several localities, in oak stands); Hellqvist, Abenius, and Norén, 2014:93 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Mokrousov and Vafin, 2014:58 (Russia: Republic of Tatarstan); Pagliano, 2014:97.98 (specimens in Spinola collection, Torino); Protsenko, Fateryga, and Ivanov, 2014:33 (Crimea: Krasnoles'sye in Simferopol' District; Ukraine: Vytvitsa in Ivano-Frankovsk Oblast'); Ruchin and Antropov, 2014:38 (Russia: Republic of Mordovia); Yıldırım, Ljubomirov, and Lelej, 2014:10 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:146 (in checklist of Hymenoptera of Turkey); P. Rosa and Pagliano, 2015:102 (Italy: Lombardia and Piemonte: Parco del Ticino); Simon, Lorthiois, and Macé, 2015:54 (France: alluvial terraces in Eure Department: Courcelle-sur-Seine and Seine-Maritime Department: Anneville-Ambourville); Else, Bolton, and Broad, 2016:34 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales, Ireland, Isle of Man); Mokrousov and Popov, 2016:586 (Russia: Krasnodarskiy Krai); Saure, 2016b:49 (Germany: Sachsen-Anhalt: fruit orchards); Stolle and Saure, 2016:923 (Germany: in list of Sphecidae s.l. of Sachsen-Anhalt); Yıldırım, Ljubomirov, Özbek, and Yüksel, 2016:32 (Turkey: Erzurum and Kars provinces); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:71 (Iran: known from East Azerbaijan province); Magdalou, 2017:15 (France: Pyrénées-Orientales: Réserves Naturelles

- Catalanes: Forêt de la Massane); Nemkov, 2017b:246 (in catalog of Mellininae of Russia); Shorenko, 2017:79 (in Crimea collected in July).
- Sphex vagus* Linnaeus, 1758:571, sex not indicated (*as vaga*, incorrect original termination). Lectotype: ♂, Europe: no specific locality (Linnean Society, London), designated by Day, 1979:75. Synonymized with *Mellinus arvensis* by Richards, 1935a:169. – O. Müller, 1764:72 (Denmark: Zeeland: Fridrichsdal near Copenhagen); Day and Fitton, 1978:194 (recuration of Linnean type material). – **As *Crabro vagus***: Rossi, 1790:.. (new combination, *as vacus*). – **As *Mellinus vagus***: F. Smith, 1851c:36 (new combination, Great Britain: sand banks); , 1853:65 (in checklist of British Hymenoptera).
- Vespa superba* Harris, 1776:.. Synonymized with ..
- Vespa tricineta* Schrank, 1781:.. Synonymized with ..
- Sphex clavata* Retzius, 1783:.. Synonymized with ..
- ? *Vespa infundibuliformis* E. Geoffroy in Fourcroy, 1785:434, sex not indicated. Holotype or syntypes: France: Paris area (lost). Synonymized with .. (may be a *Cerceris*).
- ? *Vespa petiolata* E. Geoffroy in Fourcroy, 1785:439, sex not indicated. Holotype or syntypes: France: Paris area (lost). Synonymized with ..
- Crabro bipunctatus* Fabricius, 1787:296, sex not indicated. Holotype: ♀, Denmark: Hafniae, now Copenhagen (ZMK). Synonymized with *Mellinus arvensis* by Dalla Torre, 1897:558 (tentatively) and van der Vecht, 1961a:44 (definitely). – Olivier, 1792:516 (redescription); van der Vecht, 1961a:44 (study of holotype). – **As *Sphex bipunctata***: de Villers, 1789:245 (new combination, redescription, *as 2-punctata*). – **As *Mellinus bipunctatus***: Fabricius, 1790:227 (new combination, redescription), 1793:286 (redescription), 1796:98 (in Index to his Entomologia Systematica, 1793), 1798:265 (redescription), 1799:32 (in Index to his Supplementum, 1798), 1804:298 (redescription); Latreille, [1805]:320 (redescription); Jurine, 1807:191 (in list of European *Mellinus*).
- ? *Sphex gibbus* Villers, 1789:228, sex not indicated (*as gibba*, incorrect original termination), junior primary homonym of *Sphex gibbus* Linnaeus, 1758. Holotype or syntypes: Gallia australis, now southern France: no specific locality (destroyed). Tentatively synonymized with ... – Dalla Torre, 1897:424 (in catalog of world Hymenoptera).
- Vespa melanosticta* Gmelin, 1790:2764. Substitute name for *Vespa bipunctata* (Fabricius) Gmelin, 1790, junior secondary homonym of ...
- ? *Crabro arthriticus* Rossi, 1790:93, sex not indicated. Holotype or syntypes: Italy: Etruria: now Toscana: no specific locality (destroyed), possibly a scoliid. – Illiger, 1807b:152 (synonymy, redescription); Lepeletier de Saint Fargeau and Brullé, 1835:808 (discussion of species identity).
- ? *Crabro rachiticus* Rossi, 1790:92, sex not indicated. Holotype or syntypes: Italy: Etruria, now Toscana: no specific locality (destroyed), possibly a scoliid. – Illiger, 1807b:151 (synonymy, redescription); Lepeletier de Saint Fargeau and Brullé, 1835:808 (discussion of species identity); Dalla Torre, 1897:623 (in catalog of world Sphecidae).
- Vespa succincta* Olivier, 1792:.. Synonymized with ...
- Vespa diversa* Olivier, 1792:.. Synonymized with ..
- Crabro labiatus* Olivier, 1792:517. Holotype or syntypes: France: Paris area (lost). Neotype: ♀, France, Yvelines, Moisson (MNHN), designated by Leclercq, 1974d:260. Synonymized with ..
- Philanthus quinquemaculatus* Fabricius, 1793:292, sex not indicated (*as 5maculatus*, incorrect original spelling). Holotype: ♂, Dania, now Denmark: no specific locality (ZMK). Synonymized with *Mellinus arvensis* by van der Vecht, 1961a:44. – Fabricius, 1796:137 (in Index to his Entomologia Systematica, 1793), 1804:306 (redescription); Thunberg, 1815a:127 (diagnostic characters), 129 (redescription), 1815b:287 (diagnostic characters); W. Schulz, 1912:68 (Thunberg's specimens not preserved in his collection). – **As *Vespa quinquemaculata***: Turton, 1801:529 (new combination, Denmark).
- Crabro u-flavum* Panzer, 1794, Heft 17:20, [♀]. Holotype or syntypes: ♀, Germany: Niedersachsen: Brunsvigia = Braunschweig (coll. Hellwig, now?). Synonymized with *Mellinus arvensis* by Panzer, 1806:168. – Roth von Schreckenstein, 1802:32 (Germany: Baden-Württemberg).

- Crabro capistratus* Schrank, 1796:128, sex not indicated. Holotype or syntypes: Germany: Bavaria = Bayern: Pöttmes (destroyed). Synonymized with *Mellinus arvensis* by Leclercq in Bohart and Menke, 1976:449. – Schrank, 1802:341 (in revision of insects of Bauern (= Bavaria), Germany).
- Mellinus pratensis* Jurine, 1807:191 and pl. 10, Fig. 19. Holotype or syntypes: ♀, Europe: no specific locality, possibly Switzerland (MHNG). Synonymized with *Mellinus arvensis* by Frei-Gessner, Kohl, and Kriechbaumer, 1882:393. – Latreille, 1825:49 (in review of *Mellinus*); Stephens, 1829a:367 (in catalog of British insects), 1829b:34 (in checklist of British insects); Vander Linden, 1829:89 (bibliographic references, Europe).
- Mellinus bifasciatus* Stephens, 1829a:367, nomen nudum (in catalog of British insects). Synonymized with *Mellinus arvensis* (Linnaeus, 1758) by F. Smith, 1855:100. – Stephens, 1829b:34 (in checklist of British insects).
- Mellinus interruptus* Stephens, 1829a:367, nomen nudum (in catalog of British insects). Synonymized with *Mellinus arvensis* (Linnaeus, 1758) by F. Smith, 1855:100. – Stephens, 1829b:34 (in checklist of British insects).
- Mellinus compactus* Handlirsch, 1888a:284, ♀. Holotype: ♀, origin unknown (NHMW). Synonymized with *Mellinus arvensis* by .. – Handlirsch, 1895:845 (additional specimens); Dalla Torre, 1897:560 (in catalog of world Sphecidae); de Gaulle, 1908:120 (in catalog of French Hymenoptera); Berland, 1925d:94 (in Sphecidae Fauna of France); Moidl and Klima, 1939:39 (in catalog of world Astatinae and Bembicinae); van Ooststroom, 1943:82 (Netherlands: Oesgsteest, taxonomic history); Benno, 1958b:10 (in review of Dutch Sphecidae), 1967:33 (in checklist of Sphecidae of Netherlands); Balthasar, 1972:386 (in Sphecidae Fauna of Czechoslovakia: may be expected in the country); Lefeber, 1979:11 (in checklist of Sphecidae of Netherlands), 60 (Netherlands: distribution map).
- Mellinus arvensis* var. *alpinus* Handlirsch, 1888a:283, ♂ (as *alpina*, incorrect original termination). Syntypes: ♂, Austria: between Kärnten and Tirol: Glockner (NHMW). Synonymized with *Mellinus arvensis* by de Beaumont, 1945:476. – **As *Mellinus arvensis* var. *alpina***: Kohl, 1888b:728 (Austria: Tirol, now Italy: Alto Adige); Carl and de Beaumont, 1947:68 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Bajári, 1957a:117 (in key to Sphecidae of Hungary). – **As *Mellinus alpinus*** Handlirsch, 1895:841 (new status, nesting habits), 844 (new status, description of ♀, incorrectly recorded as new species; Austria: Südtirol: Val Selva, now in Italy: Alto Adige; and Glockner); Dalla Torre, 1897:558 (in catalog of world Sphecidae); Schmiedeknecht, 1907:224 (in key to Hymenoptera of Central Europe); Hamm and Richards, 1930:100 (summary of nesting habits), 123 (list of prey); Schmiedeknecht, 1930:686 (in keys to Hymenoptera of North and Central Europe); Moidl and Klima, 1939:33 (in catalog of world Astatinae and Bembicinae); Maidhof and Maschwitz, 1967:86 (Italy: Foreste Demaniali Casentinensi); Romanova, 1969:134 (Russia: North Caucasus); Balthasar, 1972:386 (in Sphecidae Fauna of Czechoslovakia: may be expected in the country). – **As *Mellinus arvensis alpinus***: Babiý, 1964:116 (new status, Austria: Land Salzburg); Kofler, 1972:107 (Austria: eastern Tirol).
- Mellinus arvensis* var. *ibericus* Dusmet y Alonso, 1931:7, ♀, ♂. Syntypes: Portugal: Bussaco and Évora (depository?); and Spain: Córdoba: Fuencaliente; Gerona: Camprodón; Madrid: Chamartin; Teruel: Albarracín (IEE). Synonymized with ... – Dusmet y Alonso, 1935:44 (Spain: Madrid: Chamartin), 97 (Spain: Huesca: Parque Nacional del Valle de Ordesa), 101 (Spain: Teruel: Sierra de Albarracín), 103 (Spain: Barcelona: Camprodón), 110 (Portugal: no specific locality); Moidl and Klima, 1939:37 (in catalog of world Astatinae and Bembicinae); Ceballos, 1956:379 (in catalog of Hymenoptera of Spain); Diniz, 1959:29 (Portugal: Buçaco).

### 5. *bimaculatus* Packard

- Mellinus bimaculatus* Harris, 1835:68. Nomen nudum. – Cresson, 1962:236 (in catalog of North American Hymenoptera).
- Mellinus bimaculatus* Packard, 1867:419, ♀. Syntypes: USA: New Hampshire: Dublin and Maine: Brunswick (..). – Cresson, 1887:283 (in catalog of North American Hymenoptera); Handlirsch, 1888a:291 (original description translated into German); Viereck, 1893e:132 (New Jersey: Lucaston, and Westville); W. Fox, 1894e:202 (in revision of North American *Mellinus*, authorship attributed to Harris); Handlirsch, 1895:847 (Packard is the author, reference to W. Fox, 1894); Dalla Torre, 1897:560 (in catalog of world Sphecidae); Ashmead, 1899d:300 (in checklist of

North American Crabronidae); J. Smith, 1900:521 (in list of insects of New Jersey: “probable in New Jersey”, as *bimaculatus* Say); Harrington, 1902:223 (Canada: Ontario: Ottawa); H. Smith, 1908a:300 (in section of key to *Mellinus* modified from W. Fox, 1894); J. Smith, 1910:680 (in new list of insects of New Jersey); Rohwer, 1916b:677 (in catalog of Hymenoptera of Connecticut); Rohwer, 1916b:677 (in catalog of Hymenoptera of Connecticut, as *bimaculatus* Harris); Rohwer *in* Viereck, 1925:677 (in key to Sphecidae of Connecticut, as *bimaculatus* Harris); J. Ch. Bradley, 1928:1015 (in catalog of New York Sphecidae); Maidl and Klima, 1939:43 (in catalog of world Astatinae and Bembicinae); Krombein *in* Muesebeck et al., 1951:980 (in catalog of North American Hymenoptera); Kurczewski and Kurczewski, 1963:147 (Pennsylvania: Presque Isle State Park); Siri and R. Bohart, 1974:170 (in key to world *Mellinus*), 172 (in review of world *Mellinus*); R. Bohart and Menke, 1976:449 (in checklist of world Sphecidae); Krombein, 1979b:1684 (in catalog of North American Hymenoptera); Finnamore, 1982:198 (in Sphecidae Fauna of Southern Quebec); O'Brien, 1983d:15 (prey: *Pegomya* sp., an anthomyiid); Piek and Spanjer, 1986:185 (in list of Sphecidae with known prey); Menke, 1996a:140 (in key to Neotropical *Mellinus*); Sugar *et al.*, 1998:16 (Canada: southern Ontario); Boone, Grehan, and B. Parker, 2000:36 (Vermont: Mount Mansfield); Skevington *et al.*, 2001:128 (Canada: Ontario: Lambton County); Amarante, 2002:20 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:665 (in checklist of Mexican Sphecidae); Buck, 2004:27 (in checklist of Crabronidae of Ontario, Canada).

*Mellinus wolcottii* H. Smith, 1908a:299, ♀. Holotype: ♀, USA: Indiana: Beaver (Univ. Nebraska), but actually Michigan: Beaver Island (Mickel, 1916a:405), synonymized with *Mellinus bimaculatus* by Siri and R. Bohart, 1974:172 and by R. Bohart *in* Bohart and Menke, 1976:449 (as new synonym). – H. Smith, 1908a:300 (in key to *Mellinus*); Mickel, 1916a:405 (correct type locality); Maidl and Klima, 1939:43 (in catalog of world Astatinae and Bembicinae); Krombein *in* Muesebeck et al., 1951:980 (in catalog of North American Hymenoptera); Muma, 1952:19 (type in UNL).

### 6. *costaricae* (R. Bohart)

*Trachogorytes costaricae* R. Bohart, 2000:168, ♀. Holotype: ♀, Costa Rica: Puntarenas: San Vito (UCD). – Amarante, 2002:19 (in catalog of Neotropical Crabronidae). – As *Mellinus costaricae*: Pulawski, 2007b: 295 (new combination, diagnostic characters).

### 7. *crabroneus* (Thunberg)

*Crabro sabulosus* Fabricius, 1787:296, sex not indicated. Lectotype: ♀, Denmark: Hafniae, now Copenhagen (ZMK), designated by van der Vecht, 1961a:45. – Olivier, 1792:515 (redescription); Schrank, 1802:333 (Germany: in revision of insects of Bavaria = Bayern). – As *Mellinus sabulosus*: Fabricius, 1790:226 (new combination, redescription), 1793:286 (redescription), 1796:98 (in Index to his Entomologia Systematica, 1793), 1804:297 (redescription); Jurine, 1807:191 (in list of European *Mellinus*); Vander Linden, 1829:89 (bibliographic references, Belgium: Bruxelles, large part of Europe); Curtis, 1836:pl.580 (illustration); Shuckard, 1837a:205 (in revision of British Aculeata); von Siebold, 1839:51 (Germany: Danzig, now Poland: Gdańsk); Herrich-Schaeffer, 1840:292 (Germany: Bayern: Regensburg area); Dahlbom, 1942a:16 (in review of Scandinavian aculeates), 1844:230 (in revision of Sphecidae and Pompilidae), 1845:XXIII (study of specimens in collection Fabricius), 503 (in key to European *Mellinus*); Eversmann, 1849:409 (Russia: Kazan', Orenburg, and Simbirsk provinces); Kiesenwetter, 1849:90 (Germany: Kingdom of Saxony); Wissmann, 1849:13 (Germany: Kingdom of Hannover: sandy habitats); Tischbein, 1850:9 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:36 (Great Britain: New Castle, Nottingham, and Suffolk); Wesmael, 1852:109 (Belgium); F. Smith, 1853:65 (in checklist of British Hymenoptera); Kirchner, 1854:312 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); F. Smith, 1856:375 (in catalog of Hymenoptera in British Museum); Kawall, 1857:24 (Kurland, now Latvia); Ruthe and Stein, 1857:314 (Germany: Berlin area); Schenck, 1857:186 (Germany: in revision of fossorial wasps of Nassau Region); F. Smith, 1858c:114 (in review of British Aculeata, redescription); Taschenberg, 1858:80 (in key to Sphecidae of Germany); Assmus, 1859:613 (Russia: Moscow Oblast'); Funk, 1859:59 (Germany: Bayern: Bamberg); Schenck,

1860:148 (Germany: Nassau Region); Lucas, 1861:219 (nesting habits); Brischke, 1862:102 (Germany: Preussen Province, now Poland: Pomorze Region); Siła-Nowicki, 1864:55 (Ukraine: Podole Region), 1865:55 (western Ukraine: Galicia Region: no specific locality); Taschenberg, 1866:204 (in revision of Hymenoptera of Germany); Jaennicke, 1867:147 (Germany: Hessen: Frankfurt area); Kirchner, 1867:218 (in catalog of European Hymenoptera); Schenck, 1867a:356 (Germany: Nassau Region); Jaennicke, 1868:9 (Germany: Hessen: Rüsselsheim); Wierzejski, 1868:117 (Ukraine: Podole Region: Pieniaki); von Aichinger, 1870:319 (Austria: Tirol); Bold, 1870:148 (Great Britain: Northumberland and Durham); Thomson, 1870:247 (in revision of Swedish wasps); F. Smith, 1871b:12 (in catalog of British Aculeata); P. Ivanov, 1872:152 (Ukraine: Khar'kov Oblast': Kupyansk area); Dours, 1874:147 (in catalog of Hymenoptera of France); Thomson, 1874:241 (in revision of Hymenoptera of Scandinavia); Wierzejski, 1874:259 (Ukraine: Podole Region: Bucyki, Sinków, Skała on Zbrucz River); Taschenberg, 1875:370 (Germany: Halle); Beuthin, 1876:231 (Germany: Hamburg area); Schlechtendal, 1876:54 (Germany: Sachsen: Zwickau); Daly, 1878:45 (Great Britain: Dorset: Glanville's Wootton); Kohl, 1880:175 (Austria: Tirol, and Italy: Trentino-Alto Adige); E. Saunders, 1880:273 (in revision of British Aculeata); Siebke, 1880:66 (Norway); Marquet, 1881:180 (southern France); Friese, 1883:203 (Germany: Sachsen-Anhalt: Merseburg, Weissenfels); Kohl, 1883e:670 (Switzerland); Sickmann, 1883:85 (Germany: Niedersachsen: Wellingholthausen); Dittrich, 1884:XX (Germany: Riesengebirge, now Poland: Karkonosze Mountains); von Heyden, 1884:116 (Germany: Frankfurt am Main); Wüstnei, 1886:41 (Germany: Schleswig-Holstein); André, 1888:171 (in revision of Sphecidae of Europe and Algeria), 11\* (bibliographic references); Brischke, 1888b:99 (Germany: Preussen Province, now Poland: Pomorze Region); Handlirsch, 1888a:287 (in revision of world Bembicinae); Radoszkowski, 1892:585 (male genitalia as in *Mellinus arvensis*); Kohl, 1893a:28 (Austria: Niederösterreich); F. Morawitz, 1893a:112 (Russia: Karelian Isthmus); Sickmann, 1893:90 (Germany: Niedersachsen: Iburg); Krieger, 1894:8 (Germany: Kingdom of Saxony); Handlirsch, 1895:846 (additional bibliography; Mongolia and Russia: Irkutsk); Meunier, 1896:273 (Belgium: Bruxelles area); E. Saunders, 1896:114 (in revision of British Aculeata); Meunier, 1897a:350 (Bulgaria: Sofia area); Strand, 1898b:94 (Norway); Borries, 1897:61 (nesting habits); Dalla Torre, 1897:561 (in catalog of world Sphecidae); Mocsáry, 1897:82 (Kingdom of Hungary, some localities are in today's Slovakia); E. Saunders, 1902b:143 (British Channel Islands: Alderney Island); W. Schulz, 1904b:97 (Czechoslovakia, Turkestan); Kubes, 1905:84 (Czech Republic: Mančice); Mosolov, 1905b:19 (Russia: Moscow Government: Mikhailovskoye, as *salulosus*); Schmiedeknecht, 1907:224 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:120 (in catalog of French Hymenoptera); Cavro, 1910:685 (France: Département du Nord); Dittrich, 1911b:23 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Graeffe, 1911:47 (Italy: Trieste area); Zavattari, 1911:3 (Italy: Piemonte: Valle del Maira); Birula, 1912:541 (Ukraine: Zhytomyr Oblast': Radomyshl'); Schirmer, 1912:167 (Germany: Berlin area, as *salulosus*); Szilády, 1913:89 (Hungary: Nagyoklos, Topánfalva); Alfken, 1914:279 (northwestern Germany); Birula, 1914:386 (Belarus': Ambrosovich near Vitebsk); Haines, 1914:129 (Great Britain: Dorset, as *subulosus*); Schütze, 1916:42 (Germany: Sachsen: Rachlau, visiting flowers of parsley, *Petroselinum crispum*); Dubois, 1919:96 (Belgium: Bruxelles: Uccle); Kerenskiy, 1919:33 (Russia: Penza Government); O. Meyer, 1919:154 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:33 (Germany: Lower Elbe region); Dubois, 1921c:204 (in key to Belgian Sphecidae); Hedicke, 1922:271 (Germany: Brandenburg: Gross Machnower Weinberg); Hellén, 1923:60 (recorded from Finland); Berland, 1925d:94 (in Sphecid Fauna of France); Bischoff, 1925:300 (Latvia; Lithuania: Dolny near Vilnius; Poland: Augustów, Białowieża, Grajewo area); Forsius, 1925:120 (Finland); R. Perkins, 1925:154 (Great Britain: Somersetshire: Burnham); Schütze, 1925:113 (Germany: Lausitz Region); Shestakov, 1925:36 (Russia: Yaroslavl' area); Friese, 1926:165 (in key to Sphecidae of Central Europe, short morphological and biological characteristics, list of prey species); Hellén, 1926:93 (recorded from Finland); Bouwman, 1927:52 (in revision of Sphecidae of Netherlands); Kokujev, 1927:72 (Russia: Siberia: Lake Baikal); Stelfox, 1927:307 (records from Ireland are erroneous); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Hamm and Richards, 1930:101 (summary of nesting habits); Schmiedeknecht, 1930:686 (in keys to Hymenoptera of North and Central Europe); Butterfield and Fordham, 1931:155 (Great Britain: Yorkshire);



Pulkkinen, 1931:65 (in revision of Sphecidae of Finland); Bondroit, 1932:33 (Belgium: Solbosch); Jones, 1932:82 (Great Britain: Nottinghamshire: Sherwood); Routledge, 1933:88 (England: Cumberland); Jansson, 1934:290 (Sweden); Forsius *in* Forsius and Hellén, 1935:11 (in checklist of Hymenoptera of Finland); Crèvecoeur and Maréchal, 1936:253 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:130 (Poland: Łowicz, Opatów); Richards, 1936a:171 (type agrees with current interpretation of species), 1937b:108 (in checklist of British aculeates); Zavadil, Šustera, and Bat'a, 1937:194 (in catalog of Sphecidae of Czechoslovakia); Gussakovskij, 1938:15 (Mongolia); A. Wagner, 1938a:121 (northwestern Germany); Maidl and Klima, 1939:40 (in catalog of world Astatinae and Bembicinae); Dovnar-Zapolskiy, 1940:304 (Russia: Kursk Oblast'); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Cardiff, Somerford, and Wilmslow); Paul, 1941:44 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Schneid, 1941:1042 (Germany: Bayern: Bamberg area); J. Perkins, 1942:199 (Sweden: Skåne: Genarp); Yasumatsu, 1942c:111 (China: Nei Mongol: Apaka at 44°N 114.96°E); Spooner, 1943:75 (Great Britain: Dorset: Mudeford); Šnoflak *in* Zavadil and Šnoflak, 1948:84 (in key to Sphecidae of Czechoslovakia); Cavro, 1950:37 (France: Département du Nord); Niesiolowski, 1950:225 (Poland: Lubasz 40 km north of Tarnów); Głowacki, 1953:519 (Poland: Podkowa Leśna near Warszawa); Leininger, 1953:18 (Germany: Baden-Württemberg: Künaburg); Aerts, 1955:62 (Germany: Rheinland); Teschner, 1955:57 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); van der Zanden, 1955:420 (Netherlands: Beekbergen and Nuth); Hertzog, 1956:182 (carrying prey dorsum up, keeping it with mandibles by mouthparts); Bajári, 1957a:117 (in key to Hungarian Sphecidae); Zirngiebl, 1957:182 (Germany: Rheinland-Pfalz: Birkenheide, Landau); Benno, 1958b:10 (in review of Dutch Sphecidae); Olberg, 1959:391 (photographs of specimens licking up honeydew on leaves of *Prunus cerasus*); Wolf, 1959b:29 (Germany: Nassau); Noskiewicz and Puławski, 1960:106 (in key to Polish Sphecidae); Hoop, 1961:65 (Germany: Schleswig-Holstein); Valkeila, 1962b:67 (southwestern Finland); Wengris, 1962:205 (Lithuania: Vilnius area); Hoop, 1963a:73 (Germany: Schleswig-Holstein: Reher Kratt); Babiý, 1964:116 (Austria: Land Salzburg, as *sabulosa*); de Beaumont, 1964c:65 (in Sphecid Fauna of Switzerland); Hüsing and Jäger, 1964:192 (Germany: Sachsen-Anhalt: Nietleben near Halle), (list of fly prey from Friese, 1926); Plavil'shchikov, 1964:122 (Russia: Mordovian State Nature Reserve); Tsuneki, 1965b:35 (China: Heilongjiang: Harbin; as *sablosus*), 1965c:26 (in key to Nyssoninae of Japan and Korea); Benno, 1967:33 (in checklist of Sphecidae of Netherlands); Gauss, 1967:553 (Germany: Baden-Württemberg); J. Heinrich, 1967:74 (Germany: Niederfranken); Niedl and Deneš, 1967:84 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:49 (Romania); Tsuneki, 1967e:2 (China: Manchuria); Leclercq, 1968:map 1167 (Belgium: distribution); Parré, 1968:123 (Germany: Sachsen-Anhalt: Staßfurt); Lefeber, 1969a:78 (Netherlands: between Baarlo and Zwolle); Hoop, 1970:60 (Germany: Schleswig-Holstein: Heiligenhafen); Oehlke, 1970:707 (Democratic Germany); Tumšs, 1970:81 (Latvia); Schmidt, 1971c:74 (Germany: Schleswig-Holstein); Tsuneki, 1971k:216 (Mongolia; as *sabrosus*), 1971m:12 (China: Inner Mongolia: Apaka); Balthasar, 1972:386 (in Sphecid Fauna of Czechoslovakia); Haeseler, 1972:155 (Germany: Schleswig-Holstein; anthropogenic habitats); Kazenas, 1972b:154 (Kazakhstan); Kofler, 1972:107 (Austria: Tirol); Haeseler, 1973:53 (Germany: Schleswig-Holstein: Hauke-Haien-Koog 27 km northwest of Husum, Rodenbeck 9 km southwest of Kiel, Schleswig); Kofler, 1974:320 (Austria: Kärnten); Eck, 1976:90 (Democratic Germany); Haeseler, 1976b:72 (Germany: Friesian Islands: Amrum Island); Kolesnikov, 1977:318 (Russia: Bryansk Oblast'); Kazenas, 1978b:95 (in key to Sphecidae of Kazakhstan and Central Asia); Richards, 1979:401 (British Channel Islands); Casolari and Casolari Moreno, 1980:122 (specimens in M. Spinola collection); Donath, 1982:213 (Germany: Cottbus Bezirk); Piek and Spanjer, 1986:185 (in list of Sphecidae with known prey); Steiner, 1986:108p (references to publications on nesting habits); Kowalczyk, 1988a:45 (Poland: Rogów); Archer, 1989a:131 (Great Britain: York: found before coniferization, as *sabulosa*); Pádr, 1990:73 (Czech Republic: Praha area); Archer, 1996b:37 (Great Britain: Nottinghamshire: Sherwood Forest, as *sabulosa*); J.-K. Kim, 2014:451 (recorded from Korea but not occurring there); Pagliano, 2014:98 (specimens in Spinola collection, Torino, are *Mellinus crabroneus*).

*Sphex crabroneus* Thunberg, 1791:126 (as *crabronea*, incorrect original termination). Substitute name for *Sphex sabulosus* (Fabricius, 1787) Gmelin, 1789:2723, junior secondary homonym of *Sphex sabulosus* Linnaeus, 1758, now in *Ammophila* (Article 59.3: a junior secondary homonym replaced before 1961 is permanently invalid). – **As *Mellinus crabroneus***: Siri and R. Bohart, 1974:170 (new combination, in key to world *Mellinus*), 174 (in review of world *Mellinus*, as *crabronea*); R. Bohart and Menke, 1976:449 (in checklist of world Sphecidae); Lomholdt, 1976:227 (in Sphecid Fauna of Fennoscandia and Denmark); Schmidt, 1977:96 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald; as *crabronea*); Leclercq, 1978b:map 1167 (distribution in Belgium); Petit, 1978:85 (Belgium: Sampont, not collected in Netherlands since 1945); Pulawski, 1978:214 (in key to Sphecidae of European part of former USSR); Schwammberger, 1978:417 (Germany: Württemberg; as *crabronea*); Lefebvre, 1979:11 (in checklist of Sphecidae of Netherlands), 61 (Netherlands: distribution map); Schmidt, 1979b:307 (Germany: Baden-Württemberg); Kazenas, 1980e:84 (Russia: Far East); Mityaev, Matesova, Kulenova, Kazenas, and Zhdanko, 1980:119 (Russia: Siberia: Altayskiy Kray: basin of Aley River); Richards, 1980:77, 78 (in key to Sphecidae of British Isles); Haeseler, 1981:51 (Germany: Friesian Island: Amrum Island); Skibińska, 1982:123 (Poland: Warszawa area); Tsuneki, 1982b:18 (known from Korea); Dollfuss, 1983b:20 (in catalog of Sphecidae of Austria); Haack, Lefebvre, 1983a:85 (Netherlands: Waddendistrict: Terschelling Island); Tschardtke, and Vidal, 1984:129 (Germany: Hamburg area; as *crabronea*); Riemann, 1983:84 (Germany: Bremen-Daverden area); Haeseler, 1985c:571 (Germany: Friesian Islands); Lefebvre, 1985:87 (Netherlands: southern Limburg); Paik, 1985:203 (in list of Sphecidae of Korea); Nemkov, 1986:106 (Russia: Siberia: Irkutsk Oblast'); Skibińska, 1986b:150 (Poland: suburbs of Warszawa), 157 (rural and suburban parks); Vikberg, 1986:78 (Finland); Haeseler, 1988:211 (Germany: Friesian Islands); Kowalczyk, 1988b:65 (Poland: environs of Łódź); Wolf, 1988b:141 (Germany: Rheinland-Westfalen); Jacobs, 1989:24 (Germany: Mecklenburg-Vorpommern); Pádr in Šedivý, 1989a:167 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:95 (Belarus: Berezinskiy Nature Reserve); Skibińska, 1989a:204 (Poland: Warszawa area); Jacobs and Oehlke, 1990:203 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:20 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Schwammberger and Priesner, 1990:550 (Austria: Kärnten); Day, 1991:xvi (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:180 (in key to Sphecidae of North and Central Europe); Kowalczyk, 1991a:90, 99, 101 (Poland: Łódź), 1991b:120 (Poland: Augustów Forest); Kuhlmann et al., 1991:90 (Germany: Senne Region); Budrys, 1992:27 (in list of Sphecidae of Lithuania); Nemkov, 1992b:249 (Russia: Far East: 40 km northnorthwest of Svobodnyi near Khingan Nature Reserve); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Kuhlmann, 1993:75 (Germany: known from Westfalen); Schuberth and Schönitzer, 1993:264 (facial fovea not found); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Pádr and Lukáš, 1994:894 (Slovakia: High Tatra Mountains); Theunert, 1994c:42 (Germany: summary of records from Niedersachsen and Bremen); Kowalczyk and Krzeptowski, 1995:189 (Poland: Tatry Mountains); Nemkov in Nemkov, Kazenas, Budrys, et Antropov, 1995:455 (in key to Sphecidae of Russian Far East); Scharrer, 1995:29 (Hessen: Gersfeld); Schmid-Egger, Risch, and Niehuis, 1995:194 (summary of records from Germany: Rheinland-Pfalz Province); Yeo and Corbet, 1995:41 (in field guide to British solitary wasps); Jakubzik, 1996:253 (Germany: Nordrhein-Westfalen: Köln); Schmid-Egger, Schmidt, and Doczkal, 1996:377 (Germany: Baden-Württemberg: probably endangered); Shlyakhtenok, 1996:304 (Belarus: Berezinsky Nature Reserve); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Woydak, 1996:88 (Germany: Westfalen: summary of distribution and nesting habits); Wu and Zhou, 1996a:128 (in revision in Economic Insect Fauna of China); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:112 (in Sphecid Fauna of Western Europe); Celary, 1997:60 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:18 (in checklist of German Sphecidae); Stoyanov and Ljubomirov, 1997:27 (Bulgaria: Rila Mountains); Celary, 1998b:212 (Poland: Babia Góra National Park); Dollfuss, Gusenleitner, and Bregant, 1998:524 (Austria: summary of collecting records from Burgenland); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km southwest of Hamburg); Haeseler and Ritzau, 1998:51 (Germany: Bremen: Harriersand Island in Weser River); van der

Smitsen, 1998:61 (Germany: Schleswig-Holstein); K. Weber, 1998:142 (Germany: Bayern: Bamberg area); Herrmann, 1999:7 (Germany: Niedersachsen: Oldenburg area; habitats size); Kuhlmann, Wolf, and Woydak, 1999:569 (Germany: threatened with extinction in Nordrhein-Westfalen); Mandery, 1999:105 (Germany: Bayern: Coburg area); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); M. Schwarz, 1999:88 (Austria: Oberösterreich: city of Linz area); Skibińska, 1999:96 (Poland: not recorded from Białowieża Primeval Forest since Bischoff, 1925); Blösch, 2000:358 (in Sphecidae Fauna of Germany); Esenbekova and Kazenas, 2000:56 (southeast Kazakhstan: no specific locality); Jacobs, 2000:8, 17 (Germany: Land Mecklenburg-Vorpommern: rare); Mauss, Schröder, and Botta, 2000:76 (Germany: Bayern: Arber area in Bavarian Forest); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve); Kazenas, 2001b:43 (in checklist of Sphecidae of Kazakhstan and Central Asia), 215 (review of known biology); Ohl et al., 2001:140 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); van der Smitsen, 2001:61 (Germany: Schleswig-Holstein); Zettel, Gross, and Mazzucco, 2001:79 (Austria: Wien); Archer, 2002b:127 (Great Britain: Watsonian Yorkshire: distribution map); Kazenas, 2002a:112 (geographic distribution, collecting localities in Kazakhstan); Shlyakhtenok and Skibinska, 2002:34 (Belarus': no specific locality); Drewes, 2003:139 (Germany: Schleswig-Holstein: Birk); Haeseler, 2003:340 (Germany: Niedersachsen: Harriersand Island near Bremen); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:67 (Germany: in catalog of wasps and bees of Bayern); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:196 (Germany: Bayern: strongly endangered); Dorow, 2004a:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Shkuratov, 2004a:76 (Russia: Rostov Oblast'), 2004b:166 (Russia: Rostov Oblast': Gosudarstvennyi Muзей-Zapovednik M.A. Sholokhova); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:356 (in catalog of Polish Crabronidae); Stolle et al., 2004:372 (Germany: Sachsen-Anhalt: last collected in 1952); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:50 and 62 (in checklist of Polish Sphecidae); Burger, 2005:33 (Germany: Thüringen); Haeseler, 2005:629 (Germany: Niedersachsen: Steller Heide near Bremen); Kofler, 2005:182 (Austria: Tirol: Lienz District: city of Lienz, Heckenfluren in Virgen Common); Mokrousov and Selivanova, 2005:754 (Russia: Voronezh Oblast'); Riemann and Hohmann, 2005:560 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:38 (Great Britain: Cumbria County); Saure, 2005:16 (Germany: Berlin); Schmalz, 2005:57 (references to XIX<sup>th</sup> century authors), 59 (Germany: Hessen: Fulda: Eichenzell); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Artmann-Graf, 2006:5 (Switzerland: Luzern Canton: Tällebach in Escholzmatt commune); Dathe, 2006:38 (*Mellinus ruficornis*, recorded from Plauenscher Grund near Dresden, Germany, by von Block, 1799, is now *Mellinus crabroneus*); Hua, 2006:281 (in list of Chinese insects, geographic distribution); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Shlyakhtenok, 2006:113 (Belarus': Polesye Radiological Nature Reserve); Archer, 2007e:79 (Great Britain: extinct or vagrant); Dorow, 2007:264 (Germany: Hessen: Niddahänge Forest Reserve); Herrmann, 2007a:52 (Germany: Niedersachsen: Ostfriesland); Jacobs, 2007:158 (in key to Crabronidae of Germany); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg.); Shlyakhtenok, 2007a:299 (Belarus': Berezinsky Nature Reserve); Vago, 2007:174 (France: départements du Nord and Pas-de-Calais); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:207 (in catalog of Sphecidae of Czech Republic and Slovakia); Winkler, 2007:30 (Germany: Niedersachsen: eastern Friesland); Haeseler, 2008:308 (Germany: Friesian Islands); Kazenas, 2008a:104 (Southeastern Kazakhstan: locality Kurtogay in Charyn River valley); Ljubomirov and Yildirim, 2008:188 (in catalog of Crabronidae of Turkey); Nemkov, 2008a:20 (in key to *Mellinus* of Russia), 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:47 (Germany: map of distribution in Niedersachsen and Bremen); U. Frommer, 2009a:28 (Germany: in checklist of Sphecidae of Hessen), 36 (known locality records); Hessling, 2009:104 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Kowalczyk, Kurzac, and Nadolski,

- 2009:63 (Poland: between Warta and Widawka rivers); Nemkov, 2009b:126 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ruchin, Antropov, and Shibayev, 2009:170 (Russia: Republic of Mordovia); Bitsch, 2010:107 (in supplement to vol. II of Faune de France, 1997: recent record from Switzerland reported); Esser, Fuhrmann, and Venne, 2010:37 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Mokrousov, 2010a:62 (Russia: Kirov, Kostroma, Nizhniy Novgorod, and Yaroslavl' Oblast's: no specific localities); Rudoiskatel', 2010:152 (Russia: central and southern Ural Mountains); Sakenin, Samin, and Bagriacik, 2010:16 (Iran: Golestan: Maraveh-Tappeh); Schmid-Egger, 2010a:16 (in red list of Aculeata of Germany: rare); Schmidt, 2010:136 (Germany: Bayern: collected along Main-Donau canal); van der Smissen, 2010a:343 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); Baghirov, 2011b:150 (Russia: Altayskiy Kray: Savvushka); Józán, 2011:183 (in checklist of Sphecidae s.l. of Hungary); Mokrousov, Berezin, and Egorov, 2011:78 (Russia: Chuvash Republic); Theunert, 2011a:20 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:60 (Germany: Hessen: strongly endangered); Boillat, 2012:227 (Switzerland: in checklist of insects of Canton de Genève); Nemkov, 2012c:445 (in catalog of Crabronidae of Russian Far East); Prismaniy, 2012:50 (Russia: Belgorod Oblast'); Shibayev and Polumordvinov, 2012:278 (Russia: Penza Oblast'); Shlyakhtenok, 2012a:171 (Belarus': collected in private plots), 2012b:92 (Belarus': Beresina National Reserve: overgrowing dry meadow); Kazenas, 2013b:497 (southeast Kazakhstan: Kurtogay on Sharyn River); Shlyakhtenok, 2013:220 (in annotated catalog of aculeate wasps of Belarus'); Hellqvist, Abenius, and Norén, 2014:93 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); J.-K. Kim, 2014:440 (in catalog of Sphecidae s.l. of Korean Peninsula); Mokrousov and Vafin, 2014:58 (Russia: Republic of Tatarstan); Koçak and Kemal, 2015:146 (in checklist of Hymenoptera of Turkey); Reder, Staudt, and N. Schneider, 2016:264 (Germany: Saarland); Stolle and Saure, 2016:923 (Germany: in list of Sphecidae s.l. of Sachsen-Anhalt); Yıldırım, Ljubomirov, and Lelej, 2014:10 (distribution in Turkey by biogeographic provinces); Else, Bolton, and Broad, 2016:34 (in checklist of Aculeata of Great Britain and Ireland: England, Wales); Jahantigh, Rakhshani. Mokhtari, and Ramroodi, 2017:71 (Iran: known from Golestan Province), Nemkov, 2017b:246 (in catalog of Mellininae of Russia).
- Sphex ruficornis* Villers, 1789:245. Substitute name for *Sphex sabulosus* (Fabricius, 1787) de Villers, 1789:245 (originally described in *Crabro*), junior secondary homonym of *Sphex sabulosus* Linnaeus, 1758, now in *Ammophila* (Article 59.3). Junior primary homonym of *Sphex ruficornis* Fabricius, 1775 (now in Pompilidae).
- Crabro sabulosus* Olivier, 1792:.. , junior primary homonym of *Crabro sabulosus* Fabricius, 1787. Synonymized with ...
- Mellinus ruficornis* Fabricius, 1793:286, sex not indicated, junior secondary homonym of *Mellinus ruficornis* (Villers, 1789). Lectotype: ♀, Germany: no specific locality (ZMK), designated by van der Vecht, 1961a:45. Synonymized with *Mellinus sabulosus* by Dahlbom, 1845:XXIII. – Fabricius, 1796:98 (in Index to his Entomologia Systematica, 1793); Panzer, 1800, Heft 77:17 (in revision of German insects, illustration of habitus); Fabricius, 1804:298 (redescription); Latreille, [1805]:319 (redescription); Jurine, 1807:191 (in list or European *Mellinus*); Latreille, 1825:49 (in review of *Mellinus*); Stephens, 1829a:367 (in catalog of British insects), 1829b:34 (in checklist of British insects); Dahlbom, 1845:XXIII (study of specimens in collection Fabricius).
- Crabro frontalis* Panzer, 1797, Heft 46:11 [♂]. Holotype or syntypes: ♂, Germany: no specific locality (depository?). Synonymized with *Mellinus sabulosus* by Panzer, 1806:168. – Jurine, 1807:191 (new combination, in list or European *Mellinus*). – Stephens, 1829a:367 (in catalog of British insects), 1829b:34 (in checklist of British insects).
- Crabro petiolatus* Panzer, 1797, Heft 46:12, [♀]. Holotype or syntypes: ♀, Germany: no specific locality (depository?). Synonymized with *Mellinus sabulosus* by Panzer, 1806:168. – Jurine, 1807:191 (new combination, in list or European *Mellinus*); Latreille, 1825:49 (in review of *Mellinus*); Stephens, 1829a:367 (in catalog of British insects), 1829b:34 (in checklist of British insects).
- Mellinus fulvicornis* Fabricius, 1804:300, sex not indicated. Lectotype: ♂, Germany: no specific locality (ZMK), designated by van der Vecht, 1961a:46. Synonymized with *Mellinus sabulosus* by Dahlbom, 1845:XXIII. – Panzer,

1805, Heft 98:28 (in revision of German insects), 1806:163 (in critical review of his earlier work); Jurine, 1807:191 (in list of European *Mellinus*); Vander Linden, 1829:88 (bibliographic references, redescription, Germany, Latvia: Riga); Dahlbom, 1845:XXIII (type material examined); Casolari and Casolari Moreno, 1980:122 (specimen in M. Spinola collection); Pagliano, 2014:98 (specimen in Spinola collection, Torino, is *Mellinus crabroneus*).

As *Anthophilus hellmanni* (♀ only): Radoszkowski, 1888:326, corrected to *Mellinus sabulosus* by Handlirsch, 1895:846.

### 8. ? *globulosus* Fourcroy

*Vespa globulosa* Fourcroy, 1785:.. Synonymized with .. – R. Bohart and Menke, 1976:449 (in checklist of world Sphecidae).

### 9. *hansoni* Menke

*Mellinus hansoni* Menke, 1996a:139, ♀. Holotype: ♀, Costa Rica: San José: Cerro de la Muerte 19 km south of and 3 km west of Empalme (USNM). – Menke, 1996a:140 (in key to Neotropical *Mellinus*); Amarante, 2002:20 (in catalog of Neotropical Crabronidae).

### 10. *iani* Menke

*Mellinus iani* Menke, 1996a:135, ♀. Holotype: ♀, Costa Rica: Guanacaste: Sotobosque on western side of Volcán Cacao (USNM). – Menke, 1996a:140 (in key to Neotropical *Mellinus*); Amarante, 2002:20 (in catalog of Neotropical Crabronidae).

### 11. *imperialis* R. Bohart

*Mellinus imperialis* R. Bohart, 1968c:235, ♀, ♂. Holotype: ♂, USA: California: Imperial County: Bard (UCD). – Siri and R. Bohart, 1974:170 (in key to world *Mellinus*), 174 (in review of world *Mellinus*, as *imperialis*); R. Bohart and Menke, 1976:449 (in checklist of world Sphecidae); Krombein, 1979b:1684 (in catalog of North American Hymenoptera); Menke, 1996a:140 (in key to Neotropical *Mellinus*); Amarante, 2002:20 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:665 (in checklist of Mexican Sphecidae).

### 12. *obscurus* Handlirsch

*Mellinus obscurus* Handlirsch, 1888a:289, ♀. Holotype: ♀, Korea: no specific locality (Kraków). – Dalla Torre, 1897:561 (in catalog of world Sphecidae); Ashmead, 1899d:300 (in checklist of North American Crabronidae) [sic]; Maidl and Klima, 1939:39 and 43 (in catalog of world Astatinae and Bembicinae); Yasumatsu, 1943:2 (China: Hebei Province and Inner Mongolia, description of ♂); Tsuneki, 1965c:26 (in key to Bembicinae of Japan and Korea), 1969d:18 (nesting habits), 1969e:26 (Japan: specimens in Osaka Museum of Natural History); Haneda, 1968a:46 (Japan); Tano, 1968:33 (Japan); Itami, 1969:46 (Japan: Niigata Prefecture); Tsuneki, 1969k:64 (Japan: Mount Hyonosen); Nambu, 1973a:152 (Japan: Saitama Prefecture); Suda, 1973:123 (Japan: Yamanashi Prefecture); Siri and R. Bohart, 1974:170 (in key to world *Mellinus*), 174 (in review of world *Mellinus*); Nambu, 1975b:72 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:449 (in checklist of world Sphecidae); Kazenas, 1980e:84 (Russia: Far East); Tsuneki, 1982b:18 (known from Korea; as *obscurus*), 1982e:36 (Taiwan); Paik, 1985:202 (in list of Sphecidae of Korea); Miyatake, 1996:103 (specimens in Hiroshi Aoki collection); S. Gupta, Gayubo, and Pulawski, 2008:210 (full species status restored, diagnostic characters); Nemkov, 2009b:126 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:237 (Russia: Primorskiy Krai: Lazovsky Nature Reserve); Tano, 2010c:46 (full species status recorded); Nemkov, 2012c:445 (in catalog of Crabronidae of Russian Far East), 2017b:246 (in catalog of Mellininae of Russia), 2017b:246 (in catalog of Mellininae of Russia). – As *Mellinus arvensis obscurus*: Nemkov in Nemkov, Kazenas, Budryś, et Antropov, 1995:455 (new status, in key to Sphecidae of Russian Far East); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:37 (Japan: Gifu Prefecture); Suda, 2004:47 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:53 (Japan: Gifu Prefecture); Kinota, Haneda, and Tano, 2005:31 (Japan: Hokkaido); Negoro, Haneda, and Tano, 2005:49 (Japan: To-

yama Prefecture); Nemkov, 2005a:157 (Russia: Island of Sakhalin); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:29 (Japan: Toyama Prefecture); Nagase, 2006a:55 (Japan: Kanagawa Prefecture: Mount Komagatake near Hakone); Nemkov, 2006b:169 (Russia: Primorskiy Kray: Kedrovaya Pad' Nature Reserve); nec Boesi, Polidori, Gayubo, Tormos, Asís, and Andrietti, 2007:184 (= *Mellinus orientalis*); Nemkov, 2007b:74 (Russia: Kuril Islands: Iturup and Kunashir Islands), 2008a:20 (in key to *Mellinus* of Russia); N. Yamamoto, 2011:13 (Japan: Kyūshū: mainland Nagasaki Prefecture); J.-K. Kim, 2014:440 (in catalog of Sphecidae s.l. of Korean Peninsula, as *obscurus*).

*Mellinus tristis* Pérez, 1905a:156, ♀. Holotype or syntypes: ♀, Japan: no specific locality but presumably Tokyo area (MNHN). Synonymized with *Mellinus obscurus* by Tsuneki, 1965c:26. – Pérez, 1905a:26 (in list of new Sphecidae collected in Japan by M. Harmand); Maidl and Klima, 1939:42 (in catalog of world Astatinae and Bembicinae); Tsuneki, 1946c:85 (prey record). – **As *Mellinus obscurus tristis***: Yasumatsu, 1943:3 (new status, comparison with *Mellinus obscurus*); Maruyama, 1948:7 (nesting habits); Tsuneki and Shimoyama, 1963:48 (Japan: Towada Prefecture); Steiner, 1986:108 (references to publications on nesting habits).

### 13. *orientalis* S. Gupta, Gayubo, and Pulawski

As *Mellinus* sp.: S. Gupta, 1997:102 (first record of *Mellinus* from Oriental Region: India: Uttar Pradesh: Dwali in Almora District), corrected to *Mellinus orientalis* by S. Gupta, Gayubo and Pulawski, 2008:211.

As *Mellinus arvensis obscurus*: Boesi, Polidori, Gayubo, Tormos, Asís, and Andrietti, 2007:184 (Nepal, nesting habits, adult morphology, description of larva), corrected to *Mellinus orientalis* by S. Gupta, Gayubo, and Pulawski, 2008:211.

*Mellinus orientalis* S. Gupta, Gayubo, and Pulawski, 2008:211, ♀, ♂. Holotype: ♀, India: Uttarakhand: Dwali in Almora District (Northern Regional Station, Zoological Survey of India, Dehradun, India)

### 14. *pygmaeus* Handlirsch

*Mellinus pygmaeus* Handlirsch, 1888a:289, ♀, ♂. Lectotype: ♂, Mexico: Veracruz: Orizaba (NHMW), designated by Menke, 1996a:137. – Cameron, 1890a:85 (Mexico: Orizaba; Brazil); W. Fox, 1894e:203 (in revision of North American *Mellinus*); Handlirsch, 1895:847 (additional bibliography); Dalla Torre, 1897:561 (in catalog of world Sphecidae); Ashmead, 1899d:300 (in checklist of North American Crabronidae); Maidl and Klima, 1939:43 (in catalog of world Astatinae and Bembicinae); Siri and R. Bohart, 1974:170 (in key to world *Mellinus*), 175 (in review of world *Mellinus*, ♂ = *Mellinus alpestris*); R. Bohart and Menke, 1976:449 (in checklist of world Sphecidae); Dollfuss, 1989:10 (holotype in NHMW); Menke, 1996a:135 (in revision of Neotropical *Mellinus*), 140 (in key to Neotropical *Mellinus*); Amarante, 2002:20 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:665 (in checklist of Mexican Sphecidae).

### 15. *rufinodus* Cresson

*Mellinus rufinodus* Cresson, 1865b:475, ♀, ♂. Lectotype: ♀, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:102. – Packard, 1867:420 (listed); Cresson, 1887:283 (in catalog of North American Hymenoptera); Handlirsch, 1888a:292 (original description translated into German); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado); W. Fox, 1894e:202 (in revision of North American *Mellinus*); Handlirsch, 1895:847 (as *rufinodis*, reference to W. Fox, 1894; original description translated into German); Dalla Torre, 1897:561 (in catalog of world Sphecidae, as *rufinodis*); Ashmead, 1899d:300 (in checklist of North American Crabronidae); H. Smith, 1908b:351 (in revision of Nebraskan Sphecidae); Mickel, 1918b:396 (in catalog of Nebraskan Sphecidae); Maidl and Klima, 1939:43 (in catalog of world Astatinae and Bembicinae); Krombein in Muesebeck et al., 1951:980 (in catalog of North American Hymenoptera); Siri and R. Bohart, 1974:170 (in key to world *Mellinus*), 175 (in review of world *Mellinus*); R. Bohart and Menke, 1976:449 (in checklist of world Sphecidae); Krombein, 1979b:1684 (in catalog of North American Hymenoptera); Evans, 1989:414 (mating and predatory behavior); Menke, 1996a:140 (in key to Neotropical *Mellinus*); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:665 (in checklist of Mexican Sphecidae).

**16. *satanicus* Siri and R. Bohart**

*Mellinus satanicus* Siri and R. Bohart, 1974:176, ♀. Holotype: ♀, Mexico: Chiapas: Zontehuitz near San Cristóbal (CNC). – Siri and R. Bohart, 1974:170 (in key to world *Mellinus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); Sarazin, 1986:307 (holotype in CNC); Menke, 1996a:139 (in revision of Neotropical *Mellinus*), 140 (in key to Neotropical *Mellinus*); Amarante, 2002:20 (in catalog of Neotropical Crabronidae).

**FOSSIL MELLINUS*****handlirschi* Rohwer**

*Mellinus handlirschi* Rohwer, 1908d:597, sex unknown. Holotype: USA: Colorado: Teller County: Florissant (Univ. Colorado). – Maidl and Klima, 1939:43 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:449 (in checklist of world Sphecidae).

**NOMINA NUDA IN MELLINUS**

*bifasciatus* Stephens, 1829a:367 (in catalog of British insects) = *Mellinus arvensis* (Linnaeus, 1758). – Stephens, 1829b:34 (in checklist of British insects).

*interruptus* Stephens, 1829a:367 (in catalog of British insects) = *Mellinus arvensis* (Linnaeus, 1758). – Stephens, 1829b:34 (in checklist of British insects).

**SPECIES DESCRIBED IN MELLINUS AND TRANSFERRED TO OTHER GENERA**

*arenarius* Panzer, 1798 = *Gorytes* ? *quinquecinctus* (Fabricius, 1793)

*arpactus* Fabricius, 1804 = *Argogorytes mystaceus* (Linnaeus, 1761)

*crabroniformis* F. Smith, 1857 = *Psenulus*

*dissectus* Panzer, 1800 = *Nysson maculosus* (Gmelin, 1790)

*dissectus* Panzer, 1801 (junior primary homonym of *Mellinus dissectus* Panzer, 1800) = *Gorytes albidulus* (Lepeletier, 1832)

*interruptus* Fabricius, 1798:46 = *Nysson*

*labiatus* Fabricius, 1798 = *Hylaeus variegatus* (Fabricius, 1798), a bee.

*nigritus* Fabricius, 1798 = *Hylaeus nigritus* (Fabricius, 1798), a bee.

*nigrolineatus* Cameron, 1907 = *Psenulus*

*nigromaculatus* Cameron, 1907 = *Psenulus nigrolineatus* (Cameron, 1907)

*quadriceinctus* Fabricius, 1804 (junior primary homonym of *Mellinus quadriceinctus* Panzer, 1799) = *Cerceris ruficornis* (Fabricius, 1793)

*quadrifasciatus* Fabricius, 1804 = *Gorytes*

*quinquecinctus* Fabricius, 1793 = *Gorytes*

*quinquefasciatus* Panzer, 1798 = *Gorytes*

*repandus* Panzer, 1801 = *Bembecinus tridens* (Fabricius, 1781)

*scaber* Fabricius, 1798 = *Cerceris fimbriata* (Rossi, 1790)

*tricinctus* Fabricius, 1793 = *Nysson spinosus* (J. Forster, 1771).

*tristrigatus* Fabricius, 1798 = *Hoplisoides ater* (Gmelin, 1790)

*variegatus* Fabricius, 1798 = *Hylaeus variegatus* (Fabricius, 1798), a bee.

**UNRECOGNIZABLE NAMES IN MELLINUS**

*Mellinus ruficornis* Gistel, 1848:142 (northern and southern Europe).

*Mellinus spinosus* Panzer: Latreille, [1805]:319 (new combination, redescription).